

Cloud technologies powering the future of public services

Perspectives from UKAuthority's Powering Digital Public Services virtual conference 2021



Powering Digital Public Services 2021

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1. Infrastructure is power

As the capabilities and expectations of digital public services change, so does the infrastructure that supports them.

Organisations are finding that they can do more and meet new challenges by shifting services to new foundations, especially those on the cloud, and are thinking in different terms about how they will move forward.

This has been highlighted and accelerated by the public sector response to the Covid-19 pandemic but reflects a trend that was already in place. It has also shown that the issues are not entirely technical and financial, and that in making decisions there are questions to ask about data protection, digital inclusion and environmental sustainability.

These are rising on the agenda, reflecting the social responsibilities of the sector, and have to be taken into account in future investments in the technology that powers services.

This is the context in which UKAuthority staged the online conference, Powering Digital Public Services in 2021, bringing together a collection of public sector digital leaders and industry representatives to look at recent developments and explore some of the surrounding issues. The insights and ideas to emerge are outlined in this paper.

2. Increasing capabilities in the cloud

It was no surprise that cloud services have become a mainstay for an increasing number of public authorities and that, despite the government's longstanding preference for using public cloud as a default, more are finding that a hybrid of public and private clouds, often with on-premise hosting for the latter, is serving their purposes.

Andrew Puddephatt, director for the UK public sector at Nutanix, outlined an approach to this with a nod to the recent Cloud Computing report by public sector IT association Socitm and three elements of guidance. One involves the development of hybrid cloud strategy, using private and public cloud as appropriate for running workloads and applications; the second looking at which existing applications can be migrated to cloud and which should be decommissioned; the third to define, agree on and share the benefits and inhibitors of the migration. These can provide a foundation for the flexible management of workloads and applications to scale up their activity and provide new services when needed.

He received support from the experience of Shropshire Council, whose infrastructure lead Stuart Bland described its development of a roadmap to a hybrid cloud model involving a dispersal of functions: telephony, the contact centre, education management systems, mapping and remote access to an on-premise private cloud; its ERP, CRM, social care and regulatory services systems on a hosted public cloud; and email, file sharing, identity management, website management, integration hub and citizen access positioned to be moved between the two on a mixed cloud.

Different priorities in a digital transformation were identified by Simon Bennett, chief technology officer EMEA for Rackspace Technology. For some organisations it is about removing the technical debt, taking out the short term fixes and hasty coding in digital systems to ensure that they are aligned to the broader strategy; along with ensuring the day-to-day support of systems and improved cyber defences are in place.

Others see it as a large scale transition to using cloud services, with a combination of 'lift and shift', rewriting applications for the cloud and adopting software-as-a-service products, and providing the flexibility and scalability to adapt to changing demands over the long term.

If the understanding is already in place it makes it possible to move more quickly, as was explained by Owen Powell, ICT director of Central and North West London (CNWL) NHS Foundation Trust. He explained how it had quickly increased remote working in response to the pandemic lockdown – from 200 to 2,000 concurrent users per day – then gone on to a fast adoption of video consultations and other transformation projects. He said all this was done in the early days of the pandemic response without business cases, testing and pilots, and facilitated by the support of Rackspace Technology and having the commercial architecture of the trust's cloud model in place, so there was no need for urgent debates with the finance officers.

A further example of rapid scaling up to deal with pandemic demand came from Joanne Delap, team collaboration product owner at the Department for Work and Pensions. She described how the department responded to a 40% increase in universal credit applications and up to 2.2 million calls a day while managing a massive shift to home working, which has now been made possible for 77,000 of its staff, along with the introduction of new services for child maintenance and pension credit.

Some of the ground had already been laid with the migration of its remote application solution supported by two data centres to cater for 15,000 devices; but this was quickly scaled up with the addition of more web and application servers, an increase in database capacity and the provision of licences for 110,000 users. It was also able to scale up its cloud hosting capacity quickly. A secondary remote application service was set up on AWS for an extra 30,000 concurrent users and made the default for any new devices, and there was a big increase in the use of Skype for Business, with the number of users rising from 7,000 to 40,000 per day, followed by the widespread provision of Microsoft Teams.

