



DIGITALISATION WORLD

MODERN ENTERPRISE IT - FROM THE EDGE TO THE CORE TO THE CLOUD

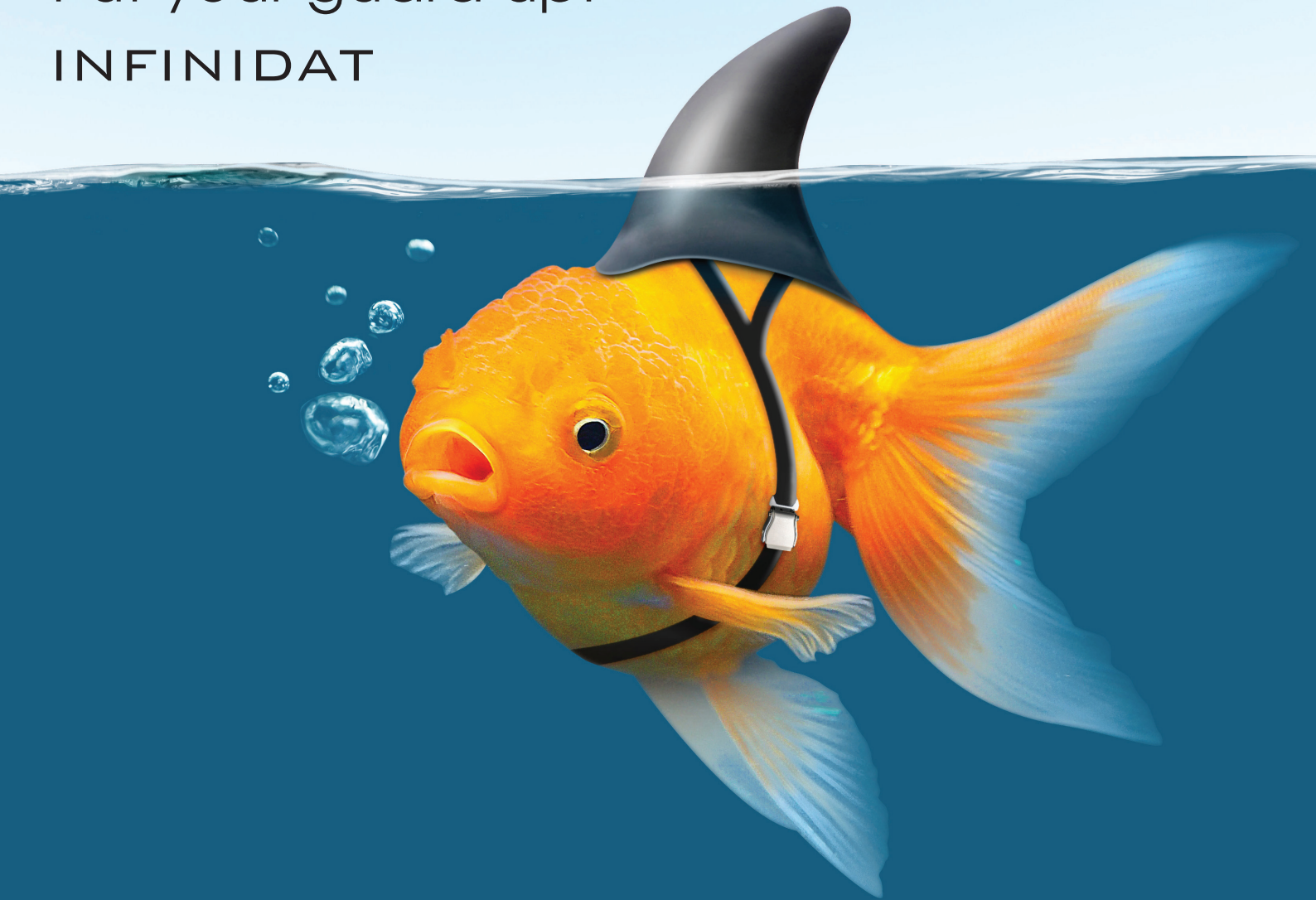
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Editor's View

By Phil Alsop



Sustaining sustainability

THE FIRST ISSUE OF Digitalisation World 2022 includes a Sustainability Supplement. The articles it contains are only a fraction of all those sent to me – the rest can be accessed via the Expert Opinion section of the DW website. So, from a supply-side perspective, there's no doubt that everyone is keen to talk about sustainability, green IT and the like. And, it would seem safe to deduce that this level of interest from the supply chain means that end users, customers, are looking to source environmentally friendly IT solutions. In part, this will be because they have to meet various boardroom reporting requirements. In part, this will be because they have to meet existing or impending industry-specific regulations, alongside the awareness that businesses and individuals are going to be required to reduce their carbon footprints over time. And, in part because many businesses (but maybe not a majority as yet?) believe that what's good for the environment is also good for their business – in terms of improving efficiency, reducing costs and optimising company performance.

The biggest obstacle to widespread belief in and uptake of greener business practices remains the confusion over what is actually required, and whether those demanding sustainability improvements are likely to sustain these efforts or not. To give one brief example: in the UK, one serious suggestion put forward to help businesses and individuals cope with spiralling energy costs is the temporary suspension of the green levy which is a part of our energy bills. In other words, suspend a green initiative

to help save money. An understandable 'easy' win – but not if sustainability and Net Zero targets are as important as we are led to believe.

I imagine many organisations across the globe, while happy to make a certain level of commitment to green policies, are still sceptical as to whether or not they will really be required to achieve meaningful Net Zero targets any time soon. Hence, they might not be moving forwards as quickly as desired – the more so as they do not wish to place themselves at a competitive disadvantage as they see it, by spending on sustainability if their competitors elsewhere in the world are not required to do so. One further, major complication – there is still a great deal of greenwashing and significant obfuscation when it comes to how companies are allowed to/do actually report their green credentials. While the Scope 1-3 approach is designed to capture all environmental activities, and will be further refined over time to become even more granular, there is still the basic possibility for an organisation to, in effect, subcontract its environmental footprint to other organisations and geographical locations.

No one imagines that the road to Net Zero is a broad and smooth one. However, without significant global leadership and transparency from governments and, importantly, large, global organisations, it may be that, over time, the route becomes so congested with roadworks and traffic lights that sustainability progress gradually stalls.



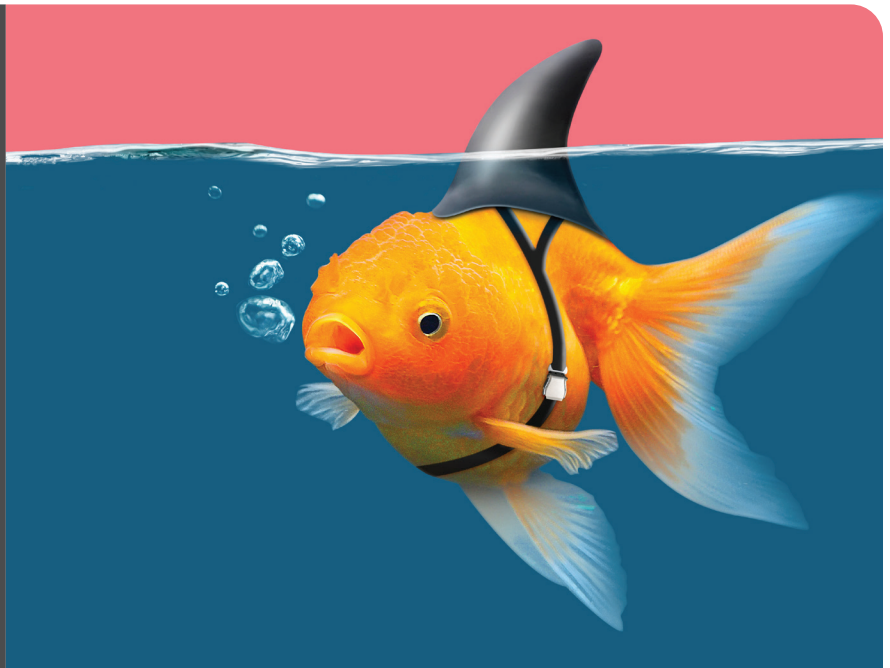
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Enterprise metaverse: Employees are ready, can organisations deliver?

RESEARCH commissioned by Lenovo reveals close to half of employees are willing to embrace a metaverse workplace, presenting an opportunity for businesses to usher in the future of work. Just as businesses are starting to find their groove with hybrid working, the workplace has begun to evolve again with the emergence of the metaverse. New research from Lenovo reveals that close to half of employees (44%) are willing to work in the metaverse and believe that it can deliver benefits like productivity to the workplace.

The metaverse is primarily defined as a shared digital space with digital representations of people, places, and objects. In the future, the metaverse can be a highly immersive extension of the physical world, with its rich user interface. At the enterprise level, this opens up possibilities for businesses to create a more viable, interactive workplace.

However, there is skepticism on whether companies have the capabilities to pull it off. Two in five (43%) respondents believe their employers do not, or probably do not have the knowledge or expertise to enable them to work in the metaverse of the future.

Ken Wong, President, Lenovo Solutions and Services Group: "The pandemic challenged us all to adapt to new ways of work – forcing organisations of all sizes to evolve at an exponential pace.

The metaverse presents businesses with new opportunities but also more complex technological challenges, such as the need for more computing power, better integrated hardware, and simpler and more flexible IT solutions."

Key findings from the survey include:

While half of employees (44%) are willing to work in the metaverse, 20% are unwilling, with 21% say they are neutral and another 15% say they are not sure. Half of working adults (51%) agree that an employer's speed of adoption of new technology is an indicator of readiness for new technological realities, such as the virtually enhanced physical reality of the metaverse.

Working adults in Brazil (53%), Singapore (51%) and China (54%) are split evenly, with around half confident that their employers have the expertise to enable a metaverse workplace, and the other half less confident. Conversely, working adults in the United Kingdom (30%) and Japan (18%) are less optimistic. While 44% think the metaverse will improve their work productivity, three in five (59%) do not think or are not sure that their employers are currently investing enough in IT to help them maximise their productivity.

"Though the metaverse has yet to be ubiquitous, organizations can get a head start with improving productivity at work. They do not have to invest significantly

more capital to achieve that. Everything-as-a-service or pay-as-you-go models offer the flexibility, cost efficiency, and scalability to adapt to each company's unique circumstance," added Wong.

To manage an increasingly complex technology, businesses need simple and flexible IT solutions. Lenovo's solutions include ThinkReality platform, which is powering the enterprise metaverse with a portfolio of award-winning hardware, software, and services.

As-a-Service solution provides mission-critical support and services, enabling businesses to use technology to scale quickly, lower costs, and reap greater efficiencies. With its flexible and transparent offerings, Lenovo has helped organisations from the education to aerospace sectors optimize the right technology with the potential to transform and future-proof their operations.

"We are just scratching the surface of the metaverse, not to mention the new economics of Web 3.0. For now, the metaverse opens up a world of possibilities for businesses, which according to our research, almost half of employees are willing to participate in. To grasp it, companies need to identify new ways to make the most of their technologies. And Lenovo's everything-as-a-service offerings can help organisations unleash their full potential," said Wong.



82% of businesses believe hyperscalers overcharge but are wary of switching provider

74% OF BUSINESSES have seen their cloud costs increase in the past 12 months with an average price increase of 66% year-on-year.

Civo has published the result of its research on cloud use in business. The research has revealed that the vast majority of businesses believe that large hyperscale cloud providers are overcharging while also pursuing a narrative that their cloud offerings are low cost. However, it is concerns around security and uptime – not cloud lock-in – that stops them from switching providers.

The hyperscale public cloud providers of Google Cloud Platform, Amazon Web Service and Microsoft Azure have seen their revenue grow between 25 and 30% year-on-year in recent years, a trend that is predicted to continue for at least the next few years. However, businesses that use these hyperscale cloud providers find their costs soar, and almost none believe they live up to the continued narrative that their services are low-cost. Running counter to popular opinion, it is not cloud lock-in that keeps businesses using the big three hyperscalers. The biggest reasons to stay with AWS, Azure and GCP is the perception they are safer and more stable with better uptime.

The top reasons cited for staying with the big three were:

- 51% believe the smaller cloud providers are less secure
- 47% believe they will suffer more outages
- 37% say it's more convenient

Only 17% say they are locked into the technology of their cloud provider.

Convenience comes at a price

Of the businesses surveyed, 82% think the big three hyperscalers should reduce their charges and 81% say that they try to give the impression they are low cost. 68% of all respondents went a step further and believe the perception that cloud is cheaper is misleading.

This comes across the background that 74% of businesses have seen their cloud costs increase over the past 12 months,



with an average increase of cost amongst these businesses of 66%.

Mark Boost, CEO of Civo commented, "Our research uncovered that a vast majority of customers think they are overpaying for their cloud service, and this is driven by a misperception that businesses are more secure and stable with the largest public cloud providers. "However, Amazon, Google and Microsoft have all suffered high profile outages in the last year**. Users of Amazon alone have suffered 27 outages in the last 12 months***. Size is clearly no guarantee of uptime when it comes to cloud providers.

"The additional complexity involved in securing public cloud endpoints using the hyperscalers means they are far more likely to be left insecure, and this is evidenced by the number of data breaches caused by simple misconfigurations of services like Amazon S3 or Microsoft's Azure Container Instances.

"Bigger is rarely better when it comes to choosing a cloud provider. Hyperscalers have lots of unnecessary complexity and more moving parts in their offerings, increasing the chance of issues or bugs for users. In addition, the footprint of hyperscalers across an unwieldy amount of products and regions creates a far greater attack surface for bad actors to exploit."

Boost is also co-Founder of Bulletproof cyber security and launched Defense.com SaaS security offerings. He added:

"From my early roots in cyber security, Civo has always prioritised security, with Bulletproof proactively protecting Civo's systems. Providers like Civo are part of a new breed of providers who are looking to challenge hyperscaler business models and demonstrate that there are fast, secure and reliable alternatives out there, at a much cheaper price too."

Businesses that use these hyperscale cloud providers find their costs soar, and almost none believe they live up to the continued narrative that their services are low-cost

Top quality data is vital for business survival

DUN & BRADSTREET reveals businesses are increasingly dependent on data post-pandemic – despite a lack of skills and expertise to utilise and understand business data – with a quarter of projects failing to meet business expectations.

With businesses still experiencing the disruption to their operations and supply chains due to the pandemic, research commissioned by leading global business decisioning data and analytics provider Dun & Bradstreet has found that over half (52%) of European businesses surveyed don't think they will survive without relevant, up-to-date and compliant business data.

The findings, published in Dun & Bradstreet's 'The Future of Data' report, revealed that two-thirds of business leaders agree that data is the most useful tool for their organisation to identify new markets to work with (64%) and is crucial for targeting new customers (62%). Furthermore, with the pandemic continuing to disrupt supply chains globally, six in ten businesses surveyed are using data to assess risk (65%) and



monitor procurement and supply (62%).

"With the enormous growth in available data, businesses don't need just any information, rather data that's carefully curated, timely and accurate. In other words, data that's fit for purpose," said Anthony Scriffignano, Senior Vice President and Chief Data Scientist, Dun & Bradstreet. "Companies

have needed to change how they make sense of information and form predictions based on that information for some time, but the pandemic has pushed that imperative right up the business agenda. Thinking about whether data is accurate and actually reflects what's going on – or is in fact obsolete and irrelevant – is key." Despite the belief that accurate and timely data is crucial to business processes, business leaders admit that they are falling short when it comes to their ability to manage data.

Business leaders are also worried when it comes to data, admitting that they are concerned:

- About the accuracy of the data that their business stores for planning

purposes (47%);

- That their business won't have the technology to take full advantage of data (46%);
- And that their business is moving too slowly to make full use of data (45%).

Even when they do have a data strategy in place, businesses are struggling with effective data management (25%) and combatting fraud (22%). As a result, over a quarter (27%) of projects fail to meet business requirements on average.

On top of this, the difficulty in finding the right talent to analyse data and apply insights to business decisions is a major concern for over a quarter (27%) of organisations looking to improve their data literacy. This lack of talent and knowledge is being felt elsewhere in business, with new regulatory requirements being another concern for organisations dependent on customer and supplier data. Half of businesses are worried about maintaining data privacy (50%), while a quarter point to data regulation and legal procedures as a source of risk (25%).

The challenges that businesses have encountered in the last year and a half have demonstrated the need for leaders to prioritise data planning and integrate it into the overall business strategy.

A quarter of European businesses say they can't reduce their environmental impact

DESPITE EU support for organisations to fuel post-pandemic growth and improve sustainability, most business leaders say there is no incentive to mitigate their environmental impact. Research released by Ricoh Europe reveals that one in four business leaders believe their organisation can't make improvements when it comes to reducing its impact on the environment.

