



DIGITALISATION WORLD

Modern enterprise IT - from the edge to the core to the cloud

JULY 2020

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The background of the advertisement is a composite image. The top half shows a city street at night with blurred light trails from cars and buildings in the background. The bottom half shows a close-up of a tram track with a diamond-plate metal grate in the foreground, receding into the distance. The overall color palette is dominated by deep purples, blues, and reds from the light trails.

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Editor's View

By Phil Alsop



DCM: What does the future hold?

WELCOME to the July issue of Digitalisation World. Below, I've written a few observations about the state of security but, before you get to that part, I'd like to highlight the comprehensive new, or next, normal content that has been assembled for you in this issue. Recent issues of DW have covered much of the amazing work that has been done in terms of IT helping organisations cope with the world of lockdown (working from home, embracing and accelerating digital solutions and the like), and, in many cases, helped those who are actually battling COVID-19 itself, whether that be the medical practitioners who have done so much in hospitals and care homes, or those looking for a vaccine.

This issue of DW focuses on the 'what next?' scenario. I guess the simple answer to that question is 'nobody knows', but the more practical answer is that businesses of all shapes and sizes are having to make significant adjustments to the way that they interact with both their employees and customers, often with some very positive results.

Indeed, a recent press release from IT giant, Fujitsu, detailing how the company is making a massive, and seemingly permanent, change to its working practices in Japan, could well be a sign of things to come. Clearly, no two businesses are exactly the same, so there are different approaches required. I hope that the articles in this issue give you plenty of food for thought and, hopefully, some ideas as to how to move forward. On a related note, I'm delighted to say that we're organising a one-day virtual event on Digital Change Management, in late September. The idea being that SMEs in particular need help and guidance as to the way forward, both in terms of the technology solutions which they embrace but also, and crucially, the way in which they manage their employee and customer expectations along the way. I guess 'people, processes, products' is a reasonable summary of the mindset required. More details of this event can be found at: <https://dcmsummit.com/>

And now for the security bit!

Security – the mixed message

At work, at home, on the move, we're constantly bombarded with messages reminding us that, when it comes to using IT and communications devices, security is paramount. So important is it, that we should have separate passwords for each application and device we need to access. Never mind that we might end up with 20 or 30 password, all of which we must commit to memory because, of course, if we write them down somewhere, then someone might be able to steal them and then have access to our whole lives.



Ok, so the reality is that we may well use the same password in multiple scenarios and we probably will write down passwords somewhere, as a reminder, but disguising them so that they cannot immediately be 'hacked' if discovered. But we are told not to do this, and if any breach does occur, and it turns out we didn't obey the 'rules', there are likely to be consequences. A reprimand or worse at work; financial loss at home – and maybe the bank isn't that keen to pay any compensation. And yet, despite this 'draconian' security imperative, what happens during the sign in process to almost any application you care to mention? You input your password and you are asked 'Save/remember password?' Furthermore, in the updated version of an online application I'm now using, it also asks me: 'Stay signed in?' So, on the one hand, we are told that, on no account whatsoever must we share, write down or duplicate user names and passwords; and on the other, almost all applications encourage us to go for the easy option and have the application remember a password, or to keep us signed in. Confused?

Biometrics and/or multi-factor authentication have to make the most sense when it comes to security into the future – and let's hope that future arrives soon. But, for the time being, it seems we are stuck in a contradictory world, where security is critical, but, because it's a bit difficult to manage, the easy option is offered freely and, I suspect, accepted eagerly by many of us who just cannot deal with the logistics of managing multiple user names and passwords.

So, security industry, and the IT industry more generally, please do tell us, if security really does matter that much, why are lazy, insecure short cuts routinely offered when it comes to accessing many applications and devices?!

10 COVER STORY

Optimising the digital employee experience

As the home becomes the new office, there has never been such a heavy reliance on technology to keep the notion of the 'workplace', and its culture, alive



3 EDITOR'S COMMENT

Digital Change Management – what does the future hold?

6 WORLD NEWS

Fujitsu formulates flexible plan in Japan

Damaging customer trust

People need to be at the centre of IT decisions

Organisations need to move faster on the road to digitalisation

VIEW FROM THE ANALYST

14 Survey shows the high cost of missed risks

18 Slight rebound in European ICT spending

Q and A

24 Ensuring data quality and performance

AIOPS

28 When there are too many tools in the infrastructure toolbox

THE NEXT NORMAL

30 Simple steps your IT can take to improve operations in a world of change

32 How COVID-19 has accelerated the move from a 'cloud first' to a 'cloud now' approach

34 When myopic vision can blindside a business

36 Working from home is here to stay: Key next steps for IT departments

38 The communication conundrum: staying connected during Covid-19

40 Just about managing: How will your workspace be different after COVID-19?

44 How will your workspace be different after COVID-19?

46 Building your COVID-19 exit strategy: five emerging digital business trends to consider

- 48** The impact of coronavirus on enterprise adoption of 5G and edge computing
- 50** The Art of Self Defence: Why it's time to practice cyber distancing
- 52** Cloud DAM - powering brand content challenges into the new normal
- 54** The collaboration tools for working from home successfully
- 56** Harnessing COVID's legacy
- 58** The great work from home test: what will it mean for the future of work?
- 60** How IT support has stepped up in our changed world
- 64** Being prepared - make remote working work harder



46

EDGE COMPUTING

66 From the core to the edge: Avoiding the pitfalls of edge computing

70 The rollout of 5G will dawn a new era for edge data centres – but there's work to do yet

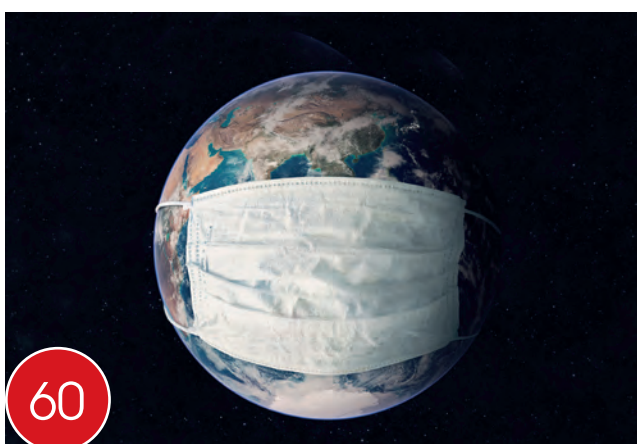
COLOCATION

72 The energy efficiency and disaster recovery colocation ecosystem

SOFTWARE-AS-A-SERVICE

74 The rise of SaaS in a post-pandemic world

76 Securing SaaS survival in uncertain times



60



70

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Fujitsu formulates flexible plan in Japan

FUJITSU will further accelerate its shift to becoming a Digital Transformation (DX) company with an ambitious campaign to redefine working styles for its employees in Japan in the wake of the COVID-19 pandemic. As part of this “Work Life Shift” campaign, Fujitsu will introduce a new way of working that promises a more empowering, productive, and creative experience for employees that will boost innovation and deliver new value to its customers and society through the power of DX.

“Work Life Shift” is not only a concept of “work,” but represents a comprehensive initiative to realize employee well-being by shifting preexisting notions of “life” and “work” through digital innovation. This concept demonstrates Fujitsu’s leadership in driving the digital transformation of working culture and spaces in Japan, where many companies have yet to fully embrace the potential of digital technologies to maximize efficiency and creativity in the workplace. As a pioneer in workplace reform through DX, Fujitsu was one of the first large companies in Japan to actively promote remote working practices, which it introduced companywide in Japan in 2017. For employees in Japan, this latest initiative will mark the end of the conventional notion of commuting to and from fixed offices, while simultaneously granting them a higher degree of autonomy based on the principle of mutual trust.

This process will be achieved through the measures outlined below, which will address both changes to the personnel system as well as the office environment for workers in Japan in order to accelerate their transition to a new work style. Fujitsu will additionally streamline its use of office space in Japan to reduce its current footprint by 50% by the end of fiscal 2022, introducing a hot desk system where employees are not assigned to a fixed desk.

Fujitsu will continue to pursue optimal ways of working to achieve its recently announced corporate “Purpose,” making DX a reality for its customers by leveraging technology and know-how gained through internal experience as a point of departure.

Three core principles to delivering a new working paradigm

Fujitsu’s “Work Life Shift” initiative relies on three core principles to achieve this vision: “Smart Working,” “Borderless Office,” and “Culture Change”.

1. Smart Working: realizing optimal working styles

Approximately 80,000 Japan-based Fujitsu Group employees will begin to primarily work on a remote-basis to achieve a working style that allows them to flexibly use their time according to the contents of their work, business roles, and lifestyle. Fujitsu anticipates that this will not only improve productivity but also mark a fundamental shift away from the rigid, traditional concept of commuting leading to enhanced work-life balance.

Related Measures

- Expanding flexible working hours to all Japan-based Fujitsu Group employees. (Implemented JULY 2020)
- Changing support for commuting expenses, offering additional support for remote work environments. (From JULY 2020)
- Return of domestic transfer employees who are assigned to work away from home, enabling them to handle their work through telecommuting and business trips as needed. (From JULY 2020)
- Establishing a system to allow employees to work from locations far from Fujitsu offices (e.g., their hometown in the countryside) by taking advantage of remote working and business trips, supporting those who might move due to personal reasons such as family care or the transfer of a spouse. (Started during FY 2020)

2. Borderless Office: reassessment of the ideal office environment

Fujitsu will shift away from the conventional practice of working from a fixed office towards a seamless system that allows employees to freely choose the place they want to work, including from home, hub, or satellite offices, depending on the type of work they do.

Related Measures

- A hub office will be set up in different areas of the country with each office



having a defined main function, such as the demonstration of cutting-edge IT systems, showcases, or collaboration with customers. In parallel, Fujitsu will streamline its use of office space to reduce its footprint to about 50% of current levels, switching completely to a hot desk system, and thereby creating comfortable and creative office environment. (By end of FY 2022)

- Expansion of satellite office space and provision of infrastructure equivalent to that of a hub office, including multisite video conference systems. (By September 2021)
- Fujitsu is promoting a thorough review and digitalization of business processes that enable remote work while identifying tasks that require attendance at the office. (In progress since April 2020)
- Fujitsu is continuously updating its security policies and building a secure global network infrastructure that enables direct access from anywhere to information (Gradual introduction from January FY 2021)
- Introduction of tools to deliver real-time visualization of office usage and further improvement of convenience through analyzing data. (Gradual introduction from end of FY 2020)

3. Culture Change: transforming corporate culture

Fujitsu will work to realize a new style of management based on employee autonomy and trust to maximize team performance and improve productivity. In addition, Fujitsu will continue to seek ways to optimize working styles by continuously listening to the voices of its employees regarding the dramatic shift toward physically separated working spaces, and by leveraging a digital platform that visualizes and analyzes working conditions.

Damaging customer trust

PANDEMIC exposes gaps in existing systems and increases urgency for digital transformation.

More than one in three business decision makers have admitted to damaging customer trust and negatively impacting their own brand during the COVID-19 crisis, as a result of communication failures, according to research from Pegasystems. The global study, which was conducted by research firm Savanta, explored the effect the global pandemic has had on businesses and their ability to adapt in a time of crisis.

Thirty six percent of respondents said they actually lost customers during the pandemic due to failings in their communications, while a similar number (37%) admitted to communicating at least one message to customers that was badly received and damaged their brand reputation. More than half (54%) of respondents conceded they should have done more to help customers during the crisis.

The study also revealed how the pandemic increased the urgency for digital transformation (DX), with 91% percent of all respondents admitting that changes are now needed for their business to survive in a post-crisis world. Almost three quarters (74%) of decision makers reported that the pandemic exposed more gaps in their business operations and systems than they

anticipated. Only 6% reported no gaps in their existing systems during the crisis. As a result, 62% said they will increase the priority level of DX within their organization, with 58% increasing the speed of existing DX projects and 56% increasing the overall level of DX investment. Seventy one percent said the crisis accelerated their digital projects aimed at better engaging with customers. The top three most popular DX projects needed to prepare for future crises were: cloud-based systems (48%), CRM (41%), and AI-driven analytics and decisioning (37%).

Other findings suggest the COVID-19 experience could have some positive outcomes:

- **Change for the better**

74% of respondents say their business learned a lot during the crisis and will permanently change the way they operate for the better.

- **Greater empathy**

69% say the crisis taught them to be more empathic with customers.

- **Getting to know you**

61% feel they learned more about their customers during the crisis than they did the previous two years combined.

- **Rise of the machines**

55% say their employees now feel as comfortable working with machines as they do with humans as remote working policies forced them into adopting new ways of operating.

- **Working from home actually works**

71% said remote working has been successful and will likely continue after the crisis ends.

- **More productive than ever**

52% reported employees are more productive now than before the pandemic. Seventeen percent see a slight dip in productivity and only 3% report a significant drop.

“What this research makes clear is that digital transformation can no longer be seen as a ‘nice to have’ for today’s businesses as they face a radically changed landscape,” said Don Schuerman, CTO and vice president of product marketing, Pegasystems. “Now, it’s become a top priority and organizations are beginning to wake up to the fact that ineffective communication with their customers in uncertain times can do them serious damage.”

“Today’s business leaders find themselves at a crossroads. The question for them is not ‘should I invest in digital transformation?’, but ‘where do I start and how fast can I make it happen?’” continued Mr. Schuerman. “If today’s organizations are to truly learn the lessons of the current crisis and future proof themselves against mass-scale events, then they need to understand that the customer must be put at the center of everything they do. Unfortunately, for many, it appears that it’s a lesson that may have been learned in the hardest way possible.”



People need to be at the centre of IT decisions

STUDY finds that employees are being overlooked when businesses adopt new technology. Lenovo has unveiled a new study which found that organisations are placing business and shareholder goals above employee needs when adopting new technologies. The research, conducted among 1,000 IT managers across EMEA, found that just 6% of IT managers consider users as their top priority when making technology investments. This approach to IT adoption is ultimately leading to productivity being stifled.

When businesses implement new technologies without considering the human impact, many employees become overwhelmed due to the complexity and pace of change, with 47% of IT managers reporting that users struggle to embrace new software.

With all industries having to adapt to the 'next normal' and take stock of their responsibility – to employees, to the environment and to the wider world – Lenovo encourages businesses to place the needs of their people at the heart of IT decisions.

Untapped potential

There is an understandable desire for businesses to embrace transformational technologies, such as Artificial Intelligence, and the Internet of Things, as soon as possible. The benefits these promise – innovation, improved productivity, reducing cost and greater customer experience most importantly – are tantalising for any organisation, but their true potential is completely untapped if adoption is purely led by business goals.

While successfully implemented technology should act as an enabler for employees and businesses to achieve greater things, a poor strategy can see technology become an inhibitor – hampering users whose needs have not been carefully considered and catered for. Almost half (48%) of respondents reported a negative outcome where technology implementations have actively inhibited their teams' ability to operate.

Businesses need to focus on people,



offering everything from comprehensive training, to change management, while ensuring leadership KPIs, robust policy & strategy and thorough rollout analyses are aligned with a people-first ethos.

Businesses should also ask people-centric questions during any adoption process – is this technology intuitive, will it solve rather than create challenges for employees, will users get a good experience. By taking these steps, businesses can realise the benefits new tools promise, seeing greater productivity and driving innovation. In fact, 52% of IT managers are optimistic about emerging tech's ability to deliver improved productivity.

However, with 21% of users reporting new technology has actually slowed down processes, it is imperative for businesses to embrace the right technology at the right time. It's also vitally important businesses consider everyone in the organisation – from those who use it every day, to the IT teams implementing it, to the boardroom decision makers.

The goal should be to adopt smarter technology that is always connected, seamless, agile, flexible, easy to collaborate, adaptive to needs, reliable, high performance and with enhanced security and privacy. Not only that, but it should be suited to the needs of everyone in an organisation.

Responsible business in the 'next normal' Organisations are currently re-evaluating how they operate in order to thrive in the next normal. Being a responsible business must now be a priority – placing human impact on the same level as achieving business goals. With 62% of IT managers reporting their investment

decisions are entirely business-centric, it will require a fundamental mindset shift for many businesses. However, as flexible working policies are embraced in order to provide more support to employees during the COVID-19 outbreak, a people-first approach is beginning to emerge, with 70% of respondents seeing more emphasis within their organisation on responsible business.

Giovanni Di Filippo, President of Lenovo's Data Center Group, EMEA, says: "Times are changing rapidly, not only for businesses, but the technology industry as a whole. Stripped of office walls, we are seeing organisations place greater emphasis on the wellbeing of their employees, and it's heartening to see this shift in priorities from being all about the bottom line. But the study shows that this is only the beginning." "If there is a change of heart and mind within the industry, taking a people-first approach to IT adoption, we will see positive change for both organisations and wider society. Happier employees, greater productivity and a faster pace of innovation – these are the benefits of placing people at the centre of IT decisions."

Time to think human

IT vendors whose portfolio can empower businesses to think human, will help employees embrace change and enable them to be more productive. Such vendors do this by having an open mindset in working with other organisations, thinking about customer outcomes, not just adoption, reducing the burden on customers as well as the IT department and by helping put usability and experience first. Giovanni Di Filippo says, "For too long IT decisions have placed pure cost above a business's most valuable asset: people. It's people that change the world, and we know that data and technology cannot be transformative without humans bringing it to life and giving it purpose."

"We want businesses to think human by investing in 'Smarter Technology for All'. As for vendors – it's time to think beyond what they make and consider who they make it for. If people are put first, we know the benefits and desired company outcomes will be great."

Organisations need to move faster on the road to digitalisation

BOOMI, a Dell Technologies business, has published a new global survey, commissioned with Vanson Bourne that reveals although organizations are reaping the rewards of IT modernization, digital transformation and innovation, there's still more work to do.

Now more than ever, technology supports and drives every business, from banks to retailers, whether customer-facing or internally focused. Companies that find ways to maximize their budget when investing in digital strategies and technologies have the opportunity to improve their ROI – read about how one company improved by more than 1,000%.

The report, “The State of Modernization, Transformation, and Innovation in the Digital Age,” outlines that 59 percent of survey respondents said effectively using technology has been the key to transformational success. However, 1 in 2 decision makers admit their company isn't innovating at a competitive rate. Organizations still face multiple challenges to more quickly and efficiently roll out their modernization, innovation and transformation programs.

The top barriers for digital transformation and innovation efforts include insufficient in-house skills (41%) followed by a restrictive budget (33%).

“The next decade will undergo an even more rapid pace of change than the 2000s and 2010s,” said Chris Port, Chief Operating Officer for Boomi. “Though modernization, transformation, and innovation have paid dividends in recent years, organizations can't afford to rest on their laurels. Especially now. Not when business priorities, drivers of change, and technology needs are rapidly converging, as reflected in this survey.”

The Vanson Bourne survey went on to uncover:

Businesses turning to low-code to drive transformation initiatives: Companies are trying to do more with employees who have less technical expertise. That's why investing in low code platforms is a big focus for more than half of enterprises



that don't have one already. Almost 50% anticipate they will introduce a low-code development platform before the end of 2020.

Companies hone in on customer experience and employee productivity: Today's transformation efforts are focused primarily on customer experience (54%) and employee productivity (50%). Both of these areas are crucial for supporting more modern, agile customers and workforces. Business and IT decision makers agree the biggest benefit they've seen from modernization is improved customer experience (49%).

The CEO currently drives innovation among C-suite, but within three years innovation will be companywide responsibility: Organizations still need to modernize, transform and innovate, and it will take a companywide shift to make that happen, with everyone participating. Currently, innovation is led from top down by the CEO (65%), CIO (58%), and department heads (54%), while only 12% said the workforce as a whole is leading it. However, 56% of respondents

anticipate that innovation will be everyone's responsibility in three years — and not just that of the leadership.

Additional data revealed:

39% agree that their organization is regularly “out-changed” by its competitors and industry peers. IT decision makers see more benefits to modernization overall than business decision makers, especially when it comes to streamlining processes (48%). 59% of organizations agree they have to get technology “right” over the next 12 months to ensure continued success. 86% say that technology will dramatically change the way their organizations operate over the next 10 years.

“Employees drive every business process and interaction. Investing in your workforce today by improving their training, workflow, and resources with technology will position your company as the one to beat,” continued Port. “It takes the right kind of culture and the right people to continuously out-change and get ahead of the competition. Modernization and innovation needs to start today and then never stop.”



Optimising the digital employee experience

Nexthink on the importance of proactive IT management

As the home becomes the new office, there has never been such a heavy reliance on technology to keep the notion of the 'workplace', and its culture, alive. Technology is the backbone of most 21st-century enterprises, supporting everything from data storage and security systems, to the software that employees use every day to get their work done. As employees continue working remotely, modern businesses understand that now, more than ever, a technology issue can quickly become a significant risk or loss of productivity.

BY CHRIS TERNDRUP, BUSINESS TRANSFORMATION ARCHITECT AT NEXTHINK.