It provides an example of cloud being at the centre of a big scaling up of remote working, and Delap said an unexpected benefit had been people finding they have a better performance using the VPN remotely than when working on the local area network in the office.

Other features around the use of cloud were highlighted in the discussion sessions. One was that, while the underpinning architectures of public and private cloud are similar, they are not identical and the latter provides more scope for building out services. But public cloud can prove to be expensive when an organisation does not fully understand how it wants to use it, as it can find itself paying for a lot of unused capacity. This makes it necessary to look closely at application workloads and how they could change over time before choosing which of the two to use for a service.

There is also the factor that cloud reduces the need for capex spending in a hardware procurement cycle, but in many organisations it is easier to make the case for capex than opex, and if cloud services are reserved in advance it can be possible to attribute them to the former.

Alongside this there are deals in which on-premise hardware is made available as a service, which creates more options in a hybrid model. The right combination comes down to the needs of an organisation, but it will always need conversations with procurement and finance teams before making a large commitment.

Despite the general enthusiasm for cloud, there was a warning that a migration to a service is not the solution for every problem and ambition, as sometimes they require more complex developments in technology. It needs input not just from the techies but service teams and business analysts to fully understand how to utilise the technology estate.

3. Digital, virtual but critical national infrastructure

Additional features to cloud were highlighted during the conference. Colin Cook, digital director for the Scottish Government, said that it is important to recognise that digital infrastructure for public services is part of the critical national infrastructure, with the services built on it being seen as important as cables and wires.

He pointed towards development of the public sector digital strategy for Scotland, which aspires to common platforms for purposes such as managing cloud services and payments.

The ambition is that these would make it possible for teams to plug in and quickly spin up new services. This is being supported by the creation of the Digital Commercial Service to provide professional procurement advice to help organisations make the most of the offerings in

the market, engaging with it early to find solutions as they become available.

Cook also pointed to the presence of the Scottish Digital Academy as a shared resource for training on all aspects of the digital agenda.

Virtualisation has a long established role in the sector's digital infrastructure, and is taking on a new dimension in its relation to the growth of cloud services. Joseph Langford, chief technologist public sector for VMware, said it is relevant to some of the main questions being asked of infrastructure.

These include how to get apps for services into production more quickly, how to accelerate digital innovation across multiple clouds, and how to shift from a reactive security posture to one of strength? In addition, the time and costs involved in a cloud migration can mount up due to the use of dual infrastructure for some of the period, the need for refactoring applications and to adapt to a new operating model.

He pointed to the emergence of new virtualisation products, such as VMware's Cloud Foundation and Cloud Assembly, in managing the change, making it less threatening and contributing to a positive shift of mindset for transformation. They can also contribute to environmental savings in the efficiency of operations and better power management.

Identity verification is another important element. While there has been widespread disappointment with the GOV.UK Verify service, organisations have been looking for other solutions. Joanne Delap referred to the importance of the Confirm Your Identity service, launched in April 2020, to help universal credit claimants prove their identities online during the application process. It has since helped to verify about 55% of claimants online.

Colin Cook highlighted the plan for a new digital identity service for Scottish public services, for which the search for a development partner was underway. He said that, while the details were still to be developed, it would ensure that citizens will own and control the use of their personal data, as such systems will only work if they are trusted by the public.

It is also important to note that changes in the infrastructure are creating new demands on security. Martin Ferguson, research and policy director of Socitm, said new risks are arising from the growing reliance on mobile devices and the extension of networks beyond an organisation's perimeter, and that this needs new approaches.

This is prompting assessments of the security in supply chains and a growing interest in the concept of 'zero trust' – that devices and contacts should not be trusted by default, demanding strong verification for any kind of access any time. This requires frequent updates in identity and device management, and becomes more complex as organisations make ever more use of hybrid cloud models, requiring changes in security profiles as applications and workloads are shifted between public and private clouds.

