UKAuthority Briefing Note

July 2020

In partnership with

rackspace technology

Managing digital complexity in a crisis

Harnessing the hybrid cloud in response to Covid-19 and planning for long term resilience

Contents

1. Introduction

Speed has been of the essence in responding to the Covid-19 pandemic, and this applies to digital initiatives as much as any other public service efforts. Organisations have had to react quickly in setting up solutions to support the delivery of services to vulnerable people in lockdown, to help the health services deal with the massive influx of infected patients, and to encourage the public to provide crucial data on the spread of the coronavirus.

This has been and remains a major challenge, as these solutions have to tap into highly complex collections of processes, information flows and digital systems, often dispersed between on-premise, private and public cloud platforms. This complexity has to be unravelled so the systems can be reconfigured, with the scope to scale up the solutions to meet the surge in demand.

Connectivity & agility

There are also issues around connectivity, with a big increase in the number of public servants working remotely, and organisations need to expand their ability to deal with huge volumes of incoming and outgoing data traffic.

These challenges are not unique to the Covid-19 response. There is a longer term need for public sector organisations to take new approaches, emphasising agility and speed, to designing digital services. This has to involve a firm grasp of how public needs are evolving and a pragmatic approach to the technology options. For many organisations it will involve an increasing use of cloud systems, which offer great potential for specific purposes but have to be integrated and managed effectively.

Harnessing cloud

Again, it will all come up against the complexity of legacy systems and the fact that many have been deployed to support a limited number of users. Organisations need to develop techniques and find the right support for dealing with the complexity.

This paper throws a spotlight on the issues, with examples of how some public sector bodies have quickly responded to Covid-19, filled gaps in their capabilities and shown a long term potential for rapid reconfigurations of how they work.

2. Lessons from the Covid-19 response

The common requirement for public authorities in dealing with the pandemic has been to get as many staff as possible out of their offices and working effectively from home. There has been a big surge in remote working supported by video conferencing technology – with an especially large upswing in the use of Zoom – online collaboration tools such as Microsoft Teams and Google's G Suite, an increased reliance on cloud services and an extension of virtual private networks (VPNs).

The technology was already available, but organisations were at different levels of preparedness, both in the availability of the tools and the configuration of their digital infrastructures. For some it has been relatively straightforward to implement the changes; for others there have been complex challenges in the rapid scaling up of capacity for remote working.

Licences & skills

One of the issues has been around licensing of the relevant software: a delegate poll at

UKAuthority's recent Powering Digital Public Services found 20% citing this as a significant factor. Organisations have had to ensure that their licences for video conferencing software have covered enough concurrent users, and that those for collaboration and application software have been sufficient. There has been a danger of overspend which has required that organisations are careful in identifying exactly how many people are likely to need access to various systems and the demand at any one time.

Training users has been a big part of the response, with much of the effort focused on those unfamiliar with video conferencing systems. One of the experiences has been that new users are often quicker to learn when these are part of broader productivity suites with which they are already familiar – a significant factor in the take-up of Microsoft Teams and Google Meet. The rapid adoption of Zoom has been supported by its corresponding take-up in the consumer market.

Rapid cultural change

There has also been a strong element of cultural change. In the conference polls 14% said there were initial issues with people not wanting to be on camera, but there have been reports of many quickly developing a more positive attitude. This has often been prompted by organisations requiring the video function to be turned on, or a degree of peer pressure, although there is also a sense that many users have adapted as they begin to see home working as the new norm.

Connectivity demand

The increase in remote working has imposed unfamiliar demands on networks, not least in dealing with a larger number of concurrent users. The Central North West London NHS Trust managed to raise its average number from 200 to 2,000, and the limit from 2,000 to 5,000, in the space of 48 hours with Rackspace and the Daisy Group reconfiguring its network to increase capacity. This included a focus on the bandwidth and volume of data traffic at different points in the network, an area in which the technology partners were able to bring their expertise to find solutions and keep the trust's infrastructure functional, enabling its own team to concentrate on the service delivery and looking for new solutions.

Similar demands have arisen in the need to increase the capacity of VPNs to give staff remote access to various business applications. The conference poll showed 12% citing this as an issue, and it is important to know which people have to use applications that are running on internal systems rather than in the cloud. One of the key elements of this has been in the provision of VPN concentrators to encrypt and decrypt data, which it turn creates a demand for more processing power. Some organisations have been able to do this by routing traffic through large scale VPN concentrators run by cloud providers, which provided a quick route to expanding capacity compared with the existing networks. It has demonstrated how the intelligent use of cloud services can be a big factor in successfully coping with the complexity.

Among the organisations that Rackspace supported, are a County Council that needed to enable 6,000 of its employees to work from home, and an NHS Trust that needed to quickly set up a virtual desktop environment based on VMware cloud. Rackspace has followed up by working with both to determine which applications can be moved to cloud services that have a higher processing capacity. This is where an understanding of the cloud market becomes a great asset, with the partner's experience combined with the in-house team's grasp of what the applications need in order to function at optimum performance.