Research conducted by Opinion Matters for Ricoh Europe polled 1,500 business decision makers across Europe. It reveals that 60% agree that there is no incentive for the C-suite to help mitigate the company's negative environmental impact. Meanwhile, almost two-thirds (65%) are unsure about, or don't have the resources, to achieve meaningful change. Yet 67% say that their employees care more about how environmentally sustainable the company is now compared to five years ago. The findings suggest business decision makers find it hard to know where to begin when it comes to improving their

environmental, social and corporate governance (ESG) performance. This is despite a significant push by the EU to help businesses improve their ESG performance, including the availability of funding and assets through projects such as InvestEU and Digital Europe.

Only 27% of business leaders say they have set long-term environmental sustainability goals – meaning most have failed to implement a basic roadmap for change. There is hope that this will soon change, following the COP26 Summit where world leaders pledged to help end deforestation, phase out coal and lower methane emissions. The lack of planning and action is thrown into sharp relief by the fact most businesses (65%) recognise the importance of environmental sustainability for their competitiveness in the market they operate in. Combining digital transformation efforts with a clearly articulated ESG framework is one way businesses could start to see benefits across their organisation.

89% of businesses plan to host tech off-premise

REMOTE AND HYBRID WORKING is driving a permanent shift in how businesses are organising their tech. Dependence on on-premise infrastructure, to support a full capacity office, is no longer required, shows survey.

It's estimated that only 55% of office space and desks are expected to be in use over the next year, with a majority of workers set to spend three days there a week in 2022 (or less in-line with government guidelines changes). More space will also be created when on-premise data centres move 'online'; currently on-premise data centres are found to take up on average of 8% of office floor space. When determining what companies who have a data centre are doing with their office space in 2022, 39% of those questioned said that they will use the extra space for 'collaboration meeting areas'.

Other plans include creating social spaces (36%) and individual working spaces (33%) to aid hybrid working. Meeting rooms (32%), adding additional equipment (32%) and leaving it as open space (28%) would also be amongst the plans if they did not have an on-premise data centre, according to business leaders.

Commenting on these findings, Becky Turner, Workplace Psychologist at office interior design fit-out, furniture and technology company Claremont, said: "As we're propelled into the Hybrid Era, the purpose of the office is rapidly evolving, becoming a place where the primary goals are for colleagues to meet, collaborate, socialise, and learn – becoming The Destination Office.

"Whilst focused tasks can largely be carried out from home, the Destination Office maximises the office space for those necessary functions that have been noticeably absent from our working lives over the past 18 months; the Coffee Shop provides a social heart to your space, enabling you to build relationships with your colleagues over a coffee or lunch; the Department Store is your support centre, where you can find helpful resources to work effectively from any given location; the Co-working



Bureau enables teams to come together to work from a central location, providing mentoring, meeting and collaboration opportunities; and the Forum is a flexible space to facilitate larger-scale collaboration sessions or town hall meetings.

"With the introduction of each of these spaces, your workspace will become the cultural epicentre of your organisation, a place where your colleagues can come to feel energised and connected with the principles and values of your organisation."

While small to medium sized businesses are moving to CloudComms to benefit overall business operations, and adopting the latest solutions for remote and hybrid working, the move away from on-site hardware opens up of lots more space within working environments and allows space to be re-utilised more creatively.

Steve Warburton from zen.co.uk added: "The combination of fewer employees working full time on site, advances in cloud technology and less siloed ways of working between departments will reach a crescendo in 2022 to fuel a permanent

reconfiguration in office design. More businesses may even now take the step to reduce square footage altogether as a means to adapt to this shift.

"The consensus certainly seems to be big change in 2022 and recreating 'the destination office' as an environment to engender greater collaboration among staff than ever before."

With the introduction of these spaces, your workspace will become the cultural epicentre of your organisation, a place where your colleagues can come to feel energised and connected with the principles and values of your organisation

Over 80% of CIOs and senior leaders plan to deploy private 5G networks within the next 24 months

RESEARCH of over 200 CIOs and top executives shows the acceleration of private 5G networks as organizations look to improve security, reliability, and speed.

NTT Ltd is releasing a new report developed by Economist Impact. The report, 'Private 5G here and now', reveals insights from a survey of 216 CIOs and senior decision-makers from the UK, US, Japan, and Germany, examining the industry challenges around the implementation and adoption of private 5G. The report shows a significant interest in private 5G networks, with 90% of executives expecting that private 5G will become the standard network choice.

Where is private 5G being deployed?

The research shows that just over half of companies (51%) planning to deploy a private 5G network will do so within the next six to 24 months to improve security, reliability, and speed, with 30% of these respondents already deploying or being in the process of deploying a private 5G network. The most significant interest is from German organizations, with 40% of German businesses deploying private 5G networks. This is followed by 28% of UK firms, 26% of Japanese firms and 24% of American firms.

The majority (80%) of executives agree that Covid-19 has made it easier to secure the budget needed for 5G deployment. This attitude is strongest in Germany (93%), followed by the US (83%), the UK (77%) and Japan (65%).

Security concerns are accelerating private 5G adoption

With ransomware on the rise, the CIO and CISO are looking for ways to shore up their defences against increasingly sophisticated attacks. The report finds that 69% of executives agree that that



the security of their current infrastructure is not strong enough. Other pain points include the control of enterprise data (48%), coverage and speed (43%) and the response time (latency) of their current service provider (40%).

When compared with technologies such as Wi-Fi and Public 5G, private 5G networks provide significantly more security capabilities.

83% of executives rate improved data privacy and security as a very important outcome they expect to achieve with the implementation of private 5G networks. It is clear that CIOs want security and control while also enabling digitalization – and believe a local private 5G network will enable these critical business requirements. This is encouraging enterprises to build and run their own private 5G networks.

Challenges and successful deployment strategies for private 5G

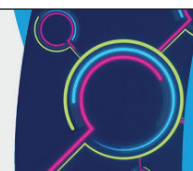
The report identifies that the most common (44%) barrier to deploying private 5G networks is integrating the technology with legacy systems and networks. The complexity surrounding

the deployment and management of private 5G networks is also cited as another significant barrier by 37% of respondents. Employees lacking the technical skills and expertise to manage 5G networks is the third most common barrier facing 30% of firms.

This is one of the reasons why outsourcing to a managed service provider is the preferred approach by 38% of CIOs when it comes to implementing private 5G networks. Buying private 5G network 'as-a-service' can accelerate time to adoption and offer a better end-user experience and return on investment.

Private 5G powers digital transformation across industries

"The research highlights that the adoption of private 5G is happening now. The companies leveraging private 5G will have an unprecedented competitive advantage. Whether a company owns a factory floor, distribution centers, storefront or office space, private 5G can dramatically help digitize their businesses securely", said Shahid Ahmed, Group EVP, New Ventures and Innovation at NTT Ltd.



Study reveals how digital technologies are shaping the global recovery

LATEST Network Readiness Index ranks world's most 'network ready' markets. The latest results and rankings of the Network Readiness Index (NRI) have been released by the Portulans Institute, revealing how countries around the world are leveraging information technologies to emerge from the COVID pandemic and become 'network ready'. This latest edition – the third compiled by the Portulans Institute since taking over the Index from the World Economic Forum in 2019 – ranks a total of 130 global economies based on their performance across 60 variables. STL, the industry leading integrator of digital networks, is the NRI's official knowledge partner. The findings are included in a new report published today, 'Shaping the Global Recovery: How digital technologies can help make the post-COVID world more equal'.

Key takeaways:

Europe the most 'network ready'

The Netherlands, Sweden and Denmark are named as the top three most 'network ready' societies. This makes Europe (with eight countries in the global top ten) the best performing global region on the Index.

US and China leading the way in tech

The US remains the global leader when it

comes to technology; ranking in the top five in each of the Technology sub-pillars (Access, Content, Future Technologies). China, meanwhile, is a leading player in areas such as artificial intelligence, e-commerce and 5G, but only ranks #29 overall.

India is a rising star

Among the world's largest economies, India was notable for rising places 21 places compared to last year's ranking, rising to #67. This performance, beyond technical aspects, captures India's digital network accessibility, including the affordability of mobile devices and tariffs in the country.

Pandemic sees Africa fall further behind

Africa continues to trail other regions, especially when it comes to access, affordability, and usage of ICTs. The pandemic has further amplified inequalities through recognizable social, economic and political changes, which became particularly evident in terms of vaccination and debt-financing.

Soumitra Dutta, co-founder and president, Portulans Institute:

"The COVID pandemic has been a global tipping point in the adoption of technology. It arrived at a time when

many digital technologies had reached a degree of maturity, allowing them to be deployed on a large scale rapidly. This report measures the impact of this accelerated digital transformation on governments, businesses, and individuals."

Bruno Lanvin, co-founder and director, Portulans Institute:

"A strong recovery is now taking place in many parts of the world, and digitization will be one of its core drivers. However, several factors could derail the recovery train, including a lack of digital talents and skills, and a possible resurgence of the digital divide between rich and poor countries. Technology can help us avoid a 'K-shaped recovery', but this requires immediate and coordinated efforts in three key areas: infrastructure, education, and governance."

Ankit Agarwal, Managing Director, STL:

"With the world migrating to digital faster than ever, networks are at the center of the world's socio-economic development. This year's NRI report reflects how countries have embraced digital transformation and lays out a roadmap for economies to accelerate their digital journeys. STL is excited to partner with the Portulans Institute for this initiative as we believe network readiness is the cornerstone for achieving global growth, while transforming billions of lives."

The NRI 2021 rankings

The NRI is organized around four key pillars: Technology, People, Governance, and Impact, with sub categories within each pillar, spanning 60 metrics overall. Even though the top ten countries from the NRI 2021 remain the same as last year, there has been significant changes within the group. The Netherlands moved up three positions to take the number one spot from Sweden, which has held that position since 2019. The US is now ranked in the top five for the first time in the 2019-2021 period.

The top ten countries in NRI 2021 are all high-income economies. The US (#4) and Singapore (#7) are the only markets in the top ten outside of Europe.



IT admin struggles with remote work challenges

IT TEAMS report a significant increase in challenges surrounding migrating and managing remote workforces, despite lower security concerns and adequate budget.

JumpCloud has published the findings from its Q4 Biannual 2021 State of the SME IT Admin Report. The report provides updated survey results to its biannual State of the SME IT Admin Report released in June 2021. Nearly two years into the pandemic, IT admins report they're considered an important voice in company operations and fewer are feeling overwhelmed despite facing continued complexity in managing hybrid-remote work models. The report details the ongoing impact of COVID-19, expectations about IT budgets, growing confidence in securing hybrid-remote work, and overall satisfaction within the IT organization. The JumpCloud report represents more than 1,000 IT decision-makers from small and mid-sized enterprises (SMEs) across a variety of industries.

The results of the JumpCloud Q4 Biannual 2021 State of the SME IT Admin Report are available in JumpCloud's white paper, "Creating a New Normal for SME IT in 2022," which can be downloaded for free here. Part of the larger JumpCloud mission is to arm IT admins with all the necessary resources for building and managing hybrid-remote workplaces. This report is part of JumpCloud's new resource library to help IT admins plan for 2022, ramp and expand their capabilities and teams, and even address stress and mental health. Those tools and resources are available in the IT Admin Toolkit for 2022.

"While millions of organizations have transitioned to hybrid-remote work, these results highlight that IT admins continue to look for ways to improve the employee experience and make workflows simple and secure," said Tom Bridge, principal product manager at JumpCloud.

"The need for layered security and a centralized, simple employee experience is a top priority for organizations, and JumpCloud is committed to empowering

IT teams to meet the evolving challenges in hybrid-remote work."

Key findings include:

IT Budget and Priorities

- Security priorities are geared toward ongoing remote-hybrid work: The top three security priorities are adding layered security for truly secure remote work, making remote work easier for end users, and making remote work easier for admins.
- IT admins continue to seek a premium user experience: Making remote work easier for end users was a higher priority than making it easy for admins, and 88% agree or strongly agree that employee experience is an important factor in purchasing decisions. 54% agree that the remote or hybrid experience is not as easy or convenient as it could be.
- Employees are getting better at following best security practices: In May, 74% said remote work makes it harder for employees to follow good security practices (50% agree; 24% strongly agree). Now, only 59% agree (44.3% agree; 14.2% strongly agree).
- Managing remote workers remains the biggest challenge: Managing remote workers is the biggest challenge IT admins faced over the past year, now at 57%, up from 53% in May, and more employees are now working remote (32% now vs. 23% in May).
- Managing devices a growing challenge: Only 46% reported device management as a challenge in May, but the number has increased to 54%.
- Budgets increasing: 75% report an increase in their IT budget over the last year.
- There's room for improvement: More than half think hybrid-remote should be easier (41.6% agree; 10.5% strongly agree).

Security Concerns

- SMEs are committed to educating employees about security: 82% agree their company regularly communicates best security practices with employees.
- Fewer IT admins think they're wasting money on remote work: 30% report their organization is spending too

much to enable remote work, down from 56% in May.

- Top security concerns have evolved: The top three concerns are software security exploits (37%, a 2% decrease since May), ransomware (35%, a 7% increase since May), and use of unsecured networks (33%, a 4% decrease since May). In May, IT admins' top three concerns were software vulnerabilities (39%), employees using the same username and password across apps (37%), and using an unsecured network (36%).

The Critical Role of Managed Service Providers (MSPs)

- IT admins continue to see MSPs as vital partners: Now 87% of respondents said they have already or plan to engage an MSP (up from 84% in May).
- MSPs are central to operations: 77% report that using an MSP has resulted in better security and 57% report an increase in a better employee experience.
- MSPs seen to offer a wide range of benefits: Respondents report using MSPs because they are up to date on the latest technologies (63%), they can provide a better user experience (60%), they are cost-effective (54%), they can secure users' access and identity better (47%), and they offer strong customer support (32%).

The Life of the IT Admin

- They're not quite as happy: 42% of IT admins report being happier in their job than they were a year ago, but this is a significant decrease from the 59% that said they were happier in the job when asked the same question in May.
- Compensation may not be scaling with increased stress and responsibilities: Since the start of the pandemic, 43% report their salaries have stayed the same, and 37% report seeing an increase. For those that saw an increase, most (15%) received a raise of only 5% or less. 24% reported a salary increase of more than 5%, compared to 30% in May.
- Fewer are overwhelmed: 55% report feeling overwhelmed in terms of job expectations and responsibilities, compared to 66% reporting so in May.

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The road to edge computing success

To compete in a digital-first world, organizations are prioritizing investments in digital tools to augment physical spaces and assets and enable seamless and secure data gathering and analysis. These investments empower organizations to provision enterprise workloads at edge locations in support of innovative edge use cases. New research from International Data Corporation ([IDC](#)) examines the infrastructure needs of various edge use cases and how growth in these use cases will create new demands for enterprise workloads.

EDGE COMPUTING is comprised of IT infrastructure and applications deployed outside of core datacenters to support data gathering and analysis closer to the source. IDC has identified four workloads from its Worldwide Enterprise Infrastructure Workloads Taxonomy that have a significant influence among edge use cases: business intelligence/data analytics; content delivery; text and image analytics; and networking & security. Multiple workloads are combined to support specific edge use cases. For each workload category, IDC ranks the contained workloads by primary, secondary, and tertiary impact on select edge use cases.

Because workloads can reside across a continuum of core, edge, and endpoint locations, edge computing requires a significant amount of coordination among

technology and service providers. Similarly, workloads run across a range of compute architectures, requiring a high degree of interoperability and scalability.

Accordingly, a symbiotic edge and core to workload relationship is needed to enable workloads based at the core that support the edge, workloads based at the edge that support the edge, and workloads at the edge that support the core. While all three scenarios are important, the report focuses on enterprise workloads that are primarily located at, and managed from, the edge.

The most significant edge workload opportunity is streamlining business intelligence and analytics. Because data management and analysis-related workloads have and are expected to have a major

or secondary role in nearly all significant edge use case development, IDC expects it will be one of the primary areas of investment at the edge. Similarly, development tools and applications workloads will see growing investment because of their influence on more forward edge use cases, especially in systems related to advanced AI and robotics. In contrast, IDC doesn't see business application workloads as critical to the development of any major enterprise edge use cases, especially for newer developing areas of edge networks.

"Using digital technologies to improve the safety of people and communities and to increase the resilience of operations are being adopted the most rapidly. Industries such as manufacturing are already recognizing the impact that edge resources are having on operational efficiency and improved product quality," said Jennifer Cooke, research director, Edge Strategies at IDC. "As these platforms become more readily customized and adapted for broader use, the need for more IT infrastructure at the edge will escalate."