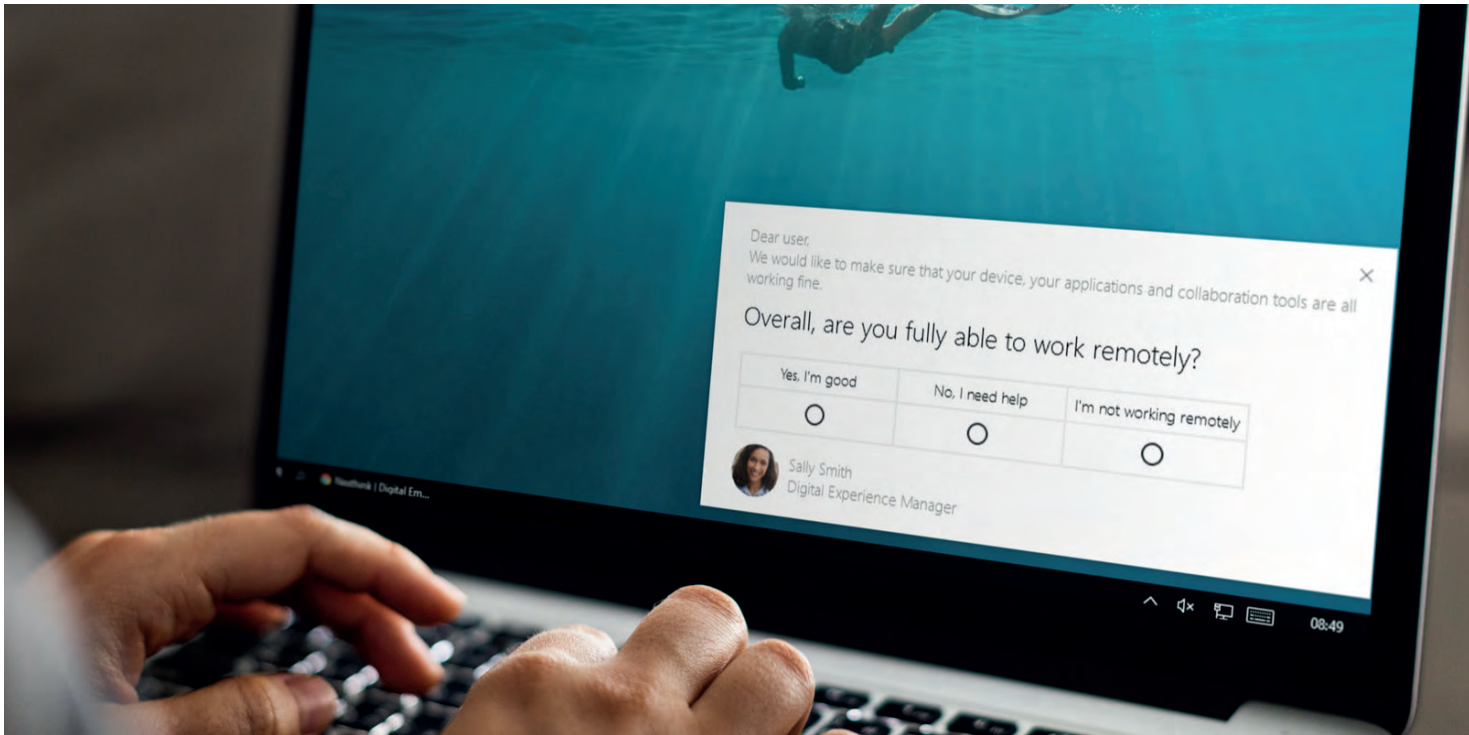


EMPLOYEES are being offered a range of new collaboration tools and ways of working from home, but they have high expectations of the technology they are given to work with. Despite the desperate need for reliable and fully-functioning tech, the reality of this is far from perfect. A recent study found that 61% of employees report IT downtime as an accepted norm in their organisation, with IT disruptions occurring on average twice a week. But how are these delays impacting the average employee's working day? To what extent are technology issues impacting employees' mood and motivation?

The bottom line

In the 2020 Experience Report, we've found that employees are being set back by an average of 28 minutes every time they encounter a technology problem at work. For projects that are particularly time sensitive, technical issues like these can result in missed deadlines and a drop in work quality, putting the employee in a difficult position through no fault of their own.

This could be particularly disruptive for an employee who is due to host a presentation or live webinar.



The same study gained insight directly from IT leaders, who reported an average of two technology interruptions for each employee per week. But, with employees only reporting just over half of incidents (55%) the real productivity drain could be almost twice as bad as IT estimates. When these figures are extrapolated, the loss in productivity is evident. For a company of 10,000 employees, this downtime equates to a loss of £20 million per year. The impact of workforce engagement on a businesses' bottom-line is very real.

Keeping colleagues connected and emotionally supported

With the recent shift to remote working, the kitchens, bedrooms and living rooms of millions of employees have become their new workplace. And as they look at their companies solely through the window of their devices, technology is expected to fill this gap. Not only is the computer now the conduit to productivity – it is also the main (for many, the only) social and collaborative tool that keeps colleagues connected.

Consequently, in addition to ensuring a consistent technology experience, increasingly IT is tasked with helping find solutions to employees mental well-being. Supporting in the deployment of employee surveys that gauge emotional stress or helping to measure where employees might be suffering from video call / meeting fatigue.

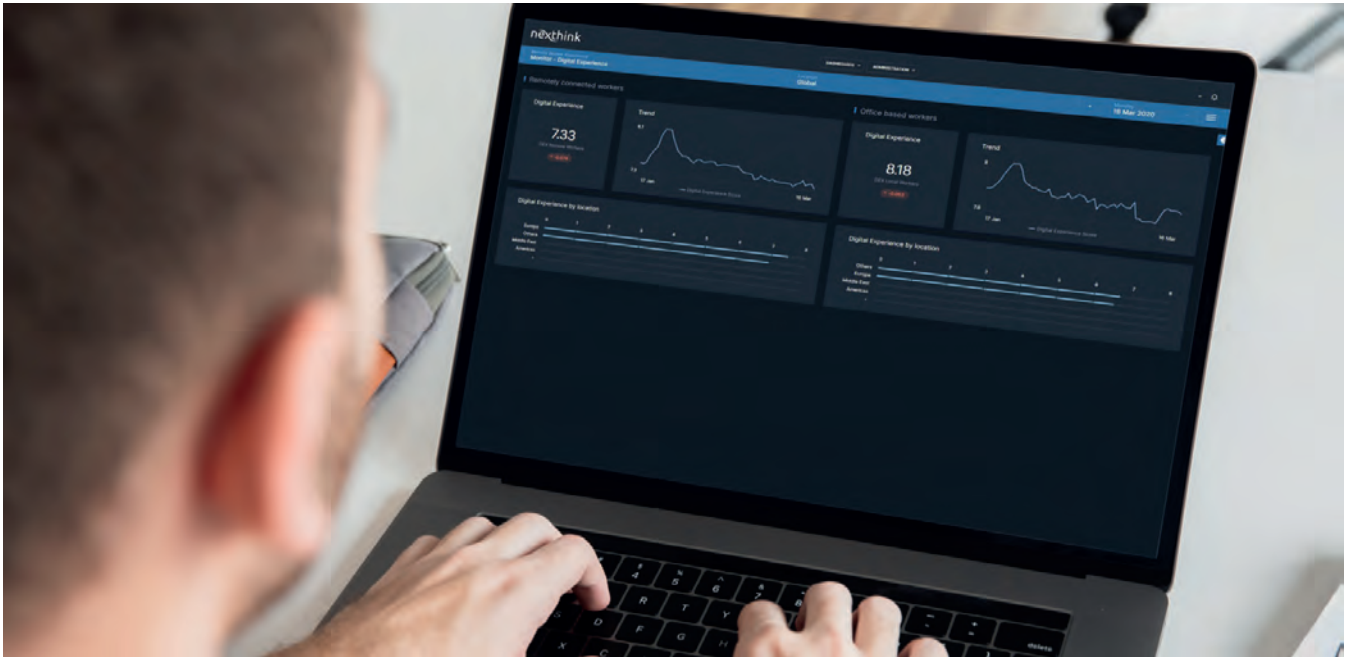
Be wary of demoralising employees

In some environments, new software is being released on a daily basis, workers are forced to learn new technological procedures and functions while still under intense pressure to meet deadlines. Throw in common IT problems, such as crashes and data loss, and it's increasingly difficult for employees to maintain a state of flow and work productively.

In contrast, the positive link between happy employees and improved productivity is proven and well documented.

A recent report found reduced





stress levels in 72% of workers who have access to technology that helps them to work more productively. The same study also found that automation helps to reduce workload and stress in 64% of employees.

A happy and engaged workforce can transform a business, which is why organisations need to take practical steps to improve the digital experience for employees.

Proactive IT is the solution

To deliver high-quality IT services and improve employee satisfaction, businesses should focus on proactive IT management to prevent issues before they arise.

The reality is that for every end user who takes the time to report an incident, there are many more with the same problem who suffer in silence due to the perceived hassle of reporting to IT.

comprehensive, real-time monitoring of devices on the network, IT teams can shed light on the affected services underneath the radar. Not only will this help IT to provide a new level of digital satisfaction for employees, it will also have a positive knock-on effect for their level of engagement and productivity.

From the data centre to user endpoints, IT represents the nervous system for any enterprise, and every employee depends on it to be productive. Anger, frustration and wasted time are bad enough consequences of technology designed fundamentally to improve employee experience. It's time for IT teams to take a more proactive approach, to eliminate issues before they arise and create a smooth digital experience for employees. After all, providing workers with fully-functioning and reliable technology can be instrumental in boosting their wellbeing and reinforcing the feeling of connectedness, particularly during this period of remote working.



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Survey shows the high cost of missed risks

A Gartner, Inc. survey of more than 382 strategic initiative leaders quantified the cost of missing risks in strategic initiatives. For an average \$5 billion revenue company it amounts to \$99 million annually in opportunity cost from delayed new product launches alone.

INITIATIVES where risks are not surfaced and mitigated in a timely fashion are delayed by an average of five weeks per year. Moreover, in a related survey of 111 emerging risk management (ERM) leaders just 6% felt that their organization's risk response was timely during strategic initiatives.

"These findings show that risk response usually is not timely," said Emily Riley, senior principal, research in the Gartner Audit and Risk practice. "But they also show the huge cost of an untimely response. The recent COVID-19 pandemic illustrates the need for an agile response to unexpected risks."

Gartner experts looked at how strategic initiatives performed against several measures and how this was affected by the timeliness of risk responses (see Figure 1.)

"The performance benefits of a timely risk response stand out clearly," said Ms. Riley. "There's a business opportunity here because ERM leaders expressed their desire to be more involved in supporting strategic initiative success."

Seventy six percent of ERM heads said they wanted to increase the proportion of their time they spend on strategic initiatives. More than half said that their involvement should come at the earliest stages of a strategic initiative. Yet currently just 11% feel they are involved before an initiative's execution.

Information roadblocks

"The problem we often see is initiative teams are not

getting the information they need to act on risks in a timely manner," said Ms. Riley. "This is one area where ERM teams can add value."

This can have several root causes. Sometimes many individuals are involved in an initiative without clear accountability to one another. There is also often a sensitivity to candidly sharing information about threats to high stakes projects. Another common cause is a focus on performance metrics that overshadows forward-looking considerations. "ERM's role should be to connect initiative teams with subject matter experts, to facilitate opportunities for anonymous sharing of concerns, and to develop risk indicators that consider leading indicators of project success," said Ms. Riley.

Strong growth for global container management software and services

Worldwide container management revenue will grow strongly from a small base of \$465.8 million in 2020, to reach \$944 million in 2024, according to a new forecast from Gartner, Inc. Among the various subsegments, public cloud container orchestration and serverless container offerings will experience the most significant growth.

This is the first time Gartner has published a forecast for container management, in response to the increasing importance of the underlying technology. "There has been considerable hype and a high level of interest in container technology, but a lower level of production deployments to date," said Michael Warrilow, research vice president at Gartner.

Containers have become popular because they provide a powerful tool for addressing several critical concerns of application developers, including the need for faster delivery, agility, portability, modernization and life cycle management.

Gartner predicts that by 2022, more than 75% of global organizations will be running containerized applications in production, up from less than 30% today. As a result of the growing use of containers, enterprise demand for container management is increasing. Container management provides software and/or services that support the management of containers, at scale, in production environments.

Popularity of cloud-native applications behind container management growth

The forecast growth in enterprise adoption of container management indicates the intrinsic appeal of cloud-native architecture, according to Gartner. "Understanding of 'cloud-native' varies, but it has significant potential benefits over traditional, monolithic application design, such as scalability, elasticity and agility," said Mr. Warrilow. "It is also strongly associated with the use of containers."

Recessed economic conditions to curb growth in medium-term.

Several factors will restrict adoption among organizations developing or modernizing custom applications. Despite the need to support digital transformation, initiatives will be curbed by recessed economic conditions for at least the medium term, as organizational priorities shift to cost optimization. Gartner expects that up to 15% of enterprise applications will run in a container environment by 2024, up from less than 5% in 2020, hampered by application backlog, technical debt and budget constraints. "The bottleneck will be the speed at which

applications can be refactored and/or replaced," Mr. Warrilow said.

Containers will fuel an open ecosystem

Direct revenue for container management software and services will remain a small portion of the container ecosystem. Additional revenue will come from a range of adjacent segments that are not included in Gartner's container management forecast. This includes application development, managed services, on-premises hardware and infrastructure as a service (IaaS) among other segments.

For example, the IaaS revenue associated with container management is expected to reach \$1 billion before 2023. Many of the adjacent segments are already reported in existing Gartner forecasts "Although the direct incremental revenue may be less than many expect, containers may have a different role to play," said Mr. Warrilow. "Containers could ultimately fuel an open ecosystem similar to Linux."

Security and risk management spending growth to slow

Worldwide spending on information security and risk management technology and services will continue to grow through 2020, although at a lower rate than previously forecast, according to Gartner, Inc. Information security spending is expected to grow 2.4% to reach \$123.8 billion in 2020 (see Table 1). This is down from the 8.7% growth Gartner projected in its December 2019 forecast update. The coronavirus pandemic is driving short-term demand in areas such as cloud adoption, remote worker technologies and cost saving measures.

"Like other segments of IT, we expect security will be negatively impacted by the COVID-19 crisis," said Lawrence Pingree, managing vice president at

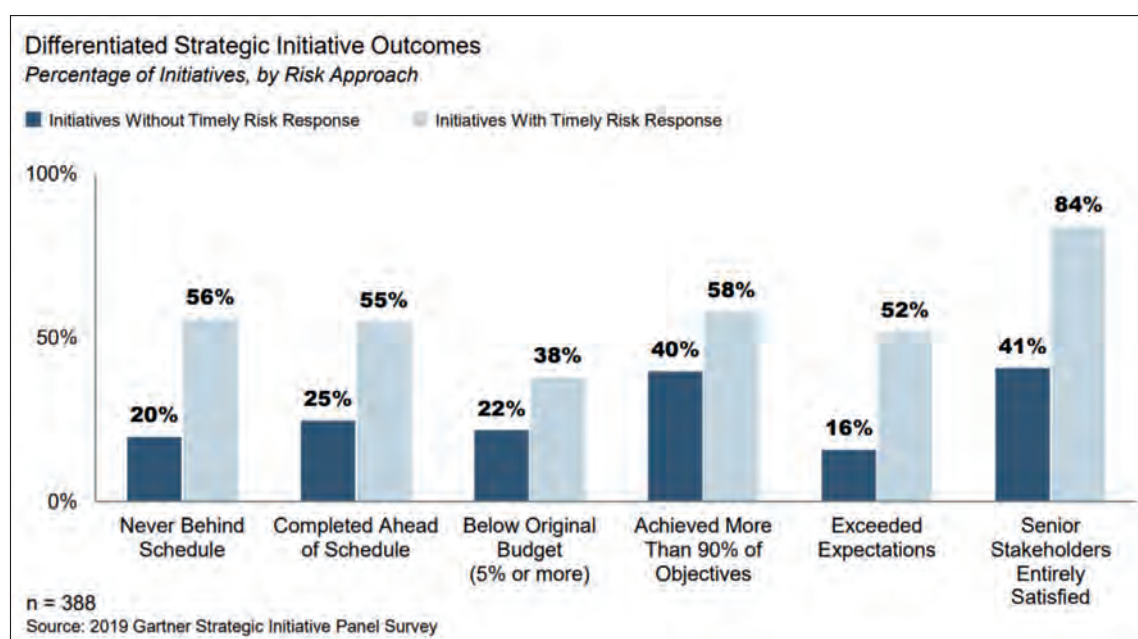


Figure 1:
Opportunity
costs from
missing risks

Table 1:
Worldwide
Security
Spending by
Segment, 2019-
2020 (Millions of
U.S. Dollars)

Market	2019	2020	Growth (%)
Application Security	3,095	3,287	6.2
Cloud Security	439	585	33.3
Data Security	2,662	2,852	7.2
Identity Access Management	9,837	10,409	5.8
Infrastructure Protection	16,520	17,483	5.8
Integrated Risk Management	4,555	4,731	3.8
Network Security Equipment	13,387	11,694	-12.6
Other Information Security Software	2,206	2,273	3.1
Security Services	61,979	64,270	3.7
Consumer Security Software	6,254	6,235	-0.3
Total	120,934	123,818	2.4

Due to rounding, some figures may not add up precisely to the totals shown.
Source: Gartner (June 2020)

Gartner. "Overall we expect a pause and a reduction of growth in both security software and services during 2020."

"However, there are a few factors in favor of some security market segments, such as cloud-based offerings and subscriptions, being propped up by demand or delivery model. Some security spending will not be discretionary and the positive trends cannot be ignored," he said.

The ongoing shift to a cloud-based delivery model makes the security market somewhat more resilient to a downturn, with an average penetration of 12% of overall security deployments cloud-based in 2019, according to Gartner research. Cloud-based delivery models have reached well above 50% of the deployments in markets such as secure email and web gateways.

Networking security equipment including firewall equipment and intrusion detection and prevention systems (IDPS) will be most severely impacted by spending cuts this year. Consumer spending on security software is also forecast to decline in 2020. Global end-user spending on cloud-based web conferencing solutions will grow 24.3% in 2020, according to the latest forecast by Gartner, Inc. Global workplace restrictions spurred by the coronavirus pandemic will expand the cloud conferencing user base throughout 2020, but growth will taper off in 2021 as the lasting effects of a remote workforce render conferencing services commonplace.

End-user spending on cloud-based conferencing is projected to reach \$4.1 billion in 2020, up from \$3.3 billion in 2019. It is the second-fastest growing category in the unified communications (UC) market, behind spending on cloud-based telephony, which is forecast to reach \$16.8 billion in 2020. Overall UC market end-user spending is projected to decline

2.7% in 2020 and return to growth in 2021, as cloud telephony initiatives regain momentum.

"Cloud collaboration investments will buoy the UC market downturn as remote work initiatives spurred by the COVID-19 outbreak drive conferencing adoption and market growth," said Megan Fernandez, senior principal analyst at Gartner. Gartner predicts that by 2024, in-person meetings will account for just 25% of enterprise meetings, a drop from 60% prior to the pandemic, driven by remote work and changing workforce demographics. As a result, there is a higher demand for convenient access to videoconferencing and other collaboration tools. Cloud Telephony Adoption Will Experience a 'Push and Pull'

In 2020, new premises-based telephony investments will drop sharply as existing installed telephony system life spans are stretched and investment priorities shift to the cloud. "Cloud telephony adoption will experience a 'push and pull' from competing market pressures," said Ms. Fernandez. "Overall, the market will be negatively impacted by organizations that were planning near-term premises to cloud migrations but are now extending legacy life spans instead." However, cloud telephony will experience a boost once its benefits are recognized, namely the ease at which it can accommodate a changing workforce, update and extend existing features, and integrate with adjacent applications.

The cloud telephony market is projected to grow 8.9% in 2020 and 17.8% in 2021

"As a result of workers employing remote work practices in response to COVID-19 office closures, there will be some long-term shifts in conferencing solution usage patterns. Policies established to enable remote work and experience gained with conferencing service usage during the outbreak is anticipated to have a lasting impact on collaboration adoption," said Ms. Fernandez.



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Slight rebound in European ICT spending, but not until 2021

According to the June update of the Worldwide Black Book Live Edition published by International Data Corporation (IDC), European ICT spending will decline by 3.7% year on year in 2020 to total \$897.08 billion. However, slight recovery of the ICT market is expected in 2021, when ICT spending in Europe will increase by 1.9% year on year, in line with the gradual recovery in macroeconomic conditions and consumer confidence.

ALL HARDWARE MARKETS will continue on a negative trajectory in 2020, with overall hardware spending declining by 4.07% year on year. Spending on infrastructure will be most affected, due to reduced business activity, focus on capital preservation, and expense reduction.

“During the Covid-19 crisis, there has been a boost in adoption of OPEX-based consumption models, which will drive spending on IaaS. The market is forecast to grow in the double-digits in both the short and long term,” says Lubomir Dimitrov, senior research analyst with IDC’s Customer Insights & Analysis team. Although demand in the PC market increased during the second quarter of 2020, annual spending in the overall hardware market will decline due to the global economic challenges among both consumers and businesses, resulting from the impact of the pandemic.

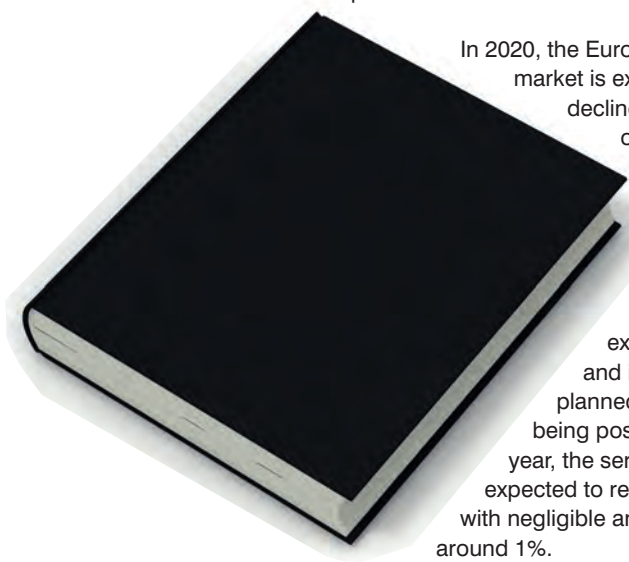
Spending on software in Europe is expected to slow down in 2020, declining by 2.61% year on year, as organizations try to limit their resources and place any projects on hold that are not crucial for maintaining core business activities. On the other hand, the increased adoption of the remote working/work from home model among public and private organizations gave a boost to spending on collaborative and communication tools, as well as on software security spending, as protecting devices and expanded networks became an urgent need.

The European software market will rebound slightly next year, with companies renewing some previously delayed digital transformation initiatives, particularly those relating to AI, analytics, and automation of business processes.

Cloud IT infrastructure spending continues to grow. According to the International Data Corporation (IDC) Worldwide Quarterly Cloud IT Infrastructure Tracker, vendor revenue from sales of IT infrastructure products (server, enterprise storage, and Ethernet switch) for cloud environments, including public and private cloud, increased 2.2% in the first quarter of 2020 (1Q20) while investments in traditional, non-cloud, infrastructure plunged 16.3% year over year.

The broadening impact of the COVID-19 pandemic was the major factor driving infrastructure spending in the first quarter. Widespread lockdowns across the world and staged reopening of economies triggered increased demand for cloud-based consumer and business services driving additional demand for server, storage, and networking infrastructure utilized by cloud service provider datacenters. As a result, public cloud was the only deployment segment escaping year-over-year declines in 1Q20 reaching

In 2020, the European IT services market is expected to decline by 4.2% year on year, as the current economic uncertainty is causing delays or reductions in existing projects, and investments planned pre-crisis are being postponed. Next year, the services market is expected to rebound slightly, with negligible annual growth of around 1%.



