Rollout of 5G in rural areas draws closer under government plans

The UK government has launched a £30m UK-wide competition to spark a tech revolution in countryside communities and help rural areas seize the opportunities presented by 5G technology.

Spearheaded by secretary of state for digital Nicky Morgan, the Rural Connected Communities competition will see up to 10 rural locations selected to run innovative trials of 5G applications and stimulate commercial investment in 5G technology, which offers mobile speeds 10 to 20 times faster than previous generations.

It is the latest wave of £200m funding to pioneer 5G testbeds in the UK and deliver the benefits of the highest speeds of mobile connectivity available.

The technology is already being used in the Orkney Islands and Shropshire, to remotely monitor salmon fisheries

and improve efficiency of wind farms. Furthermore, the 5G trials demonstrate how farming can be transformed through targeted crop-spraying and soil analysis with drones and tractors.

In addition, the new funding will build on projects like these and trial other uses of 5G in rural communities to help drive business growth, enhance lives and encourage innovation.

"The British countryside has always been a hotbed of pioneering industries and we're making sure our rural communities aren't left behind in the digital age," said Morgan. "We're investing millions so the whole country can grasp the opportunities and economic benefits of next generation 5G technology. In modern Britain people expect to be connected wherever they are. And so, we're committed to securing widespread

mobile coverage and must make sure we have the right planning laws to give the UK the best infrastructure to stay ahead."

Meanwhile, the government has also launched a consultation on proposals to simplify planning rules to improve rural mobile coverage across the country.

Reforming planning laws for mobile

infrastructure was a pledge made by prime minister Boris Johnson during his campaign to replace Theresa May.

He said he wanted to "level-up connectivity" for communities across the UK, further support the roll-out of 5G and boost the economy.
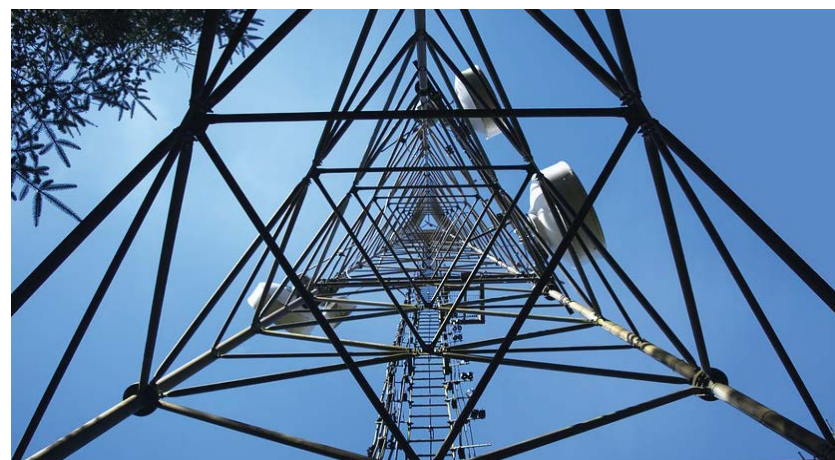
The government is also looking to simplify planning rules to improve rural mobile coverage

O2 progresses in enterprise world

O2 (Telefónica UK) can now supply public sector organisations with its full suite of ICT services after being named as a supplier on the new Network Services 2 Framework (NSF2).

The NSF2 listing follows a three-year application process with the Crown Commercial Service (CCS), which aims to maximise value for the public sector when purchasing common goods and services.

O2 had been able to provide mobile services to public sector and third sector and now it's supplier for services in Lots 1-4 and 6-8 of the framework: data access; local connectivity, traditional telephony, inbound telephony, mobile voice and data, paging and alerting and video conferencing.

"First and foremost, being named as a supplier on the Network Services 2 framework cements O2's ability to provide converged ICT solutions for the public sector – solutions that are more cost effective, and can be managed more smartly and securely," Matthew

Spencer, head of public sector sales at O2, told *Networking+*. "From a broader perspective, it's indicative of our vision for the newly formed O2 Business division. Mobile remains firmly at our foundation, but we're very much mobile first…not mobile only."

Spencer added that "for network managers, engineers, data centre teams and CTOs, bringing our public sector offering in line with our private sector one" is evidence of its ambitions in the B2B market overall. "It shows that we're committed to growing and developing a wider range of services, with a competitive portfolio and customer-led approach that's built around the organisations we do business with," he said.

CCS has now awarded 10 lots and expects to award Lots 5, 10 and 13 in due course.

O2 will launch its 5G network before the end of 2019, starting in the four UK capitals – Belfast, Cardiff, Edinburgh and London – before expanding nationwide. ∎

Rural 5G rollout

The consultation on potential changes to permitted development rights for mobile infrastructure in England includes proposals on a number of points, such as changing the permitted height of new masts to deliver better mobile coverage, promote mast sharing and minimise the need to build more infrastructure. Currently masts on public land must be no more than 25m (82ft) high but ministers want to relax these rules and so the UK could see some as tall as 50m.

Other proposals include allowing existing ground-based masts to be strengthened without prior approval to enable sites to be upgraded for 5G and for mast sharing, deploying radio equipment cabinets on protected and unprotected land without prior approval, excluding sites of special scientific interest and allowing building-based masts nearer to roads to support 5G and increase mobile coverage.

Mark Bridgeman, deputy president of the Country Land and Business Association, said: "The vast potential of the rural economy will only be fulfilled when everyone in the countryside has full mobile connectivity, and we welcome DCMS's intent to deliver the prime minister's promise of internet access for all." He added that the current situation, "where only 67% of the country can access a decent signal, is unacceptable" and that the government was right to focus on planning reform as a means to removing current barriers, "but there must also be a balance between the interests of landowners and mobile operators".

The government has also asked for views on what measures industry could offer to mitigate the impact of any new infrastructure, including assurances of a greater use of existing sites and the removal of redundant masts. ∎

Vodafone Business and Geotab launch fleet management tool

Vodafone Business has partnered with telematics giant Geotab to create a new solution that will enable end-user fleets and fleet management businesses to boost driver safety, performance and security – including new shared mobility business models.

The agreement will see Vodafone's automotive connectivity, service delivery offerings and experience in device manufacturing combined with Geotab's open fleet telematics platform.

Furthermore, Vodafone Business Fleet Analytics will enable operators to access vehicle data and gain actionable insights from the analysis to monitor and enhance the safety, performance and security of their drivers.
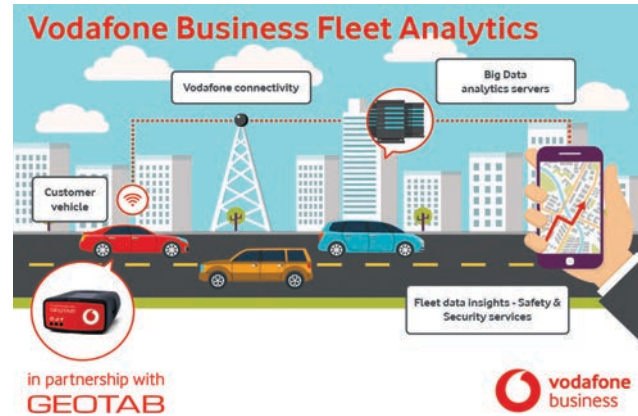
It will also bring benefits in terms of shared mobility, enabling the set-up of a connected and monitored fleet where the analysed data can show how, where, when and by whom a vehicle was used is critical to making this flexible business model work.

"Creating safer and smarter mobility for people everywhere is a shared vision for Vodafone Automotive and Geotab," said Gion Baker, chief executive officer of Vodafone Automotive. "By working together, we will not only support our customers in boosting the efficiency and safety of their vehicles, but will also help introduce new and sustainable mobility models."

Edward Kulperger, vice president Europe, Geotab, added: "We believe Vodafone's brand, reach and experience in telematics combined with Geotab's engineering and open platform technology will accelerate the adoption of fleet and mobility services."

Vodafone Business Fleet Analytics will initially launch in the UK, France, Germany, Italy, Portugal and Spain before rolling out to all European markets currently served by Vodafone Automotive. ∎

The agreement will see Vodafone's automotive connectivity, service delivery offerings and experience in device manufacturing combined with Geotab's open fleet telematics platform

PHOTO: VODAFONE

Irish firm Echelon to open London facility

Irish company Echelon Data Centres has announced plans to enter the UK market with a €168m investment in a 20MW-capacity facility in London.

The new centre, which will be the company's first hub outside of Ireland, is located at The Point, Greenwich View and is understood to be the first facility to come onstream since the 1990s, in an area that currently has 22 existing data centres.