"The rapid deployment of edge computing is significantly shaping workload evolution," said Max Pepper, senior research analyst, Infrastructure Systems, Platforms and Technologies. "As edge technology continues to expand in usage in a variety of workplace environments, we are seeing growing interest in expected concurrent workload growth in areas such as business intelligence and analytics, AI/ML-related workloads, and content workloads. While organizations should expect these workloads to be the main areas of edge-related growth, workloads across the spectrum will have critical influence even in minor roles within edge use cases."

Double-digit growth for investments in Edge Computing

Worldwide spending on edge computing is expected to be \$176 billion in 2022, an increase of 14.8% over 2021. Enterprise and service provider spending on hardware, software, and services for edge solutions is forecast to sustain this pace of growth through 2025 when spending will reach nearly \$274 billion, according to the International Data Corporation (IDC) Worldwide Edge Spending Guide.

Edge is the foremost technology infrastructure that extends and innovates on the capabilities found in core datacenters, whether they are enterprise or service provider owned. The value of edge is the movement of computing resources to the physical location where data is created, dramatically reducing time to value and the instant enablement of business processes, decisions, and intelligence outside of the core IT environment.

IDC defines edge as the technology-related actions that are performed outside of the centralized datacenter, where edge is the intermediary between

the connected endpoints and the core IT environment. Characteristically, edge is distributed, software defined, and flexible.

"Edge computing continues to gain momentum as digital-first organizations seek to innovate outside of the datacenter," said Dave McCarthy, research vice president, Cloud and Edge Infrastructure Services at IDC. "The diverse needs of edge deployments have created a tremendous market opportunity for technology suppliers as they bring new solutions to market, increasingly through partnerships and alliances."

IDC has identified more than 150 use cases for edge computing across various industries and domains. The two edge use cases that will see the largest investments in 2022 – content delivery networks and virtual network functions – are both foundational to service providers' edge services offerings. Combined, these two use cases will generate nearly \$26 billion in spending this year. In total, service providers will invest more than \$38 billion in enabling edge offerings this year.

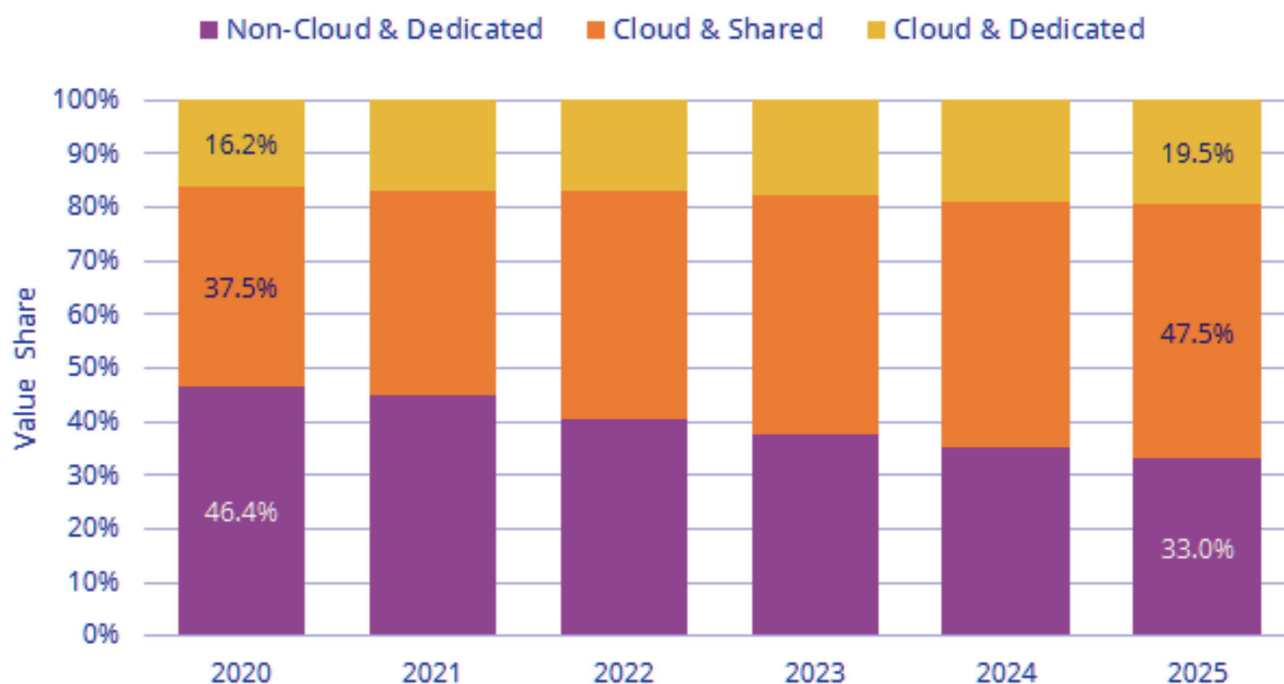
Across enterprise end user industries, discrete and process manufacturing combined will invest \$33.6 billion in edge solutions this year. Retail and professional services will also see spending of more than \$10 billion on edge computing in 2022 while all 19 industries profiled in the Spending Guide will experience double-digit spending growth over the five year forecast period

For enterprise adopters, the edge use cases with the largest investments in 2022 include manufacturing operations, production asset management, smart grids, omni-channel operations, public safety & emergency response, freight monitoring, and intelligent transportation systems. Use cases that will see the fastest spending growth over the 2020-2025 forecast include public infrastructure maintenance, network maintenance, anatomy diagnostics, and AR assisted surgery.

Across enterprise end user industries, discrete and process manufacturing combined will invest \$33.6 billion in edge solutions this year. Retail and professional services will also see spending of more



Worldwide Enterprise Infrastructure Buyer & Cloud Deployment Forecast, 2020 - 2025 (spending)



Source: IDC 2022

than \$10 billion on edge computing in 2022 while all 19 industries profiled in the Spending Guide will experience double-digit spending growth over the five year forecast period.

"In the service provider segment, a five-year compound annual growth rate (CAGR) of 21.6% reflects the edge infrastructure buildout underway to deliver edge cloud services. For enterprise edge technology buyers, growing at a 14.1% CAGR, provisioned services such as IaaS will grow significantly and capture an increasing share of total expenditures over the forecast period," said Marcus Torchia, research vice president, Customer Insights & Analysis group.

IDC expects hardware and services spending will account for 85% of all edge spending in 2022 with the remainder going to software. Hardware spending will be led by investments in edge gateways, which feature low-power components designed for running limited or single functions in environments where power and cooling availability is limited. Investments in compute and storage assets adapted for edge locations or deployment will grow at a faster rate and will nearly equal spending on edge gateways by the end of the forecast period. Services spending, comprised of

professional and provisioned services, will grow at a faster rate than the other two groups with a five-year CAGR of 19.6%. By 2025, services will account for nearly 50% of all edge spending led by investments in provisioned services, including connectivity and edge-related infrastructure, platform, and software as a service (IaaS, PaaS, and SaaS). Software spending will primarily be allocated toward system infrastructure and security software with analytics & AI software seeing faster growth within the group.

From a geographic perspective, the United States will be the largest investor in edge solutions with spending forecast to reach \$76.5 billion in 2022. Western Europe and China will be the next largest regions with spending totals of \$30.6 and \$20.8 billion, respectively. China will see the fastest spending growth over the five-year forecast with a CAGR of 19.7%, followed by Latin America at 19.4%.

"The European edge market has developed significantly in the last couple of years and is expected to nearly double in value over the forecast period," said Alexandra Rotaru, research analyst with IDC's European Customer Insights & Analysis group. "With nearly 30% of European organizations planning to start using edge technologies in the next two years

and going beyond the pilot phase, solutions related to smart buildings, manufacturing operations, or production asset management will become more prevalent.”

Cloud infrastructure spending - overall growth expected for 2021

According to the International Data Corporation (IDC) Worldwide Quarterly Enterprise Infrastructure Tracker: Buyer and Cloud Deployment, spending on compute and storage infrastructure products for cloud infrastructure, including dedicated and shared environments, increased 6.6% year over year in the third quarter of 2021 (3Q21) to \$18.6 billion. This increase resumes the trend of net positive year-over-year spending growth per quarter, which saw a pause in the second quarter of 2021 when spend decreased 1.9%. This follows seven quarters of year-over-year spending growth that started in 3Q19, highlighted by 38.4% growth in 2Q20 as the first global pandemic wave led to business and country closures causing a spike in investments in cloud services and infrastructure. Investments in non-cloud infrastructure increased 7.3% year over year in 3Q21 to \$14.6 billion, the third consecutive quarter to see an increase in year-over-year spend after a period of declining spending that started in 2Q19.

Spending on shared cloud infrastructure reached \$13 billion, an increase of 8.6% compared to 3Q20, and a 6.6% increase from the previous quarter. This continues a trend of year-over-year growth since 4Q19, interrupted in the previous quarter (2Q21) by comparison to an exceptionally strong 2Q20 that saw spending increase 55.1% driven by the spike in demand for public cloud services in the first months of the pandemic. IDC expects to see continuously strong demand for shared cloud infrastructure with spending surpassing non-cloud infrastructure spending in 2022. Spending on dedicated cloud infrastructure increased 13.4% year over year in 3Q21 to \$5.6 billion, the highest year-over-year increase since 1Q19 with 45.5% of this amount deployed on customer premises. IDC expects that spending on cloud environments will continue to outpace non-cloud spending throughout its forecast.

For the full year 2021, IDC forecasts cloud infrastructure spending to grow 8.3% compared to 2020 to \$71.8 billion, while non-cloud infrastructure is expected to grow 1.9% to \$58.4 billion after two years of declines. Shared cloud infrastructure is expected to grow by 7.2% year over year to \$49.7 billion for the full year. Spending on dedicated cloud infrastructure is expected to grow 10.7% to \$22.2 billion for the full year.

As part of the Tracker, IDC tracks various categories of service providers and how much compute and storage infrastructure these service providers purchase, including both cloud and non-cloud infrastructure. The service provider category includes cloud service providers, digital service providers, communications

service providers, and managed service providers. In 3Q21, service providers as a group spent \$18.9 billion on compute and storage infrastructure, up 10.2% from 3Q20 and up 6.7% from 2Q21. This spending accounted for 57.1% of the total compute and storage infrastructure market. IDC expects compute and storage spending by service providers to reach \$72.6 billion for 2021, growing 7.4% compared to 2020.

At the regional level, year-over-year spending on cloud infrastructure increased with the level of growth varying across regions. The Asia/Pacific subregions, Canada, and the Europe subregions saw double-digit growth in spending, while Latin America, the Middle East and Africa, and the United States saw more moderate single-digit increases in spending. The Asia/Pacific region (excluding Japan and China) showed the strongest year-over-year increase in cloud infrastructure spending in 3Q21 at 64.3% while the U.S. recorded the weakest growth at 1.1%. For the full year, spending on cloud infrastructure is expected to increase across all regions compared to 2020, particularly in Asia/Pacific regions (excluding Japan), Canada, and Central & Eastern Europe. The United States is expected to show only marginal year-over-year growth of 0.4%.

Long term, IDC expects spending on compute and storage cloud infrastructure to have a compound annual growth rate (CAGR) of 12.4% over the 2020-2025 forecast period, reaching \$118.8 billion in 2025 and accounting for 67.0% of total compute and storage infrastructure spend. Shared cloud infrastructure will account for 70.9% of this amount, growing at a 12.7% CAGR. Spending on dedicated cloud infrastructure will grow at a CAGR of 11.5%. Spending on non-cloud infrastructure will rebound in 2021 but will flatten out at a CAGR of 0.5%, reaching \$58.6 billion in 2025. Spending by service providers on compute and storage infrastructure is expected to grow at a 1.3% CAGR, reaching \$115.4 billion in 2025.



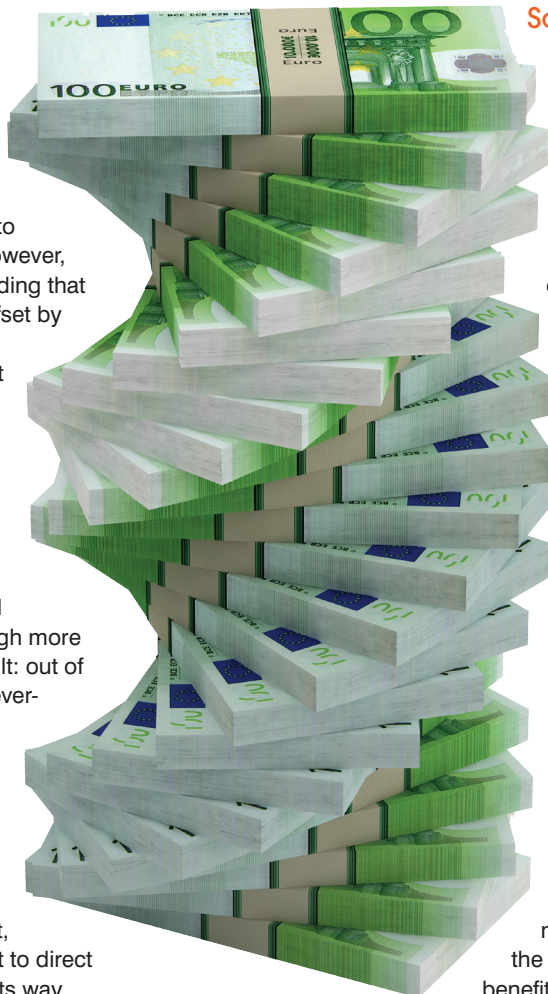
How to take back control of your spiralling cloud spend

Without cloud, the last 18 months would have looked very different. All businesses are now incredibly dependent on this technology, so IDC's estimated increase for cloud infrastructure spending in 2021 shouldn't come as a surprise, at a rise of 12.9 per cent to \$74.6 billion compared to 2020.

BY ADRIAN BRADLEY, PARTNER AND HEAD OF CLOUD TRANSFORMATION AT KPMG UK

THE CLOUD HOSTS and supports so many technologies that organisations depend on every day, some of which are designed to improve efficiency and streamline processes to generate huge savings. However, many organisations are finding that these savings are being offset by spiralling cloud costs and cloud waste. In fact, almost a third of organisations' cloud investment is inefficient, according to several estimates.

Companies are on a slippery slope – they are utterly dependent on cloud and are only going to plough more investment into it. The result: out of control spending, and an ever-growing cloud value gap. It has become a strategic priority for enterprises to realise the full benefits of the cloud, but with so much already being spent and wasted on it, when it comes to future investment, the Board may be reluctant to direct any additional investment its way.



So how has this situation emerged?

One issue is that there are a lot of junior people who have the power to make many small decisions that drive cloud costs. In such case, a user self-service portal without guardrails ends up doing a disservice at an organisational level. Cloud spend tools are always helpful to manage and orchestrate costs. However, without the right governance and processes in place spending can still get out of control. The cumulative effect being an overall surge in cloud expenditure, with no oversight whatsoever, i.e., the large variety of users and budget holders exacerbates the cloud sprawl. Furthermore, these resource holders often won't have a great deal of visibility into what their applications will cost in the cloud and they are not being held accountable.

Cloud price fluctuations and new services being offered all the time, which may or may not benefit the business, compound the

problem. There are also very complex discounting structures that can be confusing, meaning it is very difficult to achieve any sort of grasp of ongoing cloud spend, which is only driving the need for cost transparency and controls.

Cloud waste creeps in when the type of cloud infrastructure in-use does not align with the businesses' objectives. If the organisation is more focused on analytics, their cloud requirements will be very different to one that mostly uses AI. Without understanding how the business gets value from cloud from the outset, it goes without saying that cloud strategies will lead to inefficiencies.

Lastly, many enterprises fall into the trap of regulatory compliance being implemented by committee rather than by design. However, unnecessary costs will occur as a result when appropriate compliance mechanisms have not been embedded properly in cloud engineering, which then need incorporating later. Also, many organisations don't leverage the benefits of Bring Your Own Licenses (BYOL - a model that lets companies use their licenses flexibly) and purchase them on cloud, resulting in additional costs. Additional insight and capabilities are required to recognise and implement cloud savings across a vast enterprise, but where to start?

How much am I spending on cloud?

The first step is to identify where cloud spending and waste typically happens in the enterprise's processes and workflows, and by which departments, groups and roles. For example, something as basic as comparing invoices from suppliers with the contracts in place between them to identify whether over-billing is happening, can uncover enormous savings. After that, AI and machine learning can be rolled out to automate this process, as in a huge enterprise there can be thousands of cloud-related invoices.

As cloud investment is only expected to grow, setting up a dedicated cloud cost management capability is crucial. They can be on hand to continuously measure and monitor spend and be accountable for activities such as choosing the right-sized instances for a lower cost, optimising the size of cloud environments, using auto-scaling, selecting the right price model for cloud contracts, and implementing simple and standardised resource tags/labels to identify cost owners.