Top Companies, Worldwide Cloud IT Infrastructure Vendor Revenue, Market Share, and Year-Over-Year Growth, Q1 2020 (Revenues are in Millions)

Company	1Q20 Revenue (US\$M)	1Q20 Market Share	1Q19 Revenue (US\$M)	1Q19 Market Share	1Q20/1Q19 Revenue Growth
1. Dell Technologies	\$2,535	17.4%	\$2,509	17.6%	1.0%
2. HPE/New H3C Group (b)	\$1,495	10.3%	\$1,695	11.9%	-11.8%
3T. Inspur/Inspur Power Systems (a, c)	\$868	6.0%	\$636	4.5%	36.4%
3T. Cisco (a)	\$847	5.8%	\$1,038	7.3%	-18.4%
5. Lenovo	\$674	4.6%	\$670	4.7%	0.5%
ODM Direct	\$4,726	32.5%	\$4,422	31.1%	6.9%
Others	\$3,390	23.3%	\$3,258	22.9%	4.1%
Total	\$14,535	100.0%	\$14,228	100.0%	2.2%

IDC's Quarterly Cloud IT Infrastructure Tracker, Q1 2020

Notes:

a. IDC declares a statistical tie in the worldwide cloud IT infrastructure market when there is a difference of one percent or less in the vendor revenue shares among two or more vendors.

b. Due to the existing joint venture between HPE and the New H3C Group, IDC reports external market share on a global level for HPE as "HPE/New H3C Group" starting from Q2 2016 and going forward.

c. Due to the existing joint venture between IBM and Inspur, IDC reports external market share on a global level for Inspur and Inspur Power Systems as "Inspur/Inspur Power Systems" starting from 3Q 2018.

Top Companies, Worldwide Cloud IT Infrastructure Vendor Revenue, Market Share, and Year-Over-Year Growth, Q1 2020 (Revenues are in Millions)

\$10.1 billion in spend on IT infrastructure at 6.4% year-over-year growth. Spending on private cloud infrastructure declined 6.3% year over year in 1Q to \$4.4 billion.

IDC expects that the pace set in the first quarter will continue through rest of the year as cloud adoption continues to get an additional boost driven by demand for more efficient and resilient infrastructure deployment. For the full year, investments in cloud IT infrastructure will surpass spending on non-cloud infrastructure and reach \$69.5 billion or 54.2% of the overall IT infrastructure spend. Spending on private cloud infrastructure is expected to recover during the year and will compensate for the first quarter declines leading to 1.1% growth for the full year. Spending on public cloud infrastructure will grow 5.7% and will reach \$47.7 billion representing 68.6% of the total cloud infrastructure spend.

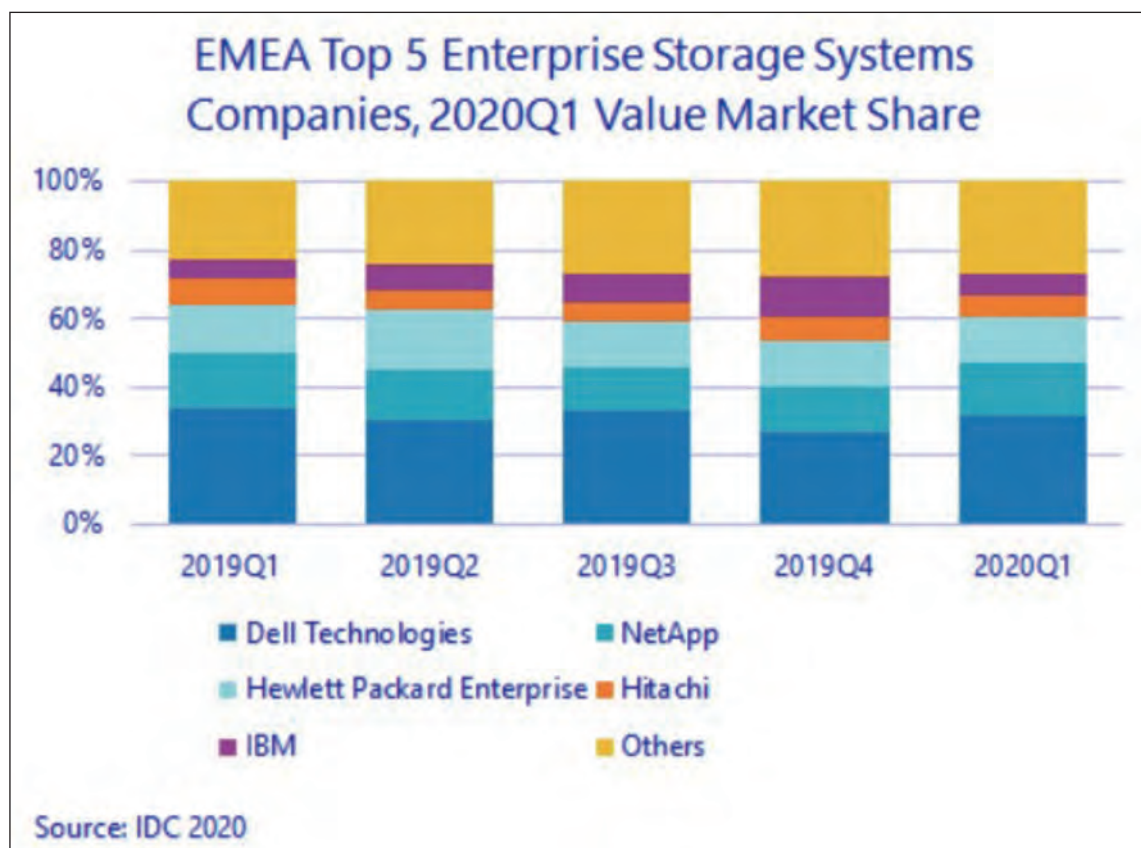
Disparity in 2020 infrastructure spending dynamics for cloud and non-cloud environments will ripple through all three IT infrastructure domains – Ethernet switches, compute, and storage platforms. Within cloud deployment environments, compute platforms will remain the largest category of spending on cloud IT infrastructure at \$36.2 billion while storage platforms

will be fastest growing segment with spending increasing 8.1% to \$24.9 billion. The Ethernet switch segment will grow at 3.7% year over year.

At the regional level, year-over-year changes in vendor revenues in the cloud IT Infrastructure segment varied significantly during 1Q20, ranging from 21% growth in China to a decline of 12.1% in Western Europe. Long term, IDC expects spending on cloud IT infrastructure to grow at a five-year compound annual growth rate (CAGR) of 9.6%, reaching \$105.6 billion in 2024 and accounting for 62.8% of total IT infrastructure spend. Public cloud datacenters will account for 67.4% of this amount, growing at a 9.5% CAGR. Spending on private cloud infrastructure will grow at a CAGR of 9.8%. Spending on non-cloud IT infrastructure will rebound somewhat in 2020 but will continue declining with a five-year CAGR of -1.6%.

External enterprise storage market shrinks

EMEA external storage systems market value in 2020Q1 was down 10.7% year on year in dollars and 8.1% in euros, according to International Data Corporation's (IDC) EMEA Quarterly Disk Storage Systems Tracker. Once again, the quarter saw marked differences across subregions, with Western Europe



down 16.5% year on year and CEMA up 9% (both in dollars). On a bright note, the all-flash-array (AFA) segment retained its steady path to growth at 4% year on year, further increasing its share of the external storage market value to 47%. The increase happened at the expense of both hybrid flash arrays (HFAs), down by almost 25% year on year and covering 36% of value shipments, and HDD-only arrays, down by roughly 11% and representing only 17% of shipment value.

“Although IDC expects the market decline to persist for the remaining of the year, the COVID-19 pandemic will also be remembered as a watershed moment for the datacenter sector, accelerating the transition to public cloud and pay-per-use consumption models for on-premises equipment, while also driving more investment in digital transformation (DX)”, said Silvia Cosso, Associate Research Director, Storage Systems, IDC Western Europe.

Western Europe

The Western European External Storage market value was down again by 16.5% in dollars (-14.1% in euros). All-flash arrays jumped to 49% of total value, recording a small 1.6% decrease year on year and therefore proving to be considerably more resilient than HFA and HDD-only arrays.

The German market returned to positive territory, but it was not enough to compensate for the heavy declines in the other major countries such as the U.K.

“Despite the decline, expenditure in AFA and HCI (hyperconverged) systems has proven more resilient, and, while in major markets some unbudgeted investments have understandably been put on hold, the general consensus is that expenditure in certain areas such as VDI deployments, collaborative tools and business continuity has been an important driver for the quarter”, said Cosso. (see also IDC’s “

How will COVID-19 Affect IT Infrastructure Spending in 2020?

The outlook for the full year is still negative, with the stringent lockdown measures which have brought recession in many European markets expected to take a toll during the second quarter of 2020, before seeing a rebound in 2021.

Central and Eastern Europe, the Middle East, and Africa

Despite the start of COVID-19 pandemic, the storage market value in Central and Eastern Europe, the Middle East, and Africa (CEMA) grew by 9% YoY to reach \$514.1? in the first three months of 2020. This development was more optimistic than expected fueled mostly by large telco investments in Russia and data centre projects in the Middle East that were executed prior to implementing rigid restrictions across the region.

AFA and HDD-only systems recorded growth at the expense of hybrid storage systems. All-flash HCI continued to be the fastest growing segment of the

market, recording a solid double-digit increase albeit from a small basis. On the other hand, purpose-built backup solutions sustained HDD growth as backup and recovery became crucial in remote working and collaboration environments.

“While storage-related projects were still in the pipeline in 2020Q2, a negative repercussion is expected till the end of the year, with worsening GDPs and business sentiment and limited budgets,” said Marina Kostova, research manager, Storage Systems, IDC CEMA. “Only cost-optimized solutions supporting mission-critical primary workloads as well as backup, DR, VDI, and collaboration will witness accelerating growth compared to the declining overall storage systems market. The continuing expansion of hyperscalers in CEMA underlines the fast move towards a cloud consumption model which will further restrain spending on infrastructure in the long-term no matter the expected recovery after 2020.”

Worldwide services market growth disrupted

In April, International Data Corporation (IDC) forecast worldwide IT services and business services revenue would decline 1.1% year over year in 2020 due to the impact of the COVID-19 pandemic. In a new update to the Worldwide Semiannual Services Tracker, the market is now forecast to shrink further, declining 2.8% this year. However, the 2021 growth rate has improved slightly from 1% to 1.4%, reflecting IDC’s optimism for a market rebound.

The newest forecast is based on the Economist Intelligence Unit’s May forecast for worldwide GDP in 2020, which will likely contract by around 4.4%, more than twice as much as the March forecast. After almost four months of shutdowns across most developed markets, the economic downturn in the first half of 2020 will be so severe that even a robust recovery in the next six months will not offset it.

IDC’s view on the supply side remains largely intact. Even as the major delivery countries (India, the Philippines, Czech Republic, etc.) were shutting down, services providers adapted quickly to working from home at scale and hatched contingency security plans. Buyers also have largely been quick to sign off on these plans. The transition has been a predominantly smooth one without major disruptions. Most providers see the COVID-19 crisis tipping organizations and consumers over to the digital world – a net positive in the long run.

The downward adjustment in market size was largely attributed to a bigger demand-side shock. The scale and duration of the lockdowns are better reflected in these updated economic metrics. All major markets, according to May’s GDP forecast, are suffering greater economic slowdowns or steeper declines compared to projections made in March.

The Americas services markets are now forecast to decline 2.5% year over year in 2020, compared to the March forecast of nearly flat growth. Mid- and long-term prospects remain unchanged and the region is expected to return to growth of 2% in 2021 and more than 3% in subsequent years. In the near term, the economic outlook for Canada, Latin America, and the USA have all worsened.

The US unemployment rate rose and Q1 GDP growth was particularly lackluster considering the shutdowns affected just one month in the quarter (March). We are seeing buyers pulling back or deferring projects (IT and business) to save cash. As a result, IDC lowered the US growth forecast to -2.7% in 2020. The project-oriented markets, particularly business consulting, bore the brunt as large US consultancies have already announced workforce reductions worldwide. IDC also

Services markets in Canada also saw a sharper decline in 2020 and weaker recovery is expected across most foundation markets in the coming years, reflecting the gloomier economic outlook as the shutdown drags on. Latin America will continue to grow but will slump to less than 2% for 2020 with the outlook remaining unchanged from the March forecast

tempered the 2020 outlook for managed services by roughly 1%, now down 1.6%. The outlook for the support services market is unchanged and remains at -1.0% with growth in hardware and software support offset by sharp declines in training and education. We still believe that outsourcing and support services are driven more by structural market forces than the demand shock. Overall, except for business consulting, all US foundation markets are forecast to outpace projected 2020 GDP growth.

Services markets in Canada also saw a sharper decline in 2020 and weaker recovery is expected across most foundation markets in the coming years, reflecting the gloomier economic outlook as the shutdown drags on. Latin America will continue to grow but will slump to less than 2% for 2020 with

Macro Regions Services Forecast for IT and Business Services
2019H2-June Update



Source: June 2020 IDC

the outlook remaining unchanged from the March forecast.

IDC has also updated its forecasts moderately in other regions due to changing economic outlooks. Western Europe will decline 5.2% year over year in 2020 moved downward by almost one percentage point from the March forecast. The worsening pandemic situation and subsequent longer-than-expected shutdowns will inevitably impact short-term revenue.

However, as we are now less uncertain about the future and more confident of the path to recovery, the mid- to long-term growth prospect was adjusted by increasing 2021 and 2022 growth rates by 1.5—2.0 percentage points per year to -1.8% in 2021 and +2% in 2022.

Similarly, Central & Eastern Europe's 2020 short-term outlook was lowered while the mid- and long-term growth improved. This was largely due to changing conditions in Russia related to the pandemic and oil prices, and the availability of additional market data in smaller markets, such as the Baltics and central Asia. The Middle East & Africa market will contract by more than 5% in 2020 as major markets in the region are also flanked by shutdowns and the collapse in oil prices. We are still optimistic about a quick recovery and expect budgets and spending to return.

In Asia/Pacific, a few key markets declined further since March, including Japan, Australia, and India, and the forecast was updated to reflect this. Japan will

contract this year by 2.8% in 2020, revised downward by more than 1 percentage point with more economic metrics, such as weaker consumer spending in April and May, pointing to a weaker economy. We still expect the China market to deliver growth of 2.7% for 2020.

Other major markets (Australia, India, South Korea, etc.) are slowing down dramatically in lieu of worsening economies. Overall, the Asia/Pacific region will slow to just 1.1% growth in 2020, revised down from 1.9% in the March forecast, but will likely see a faster recovery in 2021 and beyond.

"Over the last few months of shutdowns around the world, services providers have largely shifted clients' core IT and business operations to 'work from home' environments relatively overnight without major hiccups," said Lisa Nagamine, research manager with IDC's Worldwide Semiannual Services Tracker. "This further demonstrates how adaptive and resilient vendors and buyers can be in the 'digital age'." "We will continue to see the services market growth outpace GDP growth, even during a crisis like this," said Xiao-Fei Zhang, program director, Global Services Markets and Trends.

"The pandemic is clamping down on discretionary spending, and puts the brake on many projects for now, but this will be somewhat cushioned by managed services and support services contracts that support core operations of large enterprises and government agencies."



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Ensuring data quality and performance

DW talks predictive analytics and databases with Michele Crockett, Director of Product Marketing at SentryOne

DW: Please can you provide some background on SentryOne?

MC: SentryOne, formerly known as SQL Sentry, was founded in 2004 by Greg Gonzalez, who continues to lead innovation at the company as our Chief Technology Officer. The first product released, SQL Sentry Event Manager, was a solution that grew out of the company's Microsoft-focused hosting business and it provided intuitive visualisation and management of SQL Server jobs. Performance Advisor followed in 2008 to address performance monitoring and tuning.

Over time, SentryOne introduced eight other solutions and multiple enhancements to the existing line-up of products and added groundbreaking monitoring for cloud, physical and virtual systems. In 2016, SentryOne became the new company name and our unified brand. In 2017, SentryOne increased its international presence by creating a formal Global Partner Network and in early 2018 we opened our first international office in Dublin. In April 2018, SentryOne acquired Pragmatic Works Software, making us a

comprehensive platform provider for the Microsoft Data Platform.

From our very beginning, we have felt our success stems from our people: the industry's best SQL Server and Microsoft Data Platform experts working alongside the most compassionate and driven customer engagement teams in the business. Our people partner with our customers to create value and ensure success.

DW: What have been the key company milestones to date?

MC:

- 2004 – Company founding
- 2016 – Rebranding as SentryOne with monitoring solution that covers the entire Microsoft Data Platform environment, including SQL Server, Azure SQL Database, SQL Server Analysis Services, and virtual machines running on VMware or Windows Hyper-V
- 2018 – Acquisition of the software division of Pragmatic Works, which opened opportunities for

the companies to expand offerings for DataOps teams

- 2018 – Expansion into EMEA with opening of office in Dublin, Ireland
- 2019 – Introduction of first SaaS products, including SentryOne Monitor and SentryOne Document

DW: Can you give us a brief overview of SentryOne's technology and product portfolio?

MC: SentryOne helps companies accelerate delivery of business-critical information with top-rated Database Performance Monitoring and DataOps solutions for SQL Server, Azure SQL Database, and the Microsoft Data Platform. We help data teams manage complex cloud and hybrid data environments, streamline DataOps processes, and migrate and optimise cloud databases. Our areas of focus:

● **Optimised data delivery**

- SQL Sentry, our flagship database performance monitoring product, provides top-rated, highly scalable monitoring to optimise SQL Server performance
- SentryOne Monitor provides powerful monitoring capabilities in a cloud solution For more information: <https://www.sentryone.com/sql-server/sql-server-monitoring>

● **Streamlined DataOps**

- SentryOne Document, automated database documentation and data lineage analysis, available with cloud or software deployment models
- Task Factory, a set of high-performance SSIS components that eliminate tedious programming for data professionals managing data warehousing tasks such as ETL
- SentryOne Test, an automated test framework for validating data For more information: <https://www.sentryone.com/dataops-overview>

DW: How does this distinguish SentryOne from its competitors?

MC: SentryOne helps data teams improve data quality and accelerate data delivery to stakeholders with solutions that are specific to the Microsoft Data Platform and address some of the most challenging pain points in ensuring data quality and performance – no matter how large the database environment.

- In the Database Performance Monitoring category, SentryOne SQL Sentry provides the most actionable, scalable Database Performance Monitoring for the Microsoft Data Platform: here are more details on our capabilities compared with competitors. SQL Sentry also uses predictive analytics powered by machine learning to help data professionals accurately predict future database storage capacity.
- In the DataOps category, SentryOne Document provides in one solution 1) automated database documentation; 2) data lineage and impact analysis; 3) metadata snapshot management; and

4) data dictionary creation. We have competitors that offer data documentation or data lineage analysis, but none that offer both in one solution.

- Our solutions have won various awards from independent review sites and publications: o SQL Sentry was named Trust Radius Top Rated 2020 in the database monitoring category. Here's a link to our reviews; our current rating is 9.3/10.0 o Task Factory was named Trust Radius Top Rated 2020 in the data integration category o SQL Sentry was named in the Database Trends and Applications Trend-Setting Products and Data and Information Management for 2020 o SQL Sentry won "Best DBA Solution" in Database Trends and Applications Readers' Choice Awards 2019
- SentryOne has one of the highest Net Promoter Score ratings in the software industry, currently at 72, compared with the average of 44.
- We are the preferred Database Performance Monitoring and DataOps solution for companies with the highest demands for data accuracy and performance, including Lloyds Bank, Henkel AG, Froneri, DHL, Ticketmaster UK, DocuSign, Subway, Humana, United Parcel Service, Amazon, and Tableau.

DW: In more detail, please can you talk us through the company's database monitoring solutions and DataOps products?

MC: SQL Sentry, the flagship monitoring and observability product in the SentryOne portfolio, was built by SQL Server experts to help companies save time and frustration in troubleshooting database performance problems. SQL Sentry offers powerful capabilities in an intuitive dashboard that gives DBAs an at-a-glance picture of your SQL Server environment health, and makes it easy to drill down for more details. SQL Sentry monitors the entire Microsoft data estate, including SQL Server Analysis Services (SSAS), Azure SQL Database, and VMs running on VMware or Hyper-V. Features include an Environment Health Overview, Top SQL (which helps identify and fix high-impact SQL queries), Advisory Conditions (proactive and customisable alerting system), storage forecasting (predictive storage capacity planning), and sophisticated troubleshooting tools for deadlocks, blocking, and index management.

For DBAs who prefer a hosted solution, SentryOne Monitor is our cloud product for database performance monitoring. SentryOne Document, available as a cloud solution or installed software, automates database documentation and provides data lineage and impact analysis and metadata snapshot capabilities. SentryOne Document helps data managers understand the landscape of their data environment with visual data mapping that highlights data dependencies. With SentryOne Document, data managers can clearly see dependencies among data sources and understand who has changed the

data. SentryOne Document helps companies stay ahead of data privacy regulations such as GDPR by showing data origin and the path traveled by the data. SentryOne Document also helps data managers create comprehensive data dictionaries.

Task Factory is a set of high-performing SQL Server Integration Services (SSIS) components that eliminate mundane programming tasks that consume time and resources on the part of data warehouse managers performing ETL tasks. Task Factory includes 70+ components, and a version is available for use with Microsoft Azure Data Factory. For data managers who need specific data connectors, we offer a suite of modules that connect to, for example, Salesforce or social media data sets. Task Factory also works with REST-enabled data sources.

SentryOne Test is an automated test framework that helps companies validate data. SentryOne Test uses proven, industry-standard technology to help companies test and validate data throughout the data lifecycle. SentryOne Test consists of three core elements that form a secure, automated testing framework:

- Remote agent that enables distributed test execution
- SentryOne Test Visual Studio Extension
- SentryOne Test web portal that lets data managers deploy test projects and then programmatically call them as needed
- SentryOne Test targets four specific use cases:
 1. Validating data during data-centric application development,
 2. Enabling an agile approach to validating data in ETL processes,
 3. Facilitating Master Data Management processes,
 4. Validating data in production databases.

DW: Is cloud migration also a major focus for SentryOne?

