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2023 FORECAST

Experts discuss Europe's tech landscape for the year ahead

METaverse POTENTIAL

How you can gain a competitive advantage

INNOVATION GAME-CHANGER

Why innovation is critical to finding and reshaping an organisation's strategy

SMOOTH SAILING

Harm van Weezel, CIO at Associated British Ports, discusses how the organisation is working with Wärtsilä Voyage to stay ahead of the curve when it comes to digitising its ports and optimising and modernising its operations.



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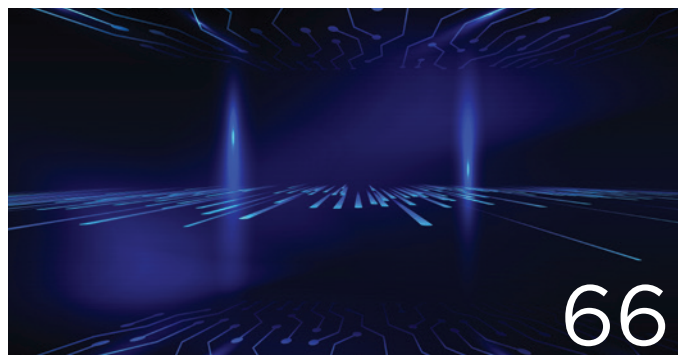
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EDITOR'S NOTE

Hello and welcome to the latest edition of *Intelligent CIO Europe* and the last of 2022! This month we bring you a roundup of some of the exciting trends and developments taking place across the region's tech space. We hear from various industry experts who offer their best practice advice on hot topics of interest and offer insights for the year ahead.

Our cover story this month sees how Associated British Ports manages to stay ahead of the curve when it comes to digitising its ports and optimising and modernising its operations. Harm van Weezel, Chief Information Officer, tells us how it achieves this with Wärtsilä Voyage. Read about the collaboration and benefits in more detail on page 58.

Another interesting feature this issue is 'Editor's Question' on page 34 where we ask the experts what's in store for Europe's tech landscape in the year ahead. We received insightful contributions from Ayman Sayed, President and CEO at BMC; Paul Brucciani, Cyber Security Advisor, WithSecure; and Tony Lysak, CEO of The Software Institute.

A hot topic across the industry currently is the Metaverse and on page 38, Duncan Roberts, Senior Manager at Cognizant, explores the many ways businesses can utilise its potential and why now is a good time to start familiarising ourselves with its capabilities.

Elsewhere in the magazine, Mark Parsons, Director of EPCC at The University of Edinburgh, discusses how, with the help of Spectra Logic, it is creating what it

believes is the only facility of its kind in Europe focused on delivering data-driven regional growth. Read about this in depth on page 63.

'Industry Watch' focuses on another topical discussion point among Europe's business professionals: energy. We take a look at research by IFS – which polled senior decision-makers at large energy companies across France, Australia, Japan, the Nordics, US, the UK and the Middle East – to find out where they are now on their Digital Transformation journeys and what's holding them back.

'Tech Talk' on page 77 presents an engaging discussion about innovation being a technology game-changer. Whilst attending a recent BMC event, I spoke to Ram Chakravarti, CTO at BMC Software, who discusses this concept in further detail; outlining the importance of being selective about who you choose to partner with and how businesses can better manage complex IT operations with BMC's solutions and latest innovative developments.

I hope you enjoy the read and if you'd like to contribute to any future editions, please don't hesitate to contact me at alix@lynchpinmedia.com

Wishing you a very Merry Christmas and a Happy New Year!

Alix Pressley
Editor



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Anglian Water reduces capital carbon by 63% to accelerate its transformation with Appian



Appian has announced that Anglian Water is leading the way in its use of data and low-code to move towards its net-zero goals.

One of the largest water and water recycling companies in England and Wales by geographic area has achieved more than 63% capital carbon reduction and is on target to achieve net-zero operational carbon emission by 2030.

Anglian Water uses the Totex Delivery Workflow (TDW), a cloud-based solution built on the Appian Low-Code Platform, to manage and monitor thousands of capital-intensive projects to reduce its environmental impact and create better value for customers.

Anglian Water first partnered with Appian in 2019 to gain more visibility into its

investments and to better serve its more than 7 million customers in the east of England. Totex Delivery Workflow (TDW), a custom cloud-based workflow application built on Appian, provides real-time and relevant data insights on projects, from smart meters installation and maintenance to pipelines and pumping stations.

TDW ensures Anglian Water employees have access to the metrics they need to make accurate decisions without the lengthy delays that hampered its previous system.

Appian is also helping Anglian Water reach its 2030 net-zero carbon emission goal by empowering employees to make informed decisions based on real-time insights to create a more sustainable business. Through TDW and its Capital Carbon Programme to track energy utilisation, assets and costs, Anglian Water has concluded that reduced carbon equals reduced cost.

New figures reveal mobile operators' push for renewable energy



Figures from the GSMA have revealed that global mobile operators are making strong progress in maximising the use of renewable energy in their networks.

However, a survey indicates that access to an additional 64 terawatt-hours (TWh) of renewable electricity – roughly equivalent to Austria's annual energy usage – will be required by operators globally by 2030,

as they seek to decarbonise their energy supplies. These requirements were detailed in the recent GSMA *Access to Renewable Energy Policy Paper*.

The mobile industry was among the first to commit to achieving net zero by 2050 and since COP26 mobile operators have been scaling up the amount of renewable electricity used to

power their networks to meet science-based targets. The new analysis released by the GSMA, using data from 33 operators, covering 86 countries and approximately 50% of global mobile connections, shows tangible results, with renewable electricity use increasing across the mobile sector:

- European networks are leading globally, purchasing on average 71% renewable energy
- Mobile networks in 41 of the 86 countries surveyed use more than 75% renewable energy
- Mobile networks in 29 of the 86 countries use less than 25% renewable energy
- 32% of renewable used by operators is procured through power purchase agreements with energy generators
- 63% is achieved via renewable energy certificates from electricity markets
- 4% results from self-generation of renewable electricity

IONOS and Fasthosts open £21 million state-of-the-art data centre in Worcester



IONOS, one of Europe's largest hosting services providers, and Fasthosts, its UK subsidiary, have opened a state-of-the-art data centre situated at Worcester Six Business Park. The data centre was officially opened during an event on October 18 2022, hosted by the two companies in the presence of local stakeholders and guests.

The 43,708 sq ft unit comprises a cutting-edge 30,729 sq ft data centre and 12,978 sq ft of ancillary offices.

The data centre represents a £21 million investment in the local Worcester community. It has been designed with a modular approach, with each module at the site fully

independent and, technically speaking, a data centre in its own right. This provides the opportunity for expansion with three extra modules to support future growth.

Sustainability is at the forefront of the data centre, with a wide range of sustainable and energy-efficient features, including solar photovoltaic panels covering up to 10% of the energy use at the site. All necessary carbon used for the construction of the building envelope has been compensated.

Designed and constructed to a Tier IV standard, the data centre is connected to the middle of the UK's fibre figure of eight, linking the site directly to IONOS' backbone network with an outside capacity of 3,000 Gigabit per second. This strong fibre optic connectivity will help drive the latest technology in the region to support business growth, all while operating securely and sustainably.

Temenos launches carbon emissions calculator on Temenos Banking Cloud

Temenos has announced the availability of a carbon emissions calculator – one of the industry's first – giving its customers deeper insight into carbon emissions data associated with their consumption of Temenos Banking Cloud services.

This approach has been introduced by Temenos to estimate its own cloud and SaaS operations' carbon emissions. The calculator's methodology has been independently verified by Grant Thornton, one of the world's leading accounting and consultancy firms. The calculator leverages the data provided by Microsoft Cloud for Sustainability Emission Impact Dashboard services, to report carbon emissions metrics.

This new Environmental Social Governance (ESG) offering is provided to Temenos Banking Cloud customers as a tailored carbon impact assessment at no cost to help them gain carbon insights from using



Temenos Banking services, allowing them to track progress towards reaching their sustainability targets and complying with growing climate-related regulation. The emissions calculator is embedded into the Temenos Banking Cloud client portal.

Migrating from legacy IT systems to cloud-based services can significantly improve carbon emissions. Banks are

facing new reporting requirements from industry bodies such as the International Sustainability Standards Board (ISSB), which require them to provide deeper levels of transparency into their carbon emissions. Temenos helps meet these requirements by delivering a complete set of data on cloud emissions for each client in addition to the data provided by Microsoft on their Azure consumption.

Channel 4 Television optimises cybersecurity and saves budget with Invicti Security



Channel 4 is saving the organisation's security department thousands each year after partnering with Invicti Security to gain complete visibility into its web assets.

As part of protecting the information it collects, in line with regulations such as the EU Update to General Data Protection Regulation (GDPR), Channel 4 needs to secure vast amounts of information, including the data of 24 million

All 4 subscribers, as well as staff details and all of its intellectual property, and be able to demonstrate that this data is safe and secure.

As a large organisation with thousands of web assets, security was previously a complex and expensive task, involving numerous penetration tests with multiple third parties, costing significant sums to the business.

"We would perform a penetration test and after getting the results, we'd have to fix the issue and then pay for another penetration test," said Channel 4 CISO, Brian Brackenborough. "That could be quite a cycle depending on how complicated the particular project was."

Channel 4 now uses Invicti to gain visibility into whether websites are collecting personally identifiable information (PII). It can then perform vulnerability scans and penetration tests on those websites.

The efficiency gains and cost savings are clear: partnering with Invicti saved Channel 4 thousands in the first year alone.

"The budget, which we were spending every year on penetration testing, decreased approximately 60%," said Brackenborough. "The following year, it decreased close to 80%."

Subway chooses the Zen way

Subway, one of the world's largest restaurant brands, has chosen Zen Internet, one of the UK's largest B Corporation certified telecommunications and network connectivity providers, to supply broadband connectivity to its 2,000+ stores across the UK.

Subway sets a rigorous set of standards to ensure that customers experience the same great taste, service and in-store experience wherever they go in the world. The Independent Purchasing Company Europe Limited (IPC Europe) executes against these standards while delivering financial and service benefits to Subway Franchisees in Europe through volume purchasing and pan-European supply chain operations.

Recognising the need to migrate from the legacy solution used by Subway stores across the UK, IPC Europe reviewed its connectivity requirements and sought out a partner that could bring increased benefits, improved levels of service, enhanced resilience and a solution that would scale with its future

plans. As part of the Digital Transformation, the Subway stores can now access reliable connectivity to maximise their online platforms and enhance the customer experience, something the franchisees were struggling with on the previous legacy solution.

A founding principle of the Subway franchise is to keep operating costs low, so finding a cost-effective solution that still allowed the store owners to deliver excellent customer service was a crucial consideration.



Almost two-thirds of UK CTOs believe technology is not aligned with business objectives

Over half (60%) of UK Chief Technology Officers (CTOs) believe that technology is not aligned with the business objectives in their organisation, according to new research from developer marketplace platform, Deazy.

The *State of European Dev Ecosystem 2022* revealed that cybersecurity and data breach vulnerabilities were the biggest concerns for UK CTOs, with 52% saying that's what kept them awake at night. One-third of CTOs said that a lack of IT resources to manage current projects and tech not delivering what the business needs were their biggest headaches, while more than one in five said a scarcity of technical talent.

There was positive news in terms of budgets. Two-fifths (18%) of CTOs said their organisation's technology spend increased significantly over the past 12 months, while 61% said it has slightly increased. Despite this, insufficient resources (45%) and insufficient budget



(40%) were two of the biggest reasons given for a technology project not getting off the ground, along with a lack of support from the board (42%).

"The idea that technology is not fully aligned with business objectives feels archaic in 2022, but the research findings

clearly indicate that this is a real problem," said Andy Peddar, CEO, Deazy. "CTOs are being asked to protect the organisation against data breaches and cyberattacks while developing new applications, supporting existing applications and managing hybrid working environments."

Telehouse Paris data centre to strengthen European network connectivity and support digital sovereignty

Global colocation provider, Telehouse International Corporation of Europe, has announced the start of construction work for a second data centre at its TH3 Paris Magny campus in France.

The construction of the new data centre is in line with Telehouse's strategic plan to support European and national digital sovereignty by expanding its

hosting and connectivity capabilities at its existing European sites, thereby helping to attract global Internet traffic to European soil.

This new data centre will provide 12,000m² of IT floor space and 18 megawatts of electrical power. It will benefit from the highest levels of security and resilience and guaranteed uptime of 99.999%.

The data centre is scheduled to open its doors in October 2023 and follows a number of Telehouse data centre expansion projects including the TH2 Paris connectivity hub – one of the most connected data centres in France, the opening of Telehouse South, the fifth data centre at the Telehouse London Docklands campus, a new data centre facility in Frankfurt and the opening of the first data centre in Marseilles – the strategic entry point for submarine cables to Europe.

"This is a crucial step in our ongoing European growth strategy and adds value to our customers colocating in the UK and around the world," said Takayo Takamuro, Deputy Managing Director at Telehouse. "The expansion in Paris is an important piece in the global connectivity puzzle, enhancing the services we offer from our other locations and providing long-term benefits, including low latency global connections, greater bandwidth and less jitter."





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The Student Loans Company (SLC) appoints Atos as its final strategic partner for customer software delivery



The Student Loans Company (SLC) has announced the appointment of Atos as its fourth and final Strategic Partner for Customer Software Delivery which will include the development, maintenance and support of SLC customer and user-facing systems.

SLC's Strategic Partnership Programme involves working with a small number of skilled partners to modernise, deliver and

support its technology estate as part of a technical transformation programme. Following a highly competitive procurement exercise, Atos completes the Strategic Partner appointments under the programme, alongside Tata Consultancy Services (TCS) and Capgemini.

Atos was awarded the first contract in September 2020 to support SLC's Customer Enablement Services – including the

development of its customer interface and the associated technology infrastructure. In this fourth and final contract, Atos will provide a broad range of outcome-based services and capabilities which will be key to delivering the over-arching expertise, services, capabilities and capacity required by SLC's technology strategy. This includes Modern Application Development and Maintenance (ADM) and Support Services, including on-premises and cloud-based, bespoke, Commercial-of-the-Shelf (COTS) and Software-as-a-Service (SaaS) products, which will develop the technical capabilities and deliver on critical policy.

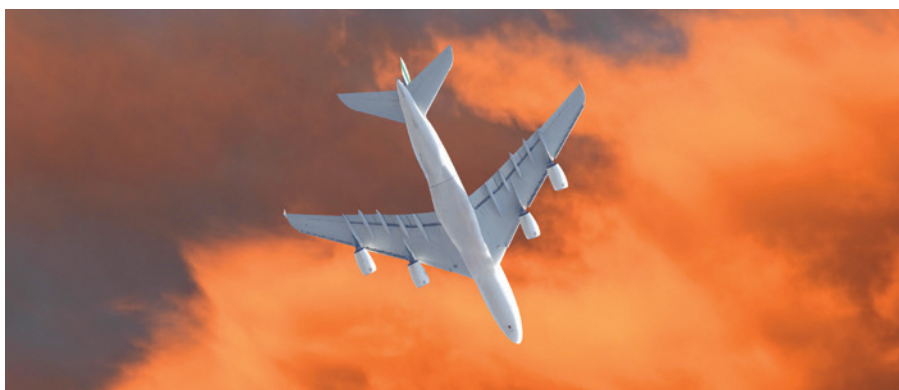
"I am pleased to confirm that our Strategic Partner Procurement Programme has now concluded with the appointment of Atos as the final Strategic Partner for Customer Software Delivery (CSD2)," said Stephen Campbell, Chief Technology Officer at SLC.

Indra revamps Germany's entire air surveillance network

Indra, a leading global technological engineering company for the aerospace, defence and mobility sectors, has signed a contract with DFS, Germany's air navigation service provider, to modernise the country's entire network of air surveillance radars with state-of-the-art technology.

The project, with an execution period of 13 years, has an amount over €100 million, which would be extended depending on the release of the different options envisaged.

The company won out over the other top manufacturers in the market in an open competition, thanks to the best technically rated and most competitive proposal. It has thus won its largest Air Traffic Management (ATM) contract to provide surveillance for a large and technologically advanced country: Germany, which operates many key routes in Europe.



The project will enhance the safety, capacity, efficiency and environmental friendliness of air traffic in the country and help reduce CO₂ emissions.

Indra's technology will replace the systems currently in operation, which are reaching the end of their useful life. More specifically, the company will deploy a minimum of 23 new sensors, 19 of them equipped with a primary

PSR radar and a secondary mode S radar and four stations with secondary mode S radars only. They will be used for en-route air traffic surveillance and approaches to Germany's main airports.

Due to the efficient surveillance network structure, the installation of interim sensors and their relocation to their final facilities will be necessary.

Nokia to lead Germany's KOMSENS-6G project



matter experts, start-ups, research institutes and distinguished universities in Germany. KOMSENS-6G is part of a broader German 6G initiative and has €14.9 million in funding, over three years. Networking with other projects and partners of the overall national initiative takes place via the central '6G Platform Germany'.

In the 6G era, sensing will be a key enabling technology towards the vision of bringing together the digital and physical worlds. The sensing service will be fully integrated into the wireless network for simultaneous operation with communication services. Nokia will play a leading role in researching technology solutions for front-end, baseband, RAN protocols, data processing and security to make the 6G vision a reality.

Nokia has announced that it will lead the German Federal Ministry of Education and Research's KOMSENS-6G project. The project aims to drive global pre-standardisation activities from a German and

European perspective, with a specific focus on the network as sensor technology.

Nokia will work closely with a consortium that includes partners from the industry, subject

On completion of the three-year project, KOMSENS-6G aims to deliver an architecture for integrated sensing and communication, together with a demonstration of the combined service.

Telefónica Tech and Qualys sign alliance for Iberian market

Telefónica Tech, and Qualys, a provider of cloud-based security and compliance solutions, have signed a cybersecurity agreement to integrate the native Qualys Cloud Platform and its cloud applications into Telefónica Tech's portfolio of managed security services for Spain and Portugal.

This alliance provides cutting-edge technology for the team of security professionals by offering 360-degree visibility into on-premises, desktop, cloud, container or mobile environments and enabling, from a single cloud platform, the assessment of critical security intelligence, as well as automating the full spectrum of auditing, compliance and protection of IT systems and web applications.