Furthermore, the London facility is "a 130,000 sq ft powered shell" and can be adjusted to tenant needs.

Echelon said the facility will be tenant-ready by 2020 and is in an area of low-latency services for Canary Wharf and the City of London.

"Finding 20MW of capacity in the heart of London's business district is not easy," said Niall Molloy, chief executive of Echelon Data Centres. "It's a scarce commodity given the location, the availability of power and the ability to accommodate high-density racks. We believe that this is the first new facility in the area since the late 1990s – and there's generally a lack of space for existing facilities to expand – and we know that there is intense and growing demand for the capacity it will deliver."

He added that the new site at The Point has excellent network connectivity being part of the Docklands Metropolitan Ring and is located in close proximity to number of global operators. ∎

The new centre, which will be the company's first hub outside of Ireland, is located at The Point, Greenwich View in London Docklands

KADIUM

Juniper & Aston Martin partner to deploy network

Juniper Networks has become Aston Martin's official global networking partner, with the two companies working together to deploy a network able to support the iconic luxury car manufacturer's business through growth and expansion of ranges.

Both firms already have a well-established relationship, with deployments across the carmaker's numerous manufacturing, administration and customer-facing sites.

The Aston Martin secure networking infrastructure will be underpinned end-to-end by Juniper's solutions and Aston Martin Racing - its motorsport arm – will also use Juniper's technology trackside to enable its communications for events globally.

"It is vital to a company like Aston Martin that our networks work seamlessly," said Sebastian Delmaire, Aston Martin partnerships director. "We value Juniper's reliability and best-in-class performance; which are attributes you seek from a partner. We are therefore delighted that Juniper is becoming our official networking partner."

Mike Marcellin, chief marketing officer, Juniper Networks said that the two companies, "although producing uniquely different products", share many common values, "including the pursuit of engineering excellence" and creating simplicity as the highest form of innovation.

"We are extremely proud to work alongside such an iconic brand, and welcome the opportunity to become even more closely involved in a day-to-day pursuit of success, both on and off the track," he said. ∎

Juniper and Aston Martin already have a well-established relationship, with deployments across the carmaker's numerous manufacturing, administration and customer-facing sites

PHOTO: ASTON MARTIN

ANSecurity strengthens New College network

ANSecurity, a provider of network and data protection, has helped one of Oxford University's oldest colleges to streamline its network architecture and strengthen security by moving to a Zero Trust model.

Founded in 1379, New College (officially The College of St Mary of Winchester in Oxford) together with 37 other academic institutions across Oxford, uses the university's switched gigabit backbone along with some centralised services.

The college opted to upgrade its ageing 3COM networking kit and after an evaluation process selected ANSecurity to help it specify, design and upgrade to new switches and a firewall provided by Juniper.

"ANSecurity was a great company to deal with," said James Dore, IT officer of New College at Oxford University. "It had good technical knowledge around the Juniper products and managed the project efficiently from start to end."

The aim was to join two separate networks that had multiple subnets in the same native VLAN. It was overcomplicating the network because of how the VLANs had to be tagged and untagged when traversing the networks. As part of the move to a Zero Trust model, all users and server VLANs would be routed through the firewall. In addition, the project would also free up IP addresses from one of the subnets in order to re-allocate them to other colleges.

Basingstoke-based ANSecurity implemented a high availability solution using technology from Fortinet and designed and implemented a VLAN migration processes. By leaving the hosts in their original VLAN, it allowed them to pick up IP addresses from a different subnet and freed up addresses to be re-allocated.

"The design allows us to set up VLANs in a much simpler fashion, and is easier to manage while allowing us to better share resources across multiple colleges," added Dore. "The team from ANSecurity was easy to work with and had a deep knowledge of the network and all the technologies we used. They have fielded questions from us at odd hours of the day and have kept us updated about new technologies on a regular basis."

It is estimated that the project will reduce annual charges related to client licences, hardware and maintenance fees by several thousand pounds per annum. ∎

Teesside tech firm creates jobs following new partnership

A Teesside-based industrial technology firm is set to create jobs in Middlesbrough courtesy of an international deal with cyber security solutions specialist Radiflow.

Independent systems integrator Industrial Technology Systems (ITS) has teamed up with the US and Israel-based firm to implement new operational technology (OT) cyber security services for preventing business interruption for its process manufacturing customers based on Radiflow's portfolio of industrial cyber security technologies.

"Radiflow's portfolio of game-changing industrial cyber security technologies empowers us to offer a new set of valuable services for our customers to maintain complete visibility and control of their OT and IT networks," said Mark Taylor, director of business development at ITS. "The Radiflow technologies give us the essential tools to detect anomalies in real-time to the operations of a network and implement the appropriate measures to protect the facilities of customers from any cyber security weaknesses or vulnerabilities that could be exploited by malicious third parties."

ITS specialises in process control and management information system solutions for regulated industries and said it anticipates that the partnership with Radiflow will create new jobs in its Middlesbrough headquarters.

"As we ramp up our presence in the process manufacturing space, we are seeing more and more system integrators, MSSPs and end users looking for OT cyber security solutions to address the risks of business interruption in operational environments," added David Moss, vice president of sales at Radiflow. "We have strong expectations for building a long-term relationship with ITS and playing a significant role in helping the company better serve its customers." ■

ITS anticipates that the partnership will create new jobs in its Middlesbrough headquarters

IoT Scotland helps deliver safer water systems in the Highlands

IoT Scotland has helped its first customer improve the way it monitors water safety levels in over 100 buildings.

The Scottish government backed National IoT network for Scotland, delivered by Boston Networks, has provided the necessary infrastructure for Highland Council to be warned of any risk of harmful bacteria in its water systems.

Previously, engineers were subjected to the timely and manual monitoring process where they would travel across the council estate to take temperature readings. A three-year contract with Dundee-based M2M Cloud, the company's Neptune water-monitoring sensor technology – which provides instant red flags of unsafe levels – replaced that system.

Water systems with the right environmental conditions, such as temperatures between 20 – 45°C, can develop legionella and other harmful bacteria. To negate this risk, sensors are attached to the surface of water pipes to record temperature readings every 10 seconds. The data is then transferred over the IoT Scotland network for the Highland Council to access via an "intelligent dashboard".

Real-time alerts notify the building users of changes to the temperature to provide early notification that the water system is out of specification.

"The Internet of Things (IoT) has been 'the next big thing' for a while now, but in recent years it has developed in a major way,

Real-time alerts notify the building users of changes to the temperature to provide early notification that the water system is out of specification

to the point that there are now a number of well tested and useful applications for the public sector," said chair of the Highland Council's Environment, Development and Infrastructure Committee, Councillor Allan Henderson. "The Internet of Things (IoT) has been 'the next big thing' for a while now, but in recent years it has developed in a major way, to the point that there are now a number of well tested and useful applications for the public sector.

IoT represents a very real opportunity to help local authorities save money, reduce their energy/carbon output and improve service delivery, and a national IoT network provides the connectivity to facilitate these projects."

The Highland Council is responsible for the largest local government area in the UK. Spanning over an area larger than Belgium, with a population of over 230,000, the council manages 1100 non-domestic properties. ■

Anglian Water picks Appian's low-code platform to accelerate development of new capital projects

Anglian Water has selected enterprise software company Appian's low-code platform to accelerate the development of new digital business applications.

Due to increasing demand for environmentally friendly production of clean and safe water in England and Wales, Anglian said it is planning to invest more in new water treatment and delivery capital projects over the next five years.

Anglian's first deployment will be Appian's new digital, automated and fully-mobile solution to increase speed, efficiency and risk mitigation in the management of these projects.

The Totex Delivery Workflow (TDW) solution will give employees a single and intuitive view of all relevant project data regardless of where that data resides in underlying legacy systems. It will manage all requests, decisions and business processes across the lifetime of a capital project. In theory, it means a simpler experience for Anglian employees and better visibility into project status and operational effectiveness for management. Appian also supports the auditability requirements mandated by the UK Water Services Regulation Authority, called Ofwat.

"Appian will help us accelerate our infrastructure projects and reduce their total cost by unifying data so our employees can make better decisions more quickly," said Oliver Grist, programme manager, Anglian Water. "Appian's powerful automation also streamlines the complex workflows that need to be executed based on those decisions."

Supplying 1.2 billion litres of water to 4.3 million customers and collecting used water from over six million people daily, Anglian is the largest water and water recycling company operating in England and Wales. ■

Leeds tech firm secures new £400m data centre and cloud framework with YPO

Yorkshire Purchasing Organisation (YPO) has launched a data centre, cloud hosting and data security solutions framework and Leeds-based pure technology group (PTG) has secured supplier status, supplying to the former's 19,000 customers.