MC: Yes, SentryOne is focused on helping companies streamline data migrations to the cloud, whether on AWS or Microsoft Azure. From data testing and validation through monitoring and optimising performance of cloud-based databases, SentryOne has a full suite of capabilities that can simplify the journey to the cloud:

- **Hybrid and Multi-Cloud Performance Monitoring**
SentryOne solutions help companies monitor, diagnose, and optimise database performance before and after migration to a hybrid or hosted cloud environment with the SentryOne Monitoring platform, which provides proven scalability (to 800+ targets currently) and the deepest level of actionable metrics in the industry.

- **Data Testing and Validation**

SentryOne helps companies ensure the integrity of data throughout the migration process with SentryOne Test, a SaaS-based automated testing framework,

which simplifies data testing and validation. With SentryOne Test data teams can conduct actionable tests, schedule test runs, and view test metrics in a dashboard throughout the data lifecycle—application development, ETL processes, Master Data Management (MDM), and production database validation.

- **Data Lineage Analysis**

Understanding the origin of data and how it's being used is a critical component of a successful cloud migration. SentryOne Document helps companies trace the source of data within a system, in visual or text mode views.

- **Database Documentation** Throughout the cloud migration process, you can use SentryOne Document to produce customisable documentation in various formats. You can also take a metadata snapshot of every property and store the intelligence in a shared database for your team.

SentryOne works closely with the engineering teams at both Microsoft and Amazon Web Services to support monitoring and optimising SQL Server on hybrid and hosted cloud services, including:

- A marketplace image on Amazon Web Services, with support for both Amazon RDS for SQL Server and Amazon EC2.
- A marketplace image on Microsoft Azure, with support for both Azure SQL Database and Azure SQL Data Warehouse.
- Support for monitoring Azure SQL Database Managed Instance, a deployment model of Azure SQL Database released by Microsoft that provides near 100 per cent compatibility with on-premises SQL Server.

DW: Are the SentryOne solutions aimed at database admins / IT managers / developers / Business Intelligence professionals?

MC: SQL Sentry is primarily targeted to database administrators and IT generalists who are managing SQL Server in addition to other systems. Developers can use SQL Sentry to help build high-performing data-centric applications. The integrated Plan Explorer feature in particular helps developers optimise queries. BI professionals use Task Factory for data warehouse management. And technology professionals throughout the organisation use SentryOne Document to document and map the data environment.

DW: Moving on to some recent company news, SentryOne has signed a partnership with QBS in the UK – can you explain a bit more about that?

MC: The new relationship with QBS will simplify the process of selecting and purchasing SentryOne top-rated Database Performance Monitoring and DataOps solutions for data professionals managing systems across the Microsoft data platform, including SQL Server and Azure SQL Database. Known for exceptional customer service and speedy delivery,

QBS is the ideal partner to help bring our top-rated technology to DataOps teams across Europe.

DW: You've also recently outlined the work you've done on behalf of DocuSign?

MC: DocuSign is a prime example of an enterprise company that chose SentryOne because of our ability to support a demanding production database environment—more than 300,000 transactions per second in this case. DocuSign has about 400,000 customers and hundreds of millions of users. Because of the company's commitment to high standards for HA/DR, they needed a monitoring solution that could help them get to the "five nines" of reliability that their customers expected. The DocuSign team chose SentryOne because of its low overhead on their system, the ease of extracting information from the SQL Sentry system, and the level of detail about performance metrics that they can get through SQL Sentry. For more information: <https://www.sentryone.com/were-the-one-case-study-docusign>

DW: Please can you give us any details about plans you might have to expand the company's coverage further – both in terms of geography and any specific industry sectors?

MC: SentryOne will continue to provide top-rated Database Performance Monitoring and DataOps solutions to companies in any industry, as most businesses rely on highly performing databases to make critical business decisions, serve customers, and deliver products and services. In terms of geography, aside from our well-established business in the U.S., we will continue to expand in EMEA and APAC, particularly through managed service providers and resellers in strategic locations and through a direct sales team based in Ireland.

DW: The saying that 'data is the new oil' has become something of a cliché...but can you give us SentryOne's view on how your customers are leveraging data for business advantage right now, as opposed to, say, a couple of years ago?

MC: At SentryOne, we believe that data is your business. It's not a problem to be managed—it's your most critical asset and, in some cases, your product offering. Businesses that recognise the value of elevating data to business-critical status are able to innovate more quickly, grow revenue, and get ahead of customers' needs.

As they grow, the most successful businesses move beyond simply managing data for efficiency and accuracy to driving revenue and innovation by effectively harnessing their data. The most data-driven companies are using AI capabilities and connected devices to deliver all kinds of smart applications and devices to customers. All these data-driven products

and services require systems that can support massive processing demands.

DW: Before we finish, what advice would you give to end users looking at evaluating their database monitoring and DataOps activities with a view to identifying areas for improvement?

MC: For users looking for Database Performance Monitoring solutions, primary criteria should be scalability, ease of use, and granularity of metrics. You'll want to choose a solution that can support your environment as it grows and collects monitoring data in a way that doesn't levy additional overhead on the system. In other words, you don't want the monitoring solution to become part of the performance problem. Regarding ease of use, look for a solution that provides clear dashboards with useful, actionable information displayed clearly. You should be able to come in every morning and see, at a glance, the health of your database environment, with problem areas called out clearly. It also helps if the monitoring solution is accessible through a web interface so you can manage your systems anywhere, at any time.

Finally, look for a monitoring solution that collects highly granular metrics – you will need detailed information to troubleshoot problems. Systems that don't provide a sufficient level of detail simply waste data professionals' time. For more information about choosing a database performance monitoring solution, check out this recent blog post, *7 Features to Look for in a SQL Server Monitoring Solution*, by Richard Douglas, our principal solutions engineer based in the UK.

Regarding DataOps solutions, data teams will need a clear view of what problems they're trying to solve as this market is still being defined by the players. It's very hard to do an apples-to-apples comparison of vendors at this point. SentryOne focuses on data integration with Task Factory, data documentation and lineage analysis with SentryOne Document, and data validation with SentryOne Test. SQL Sentry can also be a key part of the DataOps solution by offering observability across the data-centric application lifecycle. With any DataOps solution, choosing a product that is specific to your data environment can save frustration and resources.

DW: Finally, what can we expect from SentryOne over the next year or so in terms of new ideas and solutions?

MC: Our focus in the next year will be continuing to produce SaaS editions of our products (while maintaining support for our on-premises solutions), expanding our use of predictive analytics to help DBAs auto-tune database performance, and continuing to integrate our solutions with other technologies.

When there are too many tools in the infrastructure toolbox

Digital transformation and IT modernisation initiatives provide innovations to create a competitive edge and drive business growth. But they've also created increasingly complex environments that need to be managed by teams that are strapped for time and resources.

BY DAVID CUMBERWORTH, MD EMEA, VIRTANA.

IT ORGANISATIONS are good at taking on new tools but really bad at retiring older ones. But how do you know which tools are critical to keep, where there's overlap, and what's no longer needed? Part of the promise of AIOps is to rationalise tools so you end up with a single-pane-of-glass view of the IT environment.

This, however, is unrealistic. Most analysts agree that you need a number of different tools to manage everything. The challenges, therefore, are to reduce the number of legacy tools and replace them with a platform that does the collective work better. The final tool selection should operate together in a fully integrated manner.

The IT infrastructure is made up of servers and their related VMs and hypervisors, the network and related switches, and a storage layer (traditional or NAS). A good starting point is to evaluate what you are using to manage these layers. Then look at the infrastructure from an application point of view – do the legacy tools give you an application view or do they just show their particular silo?

You need a view of how the applications using the infrastructure

are performing so you can create a baseline. Once established, you can then look at pinch points and capacities to optimise the system. This new application-centric approach also gives you valuable insight you can share with the business – after all, they are only interested in how the applications are performing and not what technology they are running on.

The next stage is to look at the applications themselves and the customer experience they provide. For this you will need an Application Performance Monitor (APM) that shows end-user experience, the coding and all IT components outside the data centre.

A good example of this is AppDynamics from Cisco. You now have application and infrastructure views, offering an integration interface so analytics can be viewed holistically rather than by platform. This enables you to report to the business how their applications are running and have performed during the time since last reviewed, transforming IT from overhead into a source of competitive advantage and business value.





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DR RICHARD STEVENSON

Dr Richard Stevenson is a seasoned science and technology journalist with valuable experience in industry and academia. For almost a decade, he has been the editor of Compound Semiconductor magazine, as well as the programme manager for the CS International Conference

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Simple steps your IT can take to improve operations in a world of change

There is an incredible amount of literature about the post-COVID workplace. Some companies have already sent their employees back to the office where allowed, and others are considering not renewing leases, instead preferring to invest the money in off sites and employee happiness.

BY JOHN APPLEBY, CEO AT AVANTRA,

WHEREVER your company lies on the gamut, IT Operations will inevitably change for the good, and better. What might this look like, and how can you prepare?

Recognise the criticality

Many businesses apply a one-size-fits-all approach to IT when the reality is there are a handful of business processes, and associated systems, which will cripple a business if interrupted.

Review your business continuity strategy and check that you recognise the most critical systems and processes. For instance, your finance expenses

process can probably wait a few days, but if payroll doesn't run, people get upset pretty quickly.

Don't be dependent on service level agreements

I see many big businesses that outsource the problem to a third party. Here's the thing: you can outsource work, but if something goes wrong, your only protection is the contract, and trust me: the outsourcer is an expert in contracting, and it is nearly impossible to get any remedy. In one situation I saw, the outsourcer countersued for breach of contract and won.



When you consider outsourcing, you need to take control of how the provider services the contract.

The same applies if you use Software as a Service (SaaS): you need to understand how the vendor provides support and hold them to the same standards you would if you were delivering it yourself.

Multiple locations

One issue that occurred with several businesses during COVID-19 was that they had a large number of employees in a single office. Concentrating IT Operations into a single location is an unacceptable risk: if an outbreak were to occur, it might be impossible to keep critical business processes running.

The sensible approach is to spread the risk between multiple locations and even countries. With modern technologies, this has never been easier.

Automate

I talk about this a lot, but there are a ton of IT Operations tasks that are easily automated, and organisations must look at this urgently. It is entirely unacceptable that a repetitive task could be automated, and is not.

Not only does this risk your business, but it also is a terrible waste of human capital, which can focus instead on innovation and business transformation. Besides, bots are excellent at repetitive tasks and are happy to do them all day long, completing thousands of times more checks than a human could ever do.

Insource

I believe there will be a trend towards insourcing the operations of critical business processes. Many outsourcers found themselves unable to support businesses during COVID-19 because they didn't have remote working capabilities.

For non-critical processes, this might be fine, but if you are unable to pay suppliers or ship product, you might want to think about taking control.

Home working Fridays

You might want your workforce to get back to the office, but there is a huge advantage to doing a home working day: it will ensure everyone is out of the office, and the business can still run.

Too many businesses found themselves scrambling to put remote working in place for thousands of employees. Some companies tied up teams of people for weeks, ensuring that employees could work remotely.

Home office

One of the issues which most businesses have not solved is the issue of safe home office working. One well-known IT company was the recipient of a lawsuit from former employees who found themselves unable to work for life, due to chronic Repetitive Strain Injury.

A quality work environment is straightforward to ensure in an office setting, but almost impossible to police at home.

Smart employers will create guides for home working and ensure that people have the right screen height, keyboard, and chair. They will use HR resources to check in on employees and make sure they have what they need to stay healthy.

Collaboration tools

Companies like Zoom saw considerable increases in usage, but most businesses use Zoom as a band-aid and not a strategy.

I can't recommend a strategy of implementing real collaboration tools like Microsoft Teams or Slack and implementing them well.

For example, in an IT Operations use case, it is possible to integrate Slack into Freshdesk and Jira, so an incident coming in can be routed into a chat channel and directly into the bug system.

Final words

I believe there will be significant COVID-19 benefits to the workplace, many of which are well overdue.

We can drive efficiencies in IT Operations with automation, better tooling, and give people more exciting work to do, as well as flexible work locations. Let's make sure we take the opportunity before life goes back to normal!





How COVID-19 has accelerated the move from a 'cloud first' to a 'cloud now' approach

Without a doubt we will see more organisations embracing agile working and digital technologies, now that they've witnessed a cloud-enabled workforce in action during COVID-19.

BY JUSTIN AUGAT, VP PRODUCT MARKETING, iLAND.



RECENT MARKET DATA from Synergy Research Group via CRN suggests 2019 was a milestone for IT and that for the first time ever, enterprises are spending more money annually on cloud infrastructure services than on data centre hardware and software. For example, total spend on cloud infrastructure services reached \$97 billion, up 38 percent year over year, whereas total spend on data centre hardware and software hit \$93 billion in 2019, an increase of only 1 percent compared to 2018.

This means that many companies that have historically owned, maintained, and managed their own IT operations in their own data centre are now evolving how they support their business operations by transforming their IT to cloud.

Moreover, the cloud continues to be the foundation upon which most organisations' digital transformation efforts are built, with more than eight out of ten businesses considering the cloud to be either important or crucial to their digital strategies.

What are the key reasons underpinning this shift to cloud? Much of it is based on the modern organisation's need for greater agility and flexibility. There has never been a better example of this demand than demonstrated during this COVID-19 pandemic, as companies have hastily decamped employees to home working.

Likewise, employees today want the ability to work from anywhere and to collaborate with colleagues

as easily as they would in person. Even before COVID-19 led to a new remote workforce springing up almost overnight, a growing number of business leaders understood the importance of flexible working. Globally, 50 percent of employees work outside of their main office headquarters for at least 2.5 days a week, with 85 percent saying that productivity has increased in their business as a result of greater flexibility. In addition, more than 16 percent of companies worldwide now only hire remote teams. The cloud enables this freedom to work remotely.

However, until recently organisations have historically looked at only new application development and deployment for cloud, taking a 'cloud first' approach.

But now, accelerated by the demands of the modern workforce combined with the ongoing effects of COVID-19, many are pivoting towards a 'cloud now' approach. In the months and years to come we will see more organisations embracing agile working and digital technologies, now they have seen a cloud-enabled workforce in action.

What do we mean when we talk about 'cloud now'?

It means that companies are now looking at cloud for more than just new applications, they are considering cloud for all their applications, including existing ones.

The reason for this is straightforward: companies are focused on reducing costs and eliminating the dependency on the physical data centre is a logical next step in the continuation of this long-term trend. For as long as customers have been buying technology to support business, they have been using it to reduce costs and speed up time-to-market inside the data centre. Technology capabilities including server and storage virtualisation have improved IT's ability to respond quickly to lines of business. But, over time, the ability of new technology to further reduce costs and time-to-market is diminishing.

This is a result of the growing customer demand for more application resources, better performance, and increasing frequency of administrative tasks such as patching various components, and planning for end of life or performance upgrades. Likewise, as mentioned earlier, with a global and increasingly remote workforce needing access to their applications from anywhere, this is also fuelling demand. As businesses have reached this inflexion point of diminishing returns, they have turned their strategy to the cloud as the next frontier of IT efficiency, leaving the data centre firmly behind in pursuit of their 'cloud now' strategy.

But today there are hundreds, if not thousands, of cloud services available to organisations. In many cases, the capabilities of the service, adjusted for cost, are what matter most to the decision makers versus the infrastructure itself. As an example, the underlying

infrastructure that supports common business software such as Salesforce, Microsoft Office 365, is rarely scrutinised, as the products are trusted solely based on the brand's reputation.

But in the case of organisations moving their existing applications to the cloud for production hosting (IaaS), backup (backup as a service) or Disaster Recovery (DRaaS) the underlying platform must be vetted to ensure the application needs will be met. To do this, organisations must examine the capabilities at the platform level. This is where the technology resources that have been purchased come together to deliver the application performance, security, compliance and connectivity, and more, of the selected service. Ultimately, it is these consumed resources that directly impact the cost of the service.

This is where the technology resources that have been purchased come together to deliver the application performance, security, compliance and connectivity, and more, of the selected service

In general, the main cloud platform types that are most popular and available to customers at scale are public cloud, private cloud, and bare-metal cloud. They all have their merits and downsides and choosing the right cloud will very much depend on the customer's requirements, as different aspects of these multitude of cloud products will best meet particular application and organisational needs.

Ultimately, as more customers embrace the cloud for more of their workloads, the varying requirements of these workloads can lead to trade-offs in cost versus performance, which defeats businesses' main objectives when moving out of the data centre and into the cloud. As a result, customers need to understand a cloud provider's overall capabilities early to avoid missed expectations in the future as it is clear that not all IaaS providers are the same.

So, as organisations embark on their 'cloud now' approach, they should undertake due diligence upfront to thoroughly consider their own requirements and what type of cloud IaaS provider will best meet their needs both now and in the years to come. Without a doubt we will see more organisations embracing agile working and digital technologies, now that they've witnessed a cloud-enabled workforce in action during COVID-19.

When myopic vision can blindside a business

In the aftermath of COVID-19 financial uncertainty is, for most, among the top concerns of both IT and business leaders and the lasting impact is likely to affect decision-making processes and priorities for the coming years.

BY ERAN BROWN, CTO FOR EMEA & APAC, INFINIDAT.



AS MARKETS REBUILD, and review processes going forward, IT leaders must be sure to now actively minimise risk when making IT investments, in order to ensure that the business can both adapt and evolve in rapidly changing market conditions, whilst also up against significant resource constraints. This is especially true for storage already paid for as storage is often harder to repurpose than compute resources.

De-risking a business amidst financial uncertainty means avoiding sinking any cost into infrastructure you are not yet using, as tomorrow your priorities might change. It becomes critical to remove risk from all technology investments as well as reviewing and reconsidering what you keep on premises, versus what you choose to push out to the cloud.

Within the IT department, the manager, within the infrastructure team, holds a budget to be considered. Outside of IT it's about strategic procurement management - minimising upfront costs and delaying expenses. These

procurement reviews become the IT headache too as the department is forced to downsize, seeing budgets frozen or reduced, whilst still carrying the expectation to "keep the lights on" and support new projects. Though possibly these projects will be fewer in number they will become more strategic to the revenue of the organisation. As business units start to work tactically without a long-term strategy, the risk of inadvertent costs grows.

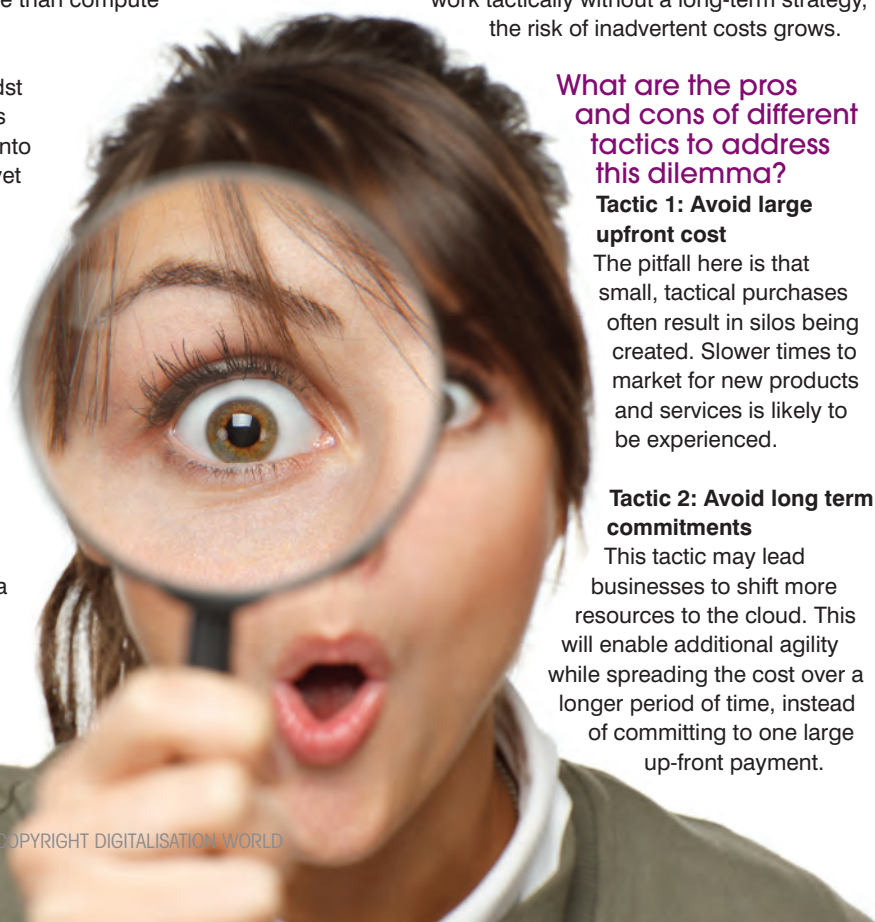
What are the pros and cons of different tactics to address this dilemma?

Tactic 1: Avoid large upfront cost

The pitfall here is that small, tactical purchases often result in silos being created. Slower times to market for new products and services is likely to be experienced.

Tactic 2: Avoid long term commitments

This tactic may lead businesses to shift more resources to the cloud. This will enable additional agility while spreading the cost over a longer period of time, instead of committing to one large up-front payment.



However, it will also add a substantial premium to the cost of infrastructure, as cloud services are more expensive for enterprises. It also forces the organisation to opt for heavier OpEx spending over time - public cloud CapEx solutions lack the ability to scale down, which is a core value of the public cloud.

Zoom's CFO - Kelly Steckelberg – was recently quoted on her intention to rein in cloud spending by investing in the company's own datacentre or co-location infrastructure. This followed a period of rapid reactive growth, during which Zoom's perceived 'fastest' route to increased capacity was deemed to be provisioning additional cloud services which were available quickly, albeit at a higher overall cost.

Tactic 3: Reduce costs anywhere possible

This tactic runs the risk of systems becoming solely about short-term operational demands and investments to future-proof systems being ignored. This increased investment in short term solutions will result in higher administrative overhead, at a time when IT teams are expected to be smaller, resulting in a direct impact on the responsiveness of the IT organisation.

For the savvy IT team, however, this could also present the ideal opportunity to proactively go out into the market to review vendors and offerings.

Tactic 4: Avoid discretionary purchases

Whilst this can appear to make sound business sense, it often really means that the bare minimum level of investment is made, with a lower priority placed on features and functionality preventing the systems from reaching operational efficiencies. Hidden costs usually increase the actual TCO, when critical features are treated as 'nice to have' resulting in cost increase in other projects to compensate.

Tactic 5: Avoid controllable risk

When considering skill shortages in the market, controllable risk may impact any willingness to change vendors, resulting in inertia. But inertia, plus fewer IT staff, means a decrease in throughput, which is a higher risk to the business's ability to serve its customers.