Cloud agility

Another element of the conference poll suggested that this use of cloud is part of a broad trend: 54% of respondents said it was absolutely vital to their organisation's response to the pandemic, with another 40% indicating that it had played a useful part of the mix.

There have been reports of instances in which organisations had to place some plans, such as migration to a new VPN software or adoption of a new business application, on the back burner while they focused on more immediate demands. One element of the response has been a quick assessment of priorities and the benefits of software changes.

Changing security requirements

Underpinning this has been the need to maintain robust arrangements for security, business continuity and disaster recovery. One element of this has been the need to ensure users' devices are safe, with organisations' IT teams having to identify potentially sensitive areas and build security controls into laptops before they can access systems remotely.

Also, the emphasis on cloud services has created the need to extend assurance and cyber resilience from the organisational data centre to knowing the cloud provider has robust security in place. Again, this is where the technology partner's knowledge of the market is a key factor.

An additional factor has been the need to maintain and update websites in good time, to keep the public well informed of what support an authority can provide and what people need to do in dealing with it, thereby easing the pressure on its contact centre. This has involved changes in content and sometimes coding, and testing to ensure the sites have the capacity to handle an increase in traffic.

Scalability

On a broader front, 19% of the poll respondents said they faced problems in being able to scale up remote working at speed. Cloud can be a big facilitator in overcoming this, but it needs a firm grasp of the capabilities and costs of different services, with an eye not just on solving the immediate demands but the effects going into the immediate and long terms. This is another area in which a knowledgeable technology partner can play a key role in helping an organisation make the right choices.

Another change has been the acknowledgement that digital projects can be delivered remotely. It seems that most public authorities have quickly set up new services with digital and business teams, and their contractors, working from home. They can see the tools are available to make this possible and that the necessity of social distancing has triggered the change in attitudes to suggest that it could become the norm.

This is an element of a wider move towards virtual working: in the poll 29% responded that it will inevitably becoming the norm, with 67% saying it is a possibility but that some will want to revert to old ways of working.

3. Taking a long term view

The experience of Covid-19 has demonstrated the need to go beyond regular business continuity and disaster recovery plans, creating a capability to deal with emergencies demanding changes in the working culture in an organisation and its digital infrastructure. A strong, flexible capability can also lay the

ground for a steady, long term evolution to meet changing demands.

Lessons from the pandemic and the prior arrangements of some organisations indicate what can be achieved. One of the big lessons to emerge – as shown with the rapid expansion of Teams in organisations using the Office 365 suite – is that people are more likely to take quickly to a new application if it is part of a package with which they are already familiar. And if the infrastructure and operating model are already in place, with the capacity to rapidly scale up the use of the systems, it makes it a lot easier to change working habits quickly.

Flexibility

The infrastructure does not have to be rigid, as a strong awareness of the options in cloud services and how they could be integrated into an existing digital architecture provides a solid starting point. A good knowledge of the market makes it possible to tap into these quickly, often within days rather than weeks, to boost existing capabilities and add new elements. This can be seen in the extension of VPNs using cloud based concentrators, and the rapid roll out of video conferencing to more employees.

Public, private and hybrid

A hybrid cloud model can provide a high degree of flexibility and take the pressure off internal systems. For example, while an organisation may retain its VPN it can shift more applications into cloud services accessed through the internet, with sufficient degrees of security to protect sensitive data. One of the interviewees for this paper said his organisation had told its finance team to use that approach, thereby reducing the strain on its VPN. The general view is shifting much of the load to cloud systems provides better protection for the resilience of applications.

It lays the ground for 'cloud bursting', in which an application runs in a private cloud or data centre and begins to use the capacity of a public cloud when there is a surge in demand for computing capacity. This can work effectively for non-critical applications using non-sensitive data, and comes with the advantage that the organisation only pays for the resource that it needs to take up, thereby optimising its costs.

Smart sourcing & best of breed

It also enables a smart approach to outsourcing through which organisations can take up cloud offerings that are most appropriate to specific services, finding the right balance between in-house control and using outside contractors as needed. It can also help them to incorporate innovative solutions from small suppliers.

This was reflected in the conference poll, with responses to a question on powering applications over the next two years placing a strong emphasis on cloud services: 69% identified public cloud as a key element, 56% private cloud and just 27% in-house data centres.

But it requires a shift in thinking, away from an operating model focused solely on an in-house data centre towards a dynamic use of the full spectrum of the cloud services market. This demands its own skillset, extending into contract management and communications, which can be developed in-house or contracted to a partner. In both cases it needs a collaborative approach to understand what the organisation needs and to convey this effectively to whoever is procuring the services.

Change: the only constant

It also requires a readiness to expect constant change in the technology landscape and to expect the unexpected. It amounts to a shift in

mindset and a recognition that this is an ongoing, iterative process rather than one that is 'delivered and done' every few years.

Separating the management of technical and strategic issues can be an important element. In an increasing number of public authorities the digital teams are moving away from becoming direct providers of ICT services towards a coordination role and dealing with the strategic and cultural issues in its adoption.