The framework is designed to meet the needs of all public sector organisations, which includes YPO's internal requirements, and has an estimated total value of £400m.

"Being a part of the YPO framework presents us with a tremendous opportunity to demonstrate our passion to work alongside organisations in the public sector and help them achieve their strategic IT objectives for the best value for money," PTG sales director Scott Deacon told Networking+. "It's one which we're very excited about and we're looking forward to further developing

our blossoming relationship with the YPO as this framework grows."

YPO is the largest formally constituted public sector buying organisation in the UK and is owned by 13 local authorities in the north of England. It supplies products and services to a wide range of customers including schools, local authorities, charities, emergency services and the wider public sector and manages over 100 frameworks. Its vision is that every public sector organisation achieves the best possible value for money when procuring its goods and services.

PTG has been awarded 10 lots by YPO, which cover; mechanical and electrical infrastructure, data security solutions, education and cloud services, plus hosting, in addition to the support of existing hardware and data. Its aspiration for the YPO framework and its other state sector partners is to play a major role in the journey to digitise service delivery in the public sector.

In total 29 suppliers have been appointed to the framework, including: Keysource, Sudlows, Amazon Web Services EMEA SARL and Secure I.T. Environment. ■

The framework is designed to meet the needs of all public sector organisations, which includes YPO's internal requirements, and has an estimated total value of £400m

StorageCraft Research report reveals global data concern

A report published by StorageCraft Research has revealed global concern about the business impact and risk from rampant and unrestricted data growth.

It also shows that the IT infrastructures of many organisations are struggling, often failing, to deliver business continuity in the event of severe data outages.

Organisations in the UK are already struggling with data growth and their ability to recover in the event of an outage, the report found. Only 13% of respondents have an IT infrastructure that enables them to recover from a severe data loss within an hour, while

46% believe it would take up to an entire day to recover. Furthermore, 17% estimate data recovery would take them days or weeks

"With 88% of UK respondents believing that data volume will increase 10x or more in the next five years, it's clear that businesses big and small are grappling with the impacts of unprecedented data growth," Andy Zollo, VP Sales EMEA & APAC at StorageCraft told *Networking+*. "With this growth comes risk. For example, not only are ransomware and malware attacks on the rise, but the more data a business stores, the more potential entry points there are for a cybercriminal to exploit."

Zollo added that "if they do suffer a data outage" nearly half of UK respondents (47%) foresaw an inability to recover quickly enough. "This demonstrates the need for contemporary scale-out data protection systems that ensure data is instantly recoverable in the event of an outage," he said. "Without such a system in place, businesses risk not protecting one of their most important assets: data."

A total of 709 qualified individuals completed the research study. All had budget or technical decision-making responsibility for data management, data protection, and storage solutions at a company with 100 - 2,500 employees.

The survey was fielded in the UK, France, Germany, Australia and Canada. ■

Car dealership revs up for new comms system

Yorkshire-based car retailer JCT600 has invested £1m in a new communications system in a bid to power up its business.

The privately-owned firm, which has grown into a £1bn brand, threw out its old phone system and introduced cloud-based technology, powered by west Yorkshire-based Vapour Cloud. JCT600 said it hoped to improve communications between the company and its customers, as well as enabling it to meet security standards for card payments taken by phone.

Earlier this year, JCT600 announced its sales had hit a record high in 2018, despite continuing challenges faced by the automotive sector.

"In so many parts of our business, we excel in terms of state-of-the-art, technology-driven customer service, but

JCT600 hope to improve communications between the company and its customers, as well as enabling it to meet security standards for card payments taken by phone

PHOTO: JCT600.CO.UK/BRANDS/MAZDA

our historic on-premise telephony would have undoubtedly started to hold us back," said Chris Gensmantel, group IT manager at JCT600. "Vapour's solution will allow us to streamline our systems and processes, whilst integrating voice into the other exciting technologies

we've implemented throughout JCT. Our 100-seat call centre also plays a crucial role in the long-term, customer-focused service delivery of the group, so we will continue to invest in the infrastructure we provide to this team."

Vapour and Leeds-based tech group

PTG recommended Avaya's ACS Select solution – software that allows businesses to control their voice, video and messaging services all in one platform.

"JCT600's phone systems were previously updated on a site-by-site basis, as necessary," added Tim Mercer, chief executive officer at Vapour. "However, this staggered telecoms investment has resulted in inconsistencies when it comes to the technology utilised and the potential level of service delivered. If left unaddressed, this could have started to impact upon the qualities that the brand is renowned for."

The 12-month upgrade which began in the summer of 2019 is now nearing completion and Vapour's cloud-based technology will also safeguard JCT600 from breaching data protection laws. ■

SIMEC Atlantis plans tidal powered data centre in Scotland

Tidal power specialist SIMEC Atlantis Energy has revealed plans to create the world's first ocean-powered data centre in the north of Scotland.

The company's ambition is to supply electricity to a "hyperscale" operation in the Caithness area from its MeyGen tidal operation in the Pentland Firth.

Currently using a 6MW operational array, which has now generated more than 20,000MWh of electricity for export to the grid, there is also the potential to expand MeyGen to 80MW.

The giant server farm is being primed to go live by 2024 and would be connected to international subsea fibre optic cables connecting to London, Europe and the US.

"Data is being touted as the new oil. It is arguably becoming the world's most valuable resource, and the amount of data requiring storage is increasing at a staggering pace," said SIMEC Atlantis chief executive officer, Tim Cornelius. "However, data centres are undeniably power hungry,

and the clients of data centre operators are rightly demanding power be sourced from renewable and sustainable sources."

Cornelius added that the project represented "the marriage of a world leading renewable energy project in MeyGen" with a data centre operator keen to provide its clients with a large amount of computing power, powered from a sustainable and reliable source. ■

The company's ambition is to supply electricity to a "hyperscale" operation in the Caithness area from its MeyGen tidal operation in the Pentland Firth

IoT sensor 'a game-changer' for social housing providers

Local authorities and housing associations will soon have access to new technology to help put an end to unhealthy living conditions in their properties.

Developed by Alertacall, the Envosense monitor uses the internet of things (IoT) technology to prevent cold, damp conditions in homes that could eventually lead to the onset of mould or other conditions, triggering health complaints as a result. It can even alert providers to cases of fuel poverty or arrears.

Local authorities and housing associations are now bound to meet strict regulations on living conditions under the Homes (Fitness for Human Habitation) Act – a law which became effective across England in March 2019.

The legislation gives tenants the legal right to take action against providers if their properties are not safe, healthy and free from things that could cause harm.

Now, housing providers will be able to adopt an innovative device to ensure they stay in line with the law – protecting

themselves against future claims.

James Batchelor, chief executive officer at Alertacall, said it offered local authorities and other housing providers a simple way to help make sure properties do not fall below decent living standards as set out by the Homes Act.

"With the new legislation coming into force in March, it's crucial housing providers can use prevention to stop properties falling into substandard conditions," he added. "This is a game-changing low cost product which offers housing providers the chance to use IoT technology to help improve outcomes for tenants and to protect their stock. "With the average cost of repairing a property affected by damp currently running into thousands of pounds, there is a significant benefit in identifying homes that require repair or maintenance work at the earliest opportunity."

Batchelor said the benefit for tenants is that Envosense will alert housing providers to problems that may be fixed with a simple repair, "or support and signposting" toward help for those living in fuel poverty. ■

VIEW FROM THE TOP...
Laying the foundations for a 5G future, *by Robin Mersh, chief executive officer at Broadband Forum*

Data traffic is growing exponentially. Today, each of the 3.3 billion smartphones in use generates 3.4 Gigabytes of data per month globally. By 2023, this will increase to a huge 17 Gigabytes per month per smartphone, of which there are expected to be 7.2 billion worldwide. A significant factor behind this anticipated growth is 5G, driven by not only the substantial increase in bandwidth it promises, but also the compelling new services it enables. More than the latest generation of mobile technology, 5G brings challenges and opportunities for the telecoms industry, in the fixed and mobile space.

For operators to capitalize on the opportunities for additional revenue streams, a shift in how mobile and fixed networks are managed is needed. Previously separate entities, the fixed network must be integrated into mobile networks not only to enable concepts like seamless service delivery, but to realize the efficiency of operating a one service delivery network across all services rather than multiple networks.

As the plumbing that keeps fixed and mobile networks flowing, the transport network is critical to this – but is it ready for a 5G future?