4. Social obligations

While considerations of technical efficiency and potential savings are usually to the fore, public authorities are now devoting more attention to their social obligations in their investment decisions. Environmental sustainability and digital inclusion have become key issues and are likely to grow in importance.

Mattie Yeta, head of sustainable IT at the Department for Environment, Food and Rural

Affairs, explained the three categories of an organisation's carbon emissions: direct emissions from operations; indirect from the electricity used; and all other indirect from sources such as its supply chain.

Decisions on the digital infrastructure can throw the focus on different areas and it can be more difficult to measure emissions in the second and third category. For example, energy usage from an in-house data centre is more apparent than from a cloud service. And there are challenges in assessing emissions coming from the myriad of smaller devices now used for remote access to systems. But it requires an effort to understand where emissions can be reduced in applying technology, and Yeta said this often goes with achieving efficiencies.

There is another angle in trying to reduce the volume of equipment that ultimately goes to landfill, and a significant step is identifying how many devices are really necessary for employees to do their jobs. Progress is being made here with the increasing reliance on laptops and mobiles rather than desktop monitors, and a reduction in the amount of printing; and an emphasis on such steps should be a significant part of the digital transformation plans for any organisation.

Digital inclusion is also increasingly to the fore, with the pandemic heightening concerns about some employees not having the devices and connectivity to carry out their jobs remotely, and some people being cut out of digital services. As public authorities migrate more to cloud and build new digital infrastructures they have to take the inclusion into account, with the distinction between what organisations and citizens need.

Socitm's Martin Ferguson made the point: "The pandemic shows how digital by default services exclude those who need them most. It is a utilitarian 'Build it and they will come' philosophy.

Digital inclusion is very much built around the idea of providing resources, devices and skills, but with the conception of skills for industry and productivity as opposed to people's wellbeing."

Some relevant efforts were outlined. Sam Smith, president of Socitm and assistant director for IT and digital services and Cambridgeshire County Council and Peterborough City Council, pointed to the role of free town and city centre Wi-Fi that can give people on low incomes access to online services, when they often cannot afford mobile tariffs with much data. She also emphasised the importance of providing broadband connections for schoolchildren, a move that has made a big difference to some while taking part in remote learning during lockdown. In many parts of the country this has been accompanied by providing laptops for schoolchildren.

Rob McNally, head of IT strategy and solutions for the Leeds City Digital Partnership, said that the partnership is creating city-wide digital facilities to support its development of an integrated care model, with shared facilities including full fibre and networks for connected devices. There are also plans for smart buildings networks of connected devices in the city.

Alison Hughes, assistant director ICT, digital and customer at Liverpool City Council, pointed to its 10 pledges for recovery from the pandemic, including the 'Get connected' pledge of stable broadband connections for vulnerable families. This could be relevant to job offers in the future as organisations in the public and private sectors look more to home working.

In the discussions Sam Smith said there is a need for a shift in thinking in which broadband is regarded as an essential and affordable utility within housing, ensuring that it provides digital inclusion for everyone. Local authorities can play a role in promoting a change and exploiting the

potential of 5G to support inclusion.

Much of this can feed into what Martin Ferguson described as "ethical, digital place making", which combines policy and practice to build health and wellbeing in communities. Organisations may look at how this can relate to their future provision of infrastructure.

5. Out of the office

Underlying much of the discussion was the sense that there is a big shift in the public sector towards more home working and less dependence on the office, and this will play a major role in the future character of digital infrastructure.

In the more immediate term it will need to support more flexible working and interacting with the public through virtual channels. This will need assurances about connectivity and an intelligent use of cloud services, building hybrid models that work for individual organisations, optimising the capacity and costs while maintaining a strong emphasis on security.