"This agreement with Qualys will allow us to complement and enhance our positioning in the cybersecurity field with an innovative technology that enables a unique and integrated approach, providing a continuous protection cycle," said Alberto Sempere, Cybersecurity Product Director at Telefónica Tech. "This will enable Telefónica Tech's SOC's to address the high complexity of our customers' hybrid and multi-network environments with a more agile, comprehensive and effective security posture thanks to Qualys' technology."

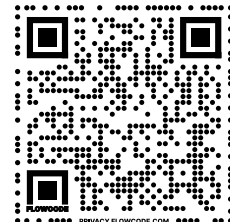
"We are very pleased to be a trusted partner of Telefónica Tech and to be able to bring our technology to all its customers in the Iberian



market," said Sergio Pedroche, Country Manager for Spain and Portugal at Qualys.



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Datalec Precision Installations continues commitment to Irish data centre market



Datalec Precision Installations (DPI), a provider of world-class data centre design, supply, build and support services to deliver seamless, integrated and unified end-to-end solutions for data centre operators, has continued its commitment to expand and become a leader in Ireland.

Datalec's continued investment into the Republic of Ireland demonstrates a commitment to extending its geographical

reach to deliver world-class data centre services. Datalec Ireland has been operational since May 2017, Alan Kavanagh was appointed Country Operations Manager in November 2021. Since Kavanagh's appointment, Datalec has fortified its dedicated team to enhance the company's services and capabilities. Following the recent acquisition of Technivo, these services now extend to specialist technical cleaning.

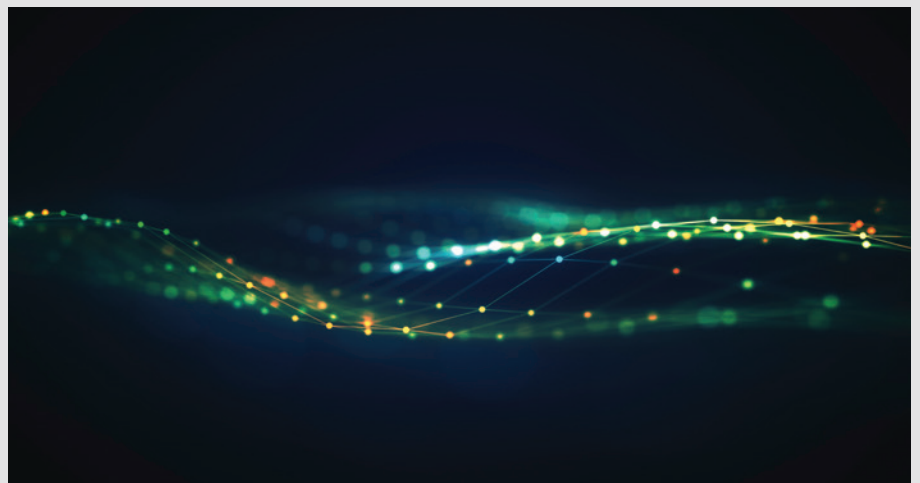
"Since I have been the operations manager at Datalec, we have delivered circa 3,000m² of white space fit out in live colocation data halls," said Kavanagh. "Datalec's portfolio of capabilities means that, in addition to building new data centres, we have a proven track record in successfully retrofitting existing facilities, improving efficiencies for customers and increasing end-user demand. Indeed, the projected market is set to expand with investments of US\$3.84 billion by 2026."

Virgin Media Business Wholesale launches National High Capacity Services core network

Virgin Media Business Wholesale, the fixed wholesale connectivity arm of Virgin Media O2 Business, has launched an enhanced core platform for National High Capacity Services (NHCS).

Virgin Media Business Wholesale's NHCS offering uses the Virgin Media O2 fixed optical network to provide high bandwidth, ultra-low latency connectivity with no distance limitations. Now rolling out across the UK, the new NHCS core network provides an alternative way of provisioning these services, while retaining all key attributes of the existing NHCS service. It is based on dedicated switched Ethernet technology, delivered over an optical platform, with steadfast bandwidth, and following a fixed network path end-to-end.

Virgin Media Business Wholesale already operates a national Layer 1 optical platform, which has historically served all NHCS services. The new platform is an overlay to



this existing network that allows for quicker, easier and more intelligent delivery of NHCS services. It will support the wider deployment of 10Gbps services for businesses and industries, as part of the company's commitment to evolving its services to meet user needs and deliver an improved customer experience.

"The launch of our new National High Capacity Services core network is set to provide our partners with quicker and simpler provisioning to help improve their customer experience," said Diego Tedesco, Wholesale Fixed Director at Virgin Media O2 Business. "I'm very excited to bring this enhanced capability to them."

FinTech companies set to explore new data storage locations to meet their sustainability goals



FINTECH Circle, in partnership with Bulk Data Centers, has released a report that found that FinTech companies, growing concerns about their environmental impact is a major factor in determining where to store their data.

In a survey of senior executives in the FinTech and financial services sector, the report – *The Data Usage Barometer* – explores the broad trends taking place across FinTech.

It showed that finance increasingly relies on data and energy-intensive technologies, with Artificial Intelligence expected to be the technology that will be most vital to future growth, followed by Machine Learning.

Over a third of survey respondents had seen an increase of 50%–100% in data usage and storage needs in the past three years and more than a third of the survey respondents predicted growth of at least two times in the next three years, with half of that group expecting an increase of more than five times.

“From embedded finance, digital assets including cryptocurrencies, trading platforms and global payment solutions, FinTech is disrupting and reshaping our lives,” said Susanne Chishti, CEO of FINTECH Circle. “Central to this growth is where companies process their large volumes of data and our survey shows that the majority of companies have explored or plan to explore alternatives to their current data storage infrastructure.”

Half of the respondents said they are concerned about their company’s environmental impact and an even higher number agree that lowering their firm’s carbon footprint is an ethical concern.

PPC lights up fibre broadband connectivity in Greece with Adtran

Adtran, a leading provider of next-generation open networking and subscriber experience solutions, has announced that Greece’s biggest power utility, Public Power Corporation (PPC), is leveraging the Adtran end-to-end fibre broadband solution to launch its pilot high-speed wholesale network in the municipality of Peristeri, within the region of Attica. When expanded nationwide, PPC plans to support all local broadband service providers and connect over 3 million homes and businesses with fibre over the next four years.

PPC has approximately 6 million electricity customers, making it a leader in the wider market of south-east Europe. Supporting the utility’s current sustainability, digitisation and growth initiatives, PPC wanted to deploy a future-proof, nationwide wholesale fibre network to expand its business opportunities and help connect its country to higher broadband speeds.



PPC selected the Adtran open, disaggregated 10G fibre access platform to deploy its pilot broadband access network infrastructure. In the first phase of PPC’s fibre deployment, it is deploying PON technology across its existing power distribution network infrastructure to deliver wholesale gigabit services. Later, it can use the same fibre access network to introduce smart grid and other advanced grid modernisation

applications to improve power network efficiency and operations.

“We value Adtran’s experience in working with utilities to help launch greenfield broadband networks that deliver high-speed services and help further modernise and optimise the power distribution network,” said Alexandros Paterakis, Deputy CEO at Public Power Corporation.

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Crossword's Trillion protects Spanish Public Administration against threat of digital identity and credentials misuse



Crossword Cybersecurity, a cybersecurity solutions company focused on cyberstrategy and risk, has announced the completion of a project to expand the scope of its services with CCN-CERT, the Information Security Incident Response Team (CERT) of the National Cryptologic Centre in Spain (CCN), which is accountable to the Spanish National Intelligence Centre. CCN-CERT has expanded its use of Crossword's cloud-based breached account

mining platform, Trillion, to protect its entire public administration, including its education sector. Trillion is Crossword's breached account mining platform, which continuously tracks, correlates and analyses billions of stolen usernames and passwords.

Back in 2020, during the height of the COVID-19 outbreak, CCN-CERT needed to act immediately to further enhance the security position of its national health

infrastructure. The head of the cybersecurity department at CCN contacted the Trillion operations team after its global offer of support to help protect digital identities within health services. In a matter of hours, the team at CCN was given access to Trillion, every health organisation across Spain was configured in the platform and breached credentials data was being fed back into the CERT.

Protecting a whole public administration

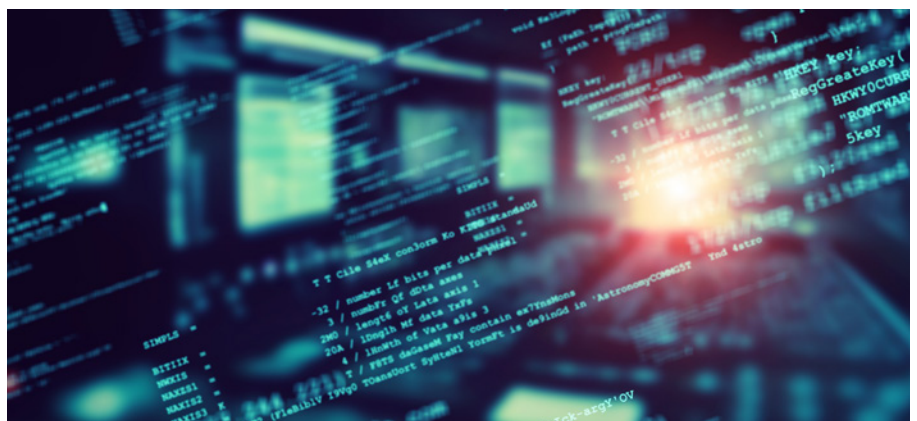
After a period of successful operation across the health sector, CCN-CERT decided that a wider scope for Trillion would provide even greater visibility of digital identities, such as account usernames and passwords, that may have been leaked from third parties and shared for exploitation by criminals.

Tech skills challenge accelerated by pace of Digital Transformation in the UK, say IT leaders

The latest survey by Equinix, a digital infrastructure company, revealed that UK IT leaders have serious concerns about staff retention and recruitment.

According to the *Equinix 2022 Global Tech Trends Survey*, 67% of IT decision-makers in the UK view a shortage of personnel with IT skills as one of the main threats to their business, compared to 62% globally. Companies – including Equinix – are looking to widen the talent pool, bringing in more diverse candidates through alternative recruitment drives.

The 2,900 survey respondents acknowledged the speed at which the tech industry is transforming has left companies struggling to find people with the right skill sets to meet present and future challenges. In addition, 61% of UK IT leaders acknowledged that the skills shortage has been exacerbated by the speed at which the tech industry is transforming.



Globally, the most common concerns identified by 44% of respondents were candidates with the wrong skill sets applying for jobs and retention of current talent. In the UK, the results were slightly higher, with 45% of IT leaders highlighting applicants' skill sets not matching vacancies, while 49% felt retaining talent was an increasing challenge. In addition, half of UK respondents (50%)

said shifting expectations of employees towards hybrid and flexible working models had added further pressure.

Across the globe, the most in-demand tech employees are IT technicians (27%), cloud computing specialists (26%) and those with an AI/Machine Learning aptitude (26%). ■



HOW MODERN DCIM ADDRESSES CIO MANAGEMENT CHALLENGES WITHIN DISTRIBUTED, HYBRID IT ENVIRONMENTS



Executive summary

The role of today's CIO is expanding and becoming more challenging. The days of managing a single enterprise data center are over. Business requirements are forcing CIOs to hybridize their data center and IT portfolio architecture by placing IT capacity in colocation facilities and building out capacity at the local edge – sometimes in a big way. In addition to managing and maintaining resilient and secure operations at all these sites, they are now being asked to report on the sustainability of their IT operations. Software management tools need to evolve in order for CIOs to do their jobs effectively. Through examples, the paper explains how modern DCIM platforms are a critical tool for making hybrid enterprise IT more resilient, secure, and sustainable.

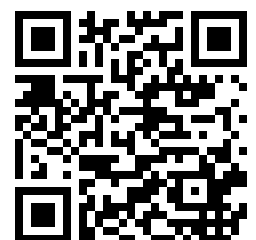
Introduction

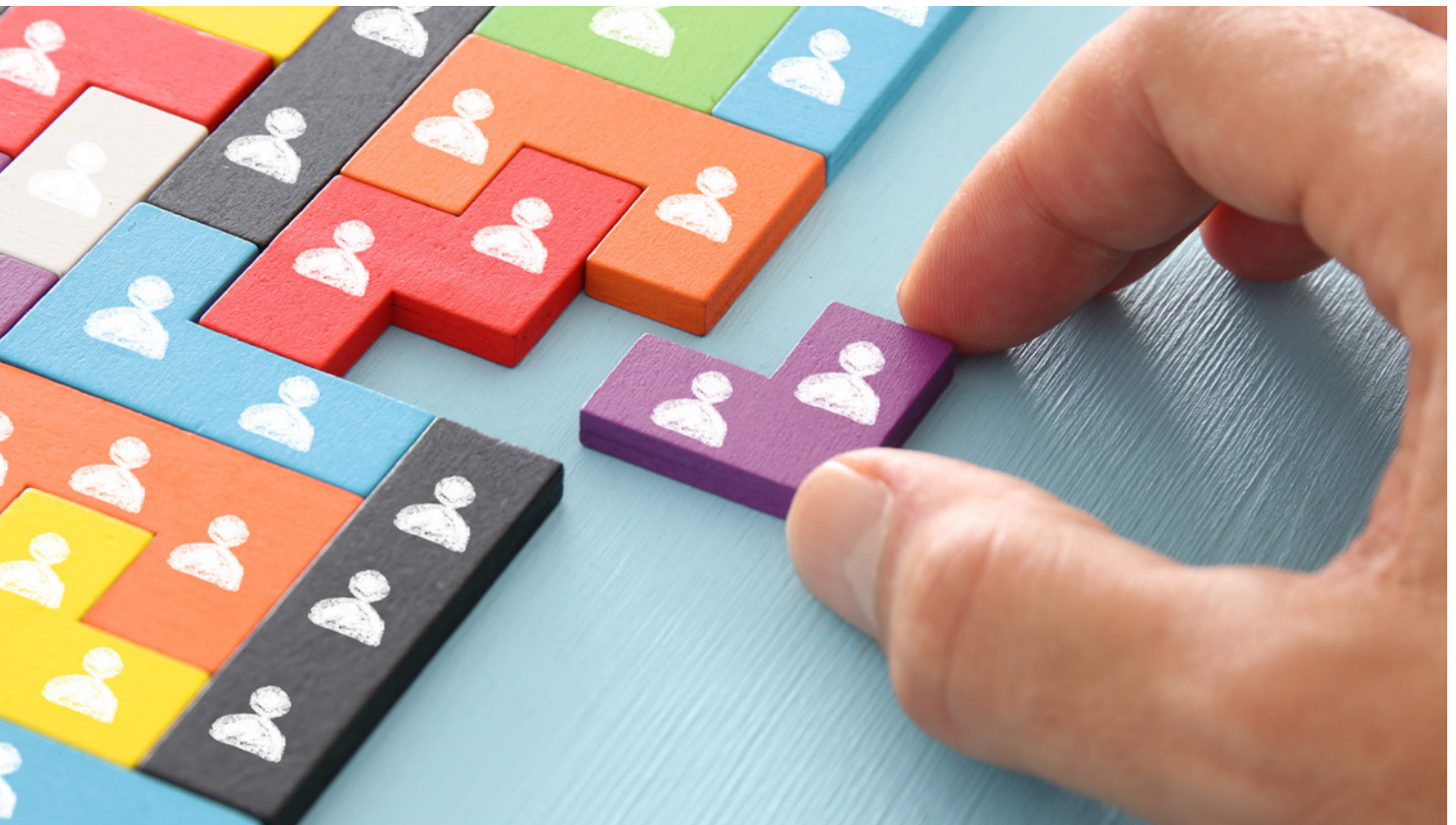
It is widely reported that the role of a Chief Information Officer (CIO) is experiencing a sea change. IT is now at the center of business strategy as digital technologies power and sustain the global economy. The criticality of IT in every aspect of business has driven CIOs from just filling the tactical role of deploying, operating, and maintaining IT to also focusing on business strategy. CIOs increasingly have a leading role in driving business innovation, aligning IT projects with business goals, digitalizing business operations, and leading corporate organization change programs, for example. This role expansion has made their job more critical and complex. What has not been as widely reported, however, is that the traditional CIO role of IT service delivery has become more critical and complex as well. ■

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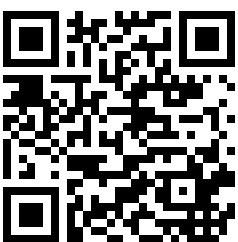
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Preface

Companies that create custom, authentic experiences can underpin employee purpose, motivate and elevate the organization-wide performance. Employee experience is the journey an employee takes with your business. It includes every interaction that happens along the employee life cycle, plus the experiences that involve an employee's role, workspace, manager and wellbeing. In order to facilitate delightful experiences, we should focus on them instead of focusing on processes. It will help you create moments that matter most to people and your business goals. How do leaders satisfy all parties in trying to remake

the mission? They have a unique opportunity to listen to their employees and engage them in what matters—now and in the future.

The great resignation

Rising employee burnout and consequential reduction of productivity

Almost every stimulant to rapid digitization today has its roots in the same story as do others; COVID-19 pandemic. In 2020, the employment rates across the globe nosedived owing to this fear. But that wasn't all. The rising COVID-19 cases coupled with the lockdown restrictions and employee resignations meant work being fulfilled by a handful of workers. Naturally, too much work caused burnout. The workforce experienced a collective burnout (and is still going through it to some extent), people left their jobs at unprecedented rates. The job market is thus completely upside down.

In fact, employees are considering quitting their jobs now more than in 2021, as per a survey by Microsoft Corp., which also reports that over half of young workers are mulling a job change within the next year. Microsoft's second annual Worker Trend Index, which measures global employee attitudes, showed an increase in respondents who said they are likely to consider a job change in the coming year. The overall number jumped to 43% of respondents, up from 41% in last year's survey – a result that Microsoft at the time dubbed the Great Reshuffle. Others called it the Great Resignation, which saw U.S. workers quitting jobs in record numbers.

As per the US Labor Department, 4.5 million workers left their jobs in November 2021. This matched record numbers observed in September and accounted for 3% of the workforce quit their jobs each month. About 75.5 million people in America resigned in 2021.