Starting out
With early rollouts in full force, 5G brings a set of challenges – especially in the transport network. At some point the radio ends and the network begins, and here, all of 5G's advantages have to be maintained by the network. This includes any increase in capacity, reliability and performance, in terms of reduced delay and a more consistent service. Improved service isolation will be needed to enable more autonomous control. Finally, network scalability will need to become much greater to support an increased number of connected devices and the amount of data consumed.

In this new network, flexibility and dynamism will be key. Previous generations of the transport network were more or less static and backhaul-

focused, but the 5G architecture must be more dynamic and scalable to support a vast range of use cases. This will bring the transport network into play for the fronthaul network. It will also be used for backhaul on a larger scale than ever before due to new, high-bandwidth technologies like 10G PON, capable of supporting 5G requirements. In addition, emerging services like network slicing will need to leverage new technologies to enable greater traffic isolation and customer control capabilities.

To achieve the promise of 5G, the Radio Access Network (RAN) can be split to introduce the transport network for fronthaul. In this new architecture, unlike in more static networks which can be used to describe 2G through to LTE networks, point-to-point fibre is not necessarily collocated with the Centralized Unit (CU) and Distributed Unit (DU). With evolved Common Public Radio Interface (eCPRI), the Radio Unit (RU) and the DU can be separated, as can the DU and centralized functions which are split. While the RAN split from 3GPP allows separation, the performance requirements on the transport network between the equipment are stringent – especially in terms of capacity, latency and delay variation. Backhaul interfaces must be enhanced to support the requirements already mentioned, including performance, capacity, resiliency and scalability. New deterministic networking technologies that can enable these enhancements are being developed in the IETF, IEEE and OIF.

The road to 5G
In order to evolve transport networks, there are two options available to operators – leverage what exists and migrate, or forklift and replace. For many, the former presents a more cost-effective and efficient option, as it eliminates the need to throw away existing investments and reduces the risk of major service disruption. Instead, the additional bandwidth,

performance, reliability and scalability capabilities can be added to existing MPLS IP and ethernet-based transport networks.

Much of this – up to 80% – can be done using existing technologies. Virtual Private Networks (VPNs), provide independence between service types, Ethernet switch networks provide simple Layer 2 connectivity, and IP networks give very scalable Layer 3 network capabilities. MPLS can deliver traffic-engineered control and convergence, enabling multiple services to be delivered over the same network. Meanwhile, incorporating multiple access technologies, such as NG-PON2 and direct fibre connections, will help meet backhaul requirements. The required Quality of Service (QoS) can be achieved by isolating services from each other via traffic management and multiplexing.

The remaining evolution can then happen over time, with network slicing and deterministic transport technologies among the new developments that will play a key role in 5G.

Laying the foundations
Leveraging and integrating the newest technologies to ready the transport network for the future of wireless is at the core of Broadband Forum's 5G work. With a focus on capacity, performance, reliability, scalability and security, the scope of work on the transport network includes: control,

management and data plane for the IP layer down to the physical layers, including time and synchronization; OAM, routing, resiliency, scalability and security; virtualisation of the mobile transport infrastructure and enablement of software driven networking.

This complements the Forum's work on wireless wireline convergence to develop a coexistence strategy for seamless service launches and interworking between home networks and 5G core components. A 5G Access Gateway function that adapts fixed access onto the 5G core, architectural deployment options and underlying infrastructure aspects are among the areas being addressed, along with operator requirements for interworking existing fixed access subscribers and deployed equipment into a 5G core. This work reached a milestone earlier this year when Broadband Forum delivered detailed recommendations to 3GPP, which is working in conjunction with Broadband Forum.

With this industry-wide collaboration and a seamless unification of fixed and mobile networks, the transport network will be perfectly placed to meet the challenges 5G brings and keep the unprecedented amount of traffic new service launches will bring flowing.

For more information on how Broadband Forum is shaping the future of broadband, including 5G, visit its website.

5G not only promises a substantial increase in bandwidth, it will also enable a host of compelling new services. More than the latest generation of mobile technology, 5G brings challenges and opportunities for the telecoms industry, in the fixed and mobile space

ON THE NETWORK...
Tips for fast growth businesses, *by Paul Routledge, country manager, UK and Ireland, D-Link*

Fast growth businesses have a lot to contend with; whether its attracting investors, securing loans, hiring staff or expanding into new markets, it all takes time, effort, resources and planning. What these businesses can't afford to do is to waste time focusing on non-core business operational issues; nowhere is this more critical than with IT.

When it comes to network connectivity, in the past, fast growth organisations have had to make a choice between enterprise-grade networks that are over-engineered for their needs, costly to buy and complex to configure and manage or consumer grade basic connectivity that is much lower cost but lacks flexibility, functionality and is not future proof as their business grows. Now, with cloud-based managed networks, businesses can have the best of both worlds – high performance, highly flexible networks that are quick and easy to configure, manage and can adapt and grow as their business needs evolve and change.

A network needs to underpin all business operations; it's the glue that holds everything together and keeps people and applications working optimally. However, managing networks can be a burden and a distraction from day-to-day operations, particularly for organisations that don't have a large team of in-house IT specialists. In any business, employees should be able to focus on their core jobs rather than being distracted resolving network problems or reconfiguring the network. The costs of regularly pulling staff away from their primary functions in order to fix network issues, resolve outages, or undertake routine tasks like adding or removing users, means less time for them to work in the areas that drive the business forward. The time spent managing a network can add up and become a significant factor in the cost of running the business. With cloud-based management, enterprise-grade networks have become much simpler and easier to configure and run. This means easy management and lower running costs while at the same time delivering network performance that is closely aligned with business needs.

One of the biggest mistakes that fast growth businesses often make is taking hasty, uninformed decisions about investing in the network infrastructure they think they need. By definition, fast growth businesses are in a hurry. They are busy managing their growth, dealing with customers, sorting their finances and a whole host of other issues. However, technology moves quickly, and it is important to take enough time reviewing the options, get advice and plan ahead. A little time invested in research in the early stages, can lead to a far superior network that has far more flexibility, scalability and comes at a lower cost, leaving you to reap rewards and pay off handsomely.

Admittedly, this can be easier said than done. All areas of IT are filled with jargon. The industry is famed for its TLAs (Three Letter Acronyms) and networking is no different from the rest of the industry. To the uninitiated, the use of an almost endless stream of technical terms covering different industry standards, categories and types of equipment, access methods, types of interface etc. can make it very difficult to know where to start.

Traditionally, enterprise networking equipment has been designed for use by IT and networking specialists. Professionals who have been trained and are experienced in this area. Businesses without dedicated IT teams rely on outsourcing the installation and management of these systems, an expensive option that for many small-to-medium sized businesses is overkill. Often, even systems that are marketed as solutions for SMBs (Small Medium Businesses) are modified versions of larger, enterprise systems and are almost equally difficult to understand, configure and manage without incurring a lot of expense.

At the other extreme are consumer network switches (known as unmanaged, layer 2 switches). These offer raw connectivity for smaller environments of a few users. Although unmanaged layer 2 switches can provide good basic connectivity, they offer none of the functionality, scalability or performance features that all but the tiniest businesses require.

That's where cloud comes in. The flexibility of cloud-managed switches means that only the functionality and capacity that is needed today is purchased. Additional capacity and features can be purchased and added later as a business evolves and needs change. Many high-end, enterprise networking vendors charge a high premium for their products because they require customers to pay for features and support contracts they simply don't need. It is not only the cost of buying equipment that pushes up costs, the complexity of some switches means that specialists are needed to work on them. This means the cost of employing and training in-house IT staff or taking out expensive support contracts. Another problem with enterprise networks is vendor lock-in, this can add a significant additional cost. Choosing closed technologies by opting for proprietary solutions that aren't based on industry standards can be an expensive mistake.

The bottom line is that with cloud-based management, SMBs now have an alternative option, offering a better solution more in tune with their needs, which is scalable, flexible and makes business sense. Worldwide spend on public cloud services and infrastructure is expected to reach $266 billion in 2021, according to IDC. The cloud can enable more efficient use of resources in nearly every aspect of business, from the underlying technical infrastructure that supports the entire operation to snazzy mobile applications that make life easier for marketing. SMB's need to embrace it, or risk being left behind.

Education, education, education

Three academic institutions look to invest in the future

Welsh college gets new network in 12 weeks

Coleg Gwent had 18,000 students, making it one of the largest further education colleges in Wales. It provides experience and personal support to students wanting to develop skills and gain qualifications to progress to a brighter future in employment, at university or in an apprenticeship.