Furthermore, they can apply the correct archiving policies – including storage levels – to the data needs of the applications, to further cut outgoings on cloud. Also, by asking how many services are in use, and by how much of the cloud estate, will help uncover where savings can be made.

Automating processes makes a huge impact on tracking and managing cloud spend. While cloud providers' native tools give IT teams the power to control the costs and workload lifecycle, it is still the organisation's responsibility to tackle the processes themselves. Most of the right sizing, workload management, controls and procedures could be automated to reduce human intervention and

standardise how to manage costs on the cloud. But automating these processes is not achievable overnight – it is a contact learning exercise and requires continuous investment to understand how to efficiently manage the cloud.

Once initial cloud spend is under control, closing the value gap is the next priority.



Use the right cloud for the right task

Organisations are not always using the appropriate cloud function for what they are trying to achieve. That's why businesses must select the most appropriate cloud infrastructure to meet their organisational goals and objectives. As a basic level, there is simply commodity infrastructure to provide computer power and data storage. At an intermediate level, cloud can be used for increased agility, scalability, and speed of provisioning to improve technology products' speed to market. For the most innovative companies, cloud can be used for analytics and advanced technologies including AI and machine learning. While using Infrastructure as a Service (IaaS) makes the migration easier, it does not necessarily result in cost benefits as it merely transfers the workload to another host. Real cloud cost benefits are only realised post moving to Platform as a Service (PaaS) or Software as a Service (SaaS) tools.

Cloud Value Mapping

Once you have your cloud strategy in place, creating a 'cloud value map' will help improve return on investment. This starts by reviewing current cloud usage and assessing the degree to which the business benefits are being realised. By analysing operational usage, whether the cloud is underpinning the ability to execute higher up the stack and acting as an enabler for the business processes and systems, will highlight not just where spending can be cut, but where there is an opportunity to increase investment to better support the rest of the business.

The foundation of a cloud value map is to establish a set of operational metrics that support the business. These relate to the business value that is produced from the adoption of Agile or DevOps technologies, operation tools integration, or effectiveness of monitoring from a risk or cost controls perspective. This stage is where bottlenecks can be addressed

to eliminate disruption further down the line, and to support the strategic business KPIs.

The next step is to set out your enabler metrics. These are related to cloud capabilities that are not specifically connected to end-user services, but which enable their use, agility, and effectiveness. These include cloud technologies such as Functions as a Service, Containers as a Service or hybrid cloud integrations that make a broader catalogue of technologies accessible. Enablers support organisations in the successful implementation of more customer-orientated services.

The final stage for consideration is business services metrics, which noticeably impact customers and users. This includes services driven by the IoT, AI or API Management. These are customer engagement enhancing services that deliver an improved, more personalised, and seamless experience. But they can only work effectively if there has been a comprehensive and structured investment in the maturity of the operational and enabler metrics. For example, a company may introduce a chatbot to engage with its customers, but the chatbot will be useless if the operational metrics and enablers below it are not configured properly.

Once this mapping has taken place, it is then possible to evaluate operational usage against it and see

whether the cloud is having a real impact on the systems and processes it is meant to be improving. If the needle isn't moving, that's where cloud cost effectiveness can be addressed.

This type of assessment must include analysing operational usage – whether cloud is supporting the ability to execute higher up the stack; whether cloud is acting as an enabler for business processes and systems; and the extent to which it is impacting the processes and customer journeys. By undertaking this process, IT teams can be confident that they are running a cost-effective cloud infrastructure.

Unleash the benefits of cloud

Sadly, most businesses are over-paying for their configuration of cloud infrastructure and have lost control of where it truly adds value. But it doesn't have to be that way. Cloud is like moving to a new city and looking for new accommodation; you may choose to buy a house (private cloud), rent a flat (IaaS on public cloud) or stay in a hotel (managed services on public cloud), i.e., workloads must be hosted on the suitable cloud offering as per the requirement.

The organisations that do manage to structure and streamline their cloud investments most effectively will unleash business benefits across the whole enterprise to help drive digital value creation in the future.



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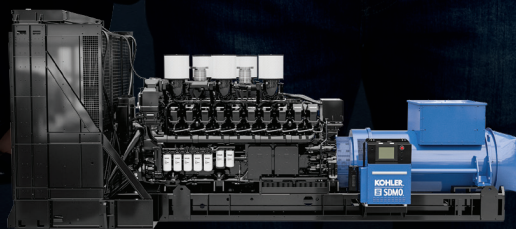
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The top benefits of AI in cloud computing

Instantly available cloud solutions that are scalable, easy to manage and efficient, make AI solutions more accessible for organisations.

BY DOMINIK BIRGELEN, CEO OF **ONECLICK**

THERE'S NO DOUBT that Artificial Intelligence (AI) has taken the world by storm both for business and for pleasure. AI is immersed in countless aspects of our daily lives and with no end in sight. From opening our phones with face ID and digital voice assistants to smart home devices and even working out our quickest way to work. But it is businesses that have also reaped the benefits of this remarkable technology. In fact 37% of companies already employ AI within their operations. AI has helped companies of all sizes combat many different obstacles, such as spam filters to increase security, process automation to improve efficiency and sales and business forecasting to better future decision making. Implementing AI provides companies with huge benefits and opportunities to remain competitive, even becoming a market leader due to the additional



flexibility it provides when managing large data repositories, streamlining data, optimising workflows, and producing real-time insights to transform day-to-day operations and re-imagine end customer experience.

Drawbacks: scalability & cost

However, housing AI processes within a business can be challenging to say the least. Implementing AI involves an immediate requirement for vast amounts of computing resources such as processing, RAM, many Terabyte and Petabyte of storage space that is also scalable on demand. During a time of rapid business growth, companies will need the ability to scale up their AI processes to match the level of productivity. If the AI infrastructure is unable to scale, a business will no longer be able to get the most out of their technological

investment. Building and implementing an AI system does not come without a hefty price tag either. Already, analysts predict spending on AI systems will reach almost \$58 billion in the next few years. Additionally, on-site service provisions for AI systems are a huge upfront and ongoing investment for businesses. Hardware and on-premise systems require frequent maintenance and can be challenging to scale up or down depending on the growth of the business.

According to a recent AI pricing report, custom AI solutions can cost anywhere from \$6000 to over \$300,000 including development and rollout. Factoring the ongoing AI services, like for consulting, will rack up extra charges too. These upfront and ongoing costs can be detrimental or even prohibitive for smaller companies wishing to adopt AI into their processes.

Advantages of the cloud

The cloud has gained substantial adoption in the past five years on a business level. For example, by the end of the year, the market is projected to grow to more than \$76 billion in 2021 and is predicted this number will balloon to more than \$390 billion by 2028. This is also reflected in that 94% of enterprises are already using a cloud service. In principle, cloud computing is the on-demand delivery of IT resources using an internet connection and allows companies of all sizes to achieve brilliant results through increased productivity, efficiency and so much more.

Hosting AI processes in the cloud offers businesses many benefits that combat both cost and scalability. Firstly, as the cloud is accessed via an internet connection, the need for costly on-premise AI hardware and maintenance are eliminated. In turn,

these cloud-based environments are enabling enterprises to become more agile, flexible, and cost-effective as this substantially reduces infrastructure management costs for enterprises. What's more, the adoption of the cloud enables businesses to only pay as much as they use. This is a considerable cost saving over traditional infrastructure costs of setting huge data centres and managing them. The cost saved can be used to set up the more strategic development of AI tools and accelerators that can be further leveraged to generate greater revenue and save fundamental costs for the business overall.

Implementing cloud agnostic solutions that are compatible with any cloud infrastructure and able to access the right resources are a viable solution for companies looking to tackle scalability issues with AI. Scalability refers to the idea of a system in which every application or piece of infrastructure can be scaled up or down to handle increased or decreased load. Implementing a scalable Everything as a Service (XaaS) or Platform as a Service (PaaS) ensures that it can scale up or down to handle the load and not crash. This is vital with an AI application due to the vast amount of data being handled that will need to be increased or decreased according to the needs of the business.

Businesses of all sizes are adopting AI technology to remain ahead of the curve yet are also met with expensive costs and effective ways to utilise the data. Instantly available cloud solutions that are scalable, easy to manage and efficient, make AI solutions more accessible for organisations. In an ever-increasing competitive market, making sure businesses IT infrastructure is put to the best use is critical and AI processes should not be overlooked.



Global reach helps with customer support and company expansion

Xe.works was looking for a hosting partner that would provide them with high-calibre technical reliability and support. As a result of this search, Leaseweb has become the company's IT solutions provider.

BY **LEASEWEB**

Xe.works is a multi-directional media company that buys and sells digital advertising spaces for websites and mobile apps. Xe.works started its story back in 2016, having joined AdTech professionals to craft exceptional advertising solutions for programmatic media buying & selling. Today it operates globally with offices in Kyiv, Ukraine, and Vilnius, Lithuania — and serves customers in the U.S., Europe, Israel, and APAC. Xe.works leads the industry in building digital advertising platforms based on Real-Time Bidding (RTB) technology, thus enabling its customers to control and enhance their media spend and earnings. Xe.works offers quick integration, smart and clear algorithms for ad bidding optimizations, dedicated customer support, and stable performance.

The Challenge

Digital advertising is a fast-paced and high-needs industry. For Xe.works to serve its customers the most timely, impactful, and cost-efficient ad opportunities, it needed its infrastructure to be extremely reliable. Even just a few seconds in system lag could result in less-than-ideal outcomes for its customers and profit loss for its own business.



Xe.works searched for a hosting partner that would provide them with high-caliber technical reliability and support. From time to time, Xe.works needed emergency help with the campaigns they were running. They tried several different hosting companies, but many of them lacked the level of support Xe.works needed and expected.

The Solution

Xe.works began to leverage Leaseweb's enterprise-class infrastructure in 2018. As its primary IaaS (Infrastructure-as-a-Service) provider, Leaseweb provided Xe.works with the reliability it needed and the support team it had been longing for. Xe.works utilizes Leaseweb's Dedicated Server hosting plans to better build its core business around the world. Xe.works can customize its services and access large data center coverage, which is important as it looks to scale its business globally in the near future. Additionally, Xe.works is able to process more orders in less time with the additional resources Leaseweb's Dedicated Servers provide. The platform allows the company to reduce downtime and improve performance significantly, giving them a leg up in its vast sea of competitors.

Key Requirements

- **Service** - Support team that could respond to urgent system issues
- **Agility** - Could handle millions of requests per day from its global customers
- **Scalability** - Solution that could grow seamlessly with its business

Our Solution

- **Leaseweb Network** – redundant high-speed connections with traffic load balancing
- **Personal consultation and support service** – assisting with provisioning, backup, and advance server management requirements
- Multiple data centers globally

"Leaseweb was able to provide us with the level of support we needed and the data center coverage we expected. We're very happy with the solutions Leaseweb has provided us so far. They've helped us serve our clients better and will help us continue

to scale our company down the road." Says Dan Areshkovych, CEO, Xe.works.

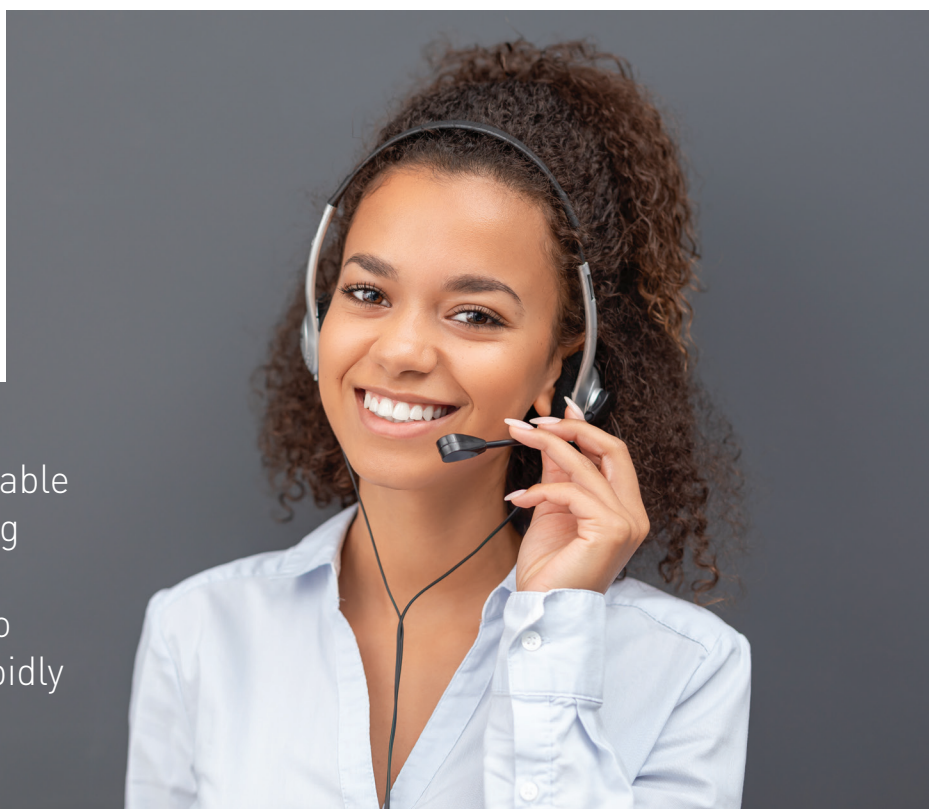
The Support

The main reason Xe.works values its partnership with Leaseweb is because of its support capabilities. Leaseweb is always on hand to help with provisioning, backup, recovery, and other advanced server management requirements. This arrangement enables Xe.works to focus on its core activities and allows its IT team to function more responsively and proactively. Leaseweb's support team also provides customized strategic services. The team ensures server resources are available as new clients come on board and as Xe.works continues to grow its presence around the world.

The Outcome

Leaseweb's Dedicated Servers enable Xe.works to conduct its advertising business fluently across its three international offices. This has also assisted in the extension of its rapidly increasing partner base. No matter where Xe.works customers operate, Leaseweb's global network of data centers and points of presence (PoPs), with high-performing servers, ensured close proximity to the endpoint – all while reducing latency and costs during its real-time bidding (RTB) process. Xe.works also enjoys improved server efficiency, faster processing speeds, flexibility, and the ability to grow its IT resources on demand. Leaseweb's customer-focused approach set a solid foundation for a long-term working relationship with Xe.works, and the organizations' executives value Leaseweb as their sole IT solutions partner.

Leaseweb's Dedicated Servers enable Xe.works to conduct its advertising business fluently across its three international offices. This has also assisted in the extension of its rapidly increasing partner base





Organisations must fully embrace the cloud to reap data rewards

Every modern business needs data to stay competitive, and implementing a truly modern cloud data stack can help them to handle its ever-growing volume, complexity, and speed.

BY DAVID LANGTON, VP PRODUCT, **MATILLION**



IN RECENT TIMES, data-led decision making has become a priority of utmost importance for business leaders across all industries. Put simply, deriving meaningful insight from masses of enterprise data is not just a nice-to-have competitive advantage, but a prerequisite for informing real-time decisions and maintaining relevance in today's shifting business environment. Take, for example, the way banks and

financial institutions are using real-time analytics to uncover fraud. Even as recently as just five years ago, mining these insights in sufficient time was a nearly impossible task, but the arrival of cloud data analytics five years ago changed all that.

Enterprises continue to invest heavily in the cloud, putting immense pressure on data teams to deliver

more useful insights across their organisations. Despite this, our recent research revealed that UK data teams spend nearly half (48%) of their time, on average, on data migration and maintenance, making it extremely challenging to fully capitalise on the potential of data talent and uncover business insights.

We need data engineers to invest less of their precious resources on maintenance and reactive tasks, and concentrate their efforts on fully leveraging the scale and performance benefits of the cloud. But how do we help them do that? Let's first consider some of the overarching challenges they encounter on a regular basis:

- **Volume, variety, velocity:** Today's data teams struggle with these "Three Vs" of modern data. Businesses need to have data insights ready so they can act on information as close to real time as possible, but often struggle to do so due to one of these common barriers.
- **The perennial skills gap issue:** By and large, businesses lack the resources to handle escalating demands for data from across the organisation. According to a DCMS survey, almost half of UK businesses (48%) are recruiting for roles that require hard data skills but 46% have struggled to recruit for these roles over the last two years. Realistically, it's just not feasible from a human resource or cost standpoint right now to hire enough highly skilled data engineers to keep up with these changing data needs.
- **The obstacle of legacy tools:** Many organisations are also dealing with outdated legacy tools that are complex, inflexible, slow, and costly. Not only does this make data processes more time-consuming for data engineers, but it eliminates the possibility for the democratisation of data across the enterprise.

Unlocking data's full potential

When it comes to adopting a cloud data approach, there are elements of a modern cloud stack that can help data teams be more strategic, solve these key problems, and move insights across the organisation more efficiently.