According to a ResumeBuilder.com poll, around 23% of the workforce will seek new jobs in 2022. Among hybrid workers, 52% said they may want to switch to fully remote, while 57% of those who are working from home said they're willing to consider returning to the office at least part of the time. ■

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OVER HALF OF UK IT INDUSTRY PROS TRUST PUBLIC CLOUD PROVIDERS LESS THAN TWO YEARS AGO, ACCORDING TO RESEARCH FROM LEASEWEB

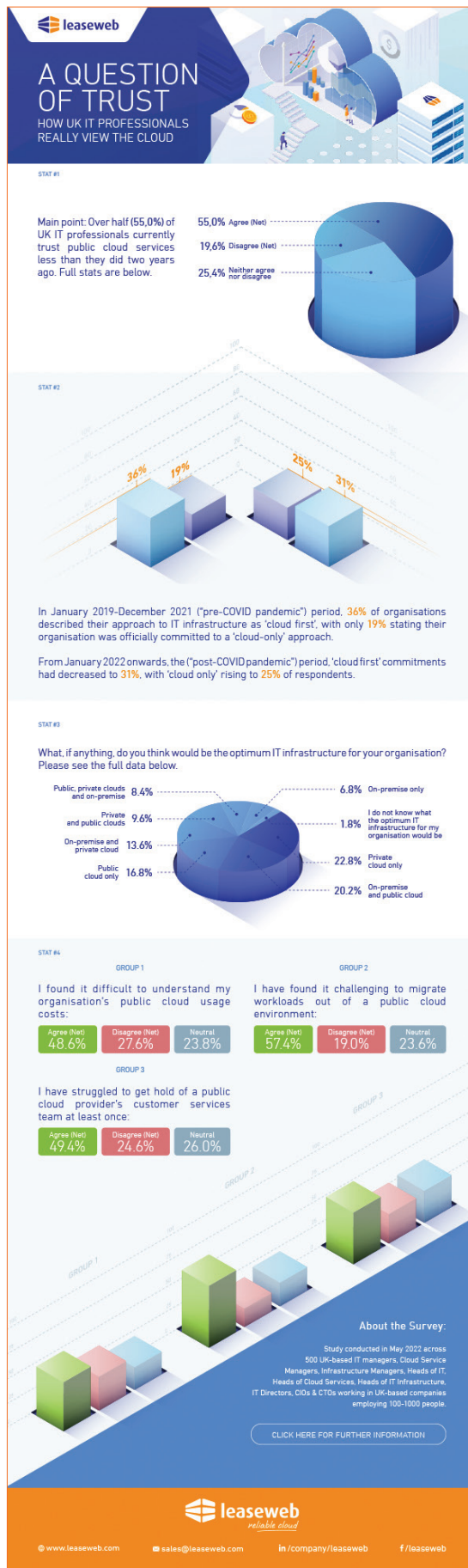
Cloud services were widely adopted during and following COVID-19. Research from Leaseweb Global shows that more IT professionals are questioning the use of cloud services and trusting them less, though continued adoption suggests this is due to a growing understanding of the technology.

Leaseweb Global, a leading hosting and cloud services company, has published the results of research revealing that over half (55%) of UK IT professionals currently trust public cloud services less than they did two years ago, having run into challenges around usage costs, migration and customer service.

The research, which explores 500 UK-based IT professionals' experience with public cloud providers over the last two years, raises questions whether hyperscale is the best way forward or viable as a long-term option. Transparency, customer service and the ease of migrating workloads are flagged as potential concerns, despite most respondents saying they had costs

When asked about the optimum IT infrastructure for their organisation, private cloud only (23%) and a mixture of on-premises and public cloud (20%) were the most popular selections.

under control. Overall, the results indicate a significant trust issue when it comes to public cloud providers.



For example, the majority (57%) of respondents had found it challenging to migrate workloads out of a public cloud environment, while just under half (49%) said they had encountered difficulties in understanding their cloud usage costs. Despite this, nearly three-quarters (72%) agree they have effectively controlled public cloud usage costs, while 46% stated they 'somewhat agree'. Almost half (49%) had struggled to get hold of a public cloud provider's customer services.

In addition, while cloud is now a key component for many IT infrastructure strategies, 'cloud only' and 'cloud first' are not dominant, nor are they considered a panacea for every business need. While there was an increase in the adoption of cloud infrastructure during the pandemic, the study also showed a decrease in support for 'cloud first' strategies during 2022.

For instance, in the January 2019–December 2021 (pre-COVID-19 pandemic) period, 36% of organisations described their approach to IT infrastructure as 'cloud first', with only 19% stating their organisation was officially committed to a 'cloud-only' approach. From January 2022 onwards, the (post-COVID-19 pandemic) period, 'cloud first' commitments had decreased to 31%, with 'cloud only' rising to 25% of respondents.

When asked about the optimum IT infrastructure for their organisation, private cloud only (23%) and a mixture of on-premises and public cloud (20%) were the most popular selections. These were followed by public cloud only (17%) and a mixture of on-premises and private cloud (14%), with on-premises only the least popular selection at 7%.

The move away from on-premises legacy infrastructure is clear, with two-thirds (66%) of respondents agreeing that the industry will see the end of on-premises infrastructure over the next two years. The research results indicate that while on-premises is not an



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While there was an increase in the adoption of cloud infrastructure during the pandemic, the study also showed a decrease in support for 'cloud first' strategies during 2022.

"The results of this study strengthen the case for hybrid combinations thanks to the flexibility and choice it can deliver to both large and small companies," said Terry Storrar, Managing Director UK at Leaseweb. "And much as there has been a shift towards cloud adoption, rather than highlighting the pandemic as a key driver of a shift to the cloud, it appears that businesses were investing in cloud beforehand and that investment levels have remained relatively static."

important part of IT strategy, it still exists within many organisations' environments.

The positive news is this does not appear to be stifling innovation: only 16% of respondents said that legacy infrastructure was either standing in the way of further cloud adoption or limiting their organisation's ability to make business decisions. Instead, the focus is on deploying applications in the right place, with a key takeaway from the study being the end of on-premises infrastructure may be approaching, but not quite here.

"Although respondents acknowledge that the desire and need to look after on-premises infrastructure is dying, the results also indicate that businesses are still using it as an ongoing component of their IT infrastructure when adopting hybrid cloud," said Storrar. "The key takeaway from this research is IT teams are looking for flexibility – there's no one-size-fits-all approach. Organisations are now more likely to qualify cloud out during the assessment stage, rather than the other way around, but the main focus is on choosing the right infrastructure locations for specific use cases." □



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78% of business professionals want to embrace the Metaverse

A new global study commissioned by Ciena, has uncovered just how ready business professionals are to collaborate in the virtual world.

A large number (96%) of the 15,000 business professionals surveyed across the globe recognise the value of virtual meetings and more than three-quarters (78%) say they would participate in more immersive experiences like the Metaverse versus current tools, such as video conferencing. Additionally, while appetites

grow for the new digital world, unreliable network performance was cited (by 38% globally) as the top concern holding organisations back.

While the data reveals a significant push towards more digital and immersive platforms on a global scale, there are regional differences. On a global level, 87% of business professionals confirmed they would feel comfortable conducting HR meetings in a virtual space. At a country level, this was as high as 97% in India and 94% in the Philippines and as low as 57% in Japan.





According to the respondents, the top two benefits of virtual meetings are: improved collaboration and convenience. And, when it comes to selecting their avatar for the virtual world, 35% of business professionals would choose an avatar that reflects their real-world self, 22% would choose an idealistic version and only 10% would pick a pop culture figure.

Globally, 71% of professionals can see the Metaverse becoming part of existing work practices and 40% think their business will move away from traditional/static collaboration environments to more immersive and Virtual Reality-based environments in the next two years.

Despite growing interest among working professionals, barriers to widespread business adoption of immersive technologies still exist. According to survey participants, network reliability is a higher concern than the belief that immersive applications/tools are not yet widely available.

"Clearly, the business world is ready to move to the Metaverse and start using enhanced reality tools for collaboration and innovation," said Steve Alexander, Senior Vice President and Chief Technology Officer of Ciena. "Network reliability may be seen as a barrier to making this possible today, but service providers know the demand is there and are already investing and testing to make networks faster, smarter and bring them closer to the user."

"We will continue to hear talk around what the Metaverse is or could be in the coming months and years, but none of the exciting use cases can be achieved without a robust underlying network, laced with the latest and greatest technologies that support the ultra-low latency and high bandwidth that enhanced reality demands." ■

ARE WE READY FOR A VIRTUAL WORKING WORLD?

New ways of working - from hybrid and flexible to fully remote - have led to the mass adoption of digital applications, changing the way we collaborate.

Business professionals are ready to start using more immersive and virtual platforms.

None of this can be achieved without a robust and adaptive underlying network, laced with innovations that support ultra-low latency and high bandwidth demands driven by virtual work environments.

WORKERS ACROSS THE GLOBE ARE READY TO COLLABORATE IN THE VIRTUAL WORLD:



96%
of business professionals recognize the value of virtual meetings.



78%
would participate in more immersive experiences like the metaverse over current tools like video conferencing.



71%
can see virtual environments like the metaverse becoming part of existing work practices.



40%
think their business will move away from traditional collaboration tools to more virtual-based platforms in the next 2 years.

CHOOSING A VIRTUAL IMAGE OR AVATAR:



35%
of global respondents would choose an avatar that reflects their real-world self, and in Brazil, this number was 54%.



22%
globally would go for an idealistic version of themselves. In the Philippines, this number was 33%.



19%
globally would take on a different image depending on the purpose or setting of the meetings. This number was 26% in India.



18%
globally would pick a pop culture figure, an animal or other non-human. But, in Norway, this number was 30%.

THERE ARE SOME HURDLES.



38%

of respondents believe unreliable network performance is the biggest barrier holding businesses back



Ranking above 'Limited availability of immersive applications and technology' and 'Zoom fatigue'

The business world is ready to embrace more immersive and virtual work environments.

Service providers across the globe are taking notice and many are already investing and testing to make networks faster, smarter and bring them closer to the user, helping to improve our virtual working world.

Content and research developed by Ciena

According to survey participants, network reliability is a higher concern than the belief that immersive applications/tools are not yet widely available.





1 SWITZERLAND

Orange Cyberdefence, the cybersecurity subsidiary of Orange, has acquired 100% of the Swiss companies SCRT and Telsys. These two sister companies have their common headquarters in Morges near Lausanne and employ around 100 employees, experts in cybersecurity and associated services, equally spread over offices in Geneva and Bern.

2 UKRAINE

Recorded Future, one of the world's largest intelligence companies, has announced a hiring initiative in Ukraine with the support of the Ministry of Digitalization of Ukraine and the National Security and Defense Council of Ukraine. Before 2025, the company is committed to hiring up to 100 personnel in Ukraine. The country has a long-standing and strong IT industry with superb developers of software. Recorded Future has been very impressed with the quality of the Ukrainian software, DevOps and quality assurance engineers that the company has used extensively for a long time.

3 IRELAND

Global manufacturer of uninterruptible power supplies, Riello UPS, is expanding with the launch of a new subsidiary covering the Republic of Ireland. Riello UPS Ireland is the Italian-headquartered company's 17th dedicated worldwide branch and is a strategically important addition aimed at increasing its presence in the thriving Irish data centre market.

4 GERMANY

AtlasEdge, a leading pan-European Edge data centre provider, has announced the acquisition of Datacenter One (DC1). The move furthers AtlasEdge's expansion across Europe, with DC1 a leading data centre provider in Germany. This acquisition will accelerate AtlasEdge's expansion across Germany, a key strategic data centre market and Europe's largest digital economy.



WHAT DOES EUROPE'S TECH LANDSCAPE LOOK LIKE FOR THE YEAR AHEAD?

In its new *Worldwide Black Book Live Edition* International Data Corporation (IDC) stated that the European ICT market was expected to grow year on year by 4.1% in 2022 in constant currency terms. It also stated that in current annual value, the market will decrease year on year by 3.2% in 2022, due to exchange rate fluctuations, including the continuous drop of the euro against the US dollar. This currency value drop was due to the Russia/Ukraine war, which is negatively impacting the overall eurozone economy, with increased prices for oil, gas and food, as well as suspended natural gas supply from Russia. Growing inflation, supply chain constraints and geopolitical conflicts will also negatively affect the European PC and tablet markets, which will inhibit overall ICT spending in the region.

In contrast, despite the unfavourable macroeconomic environment, spending on software and security hardware in Europe is expected to stay relatively stable over the next few years. Cloud has emerged as a key technology for helping organisations increase their resiliency, and the latest version of the *Black Book Live* now includes a cloud spending view of the market. Overall cloud-related spending in Europe is forecast to constitute almost one-third of total technology spending in 2022 and its share will keep increasing over the next five years.

Almost 43% of the total spending on server and storage markets in Europe in 2022 is expected to be focused on cloud enablement; this figure will grow rapidly in the next few years, making up half of this infrastructure spending by 2024. Many companies will continue to invest in modernisation of their infrastructure, which entails an accelerated shift to

cloud in order to make IT budgets more stable and ensure Business Continuity, especially in periods of recession or disruption.

Software spending in Europe is expected to stay more or less stable over the coming five years, as organisations rely on software to support their Digital Transformation initiatives. Investments in cloud software will exceed 40% of total software spending and post a double-digit growth rate to surpass non-cloud software spending in 2024. Cloud migration will become a priority for organisations, with a focus on AI platforms, collaborating applications and security solutions and cloud-related spending will surpass spending on traditional software deployment in one to two years.

Many IT services providers will continue to expand the scope of their cloud professional services and managed cloud services, including planning, deployment, implementation and management of cloud environments in order to assist customers at any stage of their cloud journey. This will drive cloud-oriented services spending to exceed 25% of the total services spending in Europe in 2022. Cloud-related services spending in Europe will record a growth rate between 16% and 19% over the next five years.

"European companies are considering cloud adoption to help them overcome the disruptive effects of the worsening economic and geopolitical situation," said Lubomir Dimitrov, Research Manager for IDC European Data & Analytics. "Business Continuity, security and Disaster Recovery plans will be the main focus of cloud deployments."

AYMAN SAYED, PRESIDENT AND CEO AT BMC



In 2023, the tech landscape will be dominated by a number of key macrotrends. We can expect the future workplace to continue shifting, with sophisticated technology enabling more flexibility around how and where employees work.

Alongside this, the companies driving global growth are also expected to change, with geopolitical challenges continuing to alter how business is conducted. Predicting market shifts and finding ways to succeed takes an incredible amount of data analytics and insights, and this will only grow in 2023.

Supply chains, including procurement, manufacturing, distribution, inventory and last-mile delivery, have changed in ways where data and insights are critical. For many, there is incredible pressure to ensure that supply chain changes can be absorbed to shield customer and employee expectations.

Another key macro trend is that of cybersecurity, which is growing in importance and increasingly shifting away from only being the job of a CSO. Now, cybersecurity is everybody's job. This needs to be done in a way that does not create friction or slow businesses down and this is a change we'll see continue into 2023 as companies become increasingly digitalised and data-driven.

This ties in with another key trend: the growing value of data. Statista reports that every person will create 97 zettabytes of data by the end of this calendar year. That is 21 zeros after 97 bytes of data. This creates immense opportunity if we can capture, analyse and apply it for better business

Another key macro trend is that of cybersecurity, which is growing in importance and increasingly shifting away from only being the job of a CSO. Now, cybersecurity is everybody's job.

results – and businesses are increasingly waking up to the new opportunities to make their data more beneficial.

Finally, we'll see a continued rise in the expected standard of corporate social responsibility among tech companies. The socially responsible organisation creates an opportunity and expectation for each of us to make the right decisions and collectively impact climate change, diversity and inclusion, to make the world a better place. Because doing good in the world is good for businesses.



PAUL BRUCCIANI, CYBER SECURITY ADVISOR, WITHSECURE



Cryptocurrencies will be the focus of the most sophisticated and persistent attacks. The inflationary forces welling up in economies running on 'fiat currencies' (i.e. paper-based promises to pay the bearer a certain amount, backed by the issuing bank) will attract increasing interest from investors. Cryptocurrency wallets and exchanges will be targeted by criminals and nation states.

The FAANGs will be in the dock

The FAANGs (Facebook, Amazon, Apple, Netflix and Google) will come under increasing scrutiny by regulators around the world, for two reasons:

- Cloud service availability: A large-scale, prolonged cloud service outage will raise questions about concentration risk
- Market failure: AWS, Microsoft or Google will become embroiled in antitrust concerns as cloud service users become ever more dependent on the three service providers that control half the global market.

Satellite communications: A geo-political target

Private satcom initiatives like Starlink will be viewed as trampling over long-standing international agreements about the exploitation of space, raising geopolitical tensions. This will lead to the space powers discussing the creation of a geospace treaty to bring order to how Earth-

orbiting satellites are managed. Until then, they will be targets.

The fragile digital world

The irony is that the Internet was created during the Cold War to overcome telecommunication vulnerability, yet today, as geopolitical tensions rise, it is now the source of vulnerabilities. A large amount (90%) of international Internet traffic travels through just 436 submarine cables, if several lines are severed, which is easily done, there is very limited spare bandwidth to cope. Expect Internet connectivity to come under threat in response to adverse geo-political events. If there is a 'plan B' worth having it is 'How we will operate without the Internet'.

Green computing

Cryptocurrencies like Bitcoin are digital money protocols that enable peer-to-peer transactions without need of a central intermediary. Data mining is a computationally intensive way to prevent fraud and create trust among cryptocurrency users. The Bitcoin network alone, for example, uses as much power as an entire country like Malaysia or Sweden. Cryptocurrencies like Bitcoin will come under pressure to provide greener ways to maintain security.

The Ethereum Foundation says its switch from a 'proof of work' to 'proof of stake' verification method has led to a 100% reduction in energy for computation. Although it is a more environmentally friendly alternative to proof of work, it is also less secure.

Expect to see environmental regulation of computationally inefficient cryptocurrency service providers. Expect to see new forms of fraud based on subverting the 'proof of stake' security approach.

Cryptocurrencies like Bitcoin will come under pressure to provide greener ways to maintain security.