Yet while it was paving a way for its students to have a bright future, the college's network was very much living in the past. It decided to replace end of life unsupported LAN switches and Juniper/Trapeze wireless access points. A tender was published to install a new network which was won by AIT Partnership Group, a specialist integrator of network, mobility and cyber security solutions.

With hundreds of wireless access points and six core switches distributed across six sites to be installed during term time, the work has to be carried out to tight deadlines without disruption to students and staff. The college was looking for the most cost-effective, secure and resilient solution to build a 21st century network, so Aerohive's centralised management capabilities, to be delivered by AIT, were an obvious attraction.

AIT designed and installed a new network in under 12 weeks, using modular switches from Brocade with 40GbE uplinks and Aerohive's cloud-managed enterprise Wi-Fi. The replacement of over 300 access points and configuration of the new solution was completed by working around active classrooms and a busy college life. It was planned by and co-ordinated by AIT's project management team and implemented by its technical unit working closely with the college's ICT department.

Now, thanks to AIT's experience in managing IT projects in the education sector, the project was completed to specification and on time. Students and staff now reap the benefits of a fully supported network.

With its modular, scalable cloud managed network that supports the mobility requirements of its students, Coleg Gwent is embracing the future.

Imperial gets storage boost

Imperial College London's Research Computing Service (RCS) – part of the ICT department – plays a vital role in addressing the computing and storage needs of the research community.

Its academic research community had been served by a centralised compute service under the management of the Research Computing Service, with users charged based on reserved capacity. The system gradually expanded over time to address incremental growth and any storage attached to it only served the purposes of transient data storage. However, it resulted in a very complicated and fragmented environment, with over 30 separate independently managed islands of storage, difficult to access, manage and use as well as expensive to run. Faced with poor performance and the high-costs of data-centre

space, academics had storage capacity issues.

Indeed, many users treated the compute service as a de facto storage repository for all their research data and many petabytes of data had been built-up over the years with neither structure or process. As a result, it was becoming difficult for the RCS team to gauge whether data was in active use, had been abandoned years ago, or whether it was hot or cold. The idea was that by moving to a new single, centrally-managed and supported system, the university would ensure that it kept happy the data providers and funders who expect researchers to demonstrate responsible data management, as well as complying with increasingly stringent regulations for the responsible handling of personally identifiable information (PII).

The Research Data Store (RDS) was designed to address these challenges and provide a longer-term strategy to manage and store research data. Furthermore, the goal was to enable researchers to access data with ease and speed and store that data throughout its life-cycle whilst enabling the RCS to intelligently manage growing storage demands and efficiently recover costs.

ArcaStream – supported by Imperial's integration partner Tectrade - was selected to provide a scalable research storage solution to seamlessly integrate legacy infrastructure and support the university's future storage strategies.

PixStorTM, ArcaStream's scalable storage platform based on IBM Spectrum ScaleTM parallel file system, combines flash, disk, tape and cloud storage into a single global name space. With a software-defined architecture, it uses open standard commodity hardware to avoid vendor lock-in coupled with powerful data management tools – including tiering, cloud integration, monitoring, search and analytics – to drive workflow efficiencies and reduce costs.

Now, with PixStorTM, Imperial can scale to meet future requirements with confidence.

University of Leicester uncovers more storage

The University of Leicester is renowned for its commitment to world-changing research. If you want proof, just think back to February 2013, when it announced to the world's press that its archaeological search in a Leicester car park led to the long-lost remains of King Richard III.

Founded in 1921, the university has three data centres all managed by Mark Penny and his team. They are charged with providing backup for all home directories, corporate systems and research data (including HPC data) in a mixed environment encompassing Windows, VMWare and Lustre.

When an institution of this magnitude is entrusted with protecting the data of nearly 30,000 users, it requires a robust and dependable IT infrastructure. It used to employ SAN-based hardware as backup targets for 10 media servers (each with 13x16 TB LUNs) with backup software provided by Commvault.

The index data was maintained by the individual media servers, so if one of them went down, it would disrupt the backup/restore process for that device, impacting all backup and restore operations. What's more, it would have resulted in zero access to backup data or restores, for as long as it took the IT team to acquire and install new hardware.

As you can imagine, this was a huge risk for University of Leicester and so a key objective was finding a solution that would allow the index data to be moved from the media servers to a robust, fault tolerant, shared storage environment, that same environment would also serve as the backup target.

Penny and his team evaluated SUSE Linux, Scality and Cloudian and these are his thoughts. "SUSE was massively more complex, with more hardware and we had significant concerns about the management difficulties this would create," he explains. "Scality was also very complex, double the cost of Cloudian and required professional services to install. With Cloudian, I liked that I could try it in a VM and install it myself on my laptop in 15 minutes. It gave us confidence that we could easily manage the Cloudian system."

After conducting a full proof concept using three Apollo 2U nodes loaned by HPE evaluation, Penny settled on Cloudian and so he and the IT crowd deployed Cloudian's Hyperstore object storage system as the foundation of a revamped backup platform. They deployed it on 12 HPE Apollo 2U

servers with 3.4 PB raw storage. For data protection, erasure coding was enabled in a 9+3 configuration, resulting in a 2.5 PB of usable capacity. In this configuration, up to three servers could fail simultaneously without impacting data availability.

Penny initially planned to deploy the system across the three data centres, but due to an unexpected surge in research data and the lack of additional funding to meet the unanticipated growth, he had to install the full system in just one site.

Now the university has not only eliminated the single point of failure, but also cut its storage space requirements by 50% and simplifies the backup process. After fully implementing the Cloudian-based solution across its three data centres, the IT team expects to save in the region of 25% in data storage costs.

"We wouldn't be able to continue backing up data, access backups or conduct restores until we replaced the hardware and spun up the system again, a process which could have taken weeks," says Penny. "Fortunately, we were never faced with this situation, but we knew we had to make a change."

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The health benefits of IoT

IoT seems to be the answer to a lot of industries' problems and now we're using it to keep us alive. ROBERT SHEPHERD talks to the people with their fingers on the pulse

The Internet of Things (IoT) is a staple term in the IT and communications lexicon. It makes sense because as workers and consumers we use it every day, whether it's connected security systems, thermostats, cars, electronic appliances or vending machines – if you're lucky enough to have one.

However, it's not only being championed as a technology that can help us around the house and workplace (*also see feature, May 2019 issue*), it also has, for want of a better expression, "health benefits".

Huw Owen, head of EMEA & APJ at database company Couchbase says when IoT – he refers to it as Internet of Medical Things (IoMT) – "is done right", it allows medical organisations to deliver healthcare in ways that "simply weren't possible" before. "This is because the IoMT enables them to capture and share a huge volume of health data across a variety of ecosystems, from patients, to care providers, to pharmacies, to medical technology companies," he says.

"The benefits of IoMT range from cost efficiencies, for example when it's used for patient monitoring, to allowing faster and more reliable access to patient records outside of traditional care facilities, accelerating treatment or diagnosis of patients at-the-scene and even offering caregivers the ability to use medical devices where internet connectivity may be a challenge, such as in remote areas."

Indeed, bringing the point-of-care closer to the patient is a must when looking to improve long-term disease management and Owen is convinced IoT can help deliver this.

"To reap these benefits, medical devices and MedTech applications need to be underpinned with a data architecture that enables them to perform as promised in "the real world" and be flexible enough to meet changing requirements without creating disruption, for example, if regulations were to change," he continues.

Owen speaks from experience, too. As an ex-rugby player, he's "seen first-hand" how disastrous a delay in diagnosis of head injuries can be. "To combat this, (neuro-technology company) SyncThink has developed a VR headset and tablet-based application that tracks eye movements in athletes and soldiers and helps medical professionals to identify eye-tracking impairments, which is a common symptom when someone has experienced a brain health injury."

Since internet connectivity isn't always

> ## "If a patient visits A&E after experiencing chest pains, medical staff can issue the S-Patch 3, which is quickly placed on their chest."
>
> *Steve Killick,*
> *product manager,*
> *WiFi SPARK*

guaranteed "in-the-field", SyncThink relies on Couchbase's NoSQL database technology for mobile devices, which enables it to run assessments even when the device is offline. Doctors can capture results and sync the data to a central data store when connectivity returns. Professionals can then quickly determine whether an athlete can stay in the game or requires additional medical attention.

Daniel Beeler, chief technology officer at SyncThink gives an example of where the partnership with Couchbase is already working. "In large stadiums, tens of thousands of fans might be using smartphones and that can reduce available bandwidth," he says. "We need a data platform with offline functionality so team doctors can conduct assessments on the side-lines and then seamlessly sync with the Microsoft Azure cloud environment when sufficient bandwidth becomes available. We wanted a NoSQL data platform and Couchbase met all of our requirements."