There are, however, alternatives that allow businesses to both react and control the risk, whilst ensuring agility and being cost conscious.

From an Infinidat perspective, the value of flexible on-premises consumption models is a compelling solution. The immediate benefit is that customers don't have to pay the 'cloud tax' as workloads spike. They also remove associated costs of deploying across multiple clouds quickly.

Equally appealing, is the fact that further procurement processes are minimal as the system is already in situ and the requirement to draw down additional capacity



only needs to be requested. The business is only then charged for what is used, similar to the public cloud consumption model. As demand eases off and capacity decreases accordingly, as in other utility models.

To ensure businesses benefit from 20/20 vision on long term success, IT leaders must now drive better cost efficiencies from their infrastructure. My advice - sacrifice nothing! Focus on reducing storage costs, whilst driving additional savings over time through greater automation, consolidation and operational efficiency.

Equally, continue to prepare for uncertainty and avoid vendor lock-in deals where feasible. Instead of doing capacity planning, which never really works, demand your storage vendors de-risk that aspect, and always have unused and unpaid capacity that you can scale into, using CapEx or OpEx as you prefer. This will enable you to quickly address changing market conditions without worrying about capacity shipments, supply shocks or other disruptions

In short, tomorrow's IT leaders must strive for elasticity today.



Working from home is here to stay: Key next steps for IT departments



Did you ever think you'd actually miss going into the office? Spontaneous encounters in the elevator, chats by the watercooler, birthday celebrations with

colleagues. For the time-being at least, these are all still off the table for most of us. The world of work has adjusted to a 'new normal' of remote working. A world that many in the pre-Coronavirus era predicted would come eventually, but take years to arrive, not days.

BY JAMSHID REZAEI, EVP IT & CIO AT MITEL.

IN THE FIRST FEW WEEKS of lockdown, many CIOs and IT leaders scrambled to ensure that their employees could get online and working as fast as possible, and this resulted in businesses trying out an unprecedented variety of communications and collaboration solutions. But now that we've been living with remote working for a while, we have the breathing room to take a longer-term view. Even though the lockdown is easing, working from home continues for most office workers, so it's important to take time to consider your IT strategy fully. Here are three key areas to reflect on.

Laying the groundwork

The truth is we're in this for the long-haul. We can expect long-term changes to the way we work: a recent survey from Global Workplace analytics revealed that up to 77% of the US workforce wants to

work from home after Covid-19. I expect the figures in the UK are similar, signalling that changes CIOs have made, or are making, to their infrastructure and technology policies, to support remote working, will need to become permanent.

With this in mind, I recommend using the next couple of weeks to monitor and test employee behaviour in the face of these challenges. Based on the insights you gain, you can figure out the best way for your organisation to drive adoption of, and engagement with, the right communications and collaboration tools to help replace some of the in-person office experience.

The shadow IT threat

When lockdown began, the immediate priority was to get employees working from home quickly, on a mass scale. This led to unprecedented levels of shadow IT, where staff were mixing approved enterprise-level software with consumer-based applications, resulting in many potential security threats.

Make no mistake, there are benefits to bringing new applications into the fold, enabling the business to move quickly, embrace innovation and drive productivity in challenging times. However, we do need to remain vigilant to the risks. Four years ago, Gartner predicted that by 2020 a third of successful attacks experienced by enterprises would be on their shadow IT resources.

There are many options on the table for IT departments looking to tackle this threat. What is different about the present scenario is that it affords IT departments the chance to carry out a real-life benchmarking exercise of available solutions. CIOs also have the opportunity to test the robustness and security of any solutions currently being used by monitoring how well they work under extreme conditions. However, it's critical that having gone through this phase of testing different solutions, CIOs land on a consistent solution across the organisation to ensure efficiency, integrity and security of the business communications platform, as well as full compliance with data protection requirements.



Internal alignment

In parallel, IT departments should work hand-in-glove with HR and other relevant stakeholders to ensure that business continuity plans are kept up to date, incorporating the many lessons that have been learnt so far from the Covid-19 crisis across the organisation. One of the biggest takeaways from the crisis is that we live in an unpredictable world, and time spent preparing for the unexpected will pay dividends further down the line.

I firmly believe that there is a bright side to the current situation for CIOs and IT leaders. It presents the perfect opportunity to build a better understanding of employee communication and collaboration needs in different environments, and how the IT organisation can help support those needs more effectively, ensuring the best possible outcome for everyone involved. Throughout history, crises have led to fundamental changes in how we organise our societies and businesses. This one is no different. We're seeing the value digitalisation can bring to virtual communication and collaboration, and our work habits and practices will never look quite the same again.

What is different about the present scenario is that it affords IT departments the chance to carry out a real-life benchmarking exercise of available solutions. CIOs also have the opportunity to test the robustness and security of any solutions currently being used by monitoring how well they work under extreme conditions

The communication conundrum: Staying connected during Covid-19

Smart data and innovative communication technologies are allowing today's businesses to overcome the considerable challenges of managing customer experience (CX) during the ongoing pandemic. Nick Barbeary, Client Development Director at Paragon Customer Communications, gives an insight into how modern customer communications systems can enable businesses to keep pace with ever-evolving demands and lay the foundations for success in the post-COVID-19 era.

As the novel coronavirus forces the British public into isolation as lockdown measures grip the nation, and millions are furloughed, customers' interactions with companies continue to shift as people settle into an unprecedented way of life. For organisations, keeping abreast of ever-changing customer preferences, proactively adapting communications strategies and rapidly, efficiently and, perhaps most crucially, cost effectively deploying solutions can provide a significant competitive edge.

Particularly in these times of uncertainty, delivering positive experiences through effective communication can elicit both an immediate and long-term influence on consumer behaviour and attitudes towards a business. In the midst of the crisis, this can be building

lasting relationships, nurturing brand advocacy and re-assuring anxious consumers. While, if managed successfully, organisations can position themselves at the forefront of the longer-term shifts in consumer behaviour that result from this crisis.

For retailers, for instance, this can include changes in consumer purchasing behaviour – with more than three quarters (77%) of consumers expecting to continue to purchase online more once the lockdown is ended¹, and 25% of shoppers intending to continue to shop with new online retailers they have trialled during the crisis due to the positive experience they have encountered during the lockdown².

Now more than ever, carefully orchestrated integrated, omnichannel communication strategies represents a huge opportunity for organisations to create a truly 'frictionless' CX, engage customers with speed, efficiency and relevancy across a multitude of channels, and capitalise on previously untapped opportunities.

Nevertheless, formulating a strategy that not only hones in on the acute needs of customers today, but also seamlessly adapts to shifts in market dynamics as restrictions are lifted, presents a wealth of challenges.

Understanding the consumer psyche

While innovations such as Artificial Intelligence (AI), chatbots, cloud software and big data can provide the infrastructure and tools a company will need to drive



effective omnichannel strategies, they don't create a positive CX by themselves.

To deliver the CX that consumers demand, other aspects must be carefully considered, be that gaining a comprehensive understanding of the customer mindset, having the necessary internal skills and digital-proficiencies in place, or even a robust strategy that enables a company to react quicker to market forces and global problems while still delivering services for their customers.

An in-depth knowledge of the consumer psyche – from their preferred communications channels to their unique online behaviour, and even their stage in the customer journey – can enable organisations to best centralise and leverage relevant, existing data from multiple sources to generate timely, highly engaging, personalised, and user-centric experiences at every touch point.

Only when organisations have acquired a detailed understanding of customer engagement across a multitude of channels, as well as the benefits and limitations of each one, can they hope to get the most from their communications and marketing campaigns. It is in this regard where technology truly comes into its own, helping organisations achieve more with less effort.

AI technology, for instance, when supported with the appropriate marketing knowledge, can seamlessly guide customers towards the required outcome such as a sale, or behavioural change – seamlessly switching channels automatically based on what it's learnt.

A cohesive ecosystem

A cohesive ecosystem of customer communication management platforms (CCM), supported by agile leading-edge communications technologies such as AI, can aid companies in traversing a wealth of online and offline communication channels and propel them firmly into the delivery of genuine positive CX.

For customers, the result is a more unified communications experience across all channels, with contrasting messaging and branding distributed via varying digital and traditional media eliminated. Consumers are able to interact on their terms, at the times of their convenience and across the channels of their preference, with the ability to seamlessly switch between different channels and devices.

Whereas from an operational standpoint, all communications to and from customers can be visible to those who need access to them across all internal departments. This can not only effectively break down operational silos, but also limit the likelihood of different internal teams bombarding customers with a tirade of messages, or potentially more detrimental,



having periods during which they are not contacted at all.

Knowledge is power

To put themselves in the best position to adapt to changes in the marketplace, tackle the challenges of the resultant disruption of the crisis, and deliver the best CX through effective multi-channel communications, organisations are increasingly finding value in the support of a knowledgeable and experienced customer communications partner.

Marketing expertise can ensure each stage of an omnichannel communication strategy, from data-driven audience understanding and customer profiling, through to campaign strategy and planning, personalisation and even channel selection can be efficiently, rapidly and cost-effectively planned and deployed.

Only when this is achieved, can organisations hope to deliver omnichannel strategies that benefit from customer-relevant messages, incisive targeting, customer journey mapping and, by using the most appropriate communication channels, cost-efficiencies.

Further reading

1. <https://uk.pfscommerce.com/blog/pfs-uk-covid-19-consumer-research>
2. <https://uk.pfscommerce.com/blog/pfs-uk-covid-19-consumer-research>

Just about managing

What is home working like for the UK's largest enterprises?

BY JENNY GRUENING, DIRECTOR OF MARKETING, SMARTSHEET.



WHETHER THE TASK is to build 5000 new homes on a green field site in North London or electrifying a stretch of railway in the North East, the 690 enterprises in the UK with over a 1000 staff are the heart of major projects. Since March, many of the 2.7 million employees within these firms have been working from home and it is still unclear how they are coping with the challenges of remote working.

At the start of April, Smartsheet, a collaboration specialist commissioned Engine, a research firm to survey a 1000 staff from UK organisations with over 1000 employees to find out more about the home

working experience. Spread across staff, managers, and senior executives the survey looked at the impact of remote working from both a management and worker perspective across a wide demographic and regional spread.

Productivity takes a hit

One of the big take-aways from the survey was that most UK workers, especially the younger generation, are struggling to be productive and communicate following the transition to remote work. Nearly half of Generation Z workers (48%) in the UK, say it has been difficult to stay organised and prioritise the most



important work. While nearly half of Millennials (48%) noted that communicating with colleagues has been difficult, 32% of Generation Z workers say the same.

This difficulty to communicate seems at odds with the influx of tools such as Video Conferencing apps like Zoom that businesses have deployed to help replace face-to-face meetings.

According to Smartsheet CEO Mark Mader, "This research shows that the key to helping remote workers cope with the current circumstance, and thriving in the longer-term, goes far beyond simply connecting people and teams through video-based technology. To be effective, people need to stay deeply connected to their work and the work of their teams. They also need context, structure, tracking, and visibility into their work. Providing those things is more important now than ever."

Although not in the 1000+ employee bracket yet, Smartsheet has maintained a largely remote workforce. Over the past three years, the company grew its Boston office from a handful of people to more than 300, and has opened new locations in Edinburgh, London, and Sydney. Along the way, the company has opened up culturally and hired key executives in remote locations. "In each case, we listened and did our homework," says Kara Hamilton, the Chief People Officer at Smartsheet, "But we also took leaps of faith, fortunately, those have turned out to be good bets."

Hamilton suggests that organisations need more confidence to form the cultural behaviours and cultural motion that propels a global, distributed enterprise. "One of the biggest lessons we've learned is accepting where we've needed to mature, and quickly embracing those opportunities."

Office culture club

The survey suggests that shifting corporate cultural is a challenge with Seventy-nine percent of the UK workforce feeling less connected to their teams'; young workers especially, with 85% of Generation Z and 81% of Millennials reporting this issue.

Yet there is a paradox with remote working in that it can become a snowball effect of time-consuming tasks; especially if communication tools start to bring in more people into a conversation or project than are necessary. For example, the dreaded mass-CC or "all of department" emails or IM that can quickly turn into unproductive side-lines.

This issue is also recognised by the "Coronavirus Flash Survey" conducted by analyst firm The 451 from March 2020 that found 25% of the respondents reported asking for more time to focus on their work, and 33% said they want less time spent in email or messaging apps. This suggests that the solution to connecting a team today is not necessarily to

Many of the survey respondents work for companies that are involved with major infrastructure projects across construction, telecommunications, and transportation. These projects with multi-billion-pound budgets have been dramatically impacted by the pandemic with nearly half (49%) of UK workers responding that it is harder to give status updates on projects now that they are working remotely, only 11% said it is easier

schedule days full of video conference calls or launch endless email or chat threads.

Part of the issue is that mass remote working brings with it a new type of people management style that some managers may be unfamiliar with. "It really is the human side of thinking about it," says Gene Farrell, Chief Product Officer at Smartsheet, whose organisation extends from Seattle to Boston, London, and Edinburgh. "I've long led people who worked 100% in the field. Every morning when I sat down and my IM showed I was there, I would get a chat, I would get a video call; just a quick two-minute catch up. And that connectedness, not letting them feel forgotten — it's huge."

Smarter not more tools

Many of the survey respondents work for companies that are involved with major infrastructure projects across construction, telecommunications, and transportation. These projects with multi-billion-pound budgets have been dramatically impacted by the pandemic with nearly half (49%) of UK workers responding that it is harder to give status updates on projects now that they are working remotely, only 11% said it is easier. For managers, over half (58%) said it is harder to get status updates on projects now that they are working remotely, while only 9% say it is easier.



Overall, thirty-eight percent of UK workers said that understanding the status of projects they are involved in and how they can best move them forward has been difficult since they began working from home.

To overcome this issue, organisations need to think beyond just how many methods they can deploy to keep teams connected, but more about more workforce tools that can provide real-time visibility into projects, milestones, roadblocks, and issues.

Mader suggests that getting those kinds of reports automatically can ensure that management and executive leadership are able to keep their finger on the pulse of the organisation without relying on proactive reporting from team members. “Automated workflows can ensure that projects stay on track across distances and time zones,” he says, “and these same platforms can help you connect to the emotional wellbeing of your team.”

The Smartsheet CEO suggests that providing employees regular opportunity to share their mental state with you through named or anonymous routes, such as regular “pulse” surveys that collect feedback on the overall health and happiness of workers.

“Whatever routine or channel you choose, the key to making it all work optimally is building relationships,

so team members feel comfortable reaching out. Encourage your team to connect with each other, in addition to their management. Virtual coffee chats or book clubs promote connection and sustain relationships at all levels. By making this a priority, leaders can ensure their remote team members stay connected.”

The new normal

Although the survey shows a lot of challenges, a closer examination reveals that around 10%-15% of those surveyed across all the of questions expressed improvements in connectedness, effectiveness, and productivity. This 1 in 10 roughly correlates to the pre-pandemic proportion of the UK workforce that worked full time from home prior to lockdown in March according to the Office for National Statistics (ONS).

According to Hamilton, this suggests that if done well, remote working might become a benefit to these organisations who can learn from this crisis. “We all need to take the time to celebrate and honour achievements with our teams.

Though today’s workforce is upended, there will be a new tomorrow – with a new outlook and lessons learned about what it truly takes to work from anywhere.”



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How will your workspace be different after COVID-19?

Gareth Meyer, Commercial & Operations Director at automation and infrastructure service provider Ultima looks at how the current pandemic is likely to impact our future workspaces.



With many workforces now up and running remotely, senior teams are debating what work will look like post COVID-19. Returning to 'normal' may at first glance be the 'sunny uplands' we've been dreaming of, but should we return to our old ways?

It's likely we will take many lessons from the pandemic. For some, this will include re-evaluating their outlook on life and the way they work. So, how can we address our work-life balance better, and how should businesses adapt and change post-pandemic?

There is already strong research that demonstrates people are more productive when they have a better work-life balance. Research by YouGov in 2019 revealed that a fifth of HR managers believed that staff work to a "slightly higher" standard at home than they do in the office, and a further 7 percent believe they worked to a "much higher" standard. In a Stanford study which monitored 16,000 homeworking employees over several months, they saw a 13 percent performance increase, including more minutes worked and more work done per minute.

Now companies are finding out for themselves the benefits and the problems of remote working. From our experience, the benefits far outweigh the difficulties. Although we don't have hard stats yet around the increases in productivity we're experiencing; there is strong anecdotal evidence that businesses have seen good increases in productivity.

The Stanford study also found that home working leads to 50 percent lower employee attrition, and we know those employees who can work from home are 52 percent less likely to take time off work. Combine these employee wins with the reduction in office overheads, rents and travel expenses and the reasons for continuing remote working look good. And the positives in terms of reducing your carbon footprint should not be overlooked either.

Remote working has not come without its challenges – from having to work whilst home-schooling or working from less than favourable home situations like the end of your bed. However, once children are back to school and with the right support to create



suitable 'workstations' within homes and the ability to connect with colleagues face-to-face at times, there is much to be gained from continuing working remotely, and Ultima is looking at continuing to do so after the pandemic. We have looked at structuring ourselves into two parts – with one part of the company working from home 50 percent of the time and rotating this or having a drop-in centre or office hub that staff can go to for face-to-face time on an ad hoc basis.

Old versus new

Many boards are grappling with what the new normal should look like for their companies. It's all up for debate, with the modernists challenging the need to return to the office. I've found that my team is more productive. Some are still working at 7pm to complete tasks that need to be done – but then they have the flexibility to do personal things they have to do at other times of the day (which is mostly home-schooling now). I want us all to be striving for an excellent work-life balance.

As a company, we've seen massive benefits from remote working. Collaboration tools have seen our team and interdepartmental communication improve with greater visibility of concerns and issues across the business. For example, IT has found where once people might have asked for help verbally, they now log a problem, so the team has better clarity of all queries arising; and our CEO is still able to hold his 'coffee catch-ups' with all staff. Cisco Webex and Microsoft Teams are enterprise-grade collaboration tools that work – without them, we would not have been so successful in our remote working.

Technology that enables

As they haven't done it before, empowering departments like finance and HR to work remotely has been more challenging. We needed to educate less technical individuals on how to access and use the technology remotely – from how to connect their devices to Wi-Fi to how to use the increased security measures in place to access relevant business systems. We're looking at a new learning management system that will address the issues of user awareness that home working is creating.

Some enterprises have been surprised that today's technology can support all their staff working remotely. Systems aren't falling over as 70,000+ global employees access collaboration tools and business systems. And the use of the latest desktop technology like Citrix Zen means that businesses can still use various legacy business applications in the cloud, enabling them, for example, to use finance and CRM applications as usual.

The latest cloud and automation technology have made remote working for all departments a reality. By automating the hefty maintenance, security and support requirements of the cloud, organisations can now migrate their critical business apps to the

cloud with all the management and security issues addressed much more effectively. The automation technology currently available is set to change the market by simplifying cloud ownership and operations. It finally makes the cloud an option for businesses of all types and sizes.

Further change required

It's been a knee jerk reaction to get people working remotely, but we need more change if we want people to work remotely permanently. Technology companies need to offer end-to-end customer focused management – where the company's end users are the customers, and not the IT or procurement departments or technical heads. We need to look at it from the perspective of the individual customer and make it a good experience for them.

A fully managed service can support you working from any location – even the beach. There will, of course, always be a point at which hardware fails so companies need to think about innovative service offers to solve these issues.

Where companies once signed-up to complex, inflexible contracts, IT needs to be provided on a flexible, consumption-based billing model. As people have been furloughed and companies need to keep cash in their businesses, we have had to be flexible in our billing, not charging for services that aren't currently being used. If a second phase of the pandemic comes, then this pay-as-you-go model will be even more critical for businesses to survive. One-off large procurement will be a thing of the past in terms of tech investment as businesses move to a cloud-based SaaS model. Procurement departments will need to be reshaped, as will IT departments as they support and enable their users in a different way. Automation and remote working will see businesses shift to a cloud-based user model where you effectively pay for what you consume.

Personal wellbeing

Technology aside, the key to enabling permanent remote working is good personal wellbeing in the home workspace. Businesses will need to give staff the means to work effectively from home – from offering the right desks, chairs and potentially clever workstations that can be installed in homes to make working from home comfortable and unobtrusive. And we will need to offer some form of personal face-to-face time too to ensure good mental health for remote workforces.

The pandemic has seen changes to the way we work which would have taken five or ten years to embrace. It's shown companies that the technology for remote working works - employees can be more productive, and businesses operate successfully. The pandemic has forced digital transformation on a global scale, post-pandemic we mustn't lose the benefits of this change.



Building your COVID-19 exit strategy: five emerging digital business trends to consider

As restrictions on society are carefully lifted and businesses take stock of where they are, many are realising the changes they have made have gone far beyond mitigating economic losses and adapting to an unprecedented lockdown. For many industries, the measures have opened up a more sustainable, effective and collaborative working environment.

BY LIAM BUTLER, AREA VICE PRESIDENT AT SUMTOTAL.

WITHOUT A DOUBT, COVID-19 put many businesses into survival mode. However, the associated response also caused a global digital acceleration - from both a consumer perspective, and even more so in business. Many of these developments are now here to stay, having already triggered long-term changes to workplace practices.

As businesses start considering their 'exit strategy', re-onboarding furloughed employees, and how they will continue to operate while the world is in

recovery mode, they will be engaging with customers, employees and other businesses in very different ways. Here, we look at five distinct digital trends, and how businesses can adapt to them with a permanent, digitally-enabled strategy:

1. Virtual sales platforms will go beyond 'online shopping'

While online shopping has been in the ascendancy for years, the temporary closure of the vast majority of retail outlets to curb the pandemic has accelerated the

trend and spawned new business concepts. Some local businesses, for example, have pooled resources to create online platforms so consumers can continue to support them and provide an alternative to the major online platforms.

Lockdown has also pushed industries that traditionally rely on the in-person, on-site sales experience to innovate more aggressively. In the automotive sector, dealers have increased their reliance on virtual tools to maintain engagement with their customers. While this won't replace the option of a test drive for many people, a large part of the research for a car purchase could permanently shift online.

Brands who offer a virtual car buying experience, for example, where buyers get a good sense of vehicle features and driving experience see a clear sales advantage, with Tesla, Audi and Hyundai among those allowing customers to completely configure their purchase online. It's a growing trend, with everything from kitchen and furniture design to sports and fashion brands reducing or removing the need for people to shop in person.