Far too much time is spent on manual integration, whereas greater automation can free up time for teams to focus on the unique business logic of the data processing itself. By transforming raw data into the refined, analytics-ready data required to support business intelligence, teams can better manage the "Three V's" of data and automate non-critical tasks to make crucial decisions faster.

To tackle another of the common challenges faced, one way of bridging the skills gap problem outlined is to lean more on low-code and no-code tools. By enabling more business users to easily analyse data sets, this approach can broaden data teams and empower more users across the organisation to quickly unlock key business insights. This approach democratises data use and frees up valuable time for skilled data engineers to focus on more technically

Every modern business needs data to stay competitive, and implementing a truly modern cloud data stack can help them to handle its ever-growing volume, complexity, and speed. By fully embracing the cloud and its scalability and performance benefits, organisations can boost the productivity of their data teams, overcome the traditional challenges faced and reap the rewards of real-time insights

challenging and value-adding tasks and take full advantage of what the cloud has to offer.

However, to fully capitalise on modern cloud data tools, a business must have access to all of its data and have a modern data integration strategy to bring that data into a cloud data platform and transform it to make it useful for analytics. On-premises and legacy extraction, transformation, and loading (ETL) approaches to transforming data are inflexible, time-consuming, and no longer viable considering the unprecedented amounts of data organisations are dealing with today.

Unlike this traditional approach, adopting modern cloud ELT allows data teams to be more strategic with their cloud data platforms. This strategy is much more agile and helps to automate and operationalise data insights, allowing teams across the organisation to access and act on the same data that's being used by the analysts in real time.

Reaping the benefits

Every modern business needs data to stay competitive, and implementing a truly modern cloud data stack can help them to handle its ever-growing volume, complexity, and speed. By fully embracing the cloud and its scalability and performance benefits, organisations can boost the productivity of their data teams, overcome the traditional challenges faced and reap the rewards of real-time insights. This ultimately allows them to spend the bulk of their time on more strategic work, driving greater business value and keeping them challenged and fulfilled at work in the process.

Head in the Clouds: Securing a path to the cloud for your business



The path to the cloud might seem daunting, particularly for smaller businesses under pressure to ramp up their cloud transformation efforts, but with the right knowledge and partnerships in place, any short-term disruption will be heavily mitigated and the long-term benefits will slowly but surely come into sharp focus.

BY STUART GREEN, CLOUD SECURITY ARCHITECT AT CHECK POINT SOFTWARE TECHNOLOGIES



THE INTERNATIONAL DATA CORPORATION (IDC) has dubbed 2021 The Year of the Multicloud, and with good reason. Even prior to the pandemic, the market for cloud tools was broadening and becoming increasingly complex, giving businesses a lot to think about as they started to ramp up their digital transformation efforts. For small to medium-sized businesses in particular, the path to the cloud can often seem like a series of daunting hurdles with difficult questions to answer at every stage.

Using an open-source tool might be an affordable way to get started, but what happens when that tool fades into obsolescence and stops receiving updates? What steps should a growing business take to ensure its cloud estate remains resilient and secure in the face of rising cybercrime? And what are the benefits and drawbacks of public cloud, private cloud and hybrid cloud solutions? These are all crucial things for businesses to consider at the strategic level, before any kind of wholesale migration even takes place,

so the added pressure to move online quickly in the past couple of years certainly hasn't helped smaller and medium-sized businesses with lots of planning yet to do. One of the things still holding those businesses back, even now, are concerns around security. In a recent survey, Gartner revealed that the number one reason businesses were holding back on full-scale cloud adoption was a lack of confidence around securing their data. It's understandable when you consider that by October 2021, incidents of cybercrime had increased by a staggering 40% on the same time last year.

So, with so much to consider and security concerns causing a lot of anxiety, where should businesses even begin? Let's take a closer look at some of these issues in more detail to get the cogs turning.

Choosing the right cloud infrastructure management tools

The open-source community is typically where big innovations and breakthroughs happen. In fact, many of the cloud enterprise tools available today wouldn't exist without contributions from the open-source community, nit-picking and problem-solving their way to a better product. Open-source tools are readily available, free and can prove incredibly useful - all tempting things for a young business or startup.

But what happens when the open-source project is shelved and stops receiving patches and updates? What about the security risks of using an open-source tool with code that you don't have the in-house expertise to verify or scrutinise? This is where things tend to go south, and why those with an interest in data security should probably opt for a commercial tool instead.

Opting for commercial tools might be more secure, but with so many options to choose from businesses are often paralysed by choice and afraid to commit. Before a business does commit, it's important to verify that the commercial tool in question actually delivers on all of its big promises.

It's a good idea to draw up a test plan with goals and objectives to make sure the tool - and vendor - are the right fit. Focus on visibility and control as the key areas for this. Does the tool offer complete visibility over your cloud real estate? How easily navigable is the interface? Does it offer the flexibility to implement manual fixes as well as automated ones for the issues you encounter?

Where to start with cloud infrastructure management services

Cloud Security Posture Management (CSPM) tools have been around for a few years now and are a great place to start for businesses that want to gain control over their cloud estate. Native tools are available with basic features and, as with all commercial tools, more comprehensive offerings can be found depending on the level of investment you're willing to make and

the kind of control you need. CSPM aims to give businesses a broad view of what they have in their cloud deployments, but more importantly, how well or how poorly they are configured. Industry analysts have been warning for years now that the source of most cloud-related security incidents isn't going to be flaws in the services themselves, but the way they are used and configured.

Take Amazon S3 and Azure Storage Accounts, for instance. These services are a reliable, scalable and convenient way to store and share data. But they're often implemented with a 'market-first' mindset, getting it up and running as fast as possible while security takes a backseat. CSPM platforms remedy this by rapidly identifying and scoring weaknesses like these in a way that businesses can't overlook.

Public cloud, private cloud, or both?

Countless CIOs and CTOs will have found themselves at this crossroads over the past decade or so, but the truth is, it isn't a crossroads at all and hasn't been for a long time. Even prior to the pandemic, a 2019 report called State Of The Cloud revealed that in 2019 more than 90% of businesses used a public cloud solution and more than 70% used a private cloud solution. If you're wondering why those numbers don't quite add up, it's because the overlapping two-thirds are businesses that have opted for a hybrid cloud solution.

Private cloud offers some of the advantages of public cloud when it comes to scalability and flexibility, but you are still responsible for the provision and maintenance of the end-to-end delivery of that environment. That might be a benefit depending on your views around shared infrastructure, or it could be a drawback if you are looking to reduce in-house responsibility for more 'mundane' provisions like power, hosting and networking. That's why an increasing number of businesses are settling on a hybrid cloud approach.

Using a hybrid cloud setup isn't nearly as complicated as it might sound. It can be as simple as having a connection between existing physical infrastructure and a public cloud virtual network. This allows businesses to take advantage of the flexibility of public cloud solutions where it makes sense to do so, while carrying on as usual with traditional services in the data centre. This offers businesses a somewhat natural path to migrate more services to the cloud when the need arises, safe in the knowledge that some of the most important services are completely self-hosted and self-managed.

The path to the cloud might seem daunting, particularly for smaller businesses under pressure to ramp up their cloud transformation efforts, but with the right knowledge and partnerships in place, any short-term disruption will be heavily mitigated and the long-term benefits will slowly but surely come into sharp focus.

CIOs, change management and data handling - the trifecta for success in 2022

The critical need for change management has been a subject of industry discussion for a number of years. Yet, it is still often sidestepped, forgotten or not given the right amount of attention. What that creates is a lack of engagement, results or even perhaps the technology initiative being cancelled; all of which wastes precious budgets.

BY LYNDON HEDDERLY, DIRECTOR, CUSTOMER SOLUTIONS, CONFLUENT

ORGANISATIONAL CHANGE MANAGEMENT is required whenever a business needs to change one or more of its main processes in order to improve effectiveness. It is clear that the task of managing change is a difficult one but CIO's and technology teams need to understand that it has to be a key element of any project or rollout, especially with any initiatives to do with handling data.

The reason change management is so key for data initiatives is data often underpins key customer journey initiatives and backend operations. As customer expectations continue to change, businesses need to be able to tap into their data in real time wherever it is held to provide the right experience for consumers. The majority of employees simply don't realise the true impact data has on the bottom line and customer loyalty. Many would probably dismiss it as something that just goes on behind the scenes and isn't something they need to be concerned about. Through effective change management and education, CIOs will be able to show that, if data is handled in the right way and can link between all the different parts of the business, it will allow employees to meet the clear consumer expectations now set in this digital first paradigm we live in.



So where do CIO's start when it comes to thinking about ensuring change management is part of any project rollout especially around data handling? There are various models and books they can refer to but there are three vital factors they need to consider:

1. Understanding who their target audience is

CIO's shouldn't just consider the tech team or developers within their business. It is important that the wider business understands why a particular technology project is being rolled out and what they can do or have to do to make it truly effective. In addition, CIO's need to tailor the conversation and messaging around what the audience does or cares about and why this project is an important part of their day to day work. This is key in data initiatives, as you really want to make data available across an Enterprise.

2. Ensure employees have the opportunity to feedback

An often overlooked step in any change management rollout is the opportunity for employees to provide their feedback or thinking. Yet it is crucial to the long term success of a change. Instead of seeing change management as a simple checklist of one way communication, CIO's need to ensure they are listening to what employees have to say. The feedback

gathered might be helpful in adjusting elements of the rollout so the change becomes a permanent shift.

3. Don't forget to show the results

When a CIO implements a technology initiative or project, no matter the size or type, the bottom line is to improve the performance of the business. So it is crucial to showcase the results and improvements happening to employees - and on a regular basis. And remember, the results should be tailored to what the employees and target audience care about. So both qualitative and quantitative results should be shown. This will all serve as a good reminder to employees as to why the project is being rolled out.

Many of the changes businesses are facing today because of the pandemic are changes that were mostly already underway including consumer behaviours. The global pandemic has simply accelerated the time frames. One thing remains crystal clear. New business models will continue to be heavily dependent on technology for the delivery of their products and services. This means that the projects CIOs implement to improve effectiveness around their technology stack are fundamental to the success of the business. With that, change management needs to be a core component of the rollout and threaded throughout, not just haphazardly added at the beginning or end.



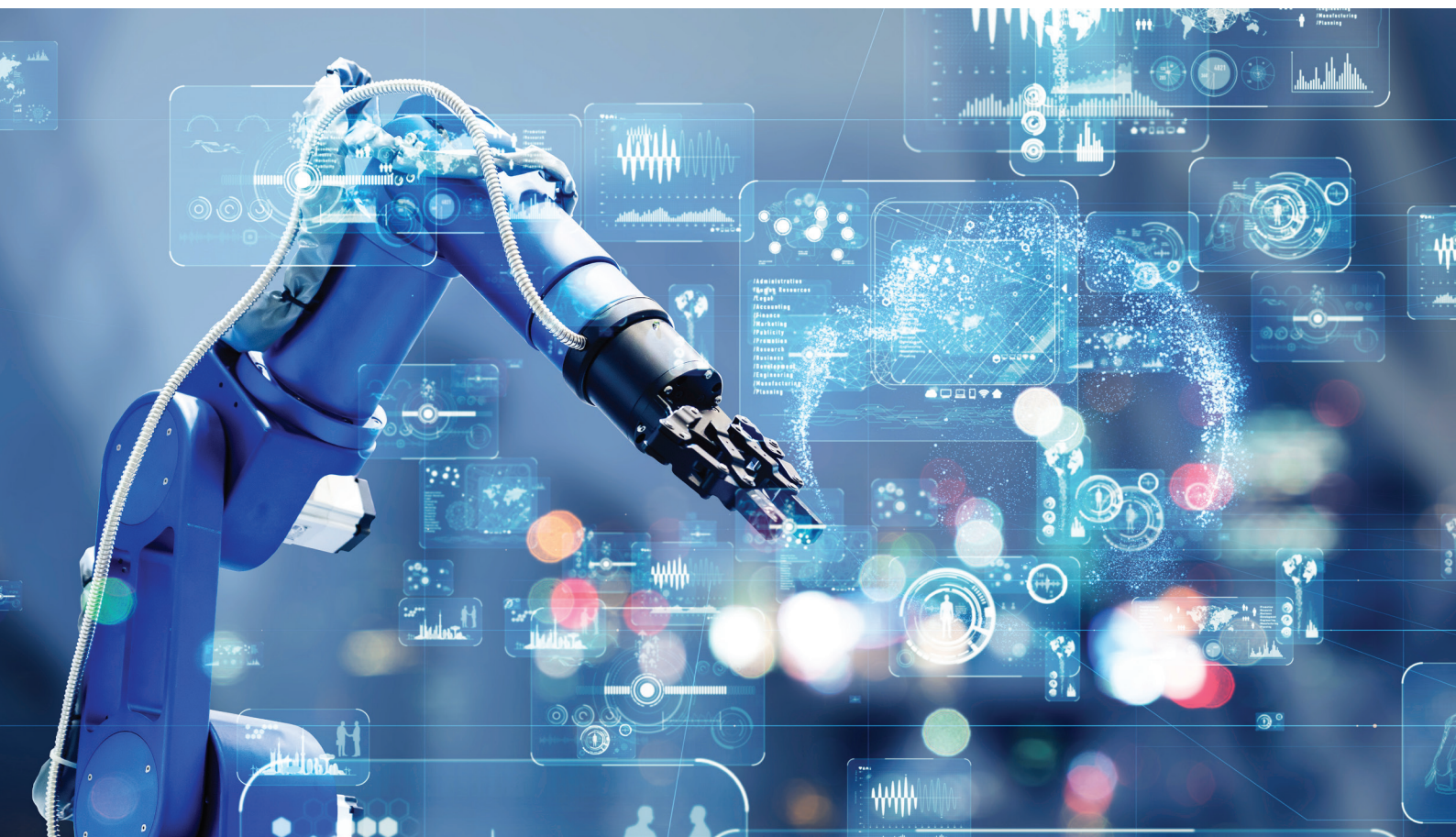
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Discovering 5G's potential

For many, the promise of 5G has them thinking about loading websites and videos faster on their devices, as well as wider mobile coverage, and better connectivity. In reality, however, the promise of 5G is cloud-based and services driven.

BY SHIRIN ESFANDIARI, PRODUCT DIRECTOR AT ORACLE



LIKE MOST OTHER tech advancement these days, 5G is dependent on a combination of cloud native technologies and automation. Not only do these solutions tackle the lack of diversity in the 5G supply chain and reduce reliance on high-risk vendors but, crucially, ensure that 5G provides fast and effective response times across sectors where there's a heavy influx of data traffic, like healthcare and emergency services. Thus, much of the success of 5G will depend on how providers approach the new-to-telco cloud technology and how well they execute on it.

No doubt, we find ourselves at an inflection point in the adoption of 5G. Either operators embrace this change and find smart ways to monetise services, or

they struggle to survive. However, whether it is the opportunity or the threat that drives the change, the possibilities become exponential.

Not just another 'G'

The rise of mobile telephone and fixed and mobile broadband over the last 20 years has meant strong growth for telecom companies in all major markets. However, we have reached a saturation point of per call, per minute, per megabyte charging that leads to a global growth rate forecast to be less than 1% across the industry. This is a big driver in providers' desire to understand and monetise 5G.

5G's sub-millisecond enhanced broadband and ultra-

reliable connectivity has the potential to revolutionise the industrial enterprise. At the same time, network slicing will change how operators serve multiple customer or markets with tailored connectivity and applications suited to their needs. But this only works if the 5G core network is based on a cloud architecture that is automated and agile.

5G was conceived as a cloud-native technology and to be done right, and deliver revenue growth, providers will have to adopt next generation cloud operating practices.

Embracing its potential

The fabric of networks has changed in fundamental ways. While networks still have boxes and cables, the nature of those boxes, and the control systems and applications running them, have changed. There is no longer a physical box to touch or reboot; it is all software-based and this type of architecture must be automated.

This warm embrace of cloud-based automation has already seen success in the web scale cloud companies that we use every day. They have set the bar high, and the telco industry needs to develop a web scale mindset, to match the tools available, and to fully embrace the cloud technology that 5G requires to reach its full potential. While 5G has been a buzzword for many years, we now have the infrastructure to embrace its potential.

From the ground up

At the centre of creating a more sophisticated and secure network is a 5G standalone cloud native core.

It is, as the name would suggest, the brains of the whole operation. Its control panel is where automation and scale come together to meet the expected growth in 5G subscribers and connected devices.

It needs to be architected from the ground up on cloud components that provide speed, scale, and security across the whole network. As more network function is added to this core, there will be a corresponding increase in operational needs and traditional manual practices will not keep up. This is where automation becomes key. Automated workflows will be essential to match the real time, dynamic manner of 5G capabilities.