Owen cites MedTech company Becton Dickinson (BD) as another example, in that it uses connected medical devices and a mobile app to enable diabetic patients to track their insulin and glucose levels from home. The app provides patients with customised alerts and recommendations and provides doctors with access to this data to monitor their health in real-time. "BD had to overcome inconsistent internet connection for patients, not to mention the sheer volume of individual medical data that health professionals must interpret," he says. "Mobile database capabilities have helped BD here – by allowing patients' data to be constantly streamed, accessed and analysed, even from locations that don't have a constant internet connection."

Modernisation as well as access to modern technologies for the healthcare sector can be critical to improving its day to day operations

Danny Itzigsohn, senior director, technology and strategy at telecom software company TEOCO points to the fact that telemedicine is one of the fastest growing IoT verticals and so IoT can play a massive part in helping with figures alone. "The number of patients being monitored remotely is projected to exceed 50 million by 2021," he says. "As population size continues to grow, life expectancy is also on the rise. In 50 years' time, the Office for National Statistics has projected that an additional 8.6 million people will be aged 65 or over in the UK – a population roughly the same size as London. As this ageing population continues to expand, so too does the number of people with chronic diseases – which will require constant monitoring of their medical conditions. For example, according to the American College of Cardiology, more than 20% of heart failure patients are readmitted within 30 days and up to 50% by six months."

For that reason, Itzigsohn believes telemedicine could be the solution to help manage what he describes as the "growing and looming reality" facing humankind.

"Remote patient monitoring (RPM), a crucial part of telemedicine, allows for the monitoring of patients outside of conventional medical scenarios, for example, in a patient's home," he adds. "Using RPM, doctors are able to connect to their patients through different forms of communication including video conferencing, smartphones and even smart devices. RPM therefore helps to drive down hospital readmission rates, resulting in more cost-effective treatment."

So, the benefits of treating patients remotely are clear and easing the pressure on a struggling National Health Service (NHS) is only ever going to be a good thing. However, most of the time one needs to see a medic in the flesh when there's an existing health issue, so what happens then?

"It can also reduce initial hospital visits for patients with chronic illnesses, like diabetes, heart disease and even obesity," Itzigsohn says. "For instance, if RPM is enabled through reliable wearable technologies that transmit patient vitals and symptoms to medical hospitals and offices, it could serve to alert medical professionals of impending issues before the patient ever has to resort to hospital or emergency room services – initially or subsequently. IoT devices can therefore play an important role in helping doctors analyse how their current activity could be impacting patient health and to reach the root cause of a medical condition much faster to provide a timely diagnosis."

Steve Killick, product manager at enterprise solutions firm WiFi SPARK agrees and says one of the most effective implementations of IoT is happening right now in the wearable technology sector. He points to the recently launched Samsung S-Patch 3, a compact heart monitor working to an ECG standard.

"If a patient visits A&E after experiencing chest pains, medical staff can issue the S-Patch 3, which is quickly placed on their chest," he adds. "As the patient is in the waiting room, the S-Patch 3 will collect real-time electrocardiogram data. Once in the consultation room, the doctor will have access to this data, empowering them to diagnose the patient, not only quicker but more accurately, as the S-Patch 3 will have been monitoring the patient's heart rate for the duration of their visit. Once discharged, patients can also be issued with the S-Patch 3, giving them and medical professionals access to real-time updates on their condition."

Another influential benefit to the healthcare industry, says Killick, is extraction of real-time, continuous data. "Medical data is currently collected manually by a healthcare professional and is collected at regular intervals (depending on the patient's condition and their National Early Warning Score)," he says. "As anyone who works in the healthcare sector knows, everything can change in an instant and a snapshot overview of a patient's condition can be outdated the moment it is processed, let alone, two, four or eight hours later."

Killick adds that in addition to the all-important 24/7 patient monitoring, IoT will catch any abnormal readings as they happen—preventing major health issues before it's too late. "By the same token, it will also relieve the strain on healthcare professionals who are carrying out manual checks on stable

"This is because the IoMT enables them to capture and share a huge volume of health data across a variety of ecosystems, from patients, to care providers, to pharmacies, to medical technology companies."

*Huw Owen,
head of EMEA & APJ,
Couchbase*

patients and will free up staff to attend those with more serious conditions."

Indeed, helping staff to do their jobs with far more ease and less complication is a no-brainer, says Rashid Ali, UK enterprise sales manager at Wallix, the European cyber security software company and specialist in privileged access management (PAM) "Within a single healthcare organisation such as a local hospital, there can be hundreds if not thousands of employees," Ali says. "These include doctors, nurses, research teams and administrators as well as external third-party providers. IoT applications and devices have the ability to enable collaboration, supporting the teams and providing critical access to information at the touch of a button. There is no denying that IoT has the ability to modernise the healthcare sector and patient care. But this needs to be done with consideration as IoT can also pose a number of risks when it comes to data and access management."

Ali adds that modernisation as well as access to the aforementioned technologies for the healthcare sector can be critical to improving its day to day operations. "Alongside collaboration, IoT can bring a range of significant benefits such as more accurate health monitoring, sensor alarms and electronic health records for quick and easy access," Ali says. "Fundamentally, IoT will open the path to more data access, which is a huge advantage when it comes to improving health services."

Killick argues that another huge market for IoT will be within social and community care, which is a key component of the "NHS Long Term Plan". He says: "Part of the plan states: 'By the end of the 10-year period covered by the plan, the vision is for people to be increasingly cared for and supported at home using remote monitoring (via wearable devices) and digital tools'. This will lead to huge cost savings to the NHS, it will benefit us all in many ways and it is yet another indicator IoT is hugely important to the future of healthcare."

The future does look and sound promising, but where are the examples of where IoT is already making a difference?

"IoT is already working well for many local GPs across the UK," argues Ali. "For example, when it comes to booking an appointment or moving to see a specialised consultant most records are transferred electronically. This allows experts from numerous departments and from across the world to collaborate and share information instantly. And this is just one small case. As IoT starts to

become more widely rolled out we will start to see a significant change. However, it's important to note that the departments that are integrating IoT well are the ones that have assessed the security risks."

It's difficult to argue against IoT being a game-changer, but given the amount of times the word "data" has been used, isn't there a terrible risk IoT is playing into hackers' hands? After all, it has been well-documented in the media that international health administrations are already issuing guidelines that must be strictly followed by governmental medical establishments integrating the IoT in their workflow. Surely, these restrict possible capacities to some extent?

"Security, for obvious reasons, will need to be highly regulated with the advent of IoT in healthcare," says Killick. "With IoT, more patient data will be collected than ever before, and it is vital this information doesn't fall into the wrong hands. Many applications of IoT will be deployed using Wi-Fi networks, due to their wireless and interoperable capabilities, which makes secure enterprise-grade networks essential. Being able to authenticate devices, combined with real-time analytics, will ensure that individual devices are able to connect to networks and transmit the 'expected data'."

Killick also argues that "to date" the security of networks hasn't been taken seriously. "To illustrate the severity of the problem, a researcher actually hacked into a pacemaker and turned it off," he says. "Insulin pumps have also been hacked, forcing them to inject their full supply in one go. So, having a secure Wi-Fi network is critical to the successful implementation of IoT."

The tech industry has form when it comes to failure to protect data privacy and security of its users. With that in mind, advancements like medical IoT devices and telehealth beg the question: how will our sensitive medical data be handled in the future?