Taking the SIAM approach

This service integration and management (SIAM) approach has been on the agenda for several years and is now well embedded in some organisations; in some cases with an internal team managing the contributions of a range of technology providers, in others with the role outsourced to a private sector technology partner. Central North West London NHS Trust has been among the bodies taking this approach, with its ICT department transforming into a digital services team, with strategic outsourcing of hosting, infrastructure, network services and the service desk, while keeping in-house partners for digital skills, systems development, projects, cyber security and commercial activities.

This provides the flexibility to adopt a range of 'best of breed' applications, and emerging technologies when appropriate, along with coherence in the way they are deployed. The chances of achieving this are stronger when there is a clear approach to reporting with timely data on systems performance, taking in factors such as the use of applications, internal Wi-Fi, VPNs and connections to cloud services. A broad view of all this provides the opportunity to manage the configuration of systems and identify where there has to be a change in capacity or a completely different approach.

Evolving digital architecture

It also provides the in-house team with more scope to deal with training and cultural issues. As a digital architecture evolves there will always be a need to teach employees how to use new applications, and to convince them of the need to take on new ways of working. When an organisation can rely on a trusted third party to look after the technical issues it is better able to engage with leaders and staff around the organisation and help build the culture for a positive change – especially when it has to be done quickly.

4. Digital architecture key

The key lesson from the pandemic has been the importance of understanding what the organisation needs in its digital architecture to support an effective response, understanding where the pinch-points are likely to arise, and working out how a hybrid cloud can be used to overcome these, how quickly and at what cost – and whether it fits into a strong framework for information security.

Future ready

This has a long term relevance not just to organisational resilience, but in supporting the digitisation of more services. It can be a key factor in digital transformation, with organisations finding a new approach for dealing with issues and implementing the solutions in a sustainable fashion. They can use hybrid cloud, drawing on its continual flexibility, as the core element of their digital architecture. It will make them 'future ready' rather than 'future naïve'.

5. The technology partner's role

Managing complexity demands skills which can be built up in the longer term but are more difficult to develop at pace. This is where a specialist such as Rackspace can make a big difference, providing the expertise to partner with a public authority in quickly reshaping its infrastructure and finding the right combination of cloud services to deal with an emergency and lay the ground for rapid responses in the future.

Skills on-demand

The effort needs engineers, systems administrators and solutions architects with extensive experience in solving technology challenges for a range of organisations, an evolving range of accredited skills, and in-depth knowledge or a range of cloud services which could come from the company itself, its partners or third parties.

They can work with a public sector organisation to assess the challenge and architect an effective combination of services, at the same time clarifying the immediate and longer term costs, then managing these through an optimisation of the services.

Problem solving

It can help to identify the technical problems in the existing digital architecture and point to options for a solution, while highlighting up front the problems than an organisation will face in shifting its balance towards cloud or hybrid models. It can provide an understanding of the pinch-points and where there could be unexpected costs, then help them towards a smoother transition. Along with this they can keep the cyber security considerations to the fore, ensuring that a new approach sits within the right framework for resilience.

Trusted partnership

In short, a partner with these capabilities can take the weight of dealing with the technical problems while allowing the organisation to focus on the business processes, public interactions and the internal cultural issues that arise with a change on this scale.

Crucially, these are skills and resources that can be used as and when they are needed, without the organisation acquiring specialist skills in house for short term project.

It should be a partner for not just a cloud migration but developing an approach to cloud that equips an organisation for new challenges and provides it with long term resilience.

6. Further information

Read more about smart sourcing

Read more about smart sourcing as an approach to best of bread procurement by downloading UKAuthority & Rackspace's report: 'Smart Sourcing Insight - Finding the right balance in outsourcing, insourcing and cloud procurement'.

Produced in association with Rackspace, this report looks at how the public sector can approach the sourcing of modern technologies in a cloud enabled world.
Download 'Smart Sourcing Insight' here

Join live UKAuthority events

UKAuthority hosts regular events exploring best practice and innovation in the public sector.
Visit the UKAuthority events schedule here

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 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 capabilities of the cloud to help customers build new revenue streams, increase efficiency and create incredible experiences.

Named a best place to work, year after year according to Fortune, Forbes, and Glassdoor, we attract and develop world-class talent to deliver the best expertise to our customers. Everything we do is wrapped in our obsession with our customers' success — our Fanatical Experience™ — so they can work faster, smarter and stay ahead of what's next.

UKAuthority

UKAuthority champions the use of technology, digital and data by central and local government, police, fire, health and housing, to improve services for the public they serve.

Visit UKAuthority.com to keep up with news and developments in govtech, digital & data for the public good.

This briefing note has been researched, written and published by UKAuthority thanks to support from Rackspace Technology.

Authors: Mark Say & Helen Olsen Bedford, UKAuthority

For further information contact:

- Helen Olsen Bedford, Research Director, UKAuthority: helen@ukauthority.co.uk
- Rhys Sharp, Public Sector Solution Director, Rackspace Technology: rhys.sharp@rackspace.co.uk