Operational capabilities that support the future network infrastructure will be critical building blocks in enabling applications and services on top of 5G networks and ultimately monetising the services. The UK Government itself has set out its ambition for the majority of the UK population to be covered by a 5G signal by 2027 and through its Diversification Strategy, has helped lay the groundwork for future growth in the telecoms supply chain while ensuring it is resilient to future trends and threats. As 5G establishes itself as the next enabling technology for the transformation of industry and society, it is now up to service providers to consider how they can most effectively leverage this cloud native technology with its promise of true web scale service agility.

5G is about more than bigger bandwidth and faster connection. It will be application and services driven, with many unexpected possibilities discovered along the way.





Autonomous, segmented and simplified: Building a network adapted to the challenges of the digital age

The pandemic has accelerated major digital transformation projects. After 18 months of forced adaptation and lockdowns, all sectors of the economy are now aware of the need to transform themselves: to increase productivity, retain consumers, or retain talent who have adopted teleworking as a way of harmonising their professional and personal lives.

**BY LAURENT BOUCHOUCHA, VP BUSINESS DEVELOPMENT NETWORK
SOLUTIONS, ALCATEL-LUCENT ENTERPRISE**



HOWEVER, even the most mature companies vis-à-vis the hybridisation of work have been caught up by the new cyber threats that have exploded since the beginning of the health crisis.¹ Between the revolution in work, the exponential development of connected objects and the omnichannel processing of information, IT systems departments have a major challenge to meet: how to secure an increasingly complex network infrastructure exposed to the digital age.

Hybridisation of work: the enemy within

Among the big lessons to be learned from working remotely, we must now realise that cyber threats also come from within an organisation. The firewall has always been necessary but never sufficient in terms of protection. It is even less sufficient because of the new mobility of employees and in the face of a hybrid IT network, between physical servers and the cloud. The “Zero Trust” model is becoming the norm for companies, which must consider that everything

outside the company is potentially hostile, but also control suspicious behaviour inside the system. While we are talking about breaking down silos, the network must be able to segment each user and connected object to isolate them from the rest of the infrastructure in the event of a compromise.

Multiplication of connected objects: new uses, new threats

By definition, connected objects (IoT) are designed to meet a purpose: to interact with other IoT or people, and integrate them into a process. Whether used in industry (IIoT), in the medical (IoTM) or generically, each object is a potential flaw for the security of companies. Indeed, their ultra-specialisation does not allow for a very high level of security. But these IoTs are a new gateway for hacks of all kinds. In order not to compromise the integrity of the organisation, virtual network segmentation is essential to identify, inventory and manage connected objects in a secure way.

Omnichannel communication: multitasking... multi-risk?

At the crossroads of the two previous revolutions, companies are now faced with the complexity of communications. For employees, it is a question of using multiple and agile telecommunications tools to ensure business continuity. For customers, it will be necessary to offer them the most suitable "contact" tool: voice, emails, instant messaging or chatbot, social networks, etc. Channel diversification requires both resizing networks and securing them, by encrypting communications and flows from end to end, to avoid any risk of flaws or data capture.

Automate, segment, simplify: three pillars of a network in the digital age

These challenges, which are currently faced by CIOs, are unfortunately not, or are poorly, addressed by most companies, because their general management has not effectively assessed the measure of the risks. In a pragmatic and simple way, here are the three areas of improvement to comply the network with the requirements of organisations and their stakeholders:

- The need to build an autonomous network, to easily, systematically, and securely connect people, network processes, connected objects (ever more numerous) and their applications, without having to reconfigure the network.
- The virtual segmentation of the network, micro or macro, must be designed to be scalable, to integrate in an efficient and secure way a multitude of connected objects, internal or external to the organisation (especially with the increasing BYOD trend)
- Simplifying workflows through their digitalisation. Productivity is thus improved by the immediate presentation of data (IoT or business) for the fastest decision-making. The company's employees can concentrate on higher value-added analyses.

For companies, the investment is not negligible, but the long-term benefits are numerous. That's why user experience analysis is important. Let's forget the simple aspect of teleworking to imagine the additional services that a robust, resilient, and secure network could provide.

Predictive maintenance of large critical industries and infrastructure would be greatly improved and would allow for more targeted, less time consuming and costly patches. For the teams, automatic identification would allow a better allocation of tasks, even in a "nomadic" use. Finally, it would also be easier to geolocate lost, misplaced, or stolen connected objects such as wheelchairs in a hospital, identification badges, tablets, etc. All the examples cited aim to improve working conditions, accessibility or productivity of employees and the satisfaction of customers or users. This requires building a network "of the digital age": tailor-made, depending on a sector of activity, able to be deployed with the same level of intelligence in classic office environments, nomadic or constrained, from elements compatible with all current and future network technology (Wi-Fi, Ethernet, SD-WAN, SD branch, etc.). Thus, the network will be adapted, secure, robust, and durable.



Five cybersecurity myths that are compromising your data



As the importance of cybersecurity has increased, so has our awareness of it. Poor cybersecurity has been identified as the most pressing threat to businesses today.

By Barry O'Donnell, Chief Operating Officer at **TSG**

ISSUES WITH CYBERSECURITY often stem from a lack of cybersecurity awareness. In fact, according to the 2020 Cyberthreat Defense Report, a lack of cybersecurity awareness was identified as the biggest detriment to an organisation's cyber-defences. The reasons for this lack of awareness include no training on cybersecurity and persistent misinformation. Despite more media attention than ever, there are still some common misconceptions about cybersecurity that put businesses at risk. Here, we bust the top myths around cybersecurity and how you can address them.



1. Cybersecurity isn't my responsibility

IT security is still viewed as the IT team's problem when that's not the case at all. All employees have a responsibility to ensure the security of their business. Your people are the frontline of your defence and represent its biggest attack surface. They are

the people hackers are targeting with phishing campaigns because they're banking on a lack of security knowledge. This myth can have serious consequences if your people don't practise basic cybersecurity hygiene. If they don't take care when clicking links in emails or downloading software, they could compromise your business' security. Education is critical because your employees need to understand why cybersecurity is so important and that they have a role to play. Training will also equip them with the skills to spot threats and change their behaviour for the better.

2. Hackers don't target small businesses

If media coverage is anything to go by, only large organisations like Yahoo, Uber and Marriott get attacked, right?

Wrong.

Financial Markets Network

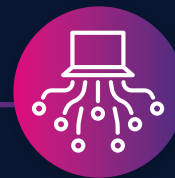
Global Connectivity Throughout the Trade Lifecycle



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Infrastructure



This myth is particularly persistent because of mainstream news and the fact that hackers can potentially extort higher sums of money from these businesses. But the Federation of Small Businesses (FSB) reports that UK small businesses are targeted with over 10,000 cyber-attacks a day. The same report highlights widespread weak security procedures in small businesses, including a lack of formal password policies, not installing updates and not using security software.

While the financial gain from targeting enterprises is more lucrative, the stakes are higher for small businesses. Cybercriminals know this. A cyber-attack could destroy a small business and force it to close, and that's why one small business is successfully hacked every 19 seconds in the UK. Small businesses which have a limited cybersecurity budget should tap into the knowledge of an IT support service, who can advise on the most suitable defences.

3. My passwords will keep me safe

There are still two long-held misconceptions around passwords. The first is that adding capital letters, numbers or special characters to your one-word password will make it uncrackable. This myth is perpetuated by a lot of business accounts which have these requirements. However, the real measure of password security is length. Software can crack short passwords, no matter how "complex", in a matter of days. But the longer a password is, the more time it takes to crack. The recommendation is using a memorable phrase – from a book or song, for example – that doesn't include special characters.

But determining a strong, (almost certainly)



uncrackable password is only the first step. If the service you're using is hacked and criminals gain access to your password, you're still vulnerable. That's where two-factor authentication (2FA) and multi-factor authentication (MFA) come in. These methods require you to set up an extra verification step. When you log in, you'll be prompted to enter a security code which will be sent to your phone or even accessed via a dedicated verification app. That means if a hacker ever gets their hands on your password, they'll still be thwarted.

4. A basic anti-virus will be enough to protect my business

Gone are the days where your McAfee or Avast anti-virus solution will be enough to protect your business. Now, there are dedicated tools to fight against specific threats like ransomware. A synchronised approach to security, whereby your solutions all interact with one another, is generally accepted as the most robust. Your security solutions should cover your endpoint, firewall, network connections, email and more. In addition, backup and disaster recovery solutions are recommended to mitigate any potential incidents.

5. We only need to protect against hackers

While hackers pose an enormous threat to your business, you can't ignore the possibility of malicious insiders or even staff accidents. One of the most highly-publicised accidental breaches was a Heathrow Airport staff member losing a USB stick with sensitive data on it. Luckily, the person who found it handed it in rather than using it maliciously. The company was still fined £120,000 for its "serious" failings in data protection. It's also all-too-easy for an employee to accidentally email a spreadsheet with sensitive data outside of the company.

Equally, a disgruntled employee who has access to sensitive employee or customer information could willingly steal or share it. Locking down access to your core systems and ensuring fewer employees have access to them can help you protect against this. For accidental breaches, implement policies that state removable devices must be encrypted. You can also configure your email settings to block certain attachments from being shared outside of your organisation.

Are you or your staff members guilty of believing any of these myths?

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Saving SecOps teams with an observability pipeline

Threats will keep coming and being on the back-foot doesn't work. Security is a marathon; teams need to be in it for the long-haul and require the right tools and training to stay alert and continue moving forward.

BY NICK HEUDECKER, SENIOR DIRECTOR AT **CRIBL**

AT SOME POINT, security teams will crack. The struggle of information overload is being cited as a key stress factor for IT security teams, with 62% seeing it as an area that causes pain for their role.



On top of this, the increasing complexity of distributed denial of service (DDoS) attacks, hybrid work environments, insider threats and the move to cloud-native applications deployed on containers add to the complexity SOC teams face. At the same time, with the increased layers of complexity being beyond the capabilities of traditional monitoring solutions they are

struggling with the wrong tools for the job at hand. It's a perfect storm for threats to make their way in.

The rise of dynamic observability

There is, however, some hope. During the last couple of years, there has been a shift in approach that looks to solve these issues: the move from static monitoring to dynamic observability. While monitoring focuses on the health of components, observability provides fine-grained visibility into why systems behave the way they do. Observability is the characteristic of software, infrastructure, and systems allowing questions about

their behaviour to be asked and answered. It allows you to ask the 'what ifs' and learn more about the 'unknown unknowns.' Monitoring, on the other hand, forces predefined questions about systems into a set of dashboards that may or may not tell you what's going on in your environment.

Unlike monitoring though, observability isn't a thing you can buy off the shelf. No single tool will provide all the benefits of having an observable system. Instead, observable systems need to be built. This starts by embedding the concept into applications and infrastructure via events, logs, metrics, and traces. Next you take that data and combine it with change logs, IT service management data and network traffic to give teams a macro view while also enabling drilling down into micro details.

The right data to the right platform

Solving the complexity challenge is not the only area that is pushing the need for observability. It is also emerging as a valuable tool for security operations teams working cross-functionally. In a modern enterprise, SOC teams do not operate in silos. Instead, they are interacting with infrastructure, operations, and DevOps teams. Each group though has its own tooling and analytics platform, which make it impossible for SOC teams to get a holistic view of the entire IT ecosystem.

Moreover, the interaction between these teams often introduces friction around what various data sets mean or what a correct outcome even looks like. Observability helps solve these issues by delivering the right data to respective platforms.

Another challenge presented by instrumented systems is that delivering data to the right platforms becomes a challenge. This does not need to be the case. Using observability pipelines, security teams can decouple sources of data such as applications and infrastructure from destinations like log analytics and SIEM platforms. Adding in extra monitoring won't solve this problem. The reality is that organisations are already heavily stocked with monitoring tools, with an average of 29 being in place.

By abstracting data analysis and how data is used from how it is collected, provides teams with flexibility in how data is delivered. In addition, observability pipelines enable fine-grained optimisation of data sources via uses such as redaction, filtration, and overall reductions in data volumes.

The final element in achieving observability is exploring data. Having worked in the data and analytics space, I equate traditional monitoring to data warehousing. In both data warehousing and monitoring, you know what data you're ingesting and the reports or dashboards you're creating. On top of this, you have a collection of known questions over known data. While it is often expensive and inflexible, it's also dependable and well understood.

In a modern enterprise, SOC teams do not operate in silos. Instead, they are interacting with infrastructure, operations, and DevOps teams. Each group though has its own tooling and analytics platform, which make it impossible for SOC teams to get a holistic view of the entire IT ecosystem

Observability, on the other hand, is more like a data lake. With a data lake, you don't know what questions you'll ask, but you fill the lake with data and organize it to prepare for future questions. If a data warehouse is for known questions over known data, a data lake is for unknown questions over unknown data. This means it can often be helpful to think of a data lake as a question development environment as you're creating the questions you want to ask at the same time, you're exploring the data. Unlike a conventional data lake which supports data scientists optimizing for SQL and Python, an observability data lake optimizes for search.

Use observability to get off the SecOps treadmill and get set for the long-stretch

With data volumes increasing at ever faster rates, security analysts are stuck on a treadmill that keeps getting faster. Already they are burdened with an overload of data to analyse and manage, yet still lacking all the data they need to get visibility into their environments. Monitoring tools may have offered a solution in the past, but now they too are being outpaced by changes in IT ecosystems as businesses move to being cloud-native or operating with a container-based infrastructure. Instead, a new approach is needed to tackle the complexity of current IT ecosystems.

Evolving systems to have observability built-in enables enterprises to better future proof systems when questions arrive and evolve. Security isn't a game of catch-up, it's a marathon. With an observability pipeline, businesses can slow the treadmill down and finally capture all the data they need and deliver it cleaned and formatted to the right tools.

Cyber Resilience: Put your guard up!

Focusing now on a robust, long term cyber defence strategy to protect your entire storage and backup environment will be the best commitment and money that you can invest.

BY GARETH BEANLAND, COUNTRY MANAGER, UK&I, **INFINIDAT EUROPE**



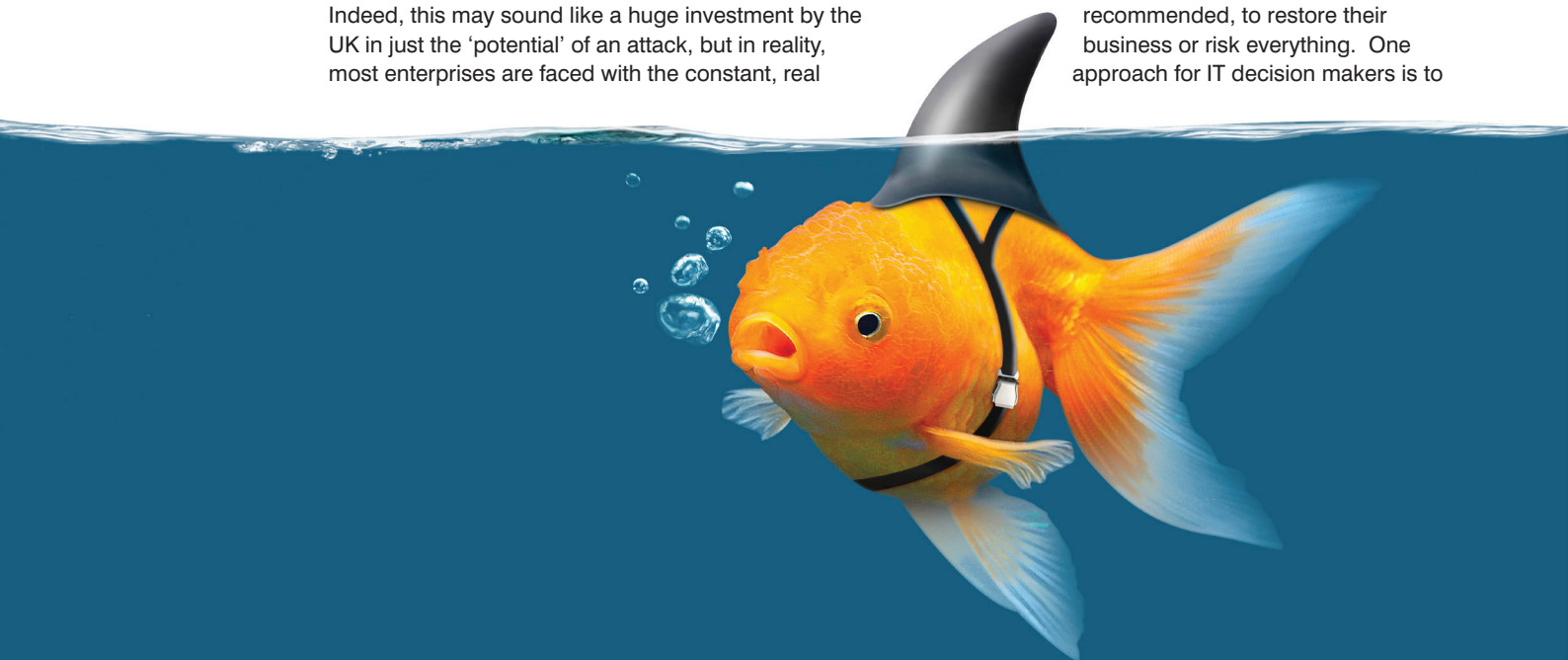
Threats, real and perceived!