"All healthcare employees have a part to play in protecting patient data," says Ali. "It's important to not lose sight of the fact that protecting patient confidentiality is the true goal of IT security in healthcare, not just ticking security compliance boxes. Patient privacy is a key business requirement as much as it is a legal and ethical mandate. In addition, compliance is an important issue for healthcare. Healthcare organisations are heavily regulated by compliance mandates like

HIPAA-HITECH, the EU's General Data Protection Regulation (GDPR), and the UK's Data Protection Act 1998 (DPA). Non-healthcare directives such as PCI, SOX and others also apply to healthcare organisations in relation to their credit card data and financial reporting obligations."
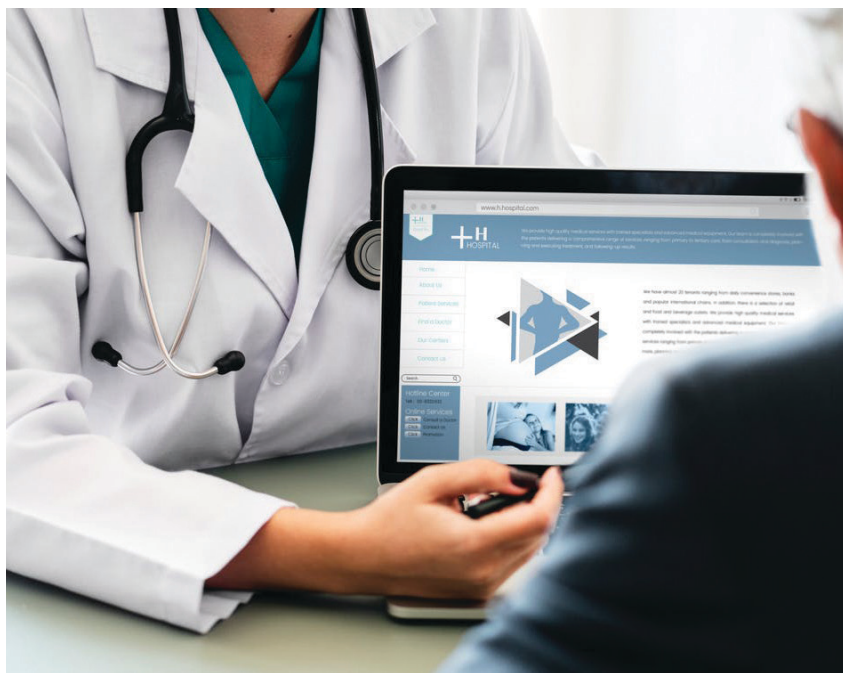
Ali says there are policies, strategies and solutions available that can support healthcare organisations on their digital journey. However, he says as part of this, healthcare departments need to think of the three main threats: intentional, unintentional and compromised users. "By implementing restricted access as part of any strategy we will see departments supporting a policy of secure and authorised access only," Ali says. "This is something that will become pivotal as IoT grows. As a small but vital point of where this is necessary is through the use of MRI equipment.

More often than not the connection is to an external third party, and this is where the risk of intrusion and cyber attack is greater as it is outside the control of the local hospital or healthcare department."

Still, there's always a chance that dishonest interlopers may access centralised systems and realise some cruel intentions. Then what?

"In today's digital world there is a growing threat from dishonest interlopes," says Ali. "But the main challenge in healthcare is safeguarding patient medical records as these have an enormous value on the dark web and black markets. A most recent example of this is the cyber attack in 2018 in Singapore where the data of 1.5 million patients was stolen and this included the prime minister's."

So, if a leader of a country isn't safe from hackers, IoT clearly has a long way to go, but at least it's saving people's lives in the meantime. ∎

> ### "There is no denying that IoT has the ability to modernise the healthcare sector and patient care. But this needs to be done with consideration as IoT can also pose a number of risks when it comes to data and access management."
>
> *Rashid Ali,*
> *UK enterprise sales manager,*
> *Wallix*

How will our sensitive medical data be handled in the future?

13

Making space

Keep your IT kit safe and secure: our selection of racks, enclosures and cabinets. And MARK GARNER offers his tips on how to make a choice

Your choice of racks and cabinets depends on where they're to be installed. It could be a small server room or branch office, an edge data centre, a micro-data centre or a medium to large data centre. Each site differs in the way it's been designed or evolved.

Most server, storage and network equipment fit 19-inch racks, based on the standard of the Electronic Industry Alliance (EIA). In data centres with 1-3kW/rack, the most popular have been 600mm (24 inches) wide, 1070mm (42 inches) deep, and 42U tall.

Most professionally-run data centres support standardised racks to host a variety of equipment densities and form factors that may also require additional accessories. Increasingly, 48U, 52U and even 58U racks are being used to fit more equipment in the same footprint.

On the other hand, small server rooms and branch offices are typically unorganised, unsecure, hot, unmonitored and space constrained. These conditions can lead to downtime or, at the very least, those "close calls" that get the attention of management.

As edge data centres emerge, pod-style architectures are increasingly being deployed. These can be used with hot or cold aisle cooling, with rack-ready data centre systems enabling users to pre-configure cabling work overhead for fast and flexible scaling.

Here's my four-stage selection guide:
• Establish some basic parameters of your equipment, such as dimensions and load ca-

pacity. Remember to include non-IT kit such as rack PDUs, automatic transfer switches (ATS), rack-mounted UPS and so on. Note that, due to cabling requirements, network racks are generally wider than server racks.
• Now select dimensions and load capacity based on those attributes. Think about these three factors:
1. If your future requirements are unknown, it may be worth specifying over-sized racks for greater densities.
2. Higher rack density generally means greater weight, so make sure that your racks (and the floor) can support the highest density.
3. Choose vendor-neutral racks for the widest range of equipment from the largest number of suppliers; that will keep open your options for the future.
• Select your preferences. These might include colour, door style (curved, angled), type of door lock, seismic bracing, etc. Remember your design criteria should be achieved – for example, any change to the doors should not restrict airflow.
• Choose accessories to improve overall efficiency. These can be utilised in a range of ways, for example to improve cooling through airflow containment, cut downtime through power capacity and cable management and reduce physical threats and human error through monitoring and management software. Search "How to Choose an IT Rack" from my company for more advice.

Marc Garner, vice president Secure Power UKI, Schneider Electric

Customer demand has led **Metcase** to introduce new versions of its Combimet 1U rack cases, says the company. The new 19in models have a fixed wrap-around top cover which it says give a modern smooth look to the enclosures.

Unventilated and painted in light grey or black, they are in 265mm and 365mm depths. Custom sizes and colours can also be made to order.

The Combimet series of rack cases

are available in various heights (1U to 6U) and four depths; a super deep 610mm version is for server racks. Fully assembled, they are made from aluminium with removable top, base and rear panels.

Designed to make installation easier and with less hardware, Forward is a new group of products from **Middle Atlantic**.

It centres on a new rackrail which enables blank and vent panels and horizontal cable management options to be clicked into
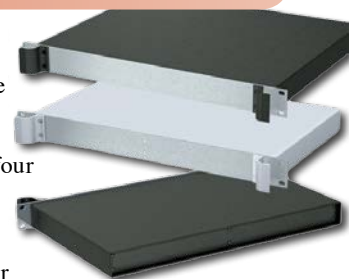
place. And the side is punched to allow vertical cable management from top to bottom or from one rack to another throughout the enclosure.

A new light, featuring auto switch-on and a dimmer, mounts on horizontal slots to ease work in dark areas. Cable management accessories eliminate the need for tools and the power bracket slips easily into slots.

Middle Atlantic says blank and vent panels can be installed in seconds rather than minutes because they click into place. In addition, a 2200VA UPS is preinstalled.

Two new product lines, the AX and KX enclosures, have been introduced by **Rittal**, offering ease of assembly and more space than their predecessors.

In spray-finished sheet steel or stainless steel, they are said to meet the need to house a greater number of components and cables.

Both also save time: panels can be removed individually; doors and cam locks can be more easily installed, typically without tools; and wall mounting brackets can be quickly screwed into place from the outside without affecting the protection rating and cutting the risk of damage.

The KX small enclosures are from 150x150x80mm and the AX compact models are available with depths of between 120mm and 400mm and in a maximum size of 1,000mm x 1,400mm.

Rittal says the launch represents the digital transformation of a standardised product it has been making for more than half a century.

Easier cabling is promised with a wider 6U wall-mounted rack cabinet, part of the SmartRack range from **Tripp Lite**. The model SRW6UDPVRT is three inches wider than the company's standard-width wall-mount racks.

Combined with two vertical cable

managers in front and two cable pass-through ports on top, the extra width is said to provide convenient cable management and access along the front. This, the company says, minimises rear cable clutter that can obstruct vents.

In powder-coated steel, the new model has a lockable front door and side panels along with a maximum load capacity of 200 lbs.

Tripp Lite recommends it for branch offices, retail locations, classrooms, back offices and other areas with limited floor space.

Edge computing, says **Vertiv**, brings unique challenges, including the need for rapid deployment, remote monitoring and end-to-end services. In addition, it says IT needs may differ from site to site and constantly evolve. Vertiv has products which it says meet these needs.

Its VR rack, said to be easy and quick to deploy, is in eight standard sizes with a frame design that delivers about 2.5 inches of additional useable space compared to similar-sized racks and has

a range of tool-less accessories.

Geist rPDUs (rack power distribution units), in basic, monitored and switched versions, monitor input power to a claimed plus or minus one per cent accuracy. All have a five-year warranty.

THE WORLD ACCORDING TO...
Broadband déjà vu, by *By Ian Fishwick, commercial director, Innopsis*

One of the problems with being in an industry for 40 years is that history starts to repeat itself. I am having a huge sense of broadband déjà vu.