The European technology industry is facing strong headwinds in the next 12 months, amidst rising economic uncertainty and geopolitical tension on the continent. Major technology brands, many of which increased hiring and salaries to capitalise on demand as the world reopened post-COVID, have been forced to make deep and significant cuts to their workforces. This radical realignment of the workforce will be the common theme in 2023 as more technology companies look to deliver sustainable, long-term growth.

Flexibility lies at the core of every successful workforce transformation. To keep pace with the rate of change, companies need to accept it as a constant and commit to the continual development of workforces in a cost-effective way. To achieve this, they need to prevent the 'bloated middle' and avoid excessive hiring of expensive mid-level employees who, while experienced, may lack the knowledge of emerging technologies and systems. Given the ongoing digital skills shortage (which pre-dates the pandemic) these people tend to have inflated salaries but a skillset that has more potential to become obsolete as technologies evolve.

The most effective approach for technology companies looking to stay lean and agile is to adopt a model whereby one expert of 10–15 years' experience leads and mentors an underlying team of four – whether that is engineers, developers, or consultants. For simple repeatable tasks the ratio could extend to 1:8 but, for more complex tasks, 1:4 is the ideal.

It is important to note the short-term need to reshape workforces does not mean demand for digital talent will dissipate. Rapid and widespread digitalisation has transformed the nature of work to the point that digital skills are now a prerequisite in the modern workforce.

Radical realignment of the workforce will be the common theme in 2023 as more technology companies look to deliver sustainable, long-term growth.

Given the ongoing geopolitical issues and rollout of new technologies, it is more important than ever that organisations have effective cybersecurity and software developments skills and systems in place. Whether it is shifting to a cloud-only supply strategy, employing the right CRM software, or reinforcing cybersecurity infrastructure, organisations – especially the largest technology companies – need to have a clear action plan for developing sustainable capabilities to meet these demands.

As we look to the future, there are – to coin a phrase being used by many politicians right now – 'choppy waters ahead'. But the European technology industry is, for the most part, resolute and well-placed to come through this challenging time.

New technologies will continue to emerge that will transform the human resources and IT requirements of large businesses. They may find they require less of certain skills and more of others but being able to hire and retain the required talent and equip them with the right skills for Digital Transformation projects at an effective cost is critical for businesses that wish to continue to enjoy a competitive advantage. ▣

TONY LYSAK, CEO OF THE SOFTWARE INSTITUTE



Leapfrogging your competitors with the Metaverse

With much speculation surrounding the Metaverse and how it will develop, Duncan Roberts, Senior Manager at Cognizant, explores the many ways businesses can utilise its potential and why now is a good time to start familiarising ourselves with its capabilities.

The Metaverse, initially dubbed the 'Next Big Thing', has been subject to criticism lately by those who think it is aiming too high and falling short of expectations. However, the Metaverse, which is still in its infancy, is rapidly developing and is projected to only further infiltrate the tech space. In fact, the global Metaverse market size was valued at more than US\$100 billion in 2022 and is projected to grow to US\$1,528 billion by 2029.

Despite its early stage, companies would be wise to start generating value from Metaverse concepts and technologies today, giving them an advantage when usage becomes mainstream throughout businesses.

The Metaverse has high potential when it comes to improving customer engagement and collaboration among employees and clients, as well as streamlining operations. From employees being able to work on projects while based in different locations together, to utility companies who can create detailed simulations and digital twins to develop and test renovations or modifications remotely before they are turned into reality, there are endless ways that businesses can look to utilise the Metaverse to benefit their business operations.

Building stronger customer relationships

Estimates suggest that by 2026, about 25% of people will spend at least an hour a day in the Metaverse. This presents a huge opportunity for businesses to meet and engage with new customers. By using Virtual and Augmented Reality (VR/AR) tools, companies can put their products into the virtual hands of consumers. This way, users can get a concrete idea of the touch, feel and scale of potential purchases.

For example, rather than merely measuring furniture and spaces in their home to see if they fit, customers can now virtually see how their rooms will look with the products already inside. The convenience of seeing the product virtually versus having to go through lengthy processes of measuring, buying, delivery times, returns and more will improve customer relationships and in turn increase sales. The Metaverse makes discovering new products an accessible, modernised three-dimensional experience.



Duncan Roberts, Senior Manager at Cognizant

Showing sustainability with AR

Consumers are becoming increasingly sustainability-focused, consequently becoming more demanding of companies to demonstrate their sustainability measures. A study showed that 72% of those surveyed indicated that a brand's values affected whether they purchased something or not. Therefore, companies need to be able to show consumers that they're being more sustainable and socially responsible – but displaying that kind of information can be difficult.

Using the Metaverse, it's easier to do this. For example, information about product origin, its journey to you and its overall carbon footprint can be visually presented. This allows consumers to physically engage with the information and gain more in-depth information if they

The Metaverse makes discovering new products an accessible, modernised three-dimensional experience.

want. In this way, companies can show the steps they are taking and position themselves as environmental and social leaders.

Improving working from home

Working from home has become a norm for many companies since the pandemic struck. However, it does pose its problems, such as decreased social interaction which makes it more difficult for workers to connect with their colleagues and work collaboratively. The Metaverse can help reduce these problems, with companies being able to support their staff remotely with virtual training and social interaction.

The global Metaverse market size was valued at more than US\$100 billion in 2022 and is projected to grow to US\$1,528 billion by 2029.

For example, employees in the Metaverse can experiment with digital twins, a virtual representation of an object or system, and apply that knowledge in the physical world. Spaces can be set up on a real scale in the Metaverse before it takes place in the physical world so that staff can familiarise themselves. This makes training sessions more in-depth and interactive and means sessions can be 'replayed' on demand for workers who couldn't make the original time.

The Metaverse also sets itself apart from other online learning platforms by incorporating social interaction, meaning employees can learn from one another and remote instructors can guide new hires in supercharged employee onboarding programmes.

New levels of maintenance

Businesses can face huge costs if machinery fails, from stalled production to the cost of sending specialised engineers to identify and fix the problem. However, using real-time maintenance monitoring, this can be avoided. By pairing IoT devices and creating digital twins, it becomes possible for workers to instantly see the state of machinery and whether components are beginning to fail. When this information is paired with Augmented Reality, engineers can diagnose issues and show workers on the ground how they can fix them, saving valuable time and money for the company.

By displaying information in this visual way, it ensures that machinery and workers can always work at their best. Managers can become more proactive in managing their physical capital, as they become able to assess in real-time what machines are working, where problems might be starting and where parts need to be replaced or reassigned – creating a more efficient system overall.

Next steps for businesses

With so many ways that a business can utilise the Metaverse, it can be difficult to know where to start. The Metaverse is evolving rapidly and businesses need to take a pragmatic approach to the unregulated world of the Metaverse to ultimately be successful.

Businesses should start by identifying internal problems that could be solved, or experiences that could be improved in their existing ecosystems and platforms, and then how they could be improved with solutions from the Metaverse. This will avoid investing in costly, inefficient and non-cohesive individual solutions. Businesses should also think about scalability and how each Metaverse component is going to work with other applications to create the best experience.

Arguably, the most important step for businesses looking to make use of the Metaverse is to put privacy, security and ethics at the forefront of their attention. The Metaverse is still developing and regulation is still to come, meaning it's important for businesses to make sure they're preparing for all potential issues that could arise as the Metaverse continues to develop and is readily adopted by more consumers.

Businesses that seize the benefits that the Metaverse offers today will create a more efficient and engaging business. Ultimately this will keep them ahead of their competitors in the long run. ■



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“ SOC teams play a crucial role on the cyber frontline, managing and responding to threat alerts to keep their organisations safe from potential breaches. To avoid losing their best people to burnout, organisations must look to more sophisticated threat detection and response platforms that can intelligently correlate and prioritise alerts. This will not only improve overall protection but also enhance analyst productivity and job satisfaction levels.”

- Bharat Mistry UK Technical Director at Trend Micro

¹⁻² Trend Micro Global Research 2021 - [Security operations on the backfoot](#) - How poor tooling is taking its toll on security analysts

Analysts explore how CIOs can seize uncertainty and make the most of it in 2023 and beyond.

Gartner has revealed its top strategic predictions for 2023 and beyond. Gartner's top predictions explore how business and technology leaders can reimagine assumptions and seize the moment to turn uncertainty into certainty.

"Uncertainty carries as much opportunity as it does risk," said Daryl Plummer, distinguished VP Analyst and Gartner Fellow. "The key to unlocking those opportunities is to reimagine assumptions – especially those rooted in a pre-digital past – around how work is done, how relationships between customers and providers will evolve and how current trends will unfold."

"The comforts of consistency are a detriment to the growth of any company seeking to lead in a modern digital world filled with unknowns. This year's predictions provide a foundation for executive leaders to seize uncertainty, challenge thinking and change expectations while maintaining forward movement."

Gartner analysts have presented the top 10 strategic predictions for guidance.

Through 2027, fully virtual workspaces will account for 30% of the investment growth by enterprises in Metaverse technologies and will 'reimagine' the office experience

As employees continue to desire more flexible work scenarios, virtual workspaces in Metaverses will emerge to support new immersive experiences. Fully virtual workspaces are computer-generated environments where groups of employees can come together using personal avatars or holograms.

"Existing meeting solution vendors will need to offer Metaverse and virtual workspace technologies or risk being replaced," added Plummer. "Virtual workspaces deliver the same cost and time savings as videoconferencing, with the added benefits of better engagement, collaboration and connection."

By 2025, without sustainable Artificial Intelligence (AI) practices, AI will consume more energy than the human workforce, significantly offsetting carbon-zero gains

As AI becomes increasingly pervasive and requires more complex Machine Learning (ML) models, it consumes more data, compute resources and power. If current AI practices remain unchanged, the energy needed for ML training and associated data storage and processing may account for up to 3.5% of global electricity consumption by 2030.

Yet as AI practitioners become more aware of their growing energy footprint, sustainable AI practices are emerging, such as the use of specialised hardware to

Gartner unveils top predictions for IT organisations and users in 2023



reduce energy consumption, energy-efficient coding, transfer learning, small data techniques, federated learning and more.

"AI offers huge potential benefits to optimise operational efficiency and sustainability, far outweighing its own footprint," said Plummer. "Provided it is applied more pervasively and effectively than today, AI could reduce global carbon dioxide emissions by five to 10%."

By 2026, Citizen-led Denial of Service (cDOS) attacks, using virtual assistants to shut down operations, will become the fastest-growing form of protest

Protests against businesses and government organisations are increasingly digital. Citizen-led Denial-of-Service attacks (cDOS) are led by average people rather than hackers, performed through virtual assistants.



Gartner predicts that by 2025, 37% of customers will try using a virtual assistant to interact with customer service on their behalf; for example, by waiting on hold for them. These legitimate interactions using virtual assistants will pave the way for protests. By 2024, citizens will shut down a Fortune 500 company's contact centre through Denial-of-Service attacks launched by virtual assistants.

Through 2025, powerhouse cloud ecosystems will consolidate the vendor landscape by 30% leaving customers with fewer choices and less control of their software destiny

The largest cloud service providers (CSPs) are creating ecosystems whereby they and preferred independent software vendors (ISVs) offer a range of pre-integrated and composable services. CSP ecosystems offer the potential for significant productivity gains from simplified sourcing, integration and composability of software components. As CSP ecosystems mature, there will be a diminishing need for third-party ISV tools

because CSPs can quickly release new features and become fast followers of innovation due to the speed and agility of cloud development.

Through 2024, jointly owned sovereignty partnerships sanctioned by regulators will increase stakeholder trust in global cloud brands and facilitate continued IT globalisation

As societies become increasingly globally interconnected and dependent upon digital information, more regulations and legislation are emerging from a desire to control and protect citizens and ensure continued availability of critical services. Specifically, governments and commercial regulators are tightening policies regarding the use of non-regional cloud providers for critical or sensitive workloads.

"Due to recent geopolitical events and seeing the direct impact that de-platforming sanctions can have, demand for sovereign cloud solutions is evolving," said Plummer. "Governments and regulators that sanction specific jointly owned approaches of cloud providers with local partners can meet tightened sovereignty requirements while facilitating continued technical globalisation."

By 2025, labour volatility will cause 40% of organisations to report a material business loss, forcing a shift in talent strategy from acquisition to resilience

Challenges such as The Great Resignation, burnout and quiet quitting continue to challenge business leaders to find, attract, hire and retain talent. Within





corporate announcements and financial disclosures, organisations will increasingly highlight material strategic shifts due to the inability to support existing products or services or launch new opportunities because of workforce challenges.

"Labour volatility has a direct correlation to enterprise execution and delivery models that impacts financial performance," added Plummer. "The resiliency dialogue must become a CEO and boardroom conversation, rather than one siloed to HR."

By 2025, shareholder acceptance of moonshot speculative investments will double, making them a viable alternative to traditional R&D spending to accelerate growth

To find advantages amidst uncertainty and volatility, industry leaders are increasingly accepting high-risk technology investments with little-known returns and potential failure, known as 'moonshots'.

"Winning enterprises have learned the real risk they face is doing too little too late. Adopting antifragile approaches, such as moonshots, allows enterprises to maximise their advantage from disruption by adjusting their risk appetite and raising their tolerance for failure," said Plummer.

By 2027, social media platform models will shift from 'customer as product' to 'platform as customer' of decentralised identity, sold through data markets

The current paradigm of users having to prove their identity repeatedly across online services is not efficient, scalable or secure. Web3 enables new decentralised identity standards which introduce several disruptive benefits, including giving users more control over which data they

share, removing the need for repeated identity proofing across services and supporting common authentication services.

By 2025, organisations that remediate documented gender pay gaps will decrease women's attrition by 30%, reducing pressure on talent shortages

Gartner data consistently shows that compensation is a top driver for talent attraction and retention, yet only 34% of employees believe their pay is equitable. There is no generally accepted methodology for calculating pay equity, challenging organisations to identify and account for gender pay gaps. A nascent market is forming for software tools that offer pay equity assessments, with specialist vendors emerging that provide more ways to analyse and model data related to equitable pay.

Through 2025, employee value metrics like well-being, burnout and brand satisfaction will override return on investment (ROI) evaluations in 30% of successful growth investment decisions

Investments in efforts such as employee well-being and customer experience can yield direct financial returns through revenue growth and cost reduction. However, their more significant impacts are often on brand value, reputation and employee and customer acquisition and retention. Such metrics are difficult to quantify in terms of short-term financial gains, but they influence longer-term financial outcomes that drive enterprise value.

"Use of traditional ROI models to make investment decisions can discount or completely exclude non-financial benefits. Organisations that use more expansive valuation approaches will shift their investment focus to long-term growth, disruption and innovation," said Plummer. ▣



Martin Biggs, VP and General Manager EMEA, Spinnaker Support

A recent report by Gartner found that industry-wide software spending is the second largest item on the typical IT budget.

Why your organisation's CIO or CFO could benefit from third-party software support

Martin Biggs, VP and General Manager EMEA, Spinnaker Support, shares some insight into software spend and some of the operational benefits of third-party software support that can enhance the work and support the priorities of the CIO and CFO.

How much of your IT expenditure goes on software? A recent report by Gartner found that industry-wide software spending is the second largest item on the typical IT budget. It's paramount that software is working hard for your business, supported fully and aligned with your digitisation goals.

But what if your business could halve its software maintenance costs, gain an improved service all round and even minimise operational risk?

This is the reality of third-party software support. The goal for CIOs and CFOs should be for their software infrastructure to align with their business' overall goals – whether that's a move to the cloud, a company-wide digital upgrade, or sticking with the seamless

systems and ecosystem you've already got. Third-party software support offers a means of achieving all these objectives – and more.

While often praised for the financial savings – and these savings are significant – there are additional, lesser-known operational benefits of third-party software support that can enhance the work and support the priorities of the CIO and the CFO alike.

For the CFO

Protecting against cybersecurity threats, looking for ways to strengthen defences, minimising downtime – security is central to every business' operation. In this landscape, businesses need the peace of

mind that if they encounter holes or vulnerabilities in their software, those issues will be resolved quickly, without opening any additional security risks. This is especially critical for businesses in highly regulated industries where outages and downtime can have severe operational implications.

Some businesses can find themselves in trouble when it comes to upgrades or critical security patches if their support package is not tailored specifically to their needs. Generalised support packages, often for legacy software versions or longtime customers, don't always come with security patches and upgrades, despite the hefty price tag.

Therefore, it's critical for CFOs to have support packages that take a holistic approach to their business' goals and security. Round-the-clock support, even for legacy systems, can integrate within wider security policies and practices to benefit the whole organisation. And if that means sticking with your older system because the processes work for the business and its people, that's OK.

Software and its support must align with your organisation's Digital Transformation plans. For some businesses, this means using the best out of several software providers to suit their bespoke needs and requirements – this could be in a hybrid environment, for example. Whether a company is utilising a combination of Windows and Salesforce, or Oracle and Workday, the CFO needs to know that the systems used across the business are fully supported,

at a competitive price. Businesses need coherence and synergy across the systems used to realise their full working potential – ideally without paying support costs in perpetuity for a usable fraction of one software system. It's the goal of third-party software support companies to help businesses realise their Digital Transformation goals through software, wherever they are on that journey.

In this uncertain economic climate, many business leaders are understandably wary of opening their infrastructures to unnecessary risks. This includes the risk inherent in company-wide upgrades, which are often regularly encouraged as part of many software support packages. What if the business can't hire the right skills to support the new infrastructure? What if existing staff are pulled away from critical tasks to assist with the migration? Upgrades are an organisational-wide decision and should only be implemented when and if it makes business sense to do so. If an organisation's software is functional, stable and everyone is getting the most from it, the CFO would be right to question the value of introducing more risk to a system when the existing system can be fully supported.

The goal for CIOs and CFOs should be for their software infrastructure to align with their business' overall goals.



For the CIO

The headline suggests that CIOs and tech leaders can make huge savings by switching to third-party software support. With looming inflationary troubles and given the difficult recruitment climate, these monetary savings shouldn't be overlooked. And few would argue against the positives of shifting budgets from operational costs to transformation, digitisation or even skills investment.