2. New customer engagement frameworks increase flexibility and access

While many sales personnel have been unable to work anything like their normal hours recently, call and contact centres have seen a huge increase in activity. Many industries have responded to this shift in engagement by building video-based virtual advisory services to replace on-site consultations and phone advice.

The concept is likely to endure, not least because it can offer quicker and more flexible access to consultancy expertise and appointments, and extend into areas such as healthcare. This shift to online consulting means companies not only need to rethink their online concepts and technologies, but refocus where they allocate their experienced specialists. Enabling them to adapt and re-train so they can offer high quality virtual advice will allow business to add virtual consultancy more effectively.

3. Interaction with partners and suppliers finally shifts online

The current social distancing rules also have an impact on partners and suppliers. Historically, many industries have been cautious about adopting virtual training and negotiation processes in these relationships, instead relying on being there in person. But in many cases, people have found that virtual sales processes, meetings or training courses have worked better than expected. Entire sales cycles have been completed in a virtual-only manner over the last few months. And while personal contact will remain important in the future, the number of meetings and the many miles traveled by people working with partners and suppliers will likely be significantly reduced. From webinars with technical instructions

for installers, to onboarding new suppliers via virtual platforms and with the help of collaboration tools and video conferencing, many technologies have been able to demonstrate their practical benefits in recent weeks.

4. Use of technology and digital tools accelerates

Digital tools and platforms have become much more important for implementing work processes without personal contact. An important step in this is the integration of business systems across company boundaries to offer more fluid cooperation with key stakeholders.

Solutions such as webinars, online training courses, collaboration platforms and other digital offers can also be used for numerous business areas and processes. The use of video conferencing solutions has exploded in recent weeks, because the ability to communicate face to face virtually makes it possible to establish a personal connection despite the physical distance.

This trend towards increased mobile and decentralised work was already building, but the current crisis situation has forced many companies to accelerate the process. It's safe to assume that remote jobs will be added more quickly than planned in some areas, even when workplaces can be fully opened again.

5. Building digital skills remotely

While digital technologies are an important part of this transformation, it is just as important to build the skills and qualifications required among employees. A recent study by Skillsoft, for example, showed that the majority of companies surveyed in Germany, France and the UK see a lack of qualifications for digital transformation as one of their greatest challenges. Dealing with new technologies and tools is only one area where employees have to be trained more frequently. However, a flexible and quickly applicable system for employee training is a key factor for almost all work areas in order to be able to react to new situations and requirements. This affects employees in direct customer contact, who, for example, have to comply with hygiene regulations, deal with seasonal peaks in activity or the current restrictions and distance rules. The many employees who work in virtual teams or where contact with customers, colleagues or partners is increasingly shifting to virtual channels are equally important.

Linking all these requirements together are digital HR, HCM and learning platforms, which make employee training much more flexible and can be implemented ad-hoc and from any location as required. Such systems also help to identify which employees would offer further training or retraining if, due to changes in the company - for example, a transfer of advice to online channels - some tasks or roles are eliminated and new jobs are created elsewhere. In this way, qualified employees can be nurtured for future requirements.

The impact of coronavirus on enterprise adoption of 5G and edge computing



In his first address to the nation following his recovery from COVID-19, UK Prime Minister Boris Johnson asserted that for now, the country needs to remain in lockdown to continue fighting the spread of the virus. It's becoming increasingly clear that businesses should not assume things will go back to the way they were and should instead be looking for ways to adjust to a post-COVID global commercial and economic landscape.

BY JAMES BRISTOW, SVP EMEA, CRADLEPOINT.



ONE CHANGE that will be particularly important for enterprises to adapt to is the need to do more with less, and not necessarily by cutting back and scaling down. In other words, success in today's landscape will be determined by the solutions that help businesses work much more efficiently, either by freeing up resources internally or by supplying a wider range of customers with a faster and more reliable range of services. Here, we take a look at how one solution can make a real difference – edge computing.

The enterprise benefits of edge computing
Edge computing co-locates computing, storage, and networking functions closer to where the data originates. This reduces the amount of data being sent back and forth between devices and the cloud, saving time and power, conserving bandwidth, and reducing latency.

Edge computing also provides rapid and cost-effective scaling under a common infrastructure.

Long-term cloud storage already runs at a high cost for enterprises, while real-time access storage can be nearly 10 times more expensive. No longer having to store data in the cloud is a huge cost savings for businesses.

Most importantly, the customer experience of the future will be run from the edge. For example, smart cities will use data processed at the edge to offer parking solutions that are tied to video cameras. This will enable them to identify open parking spaces by only transmitting meta data, instead of the whole video stream.

What are the adoption trends amongst enterprises? Before the outbreak of COVID-19, both investment in and adoption of edge computing was on an upward trend amongst enterprises. In 2019, one Analysys Mason report found that enterprises will spend an average of 30 per cent on edge computing over the next three years, while a Gartner report predicted that three-quarters of enterprise-generated data will be created and processed at the edge by 2025.

Like most economic forecasts, these figures will probably be revised to reflect the impact of COVID-19. But given that flexibility, efficiency and lower costs have become the predominant characteristics of enterprise success in the era of coronavirus, it's likely that these factors will drive adoption rates even further.

The role of 5G

Edge computing will underpin one of the major

benefits of 5G: low latency. To achieve the goal of less than 10 millisecond latency, 5G networks must move processing power closer to the end user.

With 5G networks popping up all over the world, edge computing is expected to help in reaching the requirements of 5G, as well as supporting businesses in the LTE pathway to 5G. But with compute functions moving from the datacentre to the WAN edge, enterprises must have the necessary tools to facilitate a paradigmatic shift in their IT infrastructure.

Predominantly, enterprises will need new edge router solutions that are provisioned, controlled and managed via cloud-based apps to unlock these advanced LTE capabilities and provide a gradual evolution to fully-fledged 5G services when and where available. This includes provisioning load balancing, supporting multiple levels of nodes for hierarchical networking and allowing for resource pooling & universal orchestration & management.

Final thoughts

It's clear that increasing operational efficiency will be key for enterprises when facing the economic challenges of the future. Moreover, having the flexibility and agility to roll out new products and services to customers will continue to be the ingredients of success long after the current crisis ends. It's therefore more important than ever for enterprises to realise the potential of 5G edge, not just to overcome barriers today, but to ensure continued success in the future.



The art of self defence:

Why it's time to practice cyber distancing



In recent weeks, the majority of the workforce has undergone a titanic shift from being office based to working remotely from home. For many, this will have been their first experience as a full-time virtual worker. One that has required them to adapt fast to the new normal.

BY TIM BANDOS, VP CYBERSECURITY, DIGITAL GUARDIAN

WHILE WORKING from home has some upsides – including a welcome break from the daily commute – there's no denying it comes with its own unique set of challenges. Everything from having to embrace new ways of collaborating with colleagues, to staying engaged with the job in hand when family members are demanding time and attention.

In this brave new world, the lines between our professional lives and everyday living can quickly blur. Work devices get used for personal activities, like online shopping – while personal devices get used late in the evening to quickly check work emails.

Unfortunately, these behaviours can open the door for hackers. Giving them new, potentially unprotected avenues to steal sensitive data or access vulnerable company networks.

Practicing the art of cyber distancing

Just as social distancing plays a key role in halting the spread of COVID-19, establishing a safe distance between our home and work lives from a digital perspective is paramount. Because cybercriminals are taking advantage of the current situation to exploit the fact that working from home means people's guards are down. Which means they may be more prone to clicking on a malicious email, especially if this link promises new information on the ongoing pandemic.

But that's not the only issue. Not all remote working set ups are created equal. While some home networks may feature industrial-strength next generation firewalls and two-factor WiFi authentication, others will be much more vulnerable. That's especially true when employees are using a router provided for free by their internet provider five years ago - and have not changed the default password and settings it came with.

This poses a significant risk to both the enterprise and every individual who now finds themselves working from home.

Simple steps for boosting home network security
Staying safe at home now, more than ever, depends on everyone practicing some basic





cyber security skills. Fortunately, there are a number of simple steps that everyone can implement from the comfort of their home to boost their security position. Changing the default administrative password on the home router should be the #1 top priority. This can be done by accessing the router homepage, which is usually located by typing either `http://192.168.11` or `http://192.168.0.1` into your web browser's navigation bar.

Once here, the next task is to set a strong password for accessing the home Wi-Fi network with WPA2 encryption. Aim for a password that is 20+ characters in length and features numbers, letters and symbols. Next, check that the remote access setting is disabled to ensure the Wi-Fi's network SSID (network name) is not being broadcast to neighbours or anyone in the vicinity of the property. Finally, router firmware should be checked; routers typically do not come with an auto-update feature so it's a good idea to review every six months or so, to ensure firmware stays free of potential flaws and vulnerabilities.

Lastly, check and harden any connected IoT devices, like webcams. These smart devices often come with weak default credentials and custom ports that can open up gaping holes in the home network. Update passwords with something complex and modify the default ports each device listens to. This will require something called Port Forwarding on the router.

Maintain security best-practice behaviours
The primary attack vector for COVID-19 themed attacks has been via phishing emails that prey on people's fears. Since the crisis began, there has

been a massive uptick in campaigns that are using messaging around the pandemic to the advantage of cybercriminals. To avoid letting uninvited guests in, everyone needs to be hypervigilant and modify their online behaviours to incorporate security best practice. This includes never clicking on suspicious email links and attachments. Similarly, always validate the full sender's email address – emails may appear to come from the CEO or CFO of a company but are actually being sent from a @yahoo or @gmail account, and not an internal work account.

Finally, everyone should be suspicious of any email requesting personal data; the government is not going to send you an email requesting personal financial information. Similarly, watch out for scare tactics from criminals posing as a bank or online service provider. Wherever possible, staying connected to the work environment via a VPN will add a further additional security layer to the home network. If personal laptops are being used for work, users will need to keep these fully patched and should consider installing a credible antivirus solution for added protection.

Keeping people and networks safe

The security risks associated with remote working aren't new. But the sheer number of people now working out of their kitchens and dining rooms has ramped the potential threat risk to an unprecedented level.

By practicing the art of cyber distancing and applying some common sense, we can all take steps to protect ourselves from becoming the next cyberattack victim – and keep the sensitive data of the companies we work for safe.

Cloud DAM - powering brand content challenges into the new normal

During the pandemic, big brands and multi-brand account teams at large advertising and creative agencies have increased the volume of their content marketing to engage with new and existing customers. There has also been a surge in the take up of collaborative software and digital transformation during this period, as internal and external teams seek to continue collaboration.

BY ALAN PORTER, AN INDUSTRY-LEADING CONTENT STRATEGIST AND DIRECTOR OF PRODUCT MARKETING AT NUXEO.

THE VALUE of good content cannot be underestimated. Recent Nuxeo research with UK shoppers revealed that 29% of consumers said personalised content from a retailer makes them feel more valued and 28% said it made them more likely to buy again. 22% said they would be more likely to recommend that retailer as a result. More than four in 10 of UK shoppers say they have recommended a retailer because of the quality of the content they share.

This will most likely continue as and when business returns to normal. Advertising will be multi-channel, multi-disciplinary, integrated, data-driven, and above all digital. Hyper-personalisation and more granular personalisation of content will grow as brands look to get more intimate with their customers and continue engagement.

This means that one campaign can have many files and digital assets. This content will come thick and fast, in different languages, for different targets, and on different platforms as agencies look to meet consumer demand for content. What is the most effective way of managing this content?



Management of rich media assets

Managing this plethora of rich media assets and all the associated digital rights and permissions is a complex task. This is exactly why advertising agencies are turning to cloud-based Digital Asset Management (DAM) systems. They allow creatives to easily collaborate on, share, and access complete

campaigns or component materials such as video and audio files across multiple devices.

A cloud-based DAM system essentially delivers the right content to the right people, when they need it and on the most appropriate device. It also has the ability to track and measure digital engagement. Cloud-based DAM is also scalable, accessible from anywhere with an internet connection and secure. In addition, being cloud-based, software updates are pushed automatically so all users have the very latest release and there is no downtime.

But the pandemic has seen a major increase in remote working. There has been far greater demand for remote access to assets. Employees, from creatives to the C-suite, are logging into DAM systems, to access critical assets and content. The value of cloud-based DAM has never been higher, as it supports collaboration and remote work. Given that the remote working trend is likely to continue as businesses question whether expensive real estate is still necessary, cloud-based DAM will only become more important.

DAM moving forward

The majority of enterprises, including advertising agencies, have taken steps to ensure the robustness and security of their IT infrastructure to allow remote working and operational resilience. The next step will be to further invest in digital transformation to make them stronger and able to better compete in the



digital economy, post-pandemic. Up until now, many creative agencies have been using basic content management platforms or DAM infrastructures that have been created by applying technology to address analogue workflows. This has resulted in poor overall visibility and in many cases process inefficiencies. With the trend towards flexible and home working, following the pandemic, advertising agencies will need to provide a permanent infrastructure to support these ways of working. Cloud DAM supports distributed teams and home working. Digital marketers and designers can collaborate, create, and publish on the go from wherever they are. In addition, the self-service capabilities that are part of Cloud DAM allow users to be ultra-productive – swiftly able to access the materials they need when they want them.

Permissions and control of assets are critical for a global ad campaign. Advertising agencies are, after all, the guardian of their clients' brands. Protections include digital watermarking and automated legal review processes based on specific language or images. Configurable workflow automation keeps content and brand reputation safe and secure, by fully vetting assets before they are used in campaigns.

This brand protection ties in with the single source of truth that is so important when managing assets. Asset lifecycles and permissions ensure only fully reviewed and approved assets are accessible for use in campaigns, a key component of cloud DAM systems. They provide complete work-in-progress functionality and workflow automation to optimise what happens to digital assets and keep track of their status.

Furthermore, because they are integrated with other information systems, critical product data and information is synchronised with the asset and accessible in one place.

TBWA adopts cloud content services

TBWA, a top-ten ranked global advertising agency, whose clients include Adidas, Apple and Nissan, has deployed a DAM platform to enhance client support. The highly configurable platform allows them to tailor the customer experience for each. It also enables them to roll out new instances much more quickly as new clients come on board.

TBWA transitioned to the cloud in a move designed to effectively manage media assets across its worldwide network of clients and partners, while benefiting from its flexibility and configurability. Since moving DAM to the cloud, TBWA has seen an increase in platform performance and improved uptime when compared with their previous system. By taking advantage of so-called 'push-button deployment' any platform upgrades are implemented instantly to ensure TBWA has immediate access to the latest features and technology to enhance digital asset management.

As business gradually returns to more normal working patterns, efficiently managing client relationships will be critical in supporting their digital requirements. Cloud DAM will provide a very powerful way for agencies to manage digital assets across not just their own dispersed teams, but their clients and other external collaborators too. This frees up more time to focus on their core objectives, such as building innovative content to support their clients.



The collaboration tools for working from home successfully

Increasingly, the signs are that the level of Working from Home (WFH) is going to stay high, and probably go higher as it becomes an international trend. It is not going to be a passing fad, started in response to a crisis that will be resolved. It is, for a growing number of users, likely to be the workplace of choice, both for the individuals and for their employers.

BY HUGO ZHU, DINGTALK CTO

BUSINESS MANAGERS will have to start thinking hard about what type of work environment is going to be best for this new world. These choices will have a significant effect on both the employees and their employers out into the future.

There is an important and quite fundamental shift occurring where the domain of the 'knowledge worker' is expanding significantly, driven by the advent of cloud computing, Artificial Intelligence and Machine Learning (AI/ML). The common factor with nearly all such knowledge workers is that all they need to work with is a computer, suitable telecoms services, and somewhere - almost anywhere, where they can work. For most of them, the best place is home.

This can be good for them, but it can also be good for their employers. For example, they may gain better productivity out their staff, not least because there is no commute. They can also save on the costs of office space, with all its attendant overheads in running such facilities. The major costs may come from providing those immediate tools of the trade: a computer, the applications licences, and relevant communications services, and this is where Alibaba's DingTalk brings many advantages for both the employer and the home working employee.

For the employees there are already many tools available that can be used, but that is then one of the problems, for establishing of a WFH environment that is both standardised and permanent, can make choosing the right tools difficult. For a start there are a wide range of possible tools already available. This can make picking the most appropriate tools, that fit both an individual's work requirements and fit a company's needs across such areas as staff collaboration, commonality of information management, security and operational standards, an area of great compromise.

While many businesses are already using a variety of video conferencing tools as temporary stop gaps that allow staff to work from home, making the move to building a permanent and scalable remote working environment for a business requires a lot more consideration and planning. That is where the arrival of tools such as DingTalk Lite into the EMEA marketplace is likely to provide some important answers.

With most applications now available as open source and Software as a Service (SaaS), it also makes good sense if the underlying infrastructure can exploit them. Ideally, WFH service providers will need to have partnerships with the majority of the mainstream business management applications providers so that they can become integral components in the WFH environment.

This will be even more important when it comes to exploiting Artificial Intelligence tools, where the scope for new applications seems limitless. For example, how about having AI-based translation services in all the major languages of the world that include speech-to-text capabilities so that near-real time communication can be had between people speaking different languages on conference calls. One AI application now coming available is the virtual personal assistant to help busy users complete tasks such as organising team meetings. That is a very effective way to free them to do more productive work.



There are, of course, a wide range of individual tools available, particularly in areas such as video conferencing and messaging services, but to make WFH work well, what users will need is a unified environment, where all the tools, and the underlying services, work together 'out of the box', wherever they are. This is important, for all those individual tools will run on individual services, yet WFH soon gets complicated and difficult to manage if it is not built on a secure, resilient and, ideally, global infrastructure.

Every individual user will think about such tools as a 'single user', but for their employer the requirements are very different. Companies will need to be thinking in terms of highly scalable, unified, smart communications and collaboration environments covering services that range from online document editing and office automation through to videoconferencing, group live broadcasts, and instant messaging.

And scalability is really 'at scale': including video conferences with several hundred participants, and livestreaming broadcasts to audiences to tens of thousands.

Across the EMEA region it is business users that are likely to be the first to exploit the potential of WFH technologies, but they are also proving to be very successful across the education sector. And in the same way knowledge workers are finding that when the right tools are available to them, they can work from home very successfully, knowledge seekers can continue their school work equally well.

It is now possible to build fully interactive virtual classrooms that function in the traditional manner. Students can raise their hands and speak, once their microphone is turned on, and they can demonstrate their ideas or homework by sharing their own screen with just the teacher, or the whole class.

The opinion is growing that, whether it is for work or for education, the time has come for some significant changes in the way businesses operate and their staff work.

These changes will be built on the flexibility and agility that come with ever greater use of the cloud and AI technologies. Now is the time for business managers and educators to consider the options coming available.

Harnessing COVID's legacy

COVID-19 has changed everything. As yet, nobody can predict in what ways. However, whatever your business sector you will face a 'new normality' that presents organisational and financial challenges you have never encountered before.

BY TIM HOOD, ASSOCIATE VICE PRESIDENT FOR HYLAND IN EMEA



FOR MANY ORGANISATIONS, the last few months have already required a total reinvention of working practices and an acceleration in their digital transformation – embracing technology is no longer a matter of choice, but the single most important key to corporate success.

Since few were prepared for government mandated social distancing measures, businesses have had to implement quick-fixes based on technology never intended or designed for remote working. But these

are short-term sticking plasters that can't be kept in place forever.

Now with signs of social distancing easing, organisations are looking at how to move forward and, for some, that will mean returning to old ways of

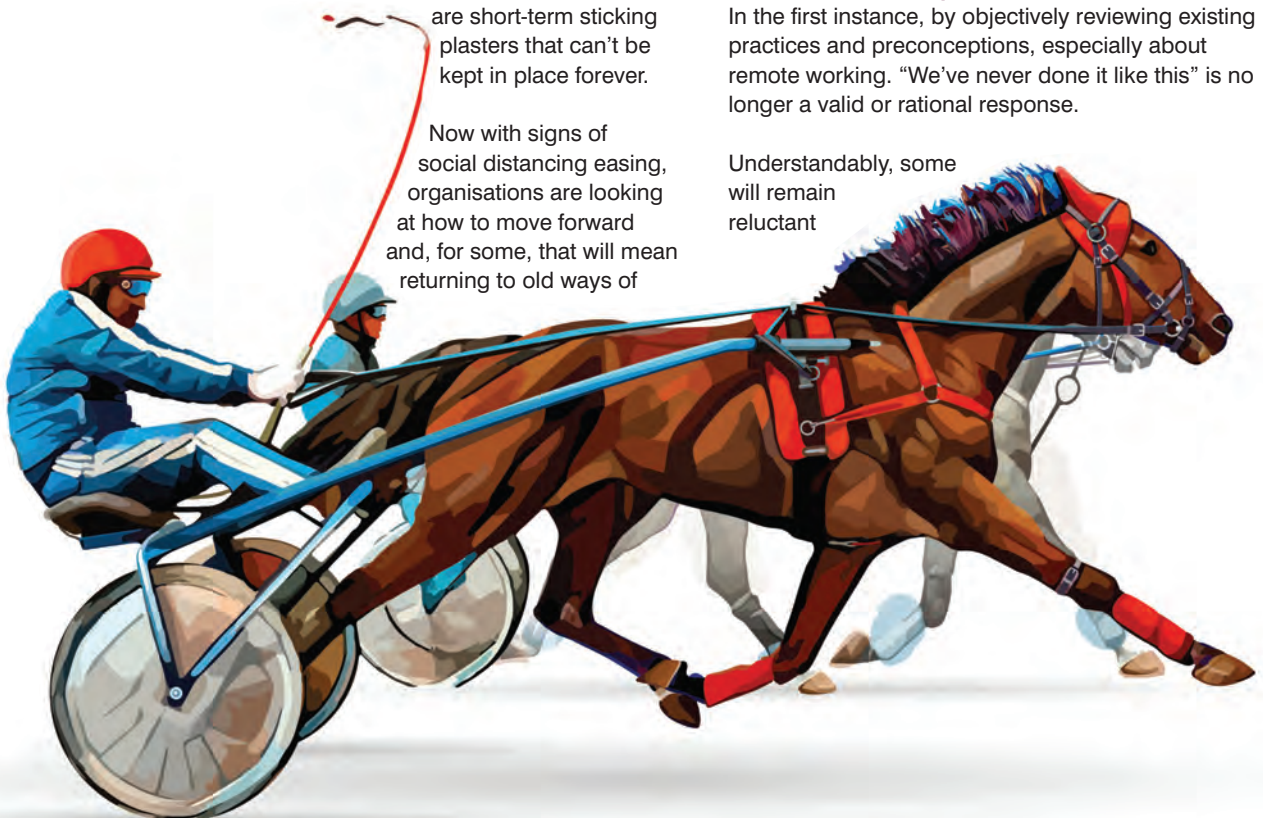
working. Wiser heads though may recognise we are at a tipping point and that though exceptionally disruptive, now is the time to create better business models, more suited to a world being remade by rapid change.