Every demanding enterprise environment around the world faces the terrifying potential of an unsolicited cyber-attack. In a rightful response to these challenges the UK government is planning to build a £5 billion digital Cyber Force Centre in Lancashire that will help protect the Country's critical infrastructure and retaliate against potentially hostile criminals and sophisticated state-funded hackers. With comprehensive cyber security and true preparedness becoming the new battleground against ransomware and malware attacks, it is essential that British businesses are also able to operate against potential adversaries.

Indeed, this may sound like a huge investment by the UK in just the 'potential' of an attack, but in reality, most enterprises are faced with the constant, real

threat of cyber-attacks, and the substantial financial and operational risks they can unexpectedly present. However, the key to any successful cyber defence strategy is not to necessarily focus on spending budget excessively but it must be on building the capability of quickly restoring data systems and applications from trusted sources that are inherently protected from malicious corruption.

When ransomware takes data hostage, it destroys backup copies of data, steals credentials, leaks stolen information and worse. It has caused businesses of all sizes to shut down operations almost overnight, so it is not unusual for a company to pay a large sum of money, even though it isn't recommended, to restore their business or risk everything. One approach for IT decision makers is to



ensure your enterprise infrastructure provides best-in-class transparent protection of the entire backup environment, that it features immutable snapshots and near-instantaneous recovery to previous points-in-time based on individual customer-defined policies. By ensuring that copies of data cannot be deleted, encrypted, or changed businesses can verify the data before it goes back online in a business operational environment.

The stakes have never been higher

Currently many UK companies are challenged by how to effectively manage these continuous cyber-attacks, including suffering business data downtime while also maintaining customer loyalty and trust with their business-critical data – but simple data backup on its own is no longer sufficient as an adequate defence. Unsurprisingly, the continued growth of cyber-attacks, mirror the rise in the amount of data that is currently generated globally with IDC predicting that the Global Datasphere will quadruple from 45 Zettabytes in 2019 to 175 Zettabytes by 2025. Within this same report IDC estimates that the cost of ransomware attacks on businesses will top \$20 billion this year with damages related to cybercrime reaching \$6 trillion, which are egregious figures for any CIO.

Every single touch point within a modern company's rapidly evolving ecosystem faces the possibility of a significant data breach; the reality of many employees remaining at home or remote working with weakened WIFI security, as well as the escalating use of public Cloud systems. An innovative and effective cyber resilience solution clearly needs to form the basis of every organisation's digital transformation and cyber defence strategy.

Prevention, detection and recovery.

The UK is the second most targeted country in the world for ransomware attacks, just behind the US (Digit) and more than 80% of UK businesses have experienced such an attack in the last 12 months (Comparitech). There is no time to waste, and every organisation must now prepare for the unexpected by ensuring their IT infrastructure can establish an unbreachable line of defence for data backup that will protect its most important company lifeblood – its data. When cyber-attackers plan their thousands of assaults, they will first educate themselves on potential weaknesses in your armour and relentlessly fire at that same spot. As these attacks grow more prolific and powerful in nature it is vital that businesses consistently protect these weak spots and their data integrity with immutable snapshots, as well as implement any recovery process near-instantaneously.

With this in place the CIO can have the assurance that their critical business data is protected from sabotage and, most importantly, have confidence that customers will experience no drop in customer experience or compromised service levels. Preparing for the unexpected means that IT security teams need to be on constant alert for ever more sophisticated

ransomware aggression and onslaughts.

To address these challenges businesses must look honestly at how vulnerable their systems to harmful damage and can the integrity of their infrastructure fight off a ransomware attack with efficient data resilience capabilities? Approaching this issue with innovation and as an opportunity to safeguard data the smart CIO/CTO will demand petabyte-scale data protection*, with assured lightning-fast recovery for mission critical operations, uninterrupted data access and application availability.

Hope will not protect you

Horrifyingly, the cybersecurity firm, Cybersecurity Ventures, has predicted that a cyber-attack is expected to affect a global business every 11 seconds by the end of this year. To this end effective cyber resilience solutions must provide guaranteed availability, and a fully scaled data restoration for business continuation. Many solutions, however, lack the scalability, performance, and speed, which means that they fail at the decisive moment to make that full working data restoration. These systems also often play on people's worst fears and are increasingly expensive for an IT team to install and operate.

If indeed recovery is the last course of action, businesses will need a protected, immutable, and verified copy of their data. However, not all storage solutions are equal, and when looking for a cyber resilience solution, enterprise CIOs need the most comprehensive end to end solution, spanning primary and secondary storage, coupled with industry-leading backup & recovery performance and the highest levels of cyber protection, resilience, and recovery, high availability and elastic pricing models* that offer seamless scaling in a cost-effective manner.

We are now at a pivotal point in data explosion, where safeguarding your storage and backup infrastructure is imperative to a company's economic and reputational survival. Even as the financial rewards of cybercrime hopefully reduce, rogue state champions are punished and attacks become fewer and fewer, the importance of data and cyber protection will continue to be prioritised. Focusing now on a robust, long term cyber defence strategy to protect your entire storage and backup environment will be the best commitment and money that you can invest.

ENDNOTES

Ref: IDC White Paper: The Digitization of the World – From Edge to Core, May 2020. <https://www.seagate.com/files/www-content/our-story/trends/files/dataage-idc-report-final.pdf>

*Notes: Infinidat's newest innovation in cyber resilience on its' InfiniGuard platform gives enterprise customers the ability to implement a new, more effective strategy to guard against, fight off and recover from damaging cyber-attacks.

Aiming for service excellence: swimming or sinking in today's digital economy

Fortune doesn't always just favor the brave – it also favors the prepared. Businesses that can achieve operational excellence through the effective use of enterprise data will be those that swim, rather than sink, in today's service economy.

BY DIRK MARTIN, CEO AND FOUNDER OF **SERVICEWARE SE**



WHILST CERTAINLY DISRUPTIVE, the pandemic provided a unique opportunity for organizations to reassess current business models and accelerate digital transformation efforts. Change became a necessity rather than something you could kick further down the to-do list, and businesses were forced to make rapid decisions that would determine their future.

At the same time, many service models had to be revised or reinvented, since value chains came to a standstill or had to be radically redesigned when the offices, factories or stores were

abandoned. It also became clear, that the profitability and thus the costs of every digital service (regardless of new, existing or adjusted) had to be recalculated and examined in detail in terms of its economic viability. After all, today only literally safe and pleasant processes convince an increasingly critical and demanding clientele.

Nevertheless, the pandemic was not the trigger for the rapid digitization of services; rather, it ruthlessly revealed the failures of the past years, in which much was said about digitization and technology was introduced, but only a few business models were really consistently



questioned and revolutionized. Covid just took the cloak off outdated processes and revealed the lack of flexibility in service planning and corresponding cost models.

Adapting to changing service demands

But, like many things in business, the service economy isn't standing still. In fact, constantly evolving consumer demands and the rapid migration to digital continue to impact its success. To be able to continuously adapt a business model to meet these needs, different levels of consideration are needed that involve the entire enterprise. Questions need to be asked such as: which service chains or processes does my company need, in order to meet customer and partner requirements at all times? What conditions does my IT infrastructure have to fulfil to be able to deliver services quickly, securely and in compliance with guidelines?

And that's all before considering the costs associated with meeting growing customer demands. Amid mounting inflation fears, recent figures suggest the rise in operating expenses among service sector firms is at its steepest due to an increase in staff wages, higher raw material prices and greater transportation charges. With finances stretched, businesses need to understand how they can create transparency in the primary and secondary processes driven by their IT teams, and how they can then reallocate the costs in order to understand their added value.

All of this will be underpinned by how short and medium-term turnover, cost and cashflow planning can be achieved in a way that meets the market situation and current demand, whilst also ensuring constant profitability.

The need for accurate and flexible enterprise service management

Ultimately, to be able to perform in today's digital service economy, organizations need a high degree of strategic and operational excellence at all levels of service thinking, IT alignment and associated financial and P&L planning, typically referred to as Enterprise Service Management (ESM).

Among other ESM disciplines, organizations need effective knowledge management across all business units within the enterprise. Whether it's equipping contact centre agents with the right insights so they can respond effectively to customers, providing up to date resourcing information for field services and facilities management, or ensuring IT and finance are aligned to invest in the latest digital offerings. With the right knowledge, employees operating across all areas of the organization have the power to drive greater efficiency, effectiveness, and excellence when it comes to service management. But first, they must have access to the right information.

Unfortunately, whilst businesses are full of the knowledge needed to unlock this level of excellence,

many companies lack the processes and structures to optimally conserve and make it usable and accessible to all. Data, for example, is often stored in various locations, on different servers and hidden behind different accounts and local hard drives. This can lead to several outcomes – all of which can be detrimental to success – a) time is wasted sourcing information that is hard to find, b) time is wasted duplicating information that already exists but is not accessible, or c) employees continue without the correct and necessary information leading to further inefficiencies and potentially unsatisfied customers.

Structured knowledge as the basis for outstanding customer service

Once knowledge is structured and organized, businesses need a unifying system that can help to consolidate enterprise service data, structure it and run those services on one integrated platform. Customer care teams, for example, can leverage the knowledge to better serve their clients via standardized and automated IT-Service Management processes, which are based on current and correct information. This is essential as customers demand a response in real-time.

Whilst this is perhaps one of the most obvious cases in which this access to a consolidated view of data can be effective, in reality, it is needed across all areas of the enterprise which contribute to service delivery – IT, HR, finance, resourcing and more.

Accelerating operational excellence with AI

Whilst adopting effective enterprise service management software is a step in the right for businesses operating in today's service economy – it will be integration with technologies such as artificial intelligence (AI) that will truly unlock success. When supported and enhanced by AI algorithms, the impact of these tools can be accelerated dramatically, whilst relieving employees of mundane tasks associated with data entry and analysis. For example, AI integration can offer semantic analyses of content similarity, meaning that businesses can avoid creating duplicated content – not only reducing redundancies but also allowing for faster access to the right information.

By automating shared service management through effective and agile enterprise management software, businesses can equip themselves with the right knowledge to achieve their ambitions in a rapidly evolving digital service economy. Only through company-wide transparency, can organizations conduct better planning, monitoring and analysis of service performance and gain greater control over quality and costs.

Fortune doesn't always just favor the brave – it also favors the prepared. Businesses that can achieve operational excellence through the effective use of enterprise data will be those that swim, rather than sink, in today's service economy.



A hybrid approach: Achieving infrastructure cost optimisation

Achieving infrastructure cost optimisation has become a business priority for many organisations around the world. The rapid growth in demand for digital services in recent years has forced companies to modernise their IT infrastructure and move to the cloud. Here, they were promised optimised costs, more agility and efficient operations.

**BY TYTUS KUREK, PRODUCT MANAGER,
CANONICAL**

IT TURNED OUT, however, that cloud migration is not that simple from an economic point of view. Many companies that initially enthusiastically embraced a cloud-based strategy and moved all their workloads to public clouds have experienced cost increases over time. According to the IDC Cloud Pulse 4Q19 Quarterly Summary, 85% of organisations are repatriating workloads from the cloud and back to on-premise, in order to regain control of their budgets and finally achieve long-term cost savings.

Therefore, the search for cost optimised infrastructure continues, with hybrid/multi-cloud emerging as a popular architecture choice. According to 451 Research's report about cloud trends in 2020, 62% of enterprises are pursuing a hybrid IT strategy. This approach leverages the best of public and private clouds, ensuring workloads always run where it makes most sense from the economical standpoint. But, how can businesses ensure they are choosing the right cloud approach for them?

Public cloud vs private cloud: the challenges

When it comes to choosing between private and public clouds, each business will have their own unique reasons for choosing one or the other. However, one of the most common deciding factors is cost. We can break down cost into two categories, capital expenditure (CAPEX) and operating expenses (OPEX). CAPEX are a company's major, long term expenses, while OPEX are a company's day-to-day expenses. Both play a big part in optimising cloud cost.

The main reason behind the initial success of public clouds was their ease of use and the near-zero CAPEX cost. In the public cloud world all you need to do is to create an account, attach your credit card to the billing system and you can start using public cloud resources right away. But when you compare this to private cloud platforms, their CAPEX costs are extremely high. This is because implementing a private cloud requires specialist knowledge and the purchase of hardware and software licenses that have to be paid upfront.

Looking at OPEX costs, the numbers speak in the favour of private clouds. This is because public clouds tend to suffer from the lack of pricing transparency and their fees are expensive, especially when handling long-term and large-scale workloads. Meanwhile, private cloud OPEX costs are fairly static and in the case of cost-efficient private cloud platforms, such as OpenStack, much lower compared to public cloud OPEX costs. Thus, optimising infrastructure costs should always involve looking at the total cost of ownership based on the current number of workloads

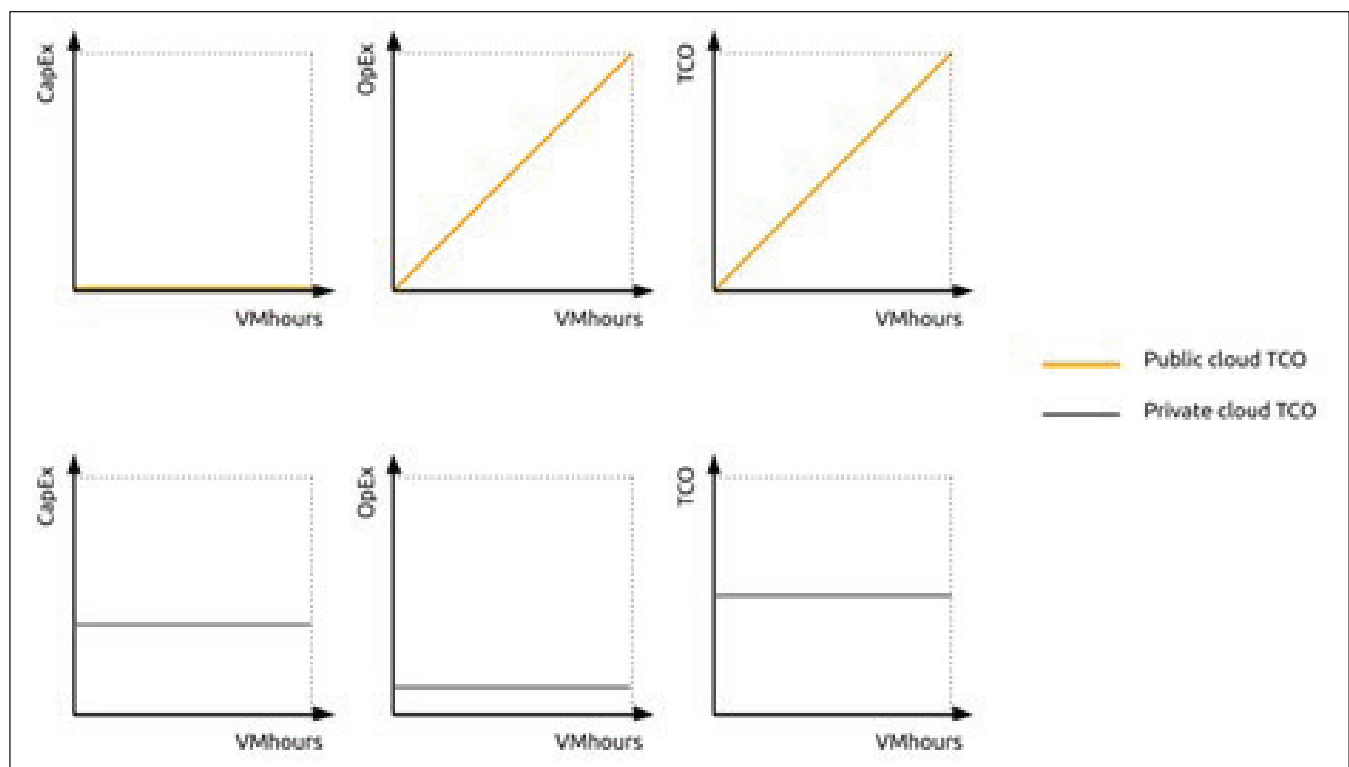
The main reason behind the initial success of public clouds was their ease of use and the near-zero CAPEX cost. In the public cloud world all you need to do is to create an account, attach your credit card to the billing system and you can start using public cloud resources right away

and their growth prediction. It's up to a business and their individual needs as to whether they choose a private or public cloud infrastructure. But we often see businesses find the most success when they use aspects of both and adopt a hybrid approach into their operations.