These savings are also found in time and resources. IT teams often spend hours grappling internally with software issues, working collaboratively with their vendor's in-house support to diagnose the problem and waiting for a resolution. Getting access to a senior support engineer can take time – lost time. But having access to high-level support from a dedicated software engineer, within minutes, is possible with third-party support. This dedicated engineer, in effect, becomes a part of the IT team themselves, who understands the intricacies of the business needs and the level of support required.

CIOs are always on the lookout for how they can consolidate their technical processes and ultimately produce better outcomes for their business and clients. To do this, they need flexibility and freedom. Flexibility to change their level of support or even change contracts if it's not working for them and their time, freedom to choose which elements within the software stack they need maintenance and support for. Efficiency can only be improved when barriers to straightforward, streamlined work processes are removed.

The cost benefits of third-party software support are well documented and widely known – they're always 50% less than the annual cost of packaged support and maintenance options.

This price tag is attractive and is often touted as the motivating factor behind businesses' decisions to move away from their vendor's packaged support. But having a software support system in place isn't just about engineers answering your calls and your team paying a fair price for it. It's about working collaboratively to understand your business' unique digitisation journey and goals. It's about creating a productive, efficient, stable software environment.

It's the goal of third-party software support companies to help businesses realise their Digital Transformation goals through software.

For CIOs, the 'Fear of Missing Out' can also come into play. It's natural to be concerned that moving away from a vendor's software support also means a breaking of the ability to remain on the vendor's software roadmap – be that on-premise or in the cloud. In fact, the decoupling often improves the CIO's ability to execute against their roadmap in the shape, method and timeline that they want, and not that of the software publisher. ■





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In order to separate itself from competitors, demonstrate its continued innovation and prove its ability to meet critical customer demands, Datacenter United set out to do the 'impossible' and earn a Tier IV Certification of Constructed Facility (TCCF) for its Antwerp data centre. I caught up with Ogy Smet, CTO, Datacenter United and Friso Haringsma, CEO, Datacenter United, who discuss how the Certification helped the company to strengthen its market position and bring its organisation and ambitions to a higher level.

Datacenter United achieves first certified data centre in Belgium

Historic city of Ghent, Belgium

Datacenter United is a leading provider of carrier-neutral colocation data centre services in Belgium. It operates a high-quality, well-connected network of six state-of-the-art data centres across the country and also offers a wide range of specialised data centre support and Business Continuity services. Founded in 2010, Datacenter United has grown rapidly over the past decade and with the recent addition of three new data centres, now operates facilities in Antwerp, Brussels and other key regions throughout Belgium. The company prides itself on its commitment to quality, simplicity and transparency, extensive Digital Transformation experience, as well as the unparalleled value and reliability it offers to its customer base of local SMEs, cloud providers, telecom companies, governments and more.

In May 2022, Datacenter United launched its new facility in Antwerp, featuring industry-leading technical capabilities from unparalleled data redundancy and advanced information security system to its emergency power facilities, cutting-edge cooling and fire protection and more. Ideal as a primary data centre or backup location for organisations in surrounding countries, the new Antwerp site has raised the bar for digital infrastructure quality and reliability in Belgium and shattered longstanding misconceptions around the country's limits for data centre excellence in the process.

Challenge

Businesses across Belgium and beyond have undergone a massive Digital Transformation in



First Tier IV ium

recent years and have never been more reliant on critical infrastructure. Datacenter United's customers require optimal data redundancy and demand reliability guarantees at the infrastructure level. These guarantees are especially vital for larger cloud and telecom providers, but also for companies with high market visibility, such as e-commerce platforms or organisations that deal with high-value data networks (e.g., governments, healthcare providers, banks and financial services firms, military departments, etc.).

Uptime Institute's Tier IV TCCF Certification provides data centre owners, operators and end-users with verification that their facility offers not only basic capacity, redundancy and concurrent maintainability, but is also supported by completely fault-tolerant infrastructure. Sites with Tier IV Certification can

Completing Uptime Institute's Accredited Tier Specialist (ATS) course is one of the best professional decisions I have ever made.

demonstrably prevent individual equipment downtime, distribution path interruptions and other catastrophic infrastructure failures from impacting critical IT and business operations.

Although this level of assurance is in high demand among 24x7 digital-first organisations, many in Belgium



Ogy Smet, CTO,
Datacenter United

believed the fact that there is only one national grid operator in the country meant achieving a Tier IV-Certified data centre would be impossible.

So to separate itself from competitors, demonstrate its continued innovation and prove its ability to meet these critical customer demands, Datacenter United set out to do the 'impossible' and earn a Tier IV Certification of Constructed Facility (TCCF) for its Antwerp Datacenter.

Solution

Datacenter United's team worked closely with Uptime throughout the entire project to bring Belgium its first and only Tier IV data centre. From the earliest stages of the Antwerp data centre Tier Certification of Design Documents, Datacenter United took the time to understand the criteria involved in achieving Tier IV fault tolerance and worked diligently to make it a reality.

In July 2021, the team began pursuing the Antwerp data centre Tier IV TCCF in earnest and prepared with countless tests and dry runs in the months leading up to the certification evaluations. The official demonstrations took place between December 2021 and early 2022.

Along the way, Uptime's personnel were available to answer questions and provide direction for the Datacenter United team. The teams worked together through challenges such as delays with the completion of a cooling unit, small infrastructure adjustments with significant repercussions and more. The Datacenter United team attributes its ability to overcome unforeseen challenges throughout the certification process to constant communication, collaboration, creativity and flexibility from both sides.

The company's Accredited Tier Specialists (ATS) and Accredited Operations Specialist (AOS) were heavily involved, applying extensive digital infrastructure design, management and operations expertise from Uptime training courses throughout the process. Datacenter United's final facility demonstrations were a resounding success and Uptime Institute awarded the official Tier IV TCCF in February 2022.

"The value this Tier Certification conveys to current and prospective customers is incredible and the growth in expertise the process produced throughout our operations and service delivery team is priceless," said Ogy Smet, CTO, Datacenter United.

Impact

Datacenter United started this process to differentiate itself from competing data centres, demonstrate its

commitment to digital infrastructure excellence and inspire confidence and interest among current and future customers. Now operating Belgium's first and only facility – and one of a select group in Europe – to earn Uptime Institute's Tier IV TCCF, the company has achieved those goals.

The certification, as well as the work required to accomplish it, are already paying dividends. Both current and prospective customers have taken notice and Datacenter United's sales and marketing teams are using its new Tier IV Certification as a unique differentiator to expand its visibility across Europe and abroad. The certification journey has been a highly educational and transformative process for the operations and service delivery professionals involved and for the company itself. As a result, the team gained valuable expertise, tremendous confidence in its facility and a clear understanding of how its infrastructure will fair under a broad range of operating conditions, including worst-case scenarios.

Datacenter United sees the value of Tier Certification as undeniable and intends to work with Uptime on future projects as it continues to strengthen its position as a leading provider of high-quality, reliable proximity data centre services in Belgium and beyond.

Ogy Smet, CTO, Datacenter United and Friso Haringsma, CEO, Datacenter United, offer further insight into the collaboration with Uptime Institute and the benefits this has brought to the business.

What does it mean to be CTO of one of the leading providers of carrier-neutral colocation data centre services in Belgium?

Smet: "I'm very proud to be in this position and to have had the opportunity to help build our company into the industry leader it is today and lay the groundwork for future growth. To be able to grow past the competition in size and through Uptime Certification is an extraordinary achievement that brings great pride."

How has the new Antwerp site raised the bar for digital infrastructure quality and reliability in Belgium and how has Uptime Institute determined this?

Smet: "As Antwerp is the first and only Tier IV facility in the country, there truly is no enterprise company that can claim it delivers the best-of-the-best standards and not be a customer. For the competition, shortcuts are no longer acceptable. The pressure is now on competitors to catch up to the point where they can deliver the highest level of services like we do today. Despite many



claims that achieving Tier IV in this country is impossible, we've proven it is and it gives me great pleasure to have disproved this myth and reset expectations.

"Completing Uptime Institute's Accredited Tier Specialist (ATS) course is one of the best professional decisions I have ever made. It has given me crystal clear insight into how Uptime Institute assesses and certifies data centres. This was instrumental in the successful Tier IV Certification of our facility. Through its Tier Standard and courses, Uptime conveys a clear philosophy that you can apply to achieve digital infrastructure success."

How prestigious is Uptime Institute's Tier IV TCCF Certification and what successes have you seen since receiving this?

Haringsma: "Achieving Tier IV Certification for both design and especially constructed facility is a tremendous accomplishment for our organisation. I am extremely proud of our team and of this milestone. It has helped us earn attention from some of the top cloud and IT players in the world, and recognition from customers and suppliers within the sector. Without the validation of these Certifications, I'm pretty sure this momentum would've been much more difficult to build."

How far has Datacenter United been able to differentiate itself from competing data centres since its collaboration with Uptime?

Haringsma: "It is very difficult to stand out from the crowd and differentiate from competitors. Some claim they have Tier-Certified infrastructure or infrastructure that operates at the equivalent levels, when in fact they don't. With this Certification, we finally put an end to the misconception that a Tier IV certification in Belgium is impossible. I really believe we put Belgium data centre services on the European map and am confident that our country has a golden future in the heart of Europe at the centre of the FLAP region."

What does the future hold for Datacenter United now that it has received this certification?

Haringsma: "Datacenter United is just getting started; our company story is far from finished. The Certification helped us to strengthen our market position and bring our organisation and ambitions to a higher level. With Uptime as our knowledge partner, we continue to empower data in a sustainable way, and working with strong and reliable business partners is crucial for success." ▣



NOKIA

Improving cybersecurity with Managed Security Service Providers

Jon Pratt, CIO at 11:11 Systems, discusses cybersecurity resourcing and the benefits of Managed Security Services.

Despite a global spend of over US\$130 billion on cyberdefence and thousands of vendors now active in the cybersecurity marketplace, the environment is getting worse when it comes to security risk.

The number, nature and severity of cybersecurity breaches continues to escalate since the pandemic began. In fact, a security breach or ransomware attack has been recorded every 11 seconds so far through 2022 and 61% of organisations report at least one attack every year.

Considering this increasingly sophisticated threat landscape, modern organisations are resetting their expectations. Where legacy security tech stacks have failed to keep up with the evolving threat landscape, IT leaders are continually seeking new ways to

develop a stronger security posture, without having to start from scratch.

Finding the right talent to tackle this is an ongoing challenge. The continued global cyber skills shortage shows no sign of abating, as the ever-evolving threat landscape drives expectations for an increasingly broad security knowledge base and skill sets.

As a result, there are now millions of positions going unfilled globally and this, in turn, is creating a huge demand, with internal staffing resources becoming prohibitively expensive.

CISOs want solutions that put their organisations into the right security posture and that will allow them to manage risk more effectively. Cyber insurance is one aspect, as it provides an extra layer of protection in



Jon Pratt, CIO
at 11:11 Systems

the event of an attack by enabling security leaders to transfer cybersecurity risk to the insurance company.

But do cyber insurance premiums cover all ransomware attacks and are CISOs getting the gap analysis right? Given all the risk inherent with cyber insurance, the requirements to obtain a policy has become increasingly difficult, on top of a significant trend up for the cost of protection, rising an average of 30% year-on-year and there are no signs of this slowing down.

Compliance and reporting are a further challenge that CISOs cannot ignore. To be certified and compliant, not only must all standards and regulations be met, but security leaders must ensure adequate and timely reporting. So how can security leaders navigate these challenges? How can they approach resourcing and what are the key technologies that will enable them to unlock best practices?

Cybersecurity frameworks and mission critical technologies

The NIST Cybersecurity Framework has been developed to guide IT security professionals in evaluating their security posture and improving their risk mitigation. This framework helps organisations to ensure that they have the right systems to provide an adequately robust approach to cybersecurity.

It covers five actionable risk management strategies: 'identifying,' 'protecting', 'detecting', 'responding' and 'recovering' from a cybersecurity attack.

Identification

No matter where the end-user is, vulnerabilities exist. Tens of thousands of new vulnerabilities are posted per year and approximately 55 new vulnerabilities are posted every day. While in-house IT teams can only solve some of these, around 5% pose a real risk – those that can be remotely exploited and have already been weaponised.

It is critical to assess, prioritise and remediate the most important risks to the network and business with Continuous Risk Scanning, which provides a view of all assets that exist within a network environment and advises teams to focus on the vulnerabilities that most put those assets at risk.

Protection

With the explosion in distributed networks, data today lives everywhere. Enabling secure connectivity and managing it 'where it exists' – across multiple sources and devices – is part of the challenge. Where security professionals often do not have the time to prioritise network security, these environments change constantly and require real-time analysis and augmentation.

Managed firewalls relieve security professionals from having to maintain the rule sets at the entry point to the network, while also providing the benefit of lessons learned from a broader set of organisations.

Even more critical to ensuring network security, CISOs need the intelligence in the network to look more holistically at the behaviour of the traffic, incorporating different data sources and automatically identifying what is good and bad traffic. From here, appropriate technologies must be employed, such as intrusion prevention, network antivirus and SD-WAN to provide safety to all users in real-time and ensure seamless secure connectivity.

Detection

Today, organisations have more apps, more data, more locations and more remote users than ever before. Alert fatigue is a real problem, assuming every element is even being monitored. Millions of daily notifications warn of potential security dangers and, while some can be discarded, others must be acted on immediately.

Managed SIEM solutions enable security professionals to log cyberattack events and to cross-analyse and aggregate the details into an actionable format. They

enable CISOs to react quickly and to provide value during the heat of the incident, at the very time it's needed, identifying how the security breach happened and how to prevent it from doing more damage.

Response

When we think about response, we are really talking about Managed Endpoint Detection and Response (EDR) providing next-generation endpoint security that can quickly identify and stop abnormal behaviours. Cybercrime is becoming more sophisticated and attack vectors are everywhere, particularly since the move to remote working. The end-user is the biggest vulnerability in any network environment and education is important. But the risk still exists, no matter how much training is given and it is critical to proactively protect the endpoint every single day.

Recovery

Unplanned downtime can result in irrecoverable, long-term damage to the organisation, customers and reputation. The impact of a disaster event can include revenue loss, customer churn and – in a worst-case scenario – the inability to continue business operations.

Here, recovery requires proactive data backup and replication. Secure Cloud Backup delivers easy and cost-effective offsite data backup to achieve 3-2-1 protection best practices. The service provides a reliable safety net for a range of data loss events including malicious or accidental deletions, hardware failures and cybercrime.

Additionally, Disaster Recovery-As-a-Service (DRaaS) can combine the right people, processes and technology to prepare the business for disaster events and ensure a quick and successful recovery.

Improving defences with Managed Security Service Providers (MSSP)

Given the complexity, severity and 24/7 nature of the evolving threat landscape, the increasing requirement to meet compliance requirements and the costs and limitations of in-house resources, the right MSSP can offer CISOs a great solution to address their need for affordable and trustworthy protection from cybercrime.

The global managed security services market is predicted to reach US\$356.24 billion by 2025, so it's clear that more security professionals than ever are turning to MSSP solutions to bolster their defences.



As the CIO at 11:11 Systems, Jon Pratt ensures the continuous improvement of service quality, productivity and customer satisfaction.

Additionally, he leads the technical operations teams, including customer support, implementation, managed and professional services, technical account management, customer success, infrastructure and data centre operations.

Previously, he served as the company's Senior Vice President of Customer Operations. Jon joined iland in 2020 (prior to 11:11's acquisition of iland in January 2022) and brings a wealth of technical management experience including time spent in multiple leadership roles in infrastructure and security at organisations including TNT Crane and Rigging, US Legal Support and Healthhelp.

Earlier in his career, Pratt held numerous engineering roles at multiple managed service providers. Pratt is a graduate of Arizona State University.



Not only do they enable access to a team of dedicated security experts and the very latest technologies, but they also deliver benefits such as cost savings, compliance and risk mitigation, scalability and access to innovative technologies.

These specialist support teams address all organisational security needs, with dedicated teams, state-of-the-art technology, facilities and processes that monitor and manage the simplest to the most complex of security incidents.

Many will provide organisations with help in developing a continuous improvement process to protect their business as the threat landscape continues to evolve. They also factor in business impact analysis and use prioritisation methodology to identify and focus on resolving those that matter most to the organisation. ▣

THE END-USER IS THE
BIGGEST VULNERABILITY
IN ANY NETWORK
ENVIRONMENT AND
EDUCATION IS IMPORTANT.

Case STUDY

Technology solutions are critical for the maritime industry to address inefficiencies across the entire supply chain. Harm van Weezel, Chief Information Officer at Associated British Ports, delves into how the organisation is working with Wärtsilä Voyage to stay ahead of the curve when it comes to digitising its ports and optimising and modernising its operations.

Wärtsilä collaborates with Associated British Ports to enhance its maritime operations

Harm van Weezel, Chief Information Officer at Associated British Ports



Wärtsilä Voyage, part of the technology group; Wärtsilä, has signed a prestigious contract for a five-year framework agreement with Associated British Ports (ABP), the UK's leading ports group, to digitalise operations at its 21 ports. The project aims to accelerate the Digital Transformation of port calls and operations, making them as efficient, sustainable and safe as possible.

The Wärtsilä Voyage technologies chosen for the project; Navi-Port, Navi-Harbour Vessel Traffic Services and Port Management Information System (PMIS), will help ABP employees meet their targets, complement the company's safety culture during port operations and optimise vessel planning and movements, which can have a positive impact on local, national and global supply chains.

"ABP truly understands how impactful technology can be in the maritime industry and its innovative approach

has cemented its position as the UK's leading ports group," said Sean Fernback, President, Wärtsilä Voyage. "This new agreement will help ABP maintain its competitive advantage now and into the future.


"Holistic and seamless technological solutions are critical to ensuring that ports and the maritime industry more broadly, are ahead of the curve in terms of supply chain modernisation, that operations are future-proofed and that data underpins decisions. The scope and scale of what we can achieve with ABP is very exciting and we're pleased to be working together."

After a thorough international procurement process where all major suppliers of port optimisation solutions were invited to tender, ABP chose to collaborate with Wärtsilä Voyage, a cutting-edge technology developer accelerating the Digital Transformation of the maritime industry. Wärtsilä Voyage displayed a clear vision of how to enable ABP to become an early adopter of



THE GOAL IS TO DIGITISE
OUR PORTS, OPTIMISE
OUR PORT CALLS AND
OPERATIONS AND
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OF VESSELS.