Those that fully appreciate this will start to reprioritise investment as part of a 'never the same again' strategy, in readiness for further challenges.

How should they start?

In the first instance, by objectively reviewing existing practices and preconceptions, especially about remote working. "We've never done it like this" is no longer a valid or rational response.

Understandably, some will remain reluctant



to embrace homeworking because of fears about employee availability and productivity. However, such concerns are largely unfounded, as research consistently shows those working from home tend to be more productive. In fact, remote employees put in nearly 17 more days every year than their office-based counterparts and lose less time to distractions.

In many organisations, homeworking is already an integral part of business life. Owl Labs' State of Remote Work 2019 global survey revealed that over two-thirds of full-time professionals work remotely at least once a month, with one-fifth doing so exclusively. Today, it is reasonable to assume the numbers are significantly higher.

So those organisations still resisting remote working are swimming against the tide and may have no choice but to accept this. Of course, to work remotely, employees need access to accurate and up-to-date information. Unfortunately, social distancing has exposed previously hidden flaws in many processes. Just because departmental culture lets you find information relatively quickly when everyone is in the office, it doesn't mean you have a good system in place. And this is a challenge that goes beyond just internal applications and sharing. More than ever, customers also expect easy access to key information, which makes remote access to internal and external content a key priority.

Similarly, the last few weeks have been particularly problematic for organisations still reliant on paper-based systems. It's hard to remote work when the data you want is undergoing its own self-isolation in filing cabinets 30 miles away, reinforcing the need to automate processes and minimise manual intervention.

So, companies must address how information is accessed and shared within and between departments. Too often, it is trapped in silos that limit access and allow for the creation of multiple versions of the same document. That's neither good for decision-making or service provision. The problem is compounded when information is fragmented across applications – it's not unusual for large organisations to have business-critical data spread over more than 200 apps.

If companies are to rise from this upheaval, they must rethink their entire information ecosystem. Many are already actively re-prioritising investment, focusing on the introduction of platforms capable of enabling a wider digital transformation. Such content services hubs will be at the heart of their central IT infrastructure and accessible through a user interface that stays the same regardless of whether they are seated at a desk at home or in the office. The move towards intelligent automation will help accelerate this process and further enhance the practical and

So those organisations still resisting remote working are swimming against the tide and may have no choice but to accept this. Of course, to work remotely, employees need access to accurate and up-to-date information. Unfortunately, social distancing has exposed previously hidden flaws in many processes

financial advantages of having document storage and workflows in a single location.

COVID-19 and the world's response to it, has permanently reshaped the business landscape. Those that don't recognise this and continue to treat the current global health climate as a temporary disruptor, not only risk losing out to competitors who reinvent themselves but also start-ups that build this new reality into their DNA from the get-go.

Fortunately, technology does provide us with the means not just to work our way through a lockdown but to use it as a catalyst for creating a truly effective digital workplace that extends beyond the four walls of the corporate high-rise to each and every remote worker at home. This is not a retrograde step but a progressive one and for many businesses it will help strengthen their own future.



The great work from home test: What will it mean for the future of work?

It's widely agreed that we are currently living amongst the most dramatic disruption to working culture in our lifetimes. In the process, both employees and technology have been put through their paces in ensuring business continuity, in what could be dubbed the great "work-from-home test".

BY ANNE MARIE GINN, HEAD OF VIDEO COLLABORATION EMEA, LOGITECH



ONE CERTAINTY to come out of this great "test" is that there will be a notable change in the way that we work in the future, both in how we approach the working day and the facilities that we use and need. A light has been shone on some of the wider benefits of having the home as your office, but it has equally highlighted that there is still a need for a central place of work. What's for sure is that attitudes to both are set to change, with employees working a much more even split between the two.

Working from home: a spotlight on productivity and work life balance

Once the world returns to normality remote working will no longer be unusual, and we'll see a movement towards 'flexible as standard', owing to the acknowledged productivity benefits. According to a survey by Canada Life, people who work from home rank their productivity as 7.7 out of 10, compared with 6.5 for office workers, and a further survey by Gartner found that 41% of employees are more likely to work remotely at least some of the time once we return to normality.

Permanently working from home has also allowed employees to manage their time to how best suits them. According to a recent YouGov poll, only 6% of employees are working the traditional hours of 9am to 5pm, and just 14% would opt for those hours if given the chance. It's allowing employees to work smarter - not harder - and be much more productive as a consequence, quashing the scourge of

'presenteeism'. It's also helping employees to achieve a superior work life balance and better manage domestic responsibilities such as childcare, with potentially significant ramifications for future gender equality in the workplace.

All of the above will in turn mean that the home will become a more prominent place of work, with at least a couple of days a week spent in the home office. As such, it will change the way that we think about the home office, and expectations of how employees are equipped. Allowing employees to simply have an office laptop that they take home won't be enough, especially from a health and safety and productivity perspective. It'll become an expectation that employees will be provided with the appropriate home office peripherals in order to carry out their work to the best of their abilities.

The corporate office - where to next?

The great "test" hasn't signalled the death of the corporate office, however. If anything, it has proven that employees still want to meet face to face at least some of the time.

Many organisations have found through the lockdown that collaboration and the sharing of ideas has been difficult. Connecting, creating and collaborating in person is vital for innovation, and whilst video collaboration can help, there are still nuances in conversations that are lost in email, or on phones or screens. Working from home can also be lonely, so



there's a good chance employees will still want to catch up with colleagues in the office.

However, the new work from home paradigm will most likely make businesses reconsider how they use office space. According to Gartner 74% of CFOs expect to move a number of previously on-site employees to remote working situations permanently once things are back to normal in a move to cut commercial real estate costs. This has the potential to shift perceptions of office space being a permanent 9-5 workstation to a fluid meeting space where employees go to only when they need to interact face-to-face.

One certainty to come out of the lockdown experience will be a change in people's attitudes towards being in close contact with other people for extended periods of time. Social distancing is a legacy that will live on, and there's a good chance that hygiene will be a much more important consideration than before. For example, we may see more touch free sensors installed in office spaces, such as light and power switches and door handles. Antimicrobial materials will most likely become standard, alongside more and better air filtration.

There's a good chance we'll see desks being spaced farther apart. In recent years the amount of square footage allotted per employee has gone down from 211.4 sq. ft. in 2009 to 17.6 square feet in 2017, according to Cushman & Wakefield. With awareness

of social distancing this trend for compressing more people into less floor space will be reversed. Workstations will be positioned at least six feet apart as standard, with the required office space being provided by more employees working from home. The way we use shared workstations are also likely to be called into question, with shared keyboards and mice likely to disappear, and each employee having their own personal peripherals instead.

We can also predict that in many cases we'll see a reallocation of office space, with more specialized areas, to cater for the needs of the more equally dispersed workforce between home and office. For example, many will opt for more video enabled 'huddle rooms', which will facilitate conversations between smaller teams both at home and in the office.

The new normal

In the face of imposed working from home companies have been forced to innovate, which in turn has driven investment and improvement. Changes that many campaigners have spent years fighting for have been put in place overnight. It has forced teams to better understand remote working and try things that were previously thought to be impossible. A welcome conclusion is that it has helped companies to develop a healthier relationship with flexible working and all of the digital technologies that support it, which will positively impact numerous people's daily working practices and make office-style jobs more inclusive.



How IT support has stepped up in our changed world



Organisations are more dependent than ever on the efficient functioning of their IT systems. In recent months, the exceptional circumstances

presented by the Covid-19 outbreak, the change in working patterns and structures and the sudden environment of uncertainty, has meant that keeping systems up and running has taken on even more significance than normal.

**BY EVAN RICH, SENIOR DIRECTOR
GLOBAL SERVICES AT NS1.**

FOR MANY COMPANIES, pressure has fallen on IT support teams to respond quickly, initially to ensure they could continue normal service in uniquely abnormal circumstances, and now to meeting clients' ongoing and shifting requirements. As part of a cloud-native company that had already embraced remote working, our support team had the technology in place to facilitate a relatively smooth transition to this new normal. This allowed us to remain focused on supporting our customers as they navigated their own transitions, and then maintain our high standards for support through what has been a period of constant change. Although we had much of the right technology in place, flexibility in process and operations has been essential. Along the way we have discovered best practices for customer support and preventing burnout that we will carry forward.

Adjusting on-call patterns

To meet the needs of a global customer base, we operate customer support as part of a distributed team following a 24/7/365 "follow-the-sun" model.

Our customer support engineers are accustomed to working unusual hours and weekends, but the Covid-19 crisis has required us to adjust regular shift patterns and schedules to make accommodations for team members balancing other responsibilities at home.

Consideration has been given to downtime for our support representatives, making sure that schedule rotations and lengths have been adjusted accordingly, and often we have asked for assistance from other technical teams to pitch in for short stints of coverage. Several of our operations engineers, for example, have stepped in to take weekend shifts so that the support team, which is managing an increased workload, can enjoy some time off. This has helped to reduce the risk of burnout, which is heightened for support teams during stressful times.

The importance of wellness, both physical and mental, cannot be understated. In the unusual circumstances presented by the pandemic, it has been essential to make sure that our IT support team is itself properly supported and has all the resources it needs before it can address customers' requirements. This has allowed adjustments to be made and help offered before any problems arise.

Using cloud-based apps

Use of cloud-based workforce communication and collaboration apps has been widespread and essential for us during this period. Slack, for example, has enabled the support team to speak in specific channels to communicate items that might normally be sent via email or discussed in a meeting. Having the ability to record all calls has meant that if a member of our globally distributed team had a conflict, they could access the discussion at a later time.

Turning the focus to customers

Addressing the support of the IT team has equipped us, in the same way as it will have for many other

technology companies, to focus on providing help to customers as they navigated the difficult transitions necessitated by the global lockdown and, as they look ahead at investments that support flexible approaches to work and overall company resilience.

We experienced a surge in customer support requests over the last three months, including a 15-20% increase just from March through to April. In facing the difficult transition to remote work, there were a number of customers who approached us asking for phone assistance despite not having that type of support included in their contract. We made the decision to extend these services because the situation has been so exceptional and the issues that companies are facing are unprecedented.

At the beginning of the crisis, many support requests brought our team into customer resiliency planning on a mission critical basis, and as the lockdown has continued, we continued to proactively check in with customers to offer assistance with managing changes to their environments. In many cases, we have found ourselves working alongside client teams to turn on new features or troubleshoot more complex requests, particularly when it came to adjusting policies to support remote workers.

Delivering support in new ways

We are used to delivering support primarily through email, but many of the more complex support requests have created opportunities to interact visually with customers via video calls. This has helped to resolve issues quickly, and to build strong relationships which we will be carrying forward into the future.

There have also been occasions when customers required our support team to work on proactive tasks or a variety of challenges that they had not come across previously, and this has kept our engineers engaged, invested and resistant to burnout. Patterns for answering customer support requests

Because NS1 provides foundational internet technology that helps to deliver digital services, our technology and support have been critical for businesses during this period. In our case many of the support inquiries have not been due to problems, but have instead been requests for help in deploying and configuring advanced security and traffic management features to make client networks more performant, reliable, and secure



have also been adjusted to balance time to first response with how many touches it took to resolve an issue. It was important to be aware that customers were balancing a lot themselves, so the more efficient the support operation could be, the better.

If an issue could be resolved with just a few more minutes of research and action but only one touch, this made for a better support experience both for the customer and for our IT support team.

Making sure digital services could be delivered

Because NS1 provides foundational internet technology that helps to deliver digital services, our technology and support have been critical for businesses during this period. In our case many of the support inquiries have not been due to problems, but have instead been requests for help in deploying and configuring advanced security and traffic management features to make client networks more performant, reliable, and secure.

Items that were part of theoretical business continuity plans have quickly become mission-critical, and in many instances, our support team has worked alongside customers over video to ensure their needs were met. As an example, we have worked with customers to set up or reconfigure their Filter Chains to better load balance and steer internet traffic so that remote workers could more easily connect and stay connected to virtual private networks.

Many customers have also requested us to turn on security features, such as DNSSEC or Dedicated DNS, for additional protection and redundancy as security risks have become heightened, or asked for changes to be made to single sign-on to ensure access for additional administrators in case someone becomes ill.

Building resilience in the “new normal”

Although all IT companies will have experienced the Covid-19 crisis in different ways, one thing that support teams will have in common is the necessity to continue with business-as-usual from a service delivery perspective. After the health and well-being of employees, maintaining continuity of support and access to expertise for all customers is a top priority.

The unprecedented and unpredictable nature of this situation will have a profound and lasting impact on companies worldwide. As we work to find a ‘new normal’ it will be imperative to remain steadfast in our priorities and direct and transparent in communication with customers about the status of systems and services. What the pandemic has highlighted for us is the importance of resilience, not just for technology or for companies, but for people too.

And as our IT support team, like other support teams around the world, work tirelessly to deliver exemplary service that keeps customers and business moving forward, we will undoubtedly remain resilient no matter the challenges that lie ahead.



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Being prepared - make remote working work harder

It's perhaps an understatement to say that remote working is top of mind for many of us right now. The Coronavirus pandemic has forced most businesses to send their staff home for the foreseeable future, hoping to delay the spread of the illness and keep those around them safe.

BY DARREN WATKINS, MANAGING DIRECTOR FOR VIRTUS DATA CENTRES.



REMOTE WORKING isn't a new concept and the technology to support this immediate need and to power the broader trend towards remote working is already available. Cloud platforms which give users access to a collaborative, scalable and convenient remote virtual work environments have been in use for some time.

However, today's situation is somewhat different to that which IT teams have been used to due to the sheer scale of people working from home, all at the same time. Although the technology is available, only some workers have been using it either because of flexible working conditions or because their jobs are field-based. This sudden increase in usage is causing

huge changes to the need for front end tools and hardware, but also the backend networks, servers and computer power that enables it all to work. Fundamentally, the backbone of successful cloud-powered remote working is the infrastructure that underpins it.

Getting it right today

The immediate, pressing need is ensuring employees have access to the cloud applications that enable access to a virtual working environment. The current surge in use of these applications is putting intense pressure on the security, servers, storage and network of organisations, and to deal with these new demands, IT departments are having to deploy more future proofing capacity management strategies to be able to meet their needs.

This puts the data centre strategy front and centre for IT managers - and it's the outsourced and co-located data centres which are enabling businesses to continue to operate. Not only can they support demands for high-bandwidth and reliable connectivity, they also provide physical security, redundant power, expert monitoring and 100% uptime guarantees.

Reaping the benefits for tomorrow

In the face of a global crisis like the Coronavirus, the immediate priority for many businesses is to simply keep operations running. However, when it comes to remote working, it appears that the current crisis is "forcing the hand" of many organisations. If they are able to embrace more flexible working practices permanently, then businesses can expect to reap long term benefits.

Cost savings could be achieved by making strategic decisions to save office space and businesses could be more agile to speedily take advantage of new business opportunities in different geographies. Winning the battle for talent can also become a reality by attracting and retaining staff who are unable or unwilling to work in the office, potentially harnessing the skills and experience of individuals who have to juggle child care or look after elderly family members with work, and individuals who don't want to work in traditional office based environments.

Just ten years ago the idea of mass remote working would have been impossible - the underlying infrastructure simply wasn't in place to support it. But today, the global data centre industry is already powering billions of internet-connected "things" and the vast volumes of data they generate - the backbone is firmly in place to help deal with the demands mass remote working will bring. And this is improving all the time. Increased deployment of High Performance Computing (HPC) provides a compelling way to maximize productivity and efficiency, and increase available power density - the "per foot" computing power of the data centre - crucial as we move away

from centralized office hubs into thousands of disparate home offices.

Any discussion around data centres inevitably comes hand in hand with environmental concerns - and data centre providers are already working hard to fuel a power hunger industry with renewable energy. But one of the overarching benefits of remote working is likely to be in the form of serious ecological good, as commuting and business travel are significantly lessened. There are other benefits too. While there may be increased IT set up costs, the requirement for businesses to have expensive office facilities may become a thing of the past, powering a more nimble and cost effective business environment.

There is no doubt that the coronavirus will change people's attitudes and behaviours - potentially forever. The technology industry is adept at finding answers to problems - and tech vendors are making swift progress in terms of security, collaboration, accessibility and storage solutions to help with the immediate need.

But, it's likely that this new world approach will be here to stay and remote working will become the new norm across sectors. Data centre strategy will become even more critical in ensuring the infrastructure is powerful, safe and reliable for people to work wherever they want, whenever they want.

There is no doubt that the coronavirus will change people's attitudes and behaviours - potentially forever. The technology industry is adept at finding answers to problems - and tech vendors are making swift progress in terms of security, collaboration, accessibility and storage solutions to help with the immediate need

From the core to the edge:

Avoiding the pitfalls of edge computing



The need to bring data processing closer to the end user in order to reduce network latency and improve user experience has become the cornerstone of innovations such as the Industrial Internet of Things (IIoT), smart cities, connected vehicles, immersive experiences, recognition systems, inferencing with machine learning models and next generation technologies like 5G wireless networks. Edge computing is transforming the way data is being handled, processed, and delivered from millions of devices worldwide.

BY CRAIG TAVARES, HEAD OF CLOUD, APTUM.

BY 2022, IDC estimates that 40% of enterprises will have doubled their IT spending in remote locations complementing their infrastructure in core data centres and cloud. This huge shift in computing to the edge represents tremendous opportunities for businesses along with some potential challenges.

Uncertainty of how to plan, design and implement edge computing solutions is common, and it's crucial that organisations have a clear understanding of their own requirements and any hurdles that may arise during deployment. While the advantages associated with it are massive, the edge computing model does face obstacles that businesses must avoid.

Promises of edge computing

The emergence of edge computing has been steadily rising in importance and maturity. In fact, Forrester predicts that the edge cloud service market will grow by at least 50% by the time the year is out.

Its explosive growth is driven by its ability to process data closer to the source, so the information that is collected and distributed will travel shorter distances compared to data stored in the cloud. Like any entity, data takes time to travel; the larger the amount of data, the longer it takes to arrive at its destination. Hybrid cloud solutions help optimize the management and processing speed of high volumes of data, which means time is saved and decisions are made at a much quicker pace. There are different classifications of the edge, such as the cloud or core edge and device edge. In general, edge computing can



further help businesses overcome the scalability and network performance challenge. Organisations have traditionally relied upon dedicated, purpose-built data centres. However, the versatility of edge computing allows businesses to align with local data centres to focus on desirable markets without requiring costly infrastructure expansions. This means businesses are able to quickly shift to other markets when economic conditions change and scale effectively to meet demand.

More businesses are viewing data as infrastructure, as they design their IT framework around how they are capturing, managing, and using their data. Organisations are better classifying their data and then deciding what the optimal place for that data is, whether it's the public cloud, a private cloud, at a colocation site or on premises. As more businesses see data as an asset, collecting data at the edge does come with new challenges and can generate liabilities when handled incorrectly.

Complexity is the enemy

A distributed edge system can be more complex to manage than a centralised cloud architecture. It is good practice to centralise where you can and distribute infrastructure only where you must. Businesses that put too much processing on edge devices soon find that the latency and speed issues they were looking to solve with edge computing come back and, in some instances, make matters worse. Complexity at the edge should be avoided at all costs, as the more complexity you have, the harder it is to govern security, scalability, management and maintenance of edge devices. Complexity can be reduced by leveraging unified control planes and a repeatable consistent edge design.

Edge devices should be purpose-built and only do the minimum of what's needed to collect, process and transmit data, as well as respond to issues that need immediate attention. Organisations should look for simple solutions that are easy to manage or they will likely need to increase spending on deploying their IT staff to deal with any operational issues that will inevitably occur when edge solutions are overly complex. Cloud services like AWS Greengrass and Microsoft Azure IoT Edge platforms are examples of device edge services to help simplify IOT use cases and edge architecture. They allow for device registry, device communication, local storage, and synchronization capabilities. The edge computing layer is often designed to locally deliver a subset of public cloud capabilities and can sometimes be seen as an extension of the public cloud.

Ensuring security

Security should always top of mind when considering adopting new technologies. One of the biggest security risks businesses face is an increased

A distributed edge system can be more complex to manage than a centralised cloud architecture. It is good practice to centralise where you can and distribute infrastructure only where you must. Businesses that put too much processing on edge devices soon find that the latency and speed issues they were looking to solve with edge computing come back and, in some instances, make matters worse

exposure to attacks due to the manipulation of devices within an edge network. For example, cyber criminals have the capacity to install a bot or backdoor to intercept or divert data.

Additionally, with 5G networks expected to become the foundation of many IT applications, the integrity and availability of those networks will become a huge security concern and challenge for many businesses – and rightly so. According to IBM, the average cost of a data breach is \$3.9 million USD.

However, even with a larger attack surface, edge networks can be secured by using the correct hardening policies, ensuring the proper threat detection exists and encrypting the data at rest and in transit. Data can be protected on local drives before being moved back to the micro data centre. And by using the proper network segmentation techniques, edge computing can minimise risks by localising any data breaches or cyber-attacks to just one point on the network.

In doing this, any affected areas can be isolated without shutting down the entire network. Organisations that benefit from edge computing use the proper network security eliminating single weak points and as a result are much less vulnerable.

Balancing network bandwidth

As more data is stored at the edge and more compute happens remotely, edge computing demands a shift in network bandwidth. Traditionally, businesses have allocated a higher bandwidth to data centres and a lower bandwidth to endpoints. Now, organisations are challenged with balancing more bandwidth across the network when moving IoT devices from the core to the edge.

When deployed successfully, certain data is processed locally without being sent to the cloud so less bandwidth will be required. With the ever-increasing numbers of IoT devices all generating live data, bandwidth savings could be considerable with edge computing. Machine learning models that are trained in the public cloud can then be deployed at the edge for inferencing.

Machine learning at the edge which can help offload unnecessary data transfer for use cases like image or facial recognition, however, there is always a delicate balance of sizing your compute resources at the edge versus your network capacity. It is also important to discriminate what type of data to keep or discard at the edge in an effort to manage the storage and transfer of large sets of data.