20 years ago Telewest and NTL, now merged together as Virgin Media, were laying the fibre for the UK cable TV networks. Those fibre cables also provided broadband. We decided not to connect fibre to every premise; even though we could. Why?

One of the great misunderstandings is that a technology roll-out is all about getting the technology to work and raising the money to pay for it. The reality is a lot more mundane. Planning rules and permissions often dictate the cost and speed of progress.

About ten years ago I went to BT Tower to listen to an update on its 21st Century Network roll-out. I ran a sweepstake on how many minutes it would be before someone said that difficulty getting planning permission to install green cabinets at the roadside was slowing them down. Answer: 11 minutes. No council wants even more street furniture on its pavements.

20 years after the cable fibre roll-out and Philip Jansen, the newish CEO of BT is once again raising the issue of 'wayleaves'. Most of the general population has never heard of the dreaded word 'wayleaves' and yet it is still one of the main issues slowing down fibre roll-out in the UK.

A 'wayleave' gives a fibre supplier the right to dig across private land and lay fibre to connect a premise directly to the network. You are reliant on a landlord signing the wayleave agreement forms and agreeing to a sensible fee; before any installation work can commence. This can often take a very long time and much chasing up. Irritating, when you are trying to connect one or two buildings, but potentially paralysing when connecting thousands.

We have different rules when connecting vital utilities such as electricity. I don't pretend to be a legal expert on the detail, but as a point of principle, we must make installing fibre as easy as any other utility.

The Government needs to ask the fibre suppliers what is stopping them speeding up the nationwide roll-out of fibre-to-the-premises. It should then quickly remove any problems that are based on 'rules' that can be changed.

Perhaps a call for commonly shared separated utility ducts for Water, Gas, Electric and Fibre should be mandatory for all new builds and refurbishments to a central point on the property boundary, plus shared common ducts for utilities for all new builds and all new road and pavement works.

This is the type of issue that is outside of OFCOM's remit and needs cross-government action.

DCMS launches third round of cyber security skills initiative

The Department of Digital, Culture, Media and Sport (DCMS) has launched a new campaign in a bid to attract a broader array of talent into the cyber security space.

It is the third round of funding for the Cyber Skills Immediate Impact Fund (CSIIF), with training providers able to access up to £100,000 of government funding to work with employers and design training programmes which retrain a diverse range of individuals for a career in cyber security.

"This latest round of funding demonstrates our commitment to make sure the UK's cyber security industry has a skilled and diverse workforce and, through our new

Cyber Security Council, there are clear paths for those wishing to join the profession," said cyber security minister Nigel Adams.

Simon Edwards, IET director of governance and external engagement said that it was fundamental that cyber security is seen "as a nationally recognised and established profession" with clear career pathways.

"With cyber skills shortages already emerging at every level, we are committed to working with the government and the National Cyber Security Centre on delivering the rapid, yet capable development of specialist cyber skills to meet the growing needs of

the industry, manage risk and secure the next generation of talent," he added.

Meanwhile, the Institution of Engineering and Technology (IET) has been selected to help design and deliver new UK Cyber Security Council to coordinate the existing professional landscape. The aim will be to create an accessible career path, which is appealing to those entering the workforce.

Recent research from the DCMS found 54% of businesses in the UK have a basic technical cyber security skills gap. The biggest areas seem to be forensic analysis, penetration testing, security architecture and using threat analysis insight.

It is the third round of funding for the Cyber Skills Immediate Impact Fund (CSIIF)

ninja
RMM

The Modern RMM Platform to Run Your Business

IT Provider Attributes 4X Growth to Tool that Made "Night-and-Day Difference"

Continued growth in the managed IT services market is attracting an influx of new competitors. As a result, pressure is mounting for managed services providers (MSPs) to improve their efficiency and productivity. For many, that means reconsidering the software they rely on to conduct their service work — specifically their remote monitoring and management (RMM) tool — and exploring more modern, cloud-based alternatives.

"An RMM platform is critical to what we do," explained Shawn Freeman, founder of managed services provider TWT Group. "It manages everything that we support. Unfortunately, RMMs we've used in the past, they just weren't reliable. We'd always have to manage them."

Andrew McGillivray, a technical account manager at TWT Group, agreed. "Most RMM platforms, traditionally, they've been more hassle than problem-

solving. Our previous RMM would lose connection with our endpoints consistently. If it's losing connection with the endpoint, it's completely useless to us."

Without reliable monitoring and access to the client machines they were responsible for, TWT Group was stuck wasting valuable technician time and unable to scale their services. They were stuck in a holding pattern.

That all changed when the company discovered NinjaRMM.

"It was a night and day difference, seeing NinjaRMM and how well it works," explained McGillivray.

NinjaRMM distinguishes itself from competitors by delivering on its promise as a modern RMM that combines powerful functionality with an intuitive interface that is remarkably easy to use. In a recent survey of MSPs it was rated the most stable and reliable RMM on the

market. It also currently has the highest customer satisfaction score of any RMM on G2 Crowd, which compares software based on real user ratings and reviews.

Whereas McGillivray and his team at TWT Group had previously been forced to second-guess and find workarounds past unreliable software, they now had a tool they could trust. With NinjaRMM, suddenly, all those wasted hours were added back to their days. "Everything is monitored. It's running kind of maintenance that we don't have time for. A critical server alert gets caught and are able to fix it before there is ever any downtime," said McGillivray. "Our day-to-day lives as techs just generally improved."

For TWT Group, getting NinjaRMM up and running was also a welcome change of pace. While other RMM platforms can typically take weeks of costly implementation and training, Freeman says it took two or three days for the company to implement NinjaRMM across its entire client base and begin using it immediately.

"An RMM platform that's fast, simple, and beautifully easy to use is important," said Freeman. Those are things people have come to expect from great software, and considering how much time technicians spend in their RMM, usability is key. Any improvements that allow them to be more efficient and productive has a real impact on not just the service they provide, but the profitability of the MSP, overall. "With NinjaRMM, you're not digging around to find very powerful functionality to get something accomplished," McGillivray said.

"I'm excited for the future," said Freeman. "TWT is growing rapidly. Since we started using NinjaRMM, we went from managing 550 endpoints to 2,000. Ninja is enabling us to do that."

Freeman and his team encourage any IT services provider looking to grow their business to check out NinjaRMM. See for yourself why they and more than 3,000 MSPs and IT pros around the world trust and love the platform by starting a free trial today at **www.ninjarmm.com**.
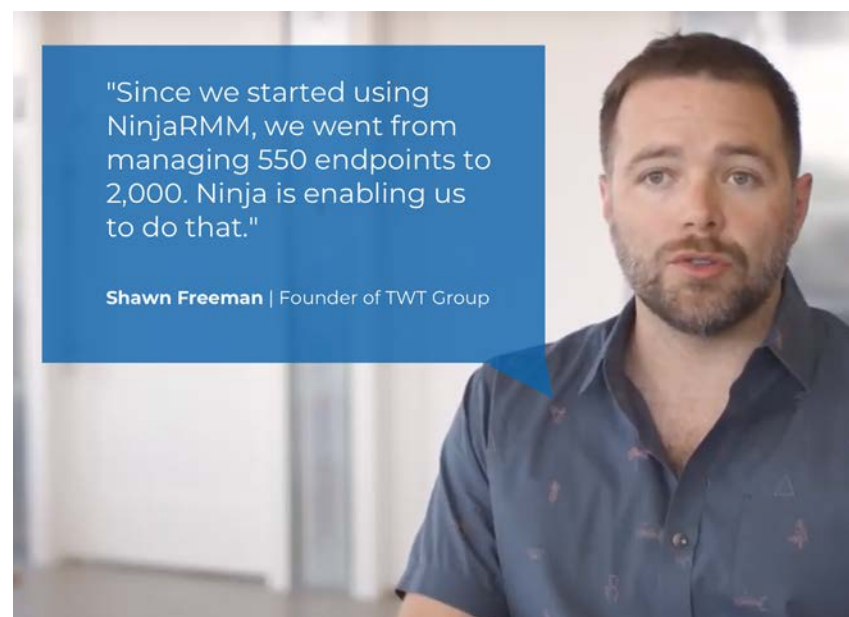
NinjaRMM Dashboard | Source: www.ninjarmm.com

> "Since we started using NinjaRMM, we went from managing 550 endpoints to 2,000. Ninja is enabling us to do that."
>
> **Shawn Freeman** | Founder of TWT Group
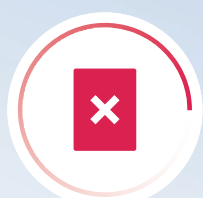
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