MY ADVICE WOULD BE TO SEE EMERGING TECHNOLOGIES AS A GREAT ENABLER TO STREAMLINE PROCESSES, ACHIEVE SUSTAINABILITY AIMS AND ULTIMATELY PROVIDE BETTER SERVICES THROUGHOUT THE INDUSTRY.

state-of-the-art port management solutions, while also ensuring a strong return on investment aligned with the goals and ambitions of ABP.

The project, which began in June, will span multiple phases across all of ABP's ports. Wärtsilä's Vessel Traffic Services system and Port Management Information System are expected to be integrated into the Port of Southampton before April 2023, with other solutions subsequently being deployed across ABP's 20 other ports. The agreement with ABP includes an ongoing human factor review to ensure the existing control room environment is optimised for people's needs and is fully compliant with all national and international standards and guidelines.

The framework agreement, valid for at least the next five years, formalises a shared vision and commitment from both organisations to develop modern smart port applications through extensive and long-term collaboration.

"We are delighted to be working with Wärtsilä on a programme that really delivers towards our vision of a modern, digital port," said Harm Van Weezel, Chief Information Officer at ABP. "Wärtsilä's approach – forming a deep and long-term partnership that is mutually beneficial to both organisations – really stood out to everyone at ABP. We are looking forward to the vast benefits this programme will bring."

Håkan Agnevall, President and CEO, Wärtsilä Corporation, added: "This is a landmark contract that will have a profound impact on the sustainability, resilience and efficiency of global supply chains. Digitalisation offers great potential for the maritime industry to reach its ambitious emissions reductions targets. That is why the expertise within Wärtsilä Voyage plays such an important role in the pathway to zero emissions and continues to be integral to Wärtsilä's strategy to generate genuine and long-term change for our sector."

We caught up with Harm van Weezel, Chief Information Officer at Associated British Ports, to glean further insight into the collaboration and its benefits.

Can you tell us about your role at the company and what this looks like day-to-day?

I was appointed as ABP's inaugural Chief Information Officer at ABP in February 2019. The key function I carry out in my role is leading the company's Digital Transformation. Day-to-day, I oversee our strategy to harness the latest technologies to improve ABP's operational efficiency, increase productivity, accuracy and safety for our ports and our customers. This includes everything from drone trials to situational awareness tools, the Internet-of-Things and AI. We want to ensure our IT capabilities and solutions continue to support the business' changing needs and deliver the best possible service to our customers.

How impactful is technology in the maritime industry and how does it accelerate operations?

Technology solutions are critical for maritime to address inefficiencies across the entire supply chain – from fuel consumption to port arrival times and cutting carbon emissions. From a ports-specific perspective, the growing demand for increased capacity and spike in freight traffic means ports must constantly be improving operations and innovating to keep up. Data and emerging tech such as AI, robotics and automation can help monitor vessels to keep port congestion down, conserve fuel and improve safety during port operations.

Can you tell us more about your goals and ambitions and what you set out to achieve prior to the commencement of your collaboration with Wärtsilä Voyage?

Our five-year digitalisation roadmap covers all 21 of the ABP ports and the goal is to digitise our ports, optimise our port calls and operations and improve the tracking of vessels. Our vision is to create modern, digital ports that are as efficient, sustainable and safe as possible and we identified that the partnership with Wärtsilä Voyage would enable us to meet these goals and ambitions.

How do Wärtsilä's solutions ensure you are ahead of the curve in terms of supply chain modernisation?

ABP's network of 21 ports are key gateways for international trade so it is critical that we are ahead of the

curve to help drive UK prosperity and ensure the smooth running of the global supply chain. The partnership with Wärtsilä gives us access to high-quality data that can be used to inform and enhance decision-making in our ports. This data can also be shared with other stakeholders in the supply chain to ensure smoother operations and facilitate Just-in-Time arrivals, whereby vessels adjust their operating speed and route to coincide their arrival with the port's handling operations.

How has Wärtsilä Voyage helped to accelerate your Digital Transformation journey – can you provide some specific examples?

With the real-time data from Wärtsilä's port management information system, we can know if a vessel will be delayed for whatever reason – be that the weather or operations. We can tell them to slow down to ensure they arrive at the optimal time when the necessary port facilities and services are available and share that information with the many different stakeholders in the whole end-to-end supply chain. The vessel can conserve fuel and will arrive just in time to reduce waiting and the transportation companies picking up cargo are also kept well-informed of any delays and can adjust their arrival times accordingly. That's a great example of how Wärtsilä's solutions will help us modernise ports and make improvements from a customer satisfaction, sustainability and cost benefit standpoint.

How smooth and seamless has the project been so far and how do you expect this will continue?

The project began in June of this year and will span multiple phases across the five-year framework agreement. We started with the Port of Southampton, integrating Wärtsilä's Vessel Traffic Services system and Port Management Information System first, which is expected to be completed before April 2023. We're making great progress and will soon begin to deploy the other solutions across our other ports.

What advice would you give to an organisation within the maritime industry starting out on a journey like yours?

There can sometimes be resistance in the maritime industry to embrace new technologies – especially when it comes to data sharing, as many believe this puts competitors or counterparties at an advantage. Instead, my advice would be to see emerging technologies as a great enabler to streamline processes, achieve sustainability aims and ultimately provide better services throughout the industry. ▣



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Case STUDY

Mark Parsons, Director of EPCC at The University of Edinburgh, discusses how with the help of Spectra Logic it is creating what it believes is the only facility of its kind in Europe focused on delivering data-driven regional growth.

EIDF enables world-leading data-driven innovation with storage solution from Spectra Logic

Mark Parsons, Director of EPCC
at The University of Edinburgh





Spectra Logic, a global leader in data management and data storage solutions, has announced that its customer, EPCC, has deployed two four-frame Spectra TFinity ExaScale Tape Libraries with LTO-8 tape drives and media to provide long-term archive and storage resources for the Edinburgh International Data Facility's full range of data services.

The Edinburgh International Data Facility is the set of data and compute services, organised as a private cloud that underpins the data-driven innovation programme at the University of Edinburgh. The programme is helping organisations tackle challenges for industry and society by doing data right and supporting Edinburgh in its ambition to become the data capital of Europe. The EIDF provides a rich environment of data science, AI computing and long-term data management services for its many partners from the public, private and academic sectors.

To meet its long-term storage strategy and accommodate its data-driven research services, which include private cloud compute, data management, safe haven services and large-scale AI projects, EIDF chose a joint storage solution from Spectra Logic and HPE.

The scalable solution enables the facility to be as agile and responsive as possible to the needs of

its many stakeholders. Two Spectra TFinity Tape Libraries deliver scalable, reliable and adaptable data storage and archiving, including 20 petabytes of cold storage capacity that is being used for many EIDF projects, such as COVID-19 research at the University of Edinburgh. In addition, HPE Data Management Framework software delivers hierarchical, tiered storage management to the TFinity tape Libraries.

"With the help of Spectra Logic, we are creating what we believe is the only facility of its kind in Europe focused on delivering data-driven regional growth," said Mark Parsons, Director of EPCC. "Spectra's TFinity Tape Library is uniquely positioned to provide the scalable infrastructure for our long-term archive and storage services offered at the EIDF. It builds on the great long-term relationship we've had with Spectra."

The challenge

EPCC is the UK's National Supercomputing Centre. The Edinburgh International Data Facility (EIDF) is located at EPCC's Advanced Computing Facility in a purpose-built high-resilience computer room. The EIDF is possibly Europe's first regional data innovation centre and is based at the University of Edinburgh in Scotland.

EIDF brings together regional, national and international datasets to create new products, services

and research. Services range from private cloud compute to data management to safe haven services and bespoke projects. EIDF computing services are designed for data science, including its GPU-enabled Machine-Learning compute platform for driving Artificial Intelligence (AI) application development, focused on Europe's first Cerebras CS1 large-scale AI engine. EIDF data management services enable users to archive and reuse data, offering long-term storage and preservation for the Data Driven Innovation (DDI) programme's data assets while growing EIDF's analytics-ready collection to make data available for researchers and innovators.

EIDF also provides a large trusted research environment that can be tailored to meet the information governance needs of data controllers. The EIDF provides a range of secure environments for data analysis and archive services.

Finally, EIDF works with partners from the DDI programme to co-create and tailor services using a building block approach to data hosting, high-performance AI analytics, modelling and beyond.

To support its full range of research services, EIDF required a data storage solution that enabled it to be as agile and responsive as possible to the needs of its many stakeholders across the DDI programme, which involves collaboration between industry, the public sector and academia.

The solution

To set the foundation for its long-term storage strategy, EIDF implemented a joint solution from HPE and Spectra Logic. EIDF deployed two four-frame Spectra TFinity ExaScale Tape Libraries with LTO-8 tape drives and media. The TFinity systems are uniquely designed with robotic pickers called High Performance Transporters – each tape library contains two to support dual operations. Instead of individual tape slots, the library has shelves of TeraPack containers — 10 tape cartridges bound together in a single tray. The TeraPacks allow for the library's higher tape storage density in a smaller footprint than would be possible with a traditional design. This compact architecture allows the robots to travel a linear path, loading and unloading multiple tape cartridges at a time for maximum efficiency.

EIDF uses HPE Data Management Framework (HPE DMF) software to enable hierarchical, tiered storage management to the TFinity tape libraries, optimising data accessibility.

To manage AI workloads and applications at scale, EIDF is exploring HPE's Ezmeral Container

Platform running on HPE Apollo Systems. The HPE Ezmeral Container Platform provides native Kubernetes support and enables self-service Artificial Intelligence/Machine Learning (ML) applications for EIDF scientists, with flexible use of accelerators such as GPUs – allowing developers to standardise ML workflows. EIDF has deployed a mixture of HPE storage solutions including Lustre and CEPH for persistent data storage for high-performance and high-throughput advanced analytics.

"EIDF is combining computing and data resources to create a facility that will allow users to leverage data to innovate throughout their organisations," said Parsons. "The TFinity tape systems provides the scalability that this project demands as it develops over the next decade."

The combined storage solution enables EIDF to meet its most challenging long-term scalable storage requirements. EIDF has 20 petabytes of cold storage capacity with the new system which is being used for a multitude of EIDF projects including vital COVID-19 research at the University of Edinburgh.

Environment snapshot

- Two four-frame Spectra TFinity ExaScale Tape Libraries
- LTO-8 tape drives and media
- BlueScale standard encryption
- Cerebras Systems AI Supercomputer
- HPE DMF software
- HPE Apollo Systems
- HPE Superdome Flex Servers
- HPE Ezmeral Container Platform
- 27 petabytes of mixed fast storage

Why Spectra?

- Consultative solution design
- Scalable and adaptable to growth
- Integration with HPE
- Excellent customer and product support
- Superior reliability, scalability and accessibility

Solution recap

Spectra TFinity ExaScale Tape Library – With unsurpassed storage density in the smallest footprint of any enterprise library on the market, the Spectra TFinity ExaScale offers industry-leading scalability with the speed necessary to meet requirements of the most demanding environments. In addition to LTO tape technology, the Spectra TFinity Exascale is also compatible with IBM's TS11X0 enterprise tape technology and Oracle's T10000x enterprise tape technology, enabling all three tape formats in the same library. ■

euNetworks deploys new 45km ultra-low latency route between Basildon and London

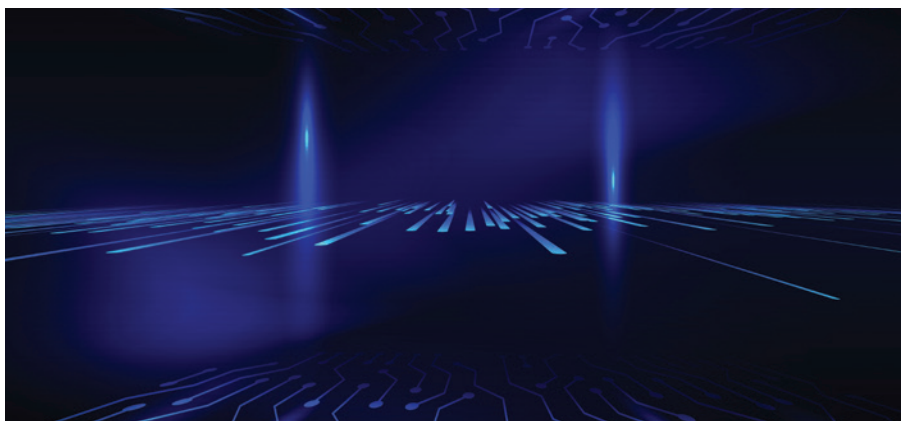
euNetworks Fibre UK Limited (euNetworks), a Western European bandwidth infrastructure company, has deployed a new ultra-low latency route between Basildon and London in the UK that connects the ICE data centre to Interxion LON1 & 2: A Digital Realty Company, and onwards to Slough. These are critical locations for financial markets.

The new route is over 45km long and includes 14km of ultra-low latency CoreSmart cable. Lumenisity Limited (Lumenisity) supplied the award-winning CoreSmart cable, which is based on NANF hollowcore technology to enable transmission over long distances and is compatible with regular single-mode fibre – both major constraints on other hollowcore fibre architectures.

The route is the longest commercial deployment of hollowcore fibre technology to date and its use is exclusive to euNetworks and its customers. It is also the first commercial construction of a long-distance hybrid route of hollowcore fibre and regular single-mode fibre.

Offering euNetworks' dedicated network platform euTrade, at bandwidths between 1G and 10G, this hybrid route is 10% faster than an equivalent all single-mode fibre cable. It's the third deployment for euNetworks following successful deliveries of the first hollowcore fibre-based commercial route in April 2021 and the second in March earlier this year.

"We have successfully delivered increasingly longer deployments of hollowcore fibre in our network, becoming the first fibre provider in the world to utilise the benefits of this new fibre technology in commercial markets," said Paula Cogan, President of euNetworks. "From the initial 1km pilot, the teams have



gone on to deploy hollowcore cable lengths of 7km and 14km on our network, as well as successfully blending hollowcore fibre with regular single mode fibre on this latest route.

"We continue to be focused on delivering the best possible bandwidth solutions for our customers and look forward to deploying longer routes with Lumenisity in the coming quarters. Leading the market in fibre-based ultra-low latency services throughout Europe remains a key focus for euNetworks."

"We are pleased to partner with euNetworks again, successfully deploying this new route and achieving this hollowcore cable link length," said Tony Pearson, VP Sales and Marketing at Lumenisity. "We are excited to reach this milestone with euNetworks and will continue to deliver a unique cable solution offering longer reach and lower latency for its customers."

Data travels 50% faster in hollowcore cable, reducing latency by 33% and providing a round trip saving of 3µs (three microseconds) per kilometre. These latency savings are hugely significant in financial trading applications. They can also be scaled to increase the separation of data centres by 50%, while maintaining the latency envelope,

more than doubling the area of land in which these data centres can be located.

euNetworks' euTrade solution is a dedicated network platform supporting the bandwidth needs of the financial services community. The company continues to optimise routes between all the key trading exchanges in Europe. This focus ensures delivery of the shortest paths and lowest latencies available in the market. ■

**DATA TRAVELS
50% FASTER IN
HOLLOWCORE
CABLE, REDUCING
LATENCY BY 33%
AND PROVIDING
A ROUND TRIP
SAVING OF
3µS (THREE
MICROSECONDS)
PER KILOMETRE.**

Organisations head to multiple clouds to help extract revenue from data

By 2024, 95% of organisations across EMEA will be looking to their data as a revenue driver, with 46% recognising it as a significant source of revenue – up from 29% today. This is according to research announced by VMware, a leading innovator in enterprise software.

The research, entitled *The Multi-Cloud Maturity Index*, was conducted among almost 3,000 business and IT decision-makers across EMEA and reveals that nearly half (47%) strongly agree that using multiple clouds will enable them to maximise their data to innovate – while addressing critical issues such as national and sector data sovereignty. In fact, data sovereignty is highlighted as one of the key challenges facing organisations – with 95% admitting it's a concern.

The ambition to realise more value from data, however, comes with additional challenges. Security (35%), skills (35%), difficulty stitching different cloud environments together (31%) and siloed access to data (27%) remain key obstacles.

Organisations must also improve the control they have over their operational and cloud expenses, with 76% and 74% respectively agreeing this is a concern if data is to drive genuine business value.

"The reliance on data to fuel innovation and drive competitive advantage is now the backbone of the digital business," said Joe Baguley, VP and CTO VMware EMEA. "Being cloud smart – the ability to choose the right type of cloud for the right data, including highly sensitive information that

needs to remain within national borders – is becoming the de facto business model for organisations looking to drive advantage from their data.

"Organisations that are fully exploiting the competitive advantages of using multiple clouds to manage data are seeing benefits across the business. To achieve success, however, they must be able to take control of where their data resides – without compromising security, compliance or sovereignty and the choice of providers to manage it."

"Our Digital Retail Strategy 2026 is built on a 'data-centric, digital-first' approach," said Damien Cazenave, CTO and CISO Carrefour France. "Data and the cloud it runs on, are at the heart of all our operations and our value creation model. This digitisation will improve the customer experience with greater personalisation, increase operational efficiency at headquarters as well as in stores and have a positive effect on the group's revenue."

There is agreement (86% of respondents) that the benefits of multi-cloud – the ability to use and manage different types of private, public, Edge and sovereign clouds – outweigh the challenges. Almost half (46%) believe multi-cloud use has had a very positive impact on revenue growth, while 46% also believe it has had a very positive impact on profitability. In fact, only 4% believe multi-cloud is not critical to business success.

And this is even better news for organisations across Europe, where the data economy's impact on GDP in the European Union and UK is expected to grow to 4.2% from 2.6% by 2025, according to the European Commission. ■



CyrusOne breaks ground on first Spanish data centre in Madrid as European expansion continues

CyrusOne, a leading global data centre developer and operator, has officially broken ground on a brand-new, state-of-the-art data centre in Madrid, strategically located in the municipality of Alcobendas. The groundbreaking ceremony celebrated CyrusOne's first facility in the Spanish market and the next step of the company's continued growth across the continent.