Further forwards there is scope for a big rationalisation of office space, which in turn will need a rethink about the supporting infrastructure, shifting the emphasis to remote access to networks and sharply reducing the need for hardware provision. It will be less about big buildings and more about work communities and extending public interaction. A lot of options are already available, and organisations now need to explore which works best for them.

DAY ONE - Wednesday, 10th March



01:08 The Transforming Scotland's public Services - Colin Cook, Digital Director, The Scottish Government

The Scottish Government and local government are working together to update Scotland's national digital strategy and ensure that the country is recognised as an ethical digital nation. This is an opportunity to redesign public services and transform the organisations that deliver them, through a comprehensive, national approach to service design, new ways of working with industry and the development of common platforms as part of the country's critical national infrastructure ([Download slides](#))

13:08 Transforming Digital Public Services with Hybrid Cloud - Stuart Bland, Infrastructure Lead, Shropshire Council

Shropshire Council's early steps into a hybrid cloud set up to align with its 'Cloud where appropriate' approach to delivering IT services; how this approach stood them in good stead to deal with the changing work patterns brought about by the pandemic, and how they are looking to evolve the model over the next few years in the post-Covid arena ([Download slides](#))

31:30 - Adopting hybrid cloud to deliver digital public services - Andrew Puddephatt, Director UK Public Sector, Nutanix

Examples of public sector organisations that have worked with on their journey to cloud including Birmingham City Council, University Hospitals Plymouth NHS Trust, Stockport Metropolitan Borough Council ([Download slides](#))

42:13 DWP Digital with Purpose during a pandemic - Joanne Delap, Team Collaboration Product Owner, Department for Work and Pensions

Joanne Delap discusses the challenges that DWP were faced with during the pandemic and how they responded as an organisation. Within the context of the pandemic, how they adapted to new ways of working, the scaling of infrastructure and services to meet unprecedented demand, the Digital transformation during this period and plans for the future ([Download slides](#))

58:25 Q&A / panel discussion

DAY TWO - Thursday, 11th March



01:00 Don't Go it Alone: Accelerate Digital Transformation with the Right Tech Partnerships (Part One) - Owen Powell, ICT Director, Central and North West London NHS Foundation Trust

The pandemic has driven the public sector to adapt and innovate at speed. Owen Powell discusses how CNWL achieved around three years of transformation in three months and how the right technology partnership can enable innovation, scalability and security in the cloud ([Download slides](#))

14:12 Don't Go it Alone (Part Two) - Simon Bennett, CTO EMEA, Rackspace Technology

Simon Bennett talks about the role can Rackspace play to help organisations accelerate transformation, some of pitfalls faced, the impact of Covid and what digital transformation actually means ([Download slides](#))

32:05 Don't Go it Alone (Part Three) - Joseph Langford, Chief Technologist, Public Sector, VMware (formerly Chief Digital and Information Officer, Surrey and Sussex Police)

Joseph Langford shares his experience of being a Chief Digital and Information Officer during 2020 and the importance of having a trusted partner ([Download slides](#))

46:20 ICT impact on CO2 emissions – a macro perspective - Mattie Yeta, Head of Sustainable IT, Department for Environment, Food and Rural Affairs

ICT has the potential to reduce emissions by 15%. Mattie Yeta discusses the three major ways in which ICT can be expected to affect CO2e emissions. The direct effects are mainly caused by energy consumption in production, distribution and use of ICT

1:06:00 Q&A / panel discussion

DAY THREE - Friday, 12th March



01:30 Local government post-Covid recovery, the digital perspective (Part One) - Martin Ferguson, Director of Policy & Research, Socitm

Local government will be at the forefront of people, community and place-based recovery following the Covid pandemic. Social and economic regeneration and environmental sustainability will be central to their efforts to rebuild resilient, cohesive and thriving communities. Martin Ferguson explores the key findings from Socitm's Digital Trends 2021 report and their relevance to these recovery efforts ([Download slides](#))