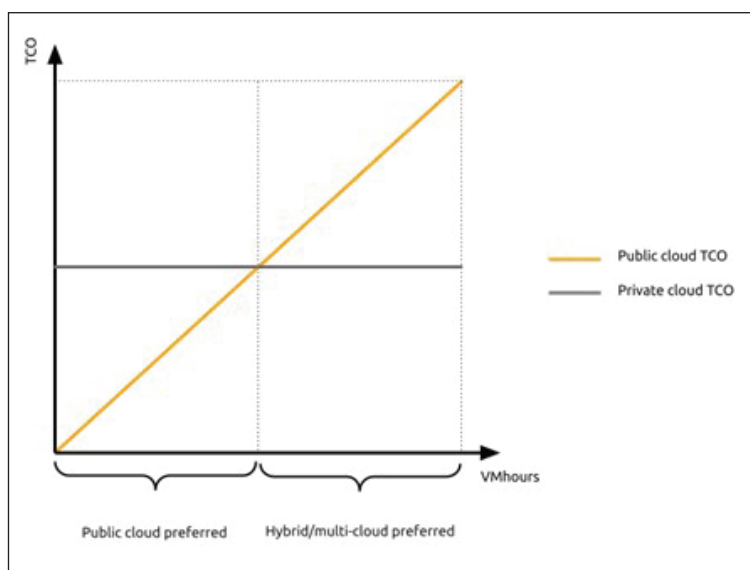
Adopting a hybrid strategy

Since both public and private clouds have their own economic advantages, adopting a hybrid strategy sounds smart. This is because the complexity of businesses today generally necessitates a mixture of on-prem and public, no matter if you are a start-up, medium or larger enterprise. While some may see hybrid as overkill, many aspects of businesses and our everyday lives are now hybrid anyway, so why should the cloud be any different?

For example, a mid-size software company based in London with two small satellite offices in the



HYBRID IT



US and China may not need its own office in all of these regions. It may only own the London office, while renting the satellite ones until the number of employees in these regions grows. This is hybrid accommodation. Or let's take a big transportation company as another example. Such a company may have its own fleet vehicles, but may also rent some during periods of increased demand for services. This is hybrid transportation. Hybrid makes sense because it marries the best of both worlds together, offering businesses flexibility and choice in how, and where they operate.

Businesses have known for a long time that the implementation of a hybrid strategy enables cost optimisation. But over the past 18 months, hybrid strategies have demonstrated their value for another reason – how well they equipped and supported businesses in the shift to remote working. Overnight, once office-based workers found themselves at home, at their physical workplace. For some businesses, this transition was easier than others because they already had hybrid strategies in place, or could quickly implement them. As a result, there was little downtime and employees were able to work as efficiently

as before. Ultimately, this is the beauty in a hybrid approach – its benefits extend far beyond cost. It can help businesses maintain operations, even in the most testing of times.

The benefits of hybrid/multi-cloud architecture

There are many benefits available to businesses who embark on a hybrid/multi-cloud architecture. For instance, it enables organisations to always run their workloads where it makes the most sense from an economical standpoint. They can start small in the public cloud and build their own cost-efficient cloud infrastructure when the number of their workloads grows. Once they own the cloud they can migrate the majority of their workloads to use their own resources instead of renting them.

At the same time businesses can continue using highly-scalable public cloud resources during heavy load periods. They can also leverage them occasionally when they need to execute compute-intensive tasks, such as data analytics. Using both flexible public and cost-efficient private cloud infrastructure at the same time enables them to monitor their spending and always pay less for the same amount of resources, while ensuring scalability and flexibility.

Finally, since the hybrid/multi-cloud model assumes consuming services from more than one cloud service provider, this enables organisations to avoid vendor lock-in and negotiate prices. Thus enabling optimisation of infrastructure costs even further.

While hybrid as a concept isn't new, it's one that has been thrust in the spotlight over the past 18 months. Businesses that adopt a hybrid approach have lots to gain, from taking back control over their cloud expenditure, to ensuring their employees are working efficiently, no matter if they are in the office or elsewhere.

So is the future of infrastructure going to be hybrid/multi-cloud? We don't know yet. But it is certainly an area businesses will be exploring in the years to come.

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The DCA - Advisory Board

THE DATA CENTRE ALLIANCE (DCA) is a not-for-profit trade organisation with Data Centre experts and leaders from across the sector actively involved in the association. With over 450 Associate and Corporate members The DCA represents the largest Independent data centre trade association of its kind.

Through The DCA, organisations operating their own data centres and server rooms can confidently access trusted and reliable information related to best practice and find out more about innovative products, services and projects.

The DCA was established back in 2009 following consultation between industry leaders, the DTI, RDA and EU Commission. The trade association was, and still is completely inclusive, independent and vendor neutral. The association represents the interests of the entire data centre community, this includes private data centre/server room owners, consumers of data centre 3rd party services and suppliers providing products and services to the data centre sector.

Historically the sector has not been well publicised, this has always been due to security requirements, however this should not diminish its importance. Data Centres underpin all digital infrastructure. The DCA is considered a trusted voice - the media, governments and public are informed of the vital role the sector plays to keep the wheels of business, commerce and social media all turning. On behalf of its members The DCA supports the development of UK/ EU/ Intl Standards designed to increase operational professionalism and ensure consumer confidence in the products and services.

The DCA peer reviews over 100 member authored articles a year with a different focus each month / quarter, these articles are then included within DCA features in leading Data Centre publications. Our Media Partnerships provide members with free access to a combined audience of 120,000 subscribers – this is an extremely cost-effective way for our members to reach their target audience. The trade association provides many other ways for members to raise their

profile in the sector: articles, newsletters, panels, speaking sessions, special interest groups, networking events are all on offer.

DCA Special Interest Groups (SiGs) provide DCA members with the ability to influence and address key issues of concern to their business or the sector via workshops, dissemination, reports and lobbying activities. The trade association also collaborates with members and strategic partners on R&D projects designed to ensure the future health and sustainability of the Data Centre sector for the benefit of all. We recommend our partners look at the SIG's to find out which is relevant to their organisation.

DCA Advisory Board

The DCA Advisory Board have been handpicked for their knowledge and skills. There is a wealth of Data Centre related experience within the board this includes specific technologies, legal guidance and advice for organisations who wish to attract new talent into their organisation. These skills are used by to help define strategy, address important industry issues, produce reports and to provide support and advice.

Please reach out to The DCA with any questions you may have for board members.



Steve Hone,
DCA CEO

Steve Hone started his career as an engineer in the MOD in Berkshire. He's built up over 25-years of experience in the IT Communication Industry working for leading technology organisations. In 2009 Steve co-founded the Data Centre Trade Association, know globally as The DCA with Simon Campbell-Whyte. From the time of forming The DCA Steve has continued to support the sector by promoting the vital role data centres play in the digital world.

Today, Steve continues to form part of the secretariat team for The DCA as CEO, he also sits on several steering committees, think tanks and advisory boards for organisations connected to

both the ICT & data centre sector. Steve is also an active member of a number of APPG's with connections to the Data Centre sector representing the sectors best interests at all times.



Ed Cooke, DCA
Advisory Board &
Managing Partner -
Conexus Law

Ed is an international lawyer, commercial advisor, and

skilled negotiator. He is a recognised expert in critical Technology Infrastructure (datacentres, fibre, Smart Cities and IoT). He has been a specialist lawyer to the datacentre sector for over 15 years and formed Conexus Law in 2019 to address the needs of Technology Infrastructure clients.

Conexus Law is now a team of 15 lawyers across all disciplines, and works on Edge, Colocation and Hyperscale projects across the globe. Ed has been a member of the DCA Advisory Council since 2019.

"Through my involvement with the DCA it is a real pleasure to contribute back to the datacentre sector, which has been very loyal to me for over a decade and has created many friendships. I find the datacentre sector to be incredibly dynamic. Most of us recognise how important the sector is to commerce and our way of life.

The sector also faces considerable challenges – it is still widely misunderstood by lawmakers and regulators. The pace of growth exacerbates many issues including bringing on new talent, sustainability, power capacity restrictions, geopolitical issues (such as data sovereignty), the need to respond to changing data usage (including edge) and constrained supply chains.

All of these pressing issues have a legal context, and our team is already at the heart of them. That is why we're committed to working with the DCA and others in the datacentre sector to unlock the challenges, enable innovation and create a datacentre sector prepared for the decades to come."



Steve Bowes-Phipps, DCA Advisory Board & Senior Consultant at PTS Consulting

Steve Bowes-Phipps has over 25 years of operational systems

management experience. After five years managing Financial Services Data Centres and IT operations in the UK and Ireland, joined ambitious web hosting company GlobalCenter who were expanding from the US into Europe.

Sitting on the senior management team, he oversaw the building of five internet data centres in London, Amsterdam, Frankfurt, Munich and Paris until Exodus Internet bought the company in 2001. From there he moved into a more strategic role, dealing with blue chip customer issues and relationship management, process improvement and building a culture of continuous improvement.

Spent four years in Visa Europe managing strategically important projects and processes. In 2007, joined his Alma Mater, Hertfordshire University, to become their head of Data Centres and worked with the UK's Higher and Further Education IT funding arm, Joint Information Systems Committee (JISC), to assist in embedding Green IT in UK HE and FE institutions, and throughout the EU. In 2010, the University of Hertfordshire became the first European university to comply with the EU Code of Conduct for Data Centres and has won in categories at the European Datacentre Leaders Awards 2010, the Uptime Institute Green Enterprise IT (GEITTM) 2011 and the EAUC Green Gown Awards 2011.

Steve joined PTS Consulting as their Senior Consultant on Data Centres in January 2015 and has presented at many conferences at home and abroad on reducing DC investment risk, Best Practices in Green IT and exemplar case studies. He is involved in various

industry bodies forming new international standards and metrics for IT and Data Centre efficiency.



Vanessa Moffat, DCA Advisory Board & Business Development Consultant Digital Technologies

Marketing, Strategy and Growth Hacking specialist, with 20 years' experience in the Data Centre and tech industries. Vanessa holds a BSc in Computer Science, a Post Grad Diploma in Business Administration, as well as an MBA from Essex University, where she specialised in agile IT architectures for maximum business value. She has successfully led strategy development and implementation programmes in multiple international data centre organisations. "I've been in the industry since before the DCA was set up and have remotely supported its growth since its inception. I believe that we are living in interesting times regarding data centres, energy, infrastructure and climate change. I'm honoured to join the Advisory Board to help and guide the Association during times of such change."



Mark Acton, DCA Advisory Board & Independent Data Centre Consultant

As both a Chartered Engineer and Chartered IT

Professional with over 25 years of experience in the data centre sector Mark has been a specialist in the field of data centre operations and technical management for more than 2 decades. During this time, he has focussed on the delivery of business-critical services from highly reliable, world class data centres with 24x365 availability expectations.

Now operating as an Independent Consultant and Technical Advisor with

extensive international experience and solid technical skills combining data centre facilities design, IT and facilities operational management, energy efficiency and engineering expertise to support all facets of the Data Centre Lifecycle.

A regular public speaker, conference host and industry thought leader on data centre technical issues as well as sitting on multiple technical and advisory boards. Mark is also involved in the development of International data centre Standards through ISO and CENELEC as the UK national representative as well as being the Technical Editor and Committee Chair of the European Commission Code of Conduct on data centre energy efficiency. "I support the DCA and take an active role in the Advisory Board and as I firmly believe that the UK data centre sector requires informed, knowledgeable and collective representation to the media and potential regulators.

As sector data centres are a key component of the digital infrastructure we all depend upon so heavily for both our business and personal lives, yet we are a very diverse and disseminated community which requires a trade association to act as a representative body and bring cohesion to all the many facets of this rapidly growing and developing sector. I see my involvement in the DCA Advisory Board as helping to make sure that our sector is properly represented and that the services provided are both appropriate and valuable to the members of our burgeoning community."



Dr Jon Summers, Scientific Lead in Data Centres at Research Institutes of Sweden

Jon Summers is Scientific Lead in Data Centres at Research Institutes of Sweden (RISE), Adjunct Professor in Fluid

As sector data centres are a key component of the digital infrastructure we all depend upon so heavily for both our business and personal lives, yet we are a very diverse and disseminated community which requires a trade association to act as a representative body and bring cohesion to all the many facets of this rapidly growing and developing sector

Mechanics at Lulea Technical University in Sweden and a Visiting Professor in Thermofluids at the University of Leeds in the UK.

During the last 25 years, he has worked on several government and industry funded projects requiring the use of computation. Having built and managed compute clusters to support many research projects, Jon chaired the High-Performance Computing User Group for 20 years at the University of Leeds. In the last eight years Jon's research has focused on a range of thermal management and energy flow projects within Data Centres, Heating Ventilation and Air Conditioning and industrial sectors. Since early 2013 Jon has been involved in liquid cooled IT research projects, focussing both at the data centre and the microprocessor scales, which has been further transformed by the opportunities of integrated digital infrastructure research at the RISE ICE datacenter facility, which includes large testbeds supporting industry and academia. In line with aspirations of the DCA, Jon's research and technological development at RISE during this decade is focussed on making the digital infrastructure as energy efficient and sustainable as possible.



Adelle Desouza, DCA Advisory Board & HireHigher Ltd

From Datacentre infrastructure to telecommunications to managed services, and now the founder of HireHigher, Adelle is working in both The UK and Australia to drive aspirations and awareness of career and development opportunities for young people.

With a passion for the data centre and wider industries joining the DCA board provides an opportunity to drive real change, both mindset and in practice as to how we can promote, present and preserve the talent of the existing workforce to future generations.

"The DCA has been a constant of my career in the DC and wider IT sector and as such it's an honour to now work with esteemed members of the industry on the DCA advisory board to ensure the association can continue to be the voice of reason, trailblazing agents and central

point of best practice for both the current and future talent of the industry. Raising topics at our forums with clear actions to drive change at pace is a huge reason I remain committed to the industries served by the DCA".

DS image here



Dan Scarbrough, DCA Advisory Board & MD Rockscar Ltd

A highly experienced entrepreneur with strong professional skilled in Business

Planning, Operations Management, Event Management, Real-estate Development, Sales and Marketing. The Co-Founder of Datacenter Dynamics, Dan founded DCD in 1998 and remained the acting CEO, until 2013. Under his leadership, the company became globally recognised as a leading voice of the data centre industry and during Dan's leadership was holding 47 conferences in 37 countries, operating a thriving publishing, training and research business through 13 overseas and a staff base of 150.

Having worked in the data centre and cloud infrastructure industry since its inception, Dan has an intricate understanding of this rapidly developing sector. After stepping down from DCD in 2014, Dan created RockScar as a holding company to capitalise on the industry understanding and global network that he had built over the last twenty years. RockScar has worked with multiple organisations involved in the entire life cycle of Digital Infrastructure in various regions globally.

Through his variety of engagement's Dan has worked extensively in both residential and commercial real-estate, and cloud and data centre technology. He understands the end-to-end development process and the challenges of delivering and operating complex digital infrastructure projects in multiple international locations. He is currently working on his next media and events project with the launch of Digital Infrastructure Partners a group of like-minded individuals focused on moving the global market towards sustainable digital infrastructure. Dan is also working with Salute Mission Critical to help them grow and develop their business in Europe. Salute Mission Critical specialises in both project work and

It is and has been an inspiring network of dedicated people from all the different corners of the data centre industry. Via the DCA we have participated in the most challenging and interesting European projects

operating mission critical infrastructure using a veteran's work force.



Frank Verhagen, DCA Advisory Board & CEO Certios

Frank is currently managing a project to increase cyber security in an industrial

automation (IA) environment in The Netherlands. He is also working in a part time position teaching Cyber Security and Cloud at the University of Applied Science in Utrecht.

Frank continues to run Certios, a business that advises governmental bodies on how to manage energy efficiency in data centres. Certios recently completed valuable research, which includes a paper entitled '*Server Idle Coefficients – KPI's to assess energy wasted in servers and Data Centres*'. Frank has also been involved in a new start up, a foundation named: Save Energy Foundation, this foundation will assist with dissemination of the metrics discussed in the paper.

"The DCA is important for Certios. It is and has been an inspiring network of dedicated people from all the different corners of the data centre industry. Via the DCA we have participated in the most challenging and interesting European projects and hope to be able to meet up with the DCA members soon."

If you would like to know more about The DCA visit www.dca-global.org or email: info@dca-global.org

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