Key attendees included Richard Brandon, VP Design and Construction, and Amparo García Puente, Development Project Manager at CyrusOne; Manuel Marín, CEO at Itercon; Miguel Gallego, Managing Director at Quark; Haidee Gonsalves, Director at Turner & Townsend; Javier Gonzalez, Senior Project Manager at JLL; and David Ceballos Health and Safety Director at Q Safety.

CyrusOne acquired the freehold purchase of the five-acre site in Alcobendas in 2021, with the data centre set to comprise a two-storey building with 18MW of total IT load over 6,000 sqm of technical space. The facility will achieve BREEAM accreditation of 'Very Good', utilise 100% renewable energy and generate around 100 KW on-site through roof-mounted solar PV panels.

"We are excited to further expand our European footprint and enter the Spanish market for the first time," said Richard Brandon, CyrusOne's Vice President and Head of Design and Construction in Europe. "Demand continues to be strong in Madrid as an increase in investment by cloud service providers presents an opportunity for hyperscale data centre development. It is the right time to be present and on the ground in this key location, offering our customers capacity and choice across the continent."

Itercon, a leading construction company based in Valencia, is leading the construction, general contracting and structural elements of the project. Additional partners include

engineering consultancy, Quark, which is in charge of design and construction management; real estate advisors JLL, which is leading on the project management; Turner & Townsend who is advising on cost and management; and Q Safety which is advising on Health and Safety.

"We are thrilled to have been selected by CyrusOne to manage this impressive new data centre project," said Itercon CEO, Manuel Marín. "Our team at Itercon are passionate about delivering world-class sustainable projects and facilities of this nature. It's been a pleasure to work with CyrusOne and the other partners and we look forward to the next phase of the build, ahead of the planned completion in April 2024."

This follows CyrusOne announcing that it is joining SpainDC, the Spanish Data Center Association, as a partner, as well as the recent appointments of Mariana Bonino Alvarez and Amparo García in this market. These developments play key roles in bolstering CyrusOne's growing presence in the country and across the European continent. ■

DEMAND CONTINUES TO BE STRONG IN MADRID AS AN INCREASE IN INVESTMENT BY CLOUD SERVICE PROVIDERS PRESENTS AN OPPORTUNITY FOR HYPERSCALE DATA CENTRE DEVELOPMENT.



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(ISC)² research reveals cybersecurity profession needs to grow by 3.4 million people

(ISC)², one of the world's largest non-profit associations of certified cybersecurity professionals, has highlighted a stark increase in the shortage of cybersecurity professionals as it announced the findings of its *2022 (ISC)² Cybersecurity Workforce Study*.

The study reveals the global cybersecurity workforce is at an all-time high, with an estimated 4.7 million professionals. Despite adding 464,000 more cybersecurity professionals this year, the data revealed that 3.4 million more cybersecurity workers are needed to secure assets effectively.

A large percentage (70%) of respondents report their organisation does not have enough cybersecurity employees. And more than half of respondents with workforce shortages feel that staff deficits put their organisation at a 'moderate' or 'extreme' risk of a cyberattack.

For organisations looking to mitigate staff shortages, the research suggests that initiatives to train internal talent, rotating job assignments, mentorship programmes and encouraging employees outside of IT or the security team to join the field were the most effective.

At the same time, the report finds that 72% of respondents expect their cybersecurity staff to increase somewhat or significantly within the next 12 months – the highest predicted growth rate when compared to the last two years (53% in 2021 and 41% in 2020).

"As a result of geopolitical tensions and macroeconomic instability, alongside high-profile data breaches and growing physical security challenges, there is a greater focus on cybersecurity and increasing demand for professionals within the field," said Clar Rosso, CEO, (ISC)². "The study shows us

that retaining and attracting strong talent is more important than ever. Professionals are saying loud and clear that corporate culture, experience, training and education investment and mentorship are paramount to keeping your team motivated, engaged and effective."

The study takes a closer look at cultural and demographic shifts over the last year. In addition to an analysis of the changing workforce, the study also highlights the top issues with retention, concerning workplace conditions such as burnout, the shift of racial, gender and ethnic diversity among younger cybersecurity professionals, the changing perception of certifications in the field, as well as the impacts from current events and future predictions of the cybersecurity workforce. Key findings include:

Corporate culture

- 75% of respondents report strong job satisfaction and the same percentage feel passionate about cybersecurity work, yet 70% of respondents still feel overworked.

- 68% of employees with low employee experience ratings indicate workplace culture impacts their effectiveness in responding to security incidents.
- Over half of workers say they would consider switching jobs if they are no longer allowed to work remotely.
- Just 28% of study participants report their organisation actively listens and values the input of all staff.

Diversity, equity and inclusion

- 55% of employees believe diversity will increase among their teams within two years.
- Nearly 25% of respondents below age 30 consider gatekeeping and generational tensions as top-five challenges for the next two years, compared to 6% of workers 60 or older.
- 30% of female and 18% of non-white employees feel discriminated against at work and only 40% of respondents state their organisation offers employee DEI training. ■



Schneider Electric releases independent research studies that reveal sustainability action gap

Schneider Electric, a leader in Digital Transformation of energy management and automation, commissioned two independent research studies focused on sustainability in IT and data centre operations and the results reveal a disconnect between intent and action, indicating most of the industry is still at the beginning stage of its sustainability journey.

The two studies were conducted by industry leading analysts at 451 Research and Forrester. They collected data from nearly 3,000 global participants, including the largest colocation and cloud providers and IT professionals across many segments and organisation sizes. The 451 Research paper revealed a perception-versus-reality dilemma with many enterprise organisations believing their sustainability programmes are more advanced than they are, as 'the maturity evaluations of nearly half of respondents (48%) did not match a previous answer'. The Forrester paper focused on colocation and found 73% of organisations ranked sustainability as their number two business priority, but only 33% say they have created a strategic sustainability plan.

"The research clearly demonstrates that across the data centre and IT industry, there is a sustainability action gap – the intention appears to be there, but action is lacking," said Pankaj Sharma, EVP of the Secure Power Division, Schneider Electric. "Of course, IT professionals understand and have taken steps to address sustainability. But what we lack, with some exception, is comprehensive and supported sustainability action plans and measurable targets to create the change required to address the climate crisis. These two research papers have documented a sustainability action gap and that is our collective challenge to address.



Understanding the status of industry-wide sustainability initiatives

Schneider Electric commissioned the two independent research studies, which were designed to help the industry better understand the maturity of sustainability initiatives. The 451 Research paper, *Sustainability at the Edge – The Gap between Enterprise Plans and Sustainability Programs for Core and Distributed IT*, researched more than 1,150 medium and large enterprises worldwide representing more than 20 verticals and their sustainability efforts with distributed IT resources.

Researchers determined many enterprises believe they are further along in their sustainability journey than they actually are. For this group, the main driver of sustainability is business value and firms start with measuring energy usage then expand into other sustainability metrics and tools. The greatest challenges in their sustainability journeys include optimising energy usage, followed by obtaining consistent data and metrics (for leaders/

advanced firms) and lacking skilled staff (for starter organisations).

In Forrester's leadership paper, *Reimagine Colocation Strategy with Sustainability Front of Mind*, researchers polled 1,033 global sustainability decision-makers at colocation providers worldwide with the objective of exploring sustainability drivers in the colocation provider industry. The study also explored the major challenges for colocation players and where they are investing the most across the technology stack.

The paper found organisations lack a strong comprehensive strategy for the sustainability programmes, with only 33% saying their business has created a strategic sustainability plan. This indicates that the industry is still at the beginning of a sustainability journey. The paper determined that moving forward, a key piece of sustainability success will be finding the right partner to help organisations succeed. It also found that businesses that hired an outside sustainability consulting firm as part of their sustainability initiatives are 33% more likely to be high maturity. ■

GSMA report demonstrates policy action is needed for EU to achieve Digital Decade goals

Mobile technologies and services contributed €757 billion to European GDP in 2021, but Europe's ambitious Digital Decade goals remain threatened by slower 5G rollout compared to competitor markets, a report by GSMA revealed.

The *2022 Mobile Economy Report Europe* shows that at the end of June 2022, 108 operators in 34 markets across Europe had launched commercial 5G services, with consumer take-up continuing to grow steadily, now reaching 6% of the mobile customer base. Norway leads in adoption of the technology, with 16% now using 5G, but positive momentum is also evident in Switzerland (14%), Finland (13%), the UK (11%) and Germany (10%).

However, tough market conditions are leaving Europe trailing its global peers. The report predicts that by 2025, the average adoption of 5G across Europe will hit 44%, with the UK and Germany expected to have the highest 5G adoption rates in Europe at 61% and 59% respectively. However, that rapid growth is outpaced by other world economies, with South Korea expected to hit 73% in the same time period, while Japan and the US are likely to achieve 68% adoption.

The pace of 5G coverage expansion across Europe will be a key factor in the transition from 4G to 5G, an important step towards the achievement of Europe's Digital Decade goals. Although 5G network coverage in Europe will rise to 70% in 2025 (from 47% in 2021), nearly a third of the population will remain without 5G coverage. This compares to 2% or less in South Korea and the US.

Meeting Digital Decade goals

In 2021, the European Commission (EC) set out its vision for Europe's Digital



Transformation by 2030 in the Digital Decade framework. The strategy promised to deliver tangible benefits for EU economies through the development of digital skills, Digital Transformation of business, sustainable digital infrastructures and the digitalisation of public services.

As economies digitalise, the lynchpin to ensuring success is the acceleration of 5G in Europe for traditional industry and manufacturing to remain competitive. To meet the EC's 2030 goals, it is vital for policymakers to create the right conditions for private infrastructure investment, network modernisation and digital innovation.

"Europe is adopting 5G faster than ever before, but greater focus on creating the

right market conditions for infrastructure investment is needed to keep pace with other world markets. This should include the implementation of the principle of fair contribution to network costs," said Daniel Pataki, GSMA Vice President for Policy & Regulation and Head of Europe.

Industry impact

The report also examines how European operators are progressing with the rollout of stand-alone (SA) 5G networks, noting that 5G SA services in Europe are now available in Finland, Germany and Italy. Further deployments are expected in the next few years. The added functionality enabled by 5G SA is key to delivering on the 5G promise of fully supporting advanced 5G use cases. ■

Forrester: AI software will grow 50% faster in the next two years

Forrester forecasts that AI software will grow 50% faster than the overall software market over the next two years, with an annual growth rate of 18%.

The spend on AI software will double from US\$33 billion in 2021 to US\$64 billion in 2025 due to an accelerated adoption of AI during the pandemic and an increase in the number of companies that offer AI software.

According to Forrester's *Global AI Software Forecast, 2022*, cybersecurity is the fastest-growing AI software category, with significant investments being made in real-time monitoring and response in order to mitigate growing cybersecurity threats. Within the AI software market, AI-infused software will see a 22% CAGR by 2025; AI maker tools, which are used to develop AI applications, will see an 18% CAGR; and AI-centric software, which runs on AI components, will see a 14% CAGR.

Across eight forecasted countries (the US, China, Japan, France, Germany, Italy, Spain and the UK), AI's share of software spend

will increase from 4.3% in 2021 to 6% in 2025. The US and China will dominate this AI software spend, with 72% of global AI spend. In addition, more than 80% of annual investments in AI and Blockchain technologies will come from the two countries.

Key geographical highlights

Asia Pacific: China is a leading investor in AI software, with 24% of AI spend – totalling US\$9.6 billion – due to come from China in 2022. China is also slated to outpace the rest of the world on AI software spend and to delegate US\$16.6 billion, or 21% of its software spend, on AI by 2025. Japan is expected to spend US\$4.1 billion on the AI software market in 2022, largely due to the country's heavy investment in collaborative robots.

Europe: Compared to the size of their economies, France, Germany, Italy, Spain and the UK lag behind the US and China when it comes to AI software spending, with US\$7.3 billion expected to be invested in AI software in 2022. Germany leads the

European AI spend, with US\$2.4 billion expected to be spent on AI software in 2022. The UK and France are expected to spend US\$2.3 billion and US\$1.4 billion, respectively, on AI software in 2022.

United States: The US leads AI enterprise adoption and is also the leading destination for private AI investment, with US\$23.6 billion of funding in 2020. In 2022, 47% of AI spend will come from the US. American firms have the largest portfolio of AI patent applications and the highest number of patented AI techniques.

"AI has great potential across categories including cybersecurity, process optimisation and automation, health and human capital management," said Michael O'Grady, a Principal Forecast Analyst at Forrester. "However, as AI adoption becomes mainstream, enterprises will need to manage its complexity, which includes adhering to responsible AI practices, nurturing the growing pool of AI talent and the continued evolution of business models." ■





IFS, the global cloud enterprise software company, commissioned new research polling over 600 senior decision-makers at large energy companies across France, Australia, Japan, the Nordics, US, the UK and the Middle East. The aim was to find out where companies in the industry are now on their Digital Transformation journeys and what's holding them back.

Energy companies' Digital Transformation efforts driven by need for tighter integration and collaboration

44% OF ORGANISATIONS WITH SUSTAINABILITY GOALS WANT TO INVEST IN MORE ENERGY-EFFICIENT ASSETS AND INFRASTRUCTURE TO MEET THOSE OBJECTIVES.

More than three-in-10 (31%) oil, gas and utility organisations worldwide cite tighter integration and collaboration across functions among the top two drivers for the adoption of enterprise software systems, while 30% reference better project management, 29% improved asset life cycle management and 29% improved operational efficiency.

These were among the highlights of new research commissioned by IFS, polling over 600 senior decision-makers at large energy companies across France, Australia, Japan, the Nordics, US, the UK and the Middle East. The research also found that 44% of organisations with sustainability goals want to invest in more energy-efficient assets and infrastructure to meet those objectives.

Barriers to change

Despite these key drivers, significant barriers to technology adoption remain, especially around the inability to define and measure the ROI of enterprise software systems like EAM and ERP. Nearly three-in-10 say the chief barrier to adoption is the inability to accurately measure value from investment during the Digital Transformation journey, while a fifth (20%) say it's the biggest barrier to Digital Transformation overall.

Organisations need – and desire – more clarity and certainty about what these solutions will deliver. A large proportion (79%) say it's important for enterprise software to have the embedded capability to set and measure critical KPIs. Companies surveyed want KPIs on improving resource utilisation (34%), extending the lifespan of assets (30%) and increasing asset reliability (28%).

The survey also highlighted several other key barriers to the adoption of enterprise software systems across

the energy sector. Some (26%) highlighted a lack of clarity about the resources and skills needed and 19% say a poor business case makes adoption look costly. Other reasons include a lack of consensus on priorities across their leadership team – cited by nearly a quarter (24%).

Where companies are now on the Digital Transformation journey

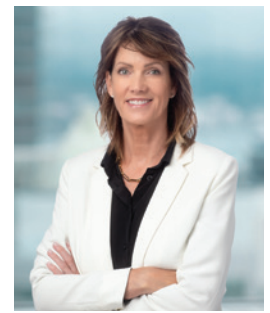
Only 17% of companies polled for the survey report having completed their Digital Transformation journeys. Organisations have varying approaches: 65% are approaching it one function at a time, with 18% in total starting with an asset management solution.

The adoption of advanced asset management solutions

More than a third of organisations (37%) list asset management strategies among the Digital Transformation outcomes that will have the biggest impact on their company – and 74% say it is important that an advanced asset management solution gives them improved maintenance, moving from scheduled to predictive asset maintenance, for example. Given the current pressures on the energy sector, tools that help maximise uptime and drive efficiencies through enhanced asset management are key.

When respondents were asked to consider what they want from an asset management solution, improved maintenance is followed in order of importance by scheduling and dispatch (71%), improving supply chain management and reducing inventory costs (70%), mobility (69%) and support for compatible units (69%).

From a Digital Transformation perspective, 38% see sustainable energy as having the biggest impact on



Carol Johnston, VP Energy, Utilities and Resources, IFS

their company followed by new business models and asset management strategy (both 37%).

Emerging technologies to the fore

There is also strong demand for emerging, innovative technologies across the energy sector. A large proportion (72%) highlight data analytics as important; 70% reference virtual assistants and 69% the Internet of Things (IoT). Right now, respondents, (predominantly those which are utilities) are most likely to say their biggest focus for emerging technologies is to improve customer experience (20%). Almost three-in-10 (29%) utilities are in the design stage of automating customer experience, followed by more

than a quarter (26%) that have already automated and are seeing the value.