22:08 Local government post-Covid recovery, the digital perspective (Part Two) - Sam Smith, Assistant Director for IT & Digital Services, Cambridgeshire County & Peterborough City Councils. Also Socitm President

Following on from Martin Ferguson's presentation, Sam Smith introduces initiatives that are already taking shape in localities ([Download slides](#))

33:18 Rob McNally, Head of IT Strategy & Solutions, Leeds City Digital Partnership

Rob McNally gives a whistle-stop tour around the approach taken in Leeds to bring together the Council and local health partners to deliver the 'City Digital Partnership'. This includes standardisation around estates and moving NHS partners to a shared cloud platform supported by Leeds City Council ([Download slides](#))

50:10 Respond and recover, the role of digital and technology - Alison Hughes, Assistant Director ICT, Digital and Customer, Liverpool City Council

Transformation against a backdrop of the pandemic/ public service for our new normal/ customer services and how this has impacted on our digital strategy for the future ([Download slides](#))

1:02:10 Q&A / panel discussion

9. Links & Resources

Resources referenced during this event include:

- [Digital trends in local public services 2021](#) (Socitm)
- [Planting the flag - a new local normal](#) (Socitm)
- [Pandemic shows how 'digital by default' government services exclude those who need them most](#) (Vishanth Werakkody, University of Bradford)
- [Understanding the impact of COVID-19 on BAME groups](#) (Public Health England)
- [Digital Accessibility: A brief landscaping](#) (Citizens Online)
- [Technology code of practice](#) (GOV.UK)
- [Cloud guide for the public sector](#) (GOV.UK)
- [Defra e.sustainability alliance](#) (Department for Environment, Food and Rural Affairs)

10. Event Partners

Rackspace Technology

Rackspace Technology is the multicloud solutions expert. We combine our expertise with the world's leading technologies — across applications, data and security — to deliver end-to-end solutions. We have a proven record of advising customers based on their business challenges, designing solutions that scale, building and managing those solutions, and optimising returns into the future. As a global, multicloud technology services pioneer, we deliver innovative cloud capabilities to help customers build new revenue streams, increase efficiency and create incredible experiences. Recognised as a best place to work, year after year, by Fortune, Forbes, Great Places to Work and Glassdoor, we attract and develop world-class talent to deliver the best expertise to our customers. Everything we do is underpinned by an obsession with our customers' success — our Fanatical Experience™ — so they can work faster, smarter and stay ahead of what's next.

[Learn more at www.rackspace.com/](http://www.rackspace.com/)

VMware

VMware streamlines the journey for organizations to become digital businesses that deliver better experiences to their customers and empower employees to do their best work. Our software spans App Modernization, Cloud, Networking & Security and Digital Workspace.

[Learn more at: www.vmware.com/](http://www.vmware.com/)

Nutanix

Nutanix is a market leader in Hyper Converged Infrastructure (HCI) - a software defined platform that enables organisations to simplify, automate and reduce the cost of IT. In the UK, Nutanix is working with around 170 public sector customers to help them on their journey to a Cloud operating model whether that is Private, Public, or most often a Hybrid or Multi Cloud strategy. The start point for Nutanix is to modernise legacy platforms and applications. From there, public sector organisations can simplify and automate processes associated with managing infrastructure to refocus resources on innovation and delivering improved digital services. Throughout this journey, Nutanix believe it is essential to architect an operating model that allows for a mix of 'on prem' and public cloud platforms where applications and workloads can be moved seamlessly across them. [Learn more at www.nutanix.com/uk/public-sector](http://www.nutanix.com/uk/public-sector)

11. Powering Digital Public Services 2022

Powering Digital Public Services 2022 takes place on three mornings in March - 90 minute sessions from 11:00 to 12:30 on:

- Wednesday 9th March
- Thursday 10th March
- Friday 11th March

[Register now to join us live in March 2022](#)



UKAuthority

This briefing note has been researched, written and published by [Mark Say & Helen Olsen Bedford](#), UKAuthority.

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