Solution management at the edge

Across almost every sector, businesses are seeking the benefits of edge computing but continue to face on-going challenges when managing it. No two organisations are the same, and every IT strategy should be unique based on business objectives.

Businesses should consider working with a trusted IT partner with the skills and expertise to supervise edge networks and deliver its benefits to support long term business objectives. An effective edge computing model should address network security risks, management complexities, the limitations of latency and bandwidth and maximise the true value of a business' technology investments.

Whether it is optimising business operations, improving user experience, enhancing existing offerings or pioneering new ones, edge computing promises to affect every aspect of the business. All of this may bring new challenges, but those organisations that are able to harness emerging technology properly will reap the rewards in the long term – while those who ignore developments and resist the shift will ultimately be left struggling to keep pace.





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The rollout of 5G will dawn a new era for edge data centres – but there's work to do yet

The arrival of 5G has dawned a new era in connectivity and data sharing, and edge data centres will have a crucial role to play in its full rollout.

BY JOHN HALL, MANAGING DIRECTOR, PROXIMITY DATA CENTRES.



GARTNER'S recent report highlights this, as it predicts that by 2025 edge computing will account for 75% of enterprise-generated data. The first major impact of the introduction of 5G will be the movement of massive amounts of data through faster and virtualised networking, as well as wireless infrastructure. Data centres will be at the heart of enabling 5G in all applications for the foreseeable future, and 5G itself will both drive new edge deployments, and enable new edge use cases.

There are a host of issues to be ironed out before 5G can achieve its full potential, though. The infrastructure of data centres must be strategized effectively to cope with the huge demand in data that 5G's full rollout will bring; new regulatory requirements will need to be negotiated, introduced and adhered to, and potential security vulnerabilities will have to be addressed, too.

This is by no means unachievable, however, and once 5G becomes a reality it will unleash the full capability of IoT, morphing the world into an environment that we would have never seen before. But before this becomes a reality, there are questions to be answered surrounding 5G's arrival.

The security concerns surrounding 5G

5G will vastly increase the number of devices that can be connected to core networks – which increases the opportunities for cyberattacks. The increased number of connected devices hugely expands the volume of information that will be transmitted and shared between users and devices, making it difficult for businesses to process and maintain data securely. One of the ways of addressing this data volume challenge is through decentralisation - bringing analytics as close as possible to the data centre

where information is processed, easing the burden on businesses of having to move around large data sets. Moving data to the edge means internal IT teams can reduce the amount of data they have to store, which is crucial when addressing cybersecurity.

As more processing takes place at the edge, new analytical approaches and updates will be able to be quickly pushed and spread around the wider network once they're optimised by a central analytics engine. As the threat landscape evolves, so too must an automated approach to security. By working in a more distributed way and utilising edge data centres, organisations will be able to focus on stopping the next attack, rather than scrambling to recover from the last one.

Ultimately though, the government must take the lead on how cybersecurity will be delivered – not only for data centres to adhere to, but also for the peace of mind of both businesses and consumers. The government has a key role to play in establishing a framework that data centres, and other IoT providers adhere to, to ensure accountability, if and when an attack does occur – but also good practice to mitigate against such attacks.

Data centres will be replacing data at a fast rate as they keep pace with the increasing volume of information that is created, as more devices become connected. However, the more data has to be updated or replaced, the greater the chance of suffering a leak. Having a strict guide that provides best practice on how to do this securely will provide assurances, and defences, against data leaks taking place.

Edge data centres' role in 5G's future

With billions of devices to be connected globally, it is inevitable that not all these devices will be located in urbanised areas throughout the UK. As a result, edge data centres must be deployed as an extension of centralised data centres throughout both urban and rural areas, as well as coming out of the Greater London conurbation too. This will ensure that connected devices throughout the country are serviced, no matter where they are operating.

Edge data centres will play a key role in ensuring the whole of the UK is reaping the rewards of 5G, not just its major cities, by overcoming the latency issues and having wide-spread data centres present. And while centralised data centres still have a crucial role to play as they are the hubs of data distribution networks, it's edge data centres that will continue to act as the local depots of data, for regions across the country.

The growth of edge data centres will also lead to a required shift in the whole operations of data centres and their deployment, not just for the rollout of 5G – but forever. Because of the ever-increasing customer demand and surface areas requiring network coverage, the business model of data centres must

change entirely. The topology and infrastructure of data centres itself will naturally evolve into a business model where data is stored and transmitted equally, through edge data centres. In fact, by 2025 Gartner predicts that 80% of enterprises will shut down their traditional data centres.

Regulatory issues and traditional rivalries

With IoT devices connecting around the world, it is inevitable that countries across the globe will have to collaborate and agree on blanket regulations, which is no mean feat. Different countries have different regulations when it comes to 5G installation, but new standards must be set and adhered to in order for rival countries, rival product makers and rival network operators to put aside their differences.

As we have seen with Huawei, this is easier said than done, after the US banned the use of its equipment in their 5G networks, and is calling on the UK to do the same. Rivalries aren't so easily laid to rest, it seems. And geopolitics is only one of several key issues that need to be ironed out, if 5G is to reach half of its capability potential around the world.

New technical standards

To make global interoperability possible, new technical standards must be set for network infrastructure equipment, smartphones and IoT sensors alike. Ongoing standards deliberations are fraught with geopolitical and commercial rivalry challenges as well as the core technical ones.

Deployment of additional network transmission capacity

Massive infrastructure is still to be deployed and developed in many countries, and to support 5G networks, regional edge data centres on mass are still needing to be connected to cell towers with fibre optic cabling, both in the UK and the wider world. This is absolutely necessary to support 5G's implementation.

Licensing spectrum

Each national government must allocate, and licence, sufficient spectrum for both fixed and wireless links, as well as mobile 5G connections. 5G networks need spectrum within three key frequency ranges to deliver widespread coverage and support all use cases. There remains a key focus on establishing international agreement and allocated licensed spectrums. If unlicensed, there is no legal protection against outside interference to the networks.

A new chapter

While there are many barriers yet to overcome, 5G will eventually change the world. But for it to do so, it will need to rely somewhat on edge data centres for its comprehensive delivery. Not only is the next evolution of internet connection going to change the way business and people operate, it will certainly birth a new chapter for edge data centres, too.

The energy efficiency and disaster recovery colocation ecosystem



In today's climate of COVID-19 uncertainty, technology leaders are challenged to focus on delivering business continuity and disaster recovery hand-in-hand, with accelerated preparedness for remote working. All whilst conscientiously looking to improve energy efficiency as data consumption continues to increase.

BY VINNY VAGHANI, CO-FOUNDER, HEAD OF OPERATIONS AND COMMERCIALS, IP HOUSE.

GREATER ENERGY efficiency requires a multi-faceted approach, as with digital transformation and disaster recovery and providing the right systems are in place, a colocation data centre can bring all of these elements together within one ecosystem to provide a resilient operational environment. The 2020 State of the CIO Executive Summary by IDG cited that CEO's top priorities for CIO's were to lead digital business/digital transformation initiatives (39%) and to upgrade IT and data security to boost corporate resiliency (31%). The report also highlighted that 89% of IT leaders 'believe the CIO increasingly needs to rely on trusted advisors to help navigate emerging technologies, processes and methodologies.' Post pandemic a lone wolf approach to managing your IT infrastructure will not be as effective.

McKinsey's Digital strategy in a time of crisis highlights that the more people or organisations you add to a

common solution space, the more quickly learning occurs – and the faster performance improves. Here there are key areas in which a colocation facility can serve as a collaborative environment to facilitate energy efficiency, whilst providing disaster recovery for the unknown.

The butterfly effect

A colocation data centre is a carefully managed ecosystem from design, through to operations, monitoring, maintenance, future proofing and scaling. Within that ecosystem each client is unique yet part of the greater whole. By improving the energy efficiency within the facility and energy consumption of equipment, substantial cost savings can be made and passed back to each customer to improve their operating expenditure (OpEx). At IP House, we believe it is our responsibility as colocation providers to provide optimal efficiency.

Boundary of Data centre Performance Per Energy (DPPE) Intelligent Efficiency For Data Centres & Wide Area Networks - IEA-4E EDNA, May 2019

Maximising Power Efficiency

Scalable colocation facilities can yield higher capital expenditure (CapEx) savings to reinvest in state-of-the-art equipment. Higher UPS efficiencies can also be achieved by deploying a modular, intelligent and modernised backup power system designed to be highly efficient at partial loads. Deploying a modular UPS system, for example, allows for incremental increases to utilised to reach the systems full capacity. By reducing and operating with power modules that are aligned with the correct number of battery strings less energy is spent on charging batteries, which are not being utilised by critical loads. Powerful, high-performance battery modules, which feature advanced battery monitoring and temperature-compensated battery charging can extend battery life. Supplying 95% efficiency down to 30% loading, also reducing power and cooling costs.

Ambient airflow

Cooling also presents an opportunity to reduce cost. In separating the cold and warm air, cooling systems are restricted to intake only the high temperature air and increasing the efficiency of the units operation; improving the cold air flow to critical IT equipment with maximum efficiency, minimal loss and precision control. By using hot air mitigation systems in combination with the in-depth sensors and monitoring, excess heat can be diverted so the cooling systems perform at optimum levels.

Next-generation real time monitoring

In the case of monitoring, next-generation Data Centre Infrastructure Management (DCIM) systems leverage AI and predictive analysis to consistently monitor energy usage, modelling efficiencies and provide extensive visibility across the entire colocation ecosystem. At IP House, our customers can take advantage of remote accessibility, viewing their data and IT systems anywhere, at any time via the Schneider Electric EcoStruxure IT™ app. Furthermore, it helps to optimise IT configurations and simplify infrastructure management, whilst providing resiliency and real time visibility.

Environmental sensors within the equipment alert facility operators and customers to changing conditions to allow precise reporting of the environment. Utilising next-generation DCIM to map environments and place equipment in “sweet spots”, alerts on environmental conditions allows for granular and proactive changes that maximise on the airflow delivery to the IT equipment. Extensive temperature sensing at multiple levels also equates to provide dynamic airflow mapping. Additionally, next-generation monitoring offers the ability to analyse systems and predict when failures might occur, helping to mitigate risk and protect the data centre

from downtime. In a lockdown scenario, this can be highly beneficial for customers and their managed service partners, offering increased visibility, whilst reducing the need for engineers to be on-site unless absolutely necessary.

5 Best Practise Future-Proofing Initiatives

1. Use DCIM and DRaaS in correlation for improved efficiency and resiliency. Technavio forecasts that Disaster Recovery-as-a-Service (DRaaS) comprising public, private and hybrid cloud will accelerate at a CAGR of over 43% between 2020-2024 with one of the key drivers cited as improved manageability and protection.
2. Raise awareness of optimum temperatures for IT hardware in order to reduce energy wastage on excess cooling and achieve lower IT operating temperatures.
3. Increase the use of sustainable energy sources and natural air.
4. Recycling of heat energy and waste water generated by Data Centres.
5. Innovating new benchmarking metrics for colocation data centres that demonstrate exemplar sustainability initiatives.

Ultimately, Energy Efficiency leads to the IT Equipment Modular colocation data centres who are diligent in space utilisation offer many benefits, not only from efficiency and cost savings but through more effective space planning, which allows for optimal rack loading. The greatest benefit of the colocation ecosystem is to provide a fully supported, always accessible, efficient and resilient infrastructure, which affords each customer the opportunity to reinvest in their critical IT equipment and services. IP House manage “The 4 R’s” when it comes to energy efficiency: Rack, Row, Raised Floor and Room Level.

By following this methodology, we extract the highest levels of operational efficiency to deliver at rack level into the IT equipment. The Uptime Institute Intelligence report Beyond PUE: Tackling IT’s wasted terawatts study of 300 data centres highlighted that IT kit older than five years accounted for 66% of IT energy use but contributing only 7% of the compute capacity. Today, IP House is accredited to ISO 50001 Energy Management standards, which allows us to assess our energy use and expenditure and constantly make adjustments to the operational environment.

This means we can offer a highly efficient and lowcost hosted environment for customers looking to outsource their critical IT requirements. For London-based organisations looking for a highly optimized, hosted IT Solutions, with disaster recovery services that offer increased business continuity, our house is your home. Within the symbiosis of sustainability global concerns regarding sustainability and crisis preparedness, the colocation ecosystem can be an invaluable part of your post pandemic disaster recovery analysis and business continuity planning.

The rise of SaaS in a post-pandemic world

Philip White, Managing Director at Audacia, discusses the rise of software-as-a-service and the key risks and benefits all businesses need to know.



SOFTWARE-AS-A-SERVICE (SaaS) is not only widely accessible, it's now part of fundamental, day-to-day operations for many businesses. Whether you're looking for a cloud-based CRM platform to boost sales efficiencies, or a customer support and ticketing platform to improve customer service, there's a plethora of SaaS applications existing to enhance business processes, whilst also reducing IT responsibilities and costs.

Globally, businesses are increasing their dependency on SaaS platforms, with Synergy Research Group reporting that overall SaaS spending hit the \$100 billion annual run rate last summer. This has pushed experts such as Gartner to forecast, even before COVID-19, worldwide public revenue growth of 17% in 2020 – with SaaS at its core.

In the last two years, there has been a significant rise in subscription-based software and – as 2020 is overshadowed by a global pandemic – there's strong indications that SaaS will only continue to grow. Since countries around the world went into 'lockdown' in one form or another, shifting workforces from office-based operations to remote, cloud-based software has become essential for all businesses with teams working from home, ensuring accessibility, collaboration and business continuity. As companies across the world adapt to the 'new normal', SaaS will only continue to rise.

Whether your business is already relying on the use of cloud-based SaaS applications, or you're considering



implementation, it is important to assess the risk and benefits to your business.

Risks of SaaS:

It's important to clearly define the scope of responsibility of your new SaaS platform at the outset. Are you implementing a collaboration tool to support working across teams, or are you implementing a core business platform to support the day-to-day operations of your business? Due to the ease of setup and configuration of SaaS platforms, businesses can easily sleepwalk into the adoption of systems without realising the long-term implications. For example, a business adopting a simple collaboration tool to track employees, but ends up using it as a HR system to manage hundreds of staff, will see risk in the initial solution not supporting requirements as they ought to be using a domain specific HR application.

It is important to consider whether your SaaS platform provides the ability to extract your data, whether this is to move to another software supplier or provide the option to perform external functions yourself such

as reporting and analytics. With constant shifts in markets, services and processes driven by changing environments – especially during a global pandemic – it's important to ensure your business-critical data is not locked-in to one particular product, should your needs change.

For businesses with straightforward processes and operations, SaaS applications offer an easy to implement solution, without the need for major organisational and process re-engineering. However, some SaaS platforms provide the ability to make significant customisations to the core system, presenting risk in businesses wandering away from the products core development path; with changes becoming harder to manage when newer versions are released. This can also result in businesses deferring product upgrades to prevent this, presenting further risk in working on outdated platforms, with potential security flaws and minimal support.

SaaS platforms often provide clear information on most limits and restrictions; however, some can be less obvious. Such restrictions – especially those that are set in stone and can't be solved with a licence upgrade – can cause significant operational issues. For example, maximum API calls within a 24-hour period. Companies must identify these limits and analyse the scenarios that could breach limits and develop a plan to mitigate the impact.

Businesses can initially be attracted to the simplicity in product licensing offered by SaaS platforms. However, organisations need to be aware that this can often evolve into complex, opaque pricing models around seat or site licenses, with additional costs in factors such as transaction limits, additional environments and third party integrations. In order to mitigate this, businesses should first investigate whether there is a linear per-user cost and identify any trigger points.

Benefits of SaaS:

The most notable benefit of cloud-based SaaS platforms is the scalability they offer businesses. Cloud solutions help businesses to scale up or down with complete flexibility, so they can manage volatile conditions where there's a need to adapt, scale and react quickly. A recent example of this is e-commerce businesses needing to rapidly scale processing and distribution functions in order to support a sudden increase in users and online orders during the lockdown period. From a product user standpoint, SaaS products also offer the option to scale-up and scale-down types and numbers of users with ease.

SaaS platforms can also help businesses to significantly reduce IT responsibilities and costs. With cloud-based SaaS applications – when compared to on-premise solutions with remote workers – there is no requirement to manage network connectivity and hardware scaling issues. This removes costs in the infrastructure itself, as well as the resources required

With cloud-based SaaS applications, infrastructure support is often simpler. SaaS platforms – as opposed to on-premise solutions – have direct control and access to production environments, enabling them to investigate and solve issues within one point of contact

for the implementation, ongoing maintenance and support.

Businesses can also develop their own SaaS platforms, providing web and mobile access to existing legacy software platforms, providing the benefits of SaaS without the need to replace or overhaul existing systems. This enables businesses to move towards a software-and-a-service licensing model, by providing customer access to internal systems.

With cloud-based SaaS applications, infrastructure support is often simpler. SaaS platforms – as opposed to on-premise solutions – have direct control and access to production environments, enabling them to investigate and solve issues within one point of contact.

With new versions continually released within SaaS applications usually part of the service, upgrading is made simple, removing the risk of your software becoming outdated. With different providers having different approaches, businesses may either see upgrades in the form of client planned releases or automated deployments. Overall, this supports shorter release cycles, providing new features faster, as well as bugs being resolved quicker.

By implementing cloud-based SaaS applications, businesses can cut down costs, be more efficient with resourcing and future-proof the businesses from a scalability and usability standpoint. In order to ensure there is little risk involved, businesses should adopt SaaS platforms that solves both current and future needs, avoiding vendor lock-in, and ensure they ask the right questions at the beginning of their journey. Looking forward to a world where business partners and suppliers expect complete flexibility is no longer the case – we are already there. Technology such as cloud-based SaaS software has enabled us to adapt and work reactively in a changing and demanding environment.

When everything-as-a-service (XaaS) began to reinvent the way that IT infrastructure could be purchased, it changed more than the look and feel of the server room. It also shifted the decision maker and altered the perception of enterprise technology purchases.

BY RENAT ZUBAIROV, CO-FOUNDER AND CEO, ELASTIC.IO

Securing SaaS survival in uncertain times

THIS DISRUPTIVE MODEL propelled software-as-a-service (SaaS) in particular to become not only mainstream, but the norm for businesses everywhere. The trend was aided by lower barriers to purchase offered by on-demand cloud services and the simplicity of 'plug and play' solutions. Departmental managers became technology decision makers with the ability to quickly and easily deploy the software of their choice, signing up to monthly subscription fees that challenged budgets far less than traditional software purchases.

In contrast, traditional on-premises enterprise software is notoriously a bigger investment. It demands a more in-depth business case before purchase, is typically more complex to rollout and requires multi-man-years of specialist effort to integrate and customise. But while on-premises applications can be a tough sell, once in, they tend to stick for the long term – if only to recoup the outlay on installation.

While the SaaS model receives acclaim for its ease, agility and scalability, when uncertainty strikes these same characteristics also make it a ready target for

cost cuts. In times of economic turmoil, ease is its "Achilles heel."

As companies around the world prepare for unprecedented depths of recession in the wake of the coronavirus pandemic, what can SaaS providers do to secure survival?

Focus on customer retention

Interestingly, not many SaaS companies existed during the most recent recession of 2008. Although the concept of cloud services arguably originated in the 1960's, it is only in the last decade that has enjoyed rapid growth and adoption.

Since disruptive market models tend to be too risky for traditional lenders, SaaS start-ups aren't often financed by debt. Bootstrapping and venture capital funding are more common, leading commentators to believe that, without commitment to debt repayments, providers could be somewhat protected against some of the common perils of uncertain conditions. But it is not funding that is going to be the biggest challenge for SaaS in the aftermath of the coronavirus – it's stickiness.

During economic downturn, small and mid-sized business (SMB) sector generally tends to be impacted harder than large corporates. The majority of SaaS providers have a customer base of SMBs or young start-ups for which typical monthly customer churn would be around 3-5% of customer base. Providers are currently reporting monthly customer churn rising to 10-20%!

From the software vendor's perspective, whereas on-premises products would immediately cover costs and profit within the sale price, the SaaS model gathers revenue over the lifetime of the contract. Profit only grows with longevity of the contract beyond the break-even point, and premature cancellations mean incurring a loss.

At a time when as many as one in five customers are cancelling contracts each month, there is a high risk that many of these will occur before revenues recouped by SaaS providers have even covered costs.

Embedded integration creates a sticky solution

When budget cuts force survival of the fittest amongst SaaS subscriptions, the stickier the product and the more value it delivers for the business, the more likely companies will retain it. Anything that is challenging to implement, integrate or customise is unlikely to go ahead when staffing resources are low, external expertise are off limits and pressure to reduce costs is high.

SaaS products that quickly entrench themselves deeply within the enterprise architecture can satisfy on all counts.

By having universal integration capability, SaaS applications will retain the speed advantage of cloud as well as the stickiness of on-premises. SaaS providers can offer a new kind of one-size fits all product that can be joined up with the applications around it to entrench it quicker, deeper and more easily into the IT ecosystem.

Embedded integration reduces the need for specialist SI (systems integration) resources to create bespoke application programming interfaces (APIs) for connecting applications to the ecosystem around it. Some solutions available operate a simple 'click and drag' interface that means the departmental managers that are making software purchase decisions can also have control over enabling data access and availability within and across teams.

This is particularly relevant in current times, when more companies are deploying remote working practices. New and existing applications need to quickly and easily integrate to allow data to be shared throughout the business, rather than locked into silos, as new applications are added into the infrastructure.

Overall, integration speeds the application's ability to prove value and return. It provides a platform for quicker user engagement with the application and greater agility in collaboration with neighbouring systems in the company's ecosystem.

SaaS 'survival of the stickiest'

Long before the outbreak of a global pandemic, application developers and SaaS vendors had been urged to view stickiness and integration as a way to decrease customer churn and increase revenue over a longer lifetime subscription. It is these organisations that will provide the most satisfactory solutions for their clients in companies of all sizes and sectors going forward.

Now, the same advice may help more SaaS companies to reduce churn and survive the current economic turmoil.

Whatever happens in the post-pandemic world economy, in technology it has always been survival of the fittest. For SaaS companies, it will be 'survival of the stickiest!'

When budget cuts force survival of the fittest amongst SaaS subscriptions, the stickier the product and the more value it delivers for the business, the more likely companies will retain it. Anything that is challenging to implement, integrate or customise is unlikely to go ahead when staffing resources are low, external expertise are off limits and pressure to reduce costs is high



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