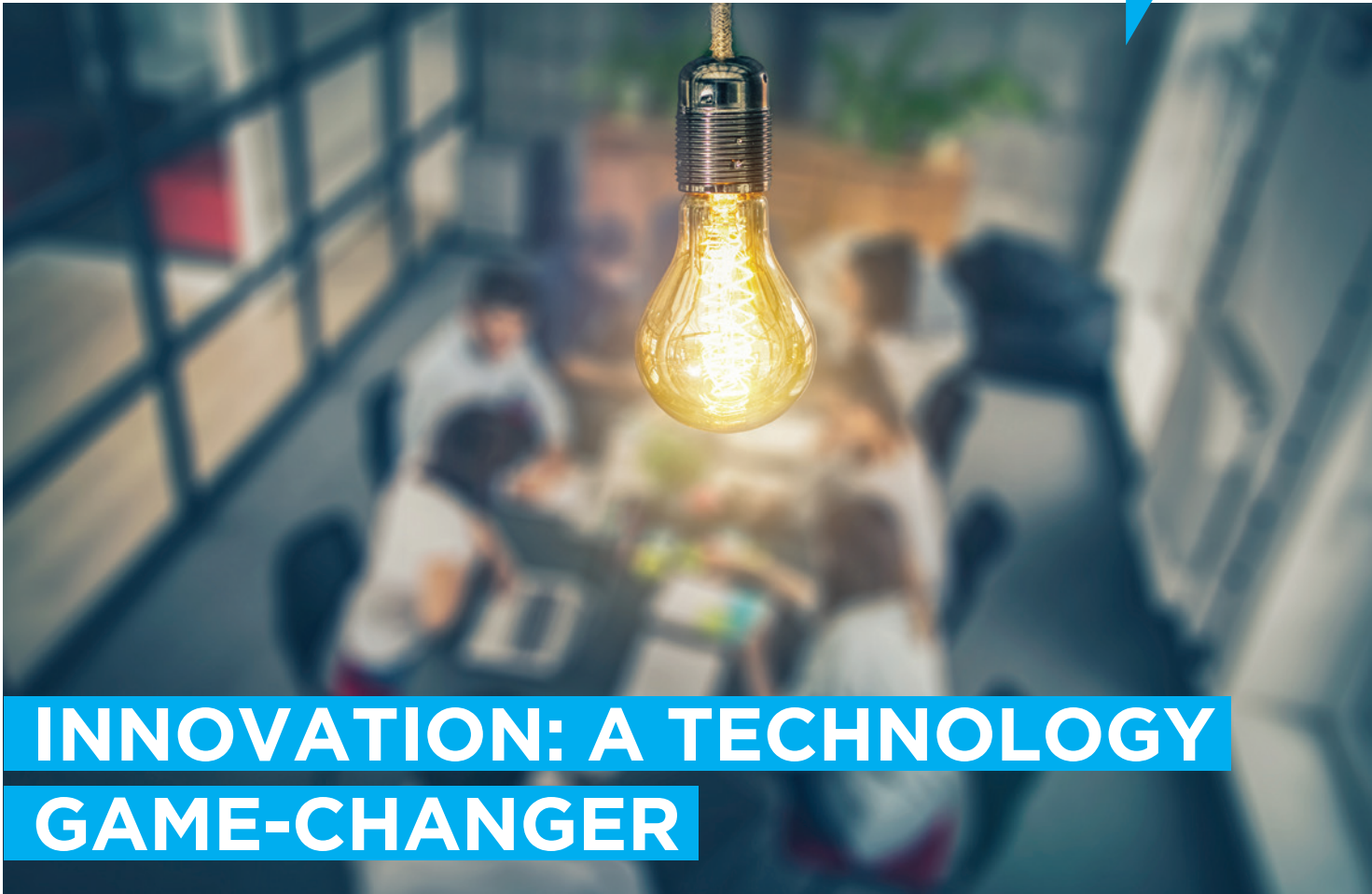
"The research has revealed how energy and utility organisations are held back from moving forwards with Digital Transformation by the inability to define and measure how they will obtain return on investment from enterprise software," said Carol Johnston, VP Energy, Utilities and Resources, IFS. "Companies in the energy sector are often very risk averse and are frequently dealing with regulators and other stakeholders that demand proof of RoI. The inability to put a quantifiable number on what they will get for their spend and when is therefore preventing them from progressing.

"These are barriers that more advanced software providers are overcoming, especially through composable platforms that help them to address their biggest pain points incrementally and build measurable RoI steadily over time. Due to the economic and social pressures the industry is under, simply doing nothing is, in contrast, not an option. The good news is that an ever-growing number of organisations understand this today."

The research shows that 57% of oil, gas and utility companies that have Digital Transformation projects are looking for a composable platform to support the entire journey, while only 38% are going down the niche solutions route. ▣

GIVEN THE CURRENT PRESSURES ON THE ENERGY SECTOR, TOOLS THAT HELP MAXIMISE UPTIME AND DRIVE EFFICIENCIES THROUGH ENHANCED ASSET MANAGEMENT ARE KEY.





INNOVATION: A TECHNOLOGY GAME-CHANGER

Innovation is critical to finding and reshaping an organisation's strategy. That's according to Ram Chakravarti, Chief Technology Officer at BMC Software, who discusses this concept in further detail; outlining the importance of being selective about who you choose to partner with and how businesses can better manage complex IT operations with BMC's solutions and latest innovative developments.

You mentioned in a recent talk of that innovation is a game-changer. What does innovation mean to you?

Innovation means a couple of things to me, non-technically: first, battling an existing problem in a new way. Second, solving a new problem and finding a solution. Both of those mean innovation, but at the end of the day, solving it means it's used or it's adopted. In the absence of it, it's just a conceptual exercise.

Can you tell me more about your co-innovation strategy with your partners?

I wasn't shy when I said that we've been very selective about who we partner with. BMC has a number of

partners – they're all wonderful in their own way and we've had long-term relationships. But when it comes to co-innovation between the innovation labs and specific partners, the first thing we look for is whether the partner has a long-term outlook.

I don't want somebody that says, 'OK, BMC you're developing something and I can go and implement it for you. I'm going to charge the customer this much, but if the customer doesn't want to pay I'm going to charge you this much'. That's a non-starter for me as far as a partner goes. You have to really be willing to commit your resources. It's more with the implementation partner specifically where it becomes more about what they can get as a quick win from the partnership, from a billing standpoint. That mindset doesn't work. Let's co-invest, let's develop a compelling solution, let's deliver it to them and show them what's possible. Then, when we



scale it, that's the point where the customer sees the value of that solution. That's the time to be having the financial conversation.

In addition, the company must be willing to think beyond the traditional swim lanes, so just because you're a good BMC partner in our regular portfolio, does not necessarily make you an innovation partner in the labs. What can you stretch to beyond your traditional swim lanes to use the cliché, and how comfortable are you getting into an area of discomfort where what you've co-innovated may not necessarily see the light of day? Are you willing to do that?

So, those are the ingredients I look for.

How is innovation a critical component to the finding and reshaping of an organisation's strategy?

I'll go back to our premise when we laid out the autonomous digital enterprise. I was architect of that strategy three years back along with my boss, our CEO, Ayman Sayed.

The premise is very simple. Every company is becoming a tech-driven company. And the age of venerable companies that do not embrace technology is dwindling. If you do not embrace technology, you're

probably on the path of decline. With that being said, it's people in different organisations – the non-tech companies – that have tremendous business domain expertise in their areas. The goal is really about how you make technology a driver of those areas. How do you complement your traditional business with new digital products and services? That is only through innovation and in this case, technology-led innovation. That's the way I look at it. So then it becomes a fundamental underpinning of your strategy.

The digital business may be relatively small in most cases related to the traditional one, but I would wager that it's probably the fastest growing one so it becomes a good growth story and is part of the growth agenda of these organisations.

Can you tell me more about the new innovations to BMC's Helix SaaS solutions and how they benefit business?

There are multiple BMC Helix SaaS solutions – I'll break it into three distinct markets: automation; service management; and operations management. Our longest tenure as a SaaS solution is in service management.

In operations management, we started deploying a SaaS solution and the AIOps story is part of that. And



then, in our automation business, where we have the industry-leading product, Control-M. Then, we deployed Helix Control-M, which is our SaaS version of Control-M, back in October 2020. We're doubling down on that to make it really comprehensive and it's the only one of its kind automation solution.

With our Edge Computing Helix IoT and Edge Computing solution, there's obviously SaaS components in there because you've got to integrate with a central compute, then you've got to provide for the endpoints or the Edge devices.

How can businesses better manage complex IT operations with your solutions and innovative developments?

It's very simple: you've got to minimise the complexity.

So for a while, several years back we heard from customers saying the solutions are super scalable and super resilient, but that they're pretty complex and not easy to use. So we've been unwavering in our focus in terms of demystifying the complexity and making it simple and intuitive. So we hired a UX leader from another organisation, we've been doing a whole bunch of things to make it a customer-centric design. Our solution can have



Ram Chakravarti, Chief Technology Officer at BMC Software

all the bells and whistles but what are the top things that customers really want? How can we make that experience really easy? That's how we focused on it. So it's about usability which is a big part of what we do.

How do the latest developments allow businesses to deliver an improved employee and customer experience?

One area is simplification and making it more user-friendly. It's no longer the era of green screens on the mainframe. Even the mainframe delivers a modern UX experience. So, that's one step.

Then in the case of service management, we have conversational AI-based virtual assistants, complemented by knowledge management, so you don't necessarily need a human on the other end of the spectrum on a chat or on the phone.

We can provide solutions and auto-remediation through these conversational AI-based virtual assistants and knowledge management systems that makes things a lot easier. And then with AIOps and Intelligent Automation, you want to ensure that the AI methods and algorithms we use on our solutions over time are trained and can provide recommendations and find correlations that instil a fair degree of confidence or the traditional solutions that users need.

Then, you start going from the realm of 'OK, I need to take this step to do this' to saying, 'here's a recommendation'. And then the next step is, 'I noticed something; let me act on it, and I think this creates a fair degree of confidence that will improve this. Let's do that'. So then it becomes predictive along the continuum to being fully autonomous. We're a long way from getting there, but that's what we strive for. ■



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On the lighter side of things, we ask the industry experts what makes them tick. . . .

. . . GET TO KNOW . . .

Dirk Schrader, Field CISO (EMEA) and VP of Security Research at Netwrix



What would you describe as your most memorable achievement?

Ensuring that about 2 million patient records were secured from being freely accessible is, in my view, the most memorable one. Back in 2019, while researching about unprotected medical devices connected to the public Internet, I had discovered several hundreds of archives for medical imagery leaking patient data, including full CT scans or X-rays series. I worked with several CERTs and major IT publications across the world to get a majority of these off the net. Unfortunately, this is a never-ending task, as the last update on the numbers shows that hundreds of new medical devices have been connected to the Internet without appropriate protection.

What first made you think of a career in technology?

The very first person to spark my interest in tech was my dad, an electrical engineer, who always asked me to help him wiring stuff or doing some maintenance on machinery we had on our farm. Later it was all about how a computer works and what can I do with it; sometimes with the notion 'better not do that'.

What style of management philosophy do you employ with your current position?

There is that old saying: 'I know that I know nothing', which I try to keep in mind when managing a team's tasks or mentoring colleagues. The quote implies that I need to stay curious,

should learn every day and to trust my team, their knowledge and ability to overcome limits. In a team, it gives room for saying 'I don't know but will figure out'. With that, the team evolves continuously without the fear of making mistakes. It is about knowing that limits exist and knowing that you can find ways to go beyond.

What do you think has emerged as the technology trend of 2022 and why?

If it is one technology in digital security to name for 2022, it would be Zero Trust with all the areas it touches. If about the trend behind it, with that technology being a major milestone, it is cyber-resilience. The last few years have made it clear that the need to be safe and secure with everything digital we have, the data we own or create, our identities and the devices we use, our infrastructure, that this need is simply fundamental.

Using Zero Trust-enabled technology to protect, data, identity and systems, be it via Multi-Factor Authentication or least privilege approaches, is a great leap forward to cater for that need. 2022 has seen a great number of companies running projects around Zero Trust-enabled tech across the globe, mainly because the technology has evolved in usability. The trend behind cyber-resilience is both an ideal and an attitude. You can't buy it and it won't be delivered by technology. For businesses, technology exists to support your processes and your ideas of how things can be done. In the same way resilience can only be supported by technology, but not achieved by it.



What do you currently identify as the major areas of investment in your industry?

With companies investing resources, time and effort into digitalising their business processes and models, this larger business trend will split information security investments into several areas:

1. Solutions that help to reduce the hybrid attack surface, represented by the multitude of ways digital equipment is used and the user and identities on top of that. Better approaches to user awareness will also be seen in this area.
2. Organisations will make investments to secure their supply chains and the related software bill of material to tackle that risk of a third-party compromise. That might not be an investment in technology, but it can also be a consolidation of suppliers and a streamline of the supply chain.
3. Investment in compliance will see an uptick. The EU's Cyber Resilience Act forces companies to investigate the details of how their products and services are manufactured or rendered, thus influencing one and two.

How do you deal with stress and unwind outside of the office?

'Cybersecurity and stress, never heard of'. For a lot of people in cybersecurity, including myself, that bit of sarcasm is a good vent when dealing with some low-level stress. The real ways to unwind for me are either to go out with my two dogs or to be with my family talking about everything else other than digital risks and being far away from any devices. A good book or some minutes with one of my Rubik's cubes does help as well.

If you could go back and change one career decision, what would it be?

There is one career decision I made many years ago, which keeps nagging me whenever I recall the moment. The time spent in that position has taught me a lot and in keeping myself to that often-used phrase, I would not be where I am now without this mistake. So, the change is not so much about the career decision itself, but rather about telling my younger self to ask more questions.

What are the region-specific challenges when implementing new technologies in Europe?

Paradoxically, the fast-evolving threat landscape makes it more difficult for IT leaders to switch from the proven solution to a visionary one, even though it seems to be more effective. They feel more confident addressing the risks in a way they are used to. This is a two-way challenge: new technology has to find a way to prove itself and security decision-makers need courage to implement something innovative.

For instance, there is no need to promote a privilege Privileged Access Management (PAM) solution as security professionals are aware of how to benefit from it. However, we educate on the visionary no-vault PAM approach during each Proof of Concept (PoC) to prove its efficiency in elimination of the attack surface. Organisations tend to go with the settled tech, trying to avoid mistakes. The balance between 'oldie but goodie' and innovative solutions are the biggest challenges for IT pros in Europe.

What changes to your job role have you seen in the last year and how do you see these developing in the next 12 months?

The last year has achieved much for cyber-resilience, the topic that has been a focus of my activity for the last five years. I've spent more much time addressing the aspects of it in discussions than in the years before, which indicates that the perception of it has changed, finally. For the next 12 months, it will continue this way, with me talking more and more about how to embed cyber-resilience into the mesh of business processes, employees and digital operations.

What advice would you offer somebody aspiring to obtain C-level position in your industry?

Never stop learning, but don't expect yourself to know everything. ▣



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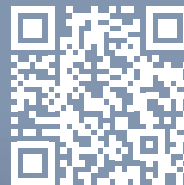


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Seven Digital Transformation trends to watch out for in 2023

MuleSoft has revealed some of the top trends expected for the year ahead as CIOs aim to overcome economic pressures on businesses and improve the user experience. It found that automation, composability, IT democratisation and sustainability are top priorities as businesses plan for 2023.

Amid economic uncertainty, companies are prioritising efficient and sustainable growth for the year ahead. A report from Salesforce's MuleSoft identified seven trends that are key to overcoming increasing operational pressures while still maintaining and improving customer and employee experiences.

"Uncertain economic conditions and a renewed focus on operational efficiency are leading business leaders to make critical, near-term investments in technologies that will increase efficiency, productivity and resilience," said Matt McLarty, Global Field CTO, MuleSoft. "Automation, low/no-code tools and cybersecurity, among other technologies, will become the most relied upon resources for every organisation."

Here's what it found:

1. Investment in automation will surge as companies aim to do more with less

Automation drives efficient growth, enhances productivity and generates much-needed cost savings amid economic uncertainty. For example, Salesforce's suite of automation technologies saves customers over 100 billion hours every month. However, to drive significant impact in 2023, organisations must adopt more strategic, enterprise-wide automation or hyperautomation initiatives.



Many are already doing so, as 80% of organisations report that hyperautomation is on their technology roadmap for the next 24 months. To achieve the potential of these initiatives, integration and composability must be essential ingredients for digital strategies in the coming year.

2. Composability will be a core pillar of business strategies that drive innovation and agility

Composability immediately enables teams to do more with less and increases efficiency by enabling teams to reuse existing capabilities to become more agile.

By combining composability strategies like low/no-code with hyperautomation technologies, organisations can alleviate IT delivery capacity restraints and innovate at speed and scale to create the seamless, connected experiences that their customers and users crave.

3. Non-technical users will use low/no-code tools and automation to accelerate transformation

As the demand for Digital Transformation continues to soar and the IT talent shortage becomes more profound, IT teams are increasingly stretched. A large proportion (73%) of IT leaders agree that acquiring IT talent has never been harder. In 2023, low/no-code tools will be rolled out across the workforce to alleviate these pressures and empower a larger cohort of business technologists to reuse capabilities in their own digital projects.

This approach will help to circumvent IT bottlenecks and speed up transformation. We'll also see more organisations create fusion teams that combine both business and technology experts. Equipped with the right tools, these teams are free to innovate with the oversight of the IT department to mitigate any cyber or compliance risk.

4. Organisations will invest in total experience (TX) strategies to drive greater customer and employee loyalty and advocacy

In 2023, organisations will be under more pressure than ever to deliver seamless customer experiences that drive growth, safeguard revenues and ensure customer loyalty. However, they will increasingly realise that employee experience is equally critical to their success. Research shows that 86% of IT leaders now say the experience an organisation provides its employees and customers is as important as its products and services. Organisations will combine customer (CX) and employee (EX) experience initiatives to increase revenue and retain scarce talent so they can deliver more agile and resilient business outcomes. To support this, organisations will focus on integration and automation strategies designed to connect the systems and processes that support experiences across the enterprise.

5. Firms will increasingly automate data-driven decision intelligence to reduce the huge costs of wasted opportunities

Making well-informed data-driven decisions is already a top priority for 83% of organisations. However, the data needed to generate actionable intelligence is often locked away in enterprise silos, creating a roadblock to innovation. In 2023, we'll see a substantial rise in embedding real-time analytics to help break down data silos and create a data fabric that provides automated, intelligent and real-time insights and reduces untimely decisions. By embedding real-time analytics into the data fabric, organisations will increasingly look to automate decision-making, helping them accelerate time-to-value and eliminate wasted opportunities.



6. Cybersecurity defences will become more layered and integrated to protect from increasing threat complexity

Investments in distributed architectures and Edge technologies will grow even further, introducing even greater security risks. In response, 2023 will see more organisations move towards the cybersecurity mesh approach advocated by Gartner. By 2024, Gartner predicts organisations adopting a security mesh architecture will reduce the financial impact of security incidents by an average of 90%.

To succeed, organisations will need to manage connections, APIs, compositions and automation bots from a single interface. This will lead to a growing adoption of lightweight platforms that are designed to work across any architecture or application type – whether they reside in a public cloud provider's data centre, an on-premises system, or out at an Edge device.

7. Sustainability will drive ongoing IT investments

Environmental sustainability remains among the biggest challenges facing society. To drive sustainability in their own operations, organisations will increasingly look to harness data-driven insights and improved integration across supply chains.

"As companies gear up for the year ahead, businesses must recognise that effectively utilising new digital techniques is the only way to ensure growth amid economic pressures," said McLarty. "Investing in cost-efficient, employee- and customer-centric technologies will be critical for companies seeking to remain agile and break away from the competition in 2023." ▣

Matt McLarty, Global Field
CTO, MuleSoft





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1

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expect to increase sustainability
investment over next two years



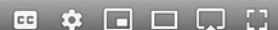
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