In demand: the culture of online service provision

Competitive edge and career opportunity from building advanced platforms

October 2013

The majority of organisations now provide online services of some sort to a wide range of users including: consumers, business customers and partners – as well as employees. The organisations that develop a culture of online service provision will be well positioned to support the always-on expectations of their users. Those that do not will lose out.

To achieve this, those in the vanguard are building advanced application and network platforms supported by advanced application delivery controllers (ADCs), which have a multi-tenancy capability enabling the support of multiple applications from single ADC devices. As with deploying any new platform, this requires investment, not least in relation to relevant people skills. This is creating lucrative career opportunities for IT engineers with the relevant skills and accreditations.

The research presented in this report should be of interest to those charged with providing online services, and those who realise their organisation needs to adapt to be able to be better equipped to do so. It should also be of interest to those pursuing a career in IT who wish to understand the new skills they could develop to improve their prospects.
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Competitive edge and career opportunity from building advanced platforms

Providing the platforms to support online applications is a must for most organisations as their external and internal users increasingly expect always-on services. For those pursuing a career in IT and seeking to gain the necessary accreditations, there are higher salaries on offer; but just as important, it is an opportunity to be part of the future of IT.

The majority of businesses are now providers of online services

Whatever the sector, size and target market, the majority of businesses now deliver online applications. These must support the always-on expectations of a wide range of users, be they consumers, business customers, partners or employees. Only by sourcing the necessary technology and skills can a given business make sure it maintains a competitive edge and develops a culture of best-in-class online services provision.

Reliability is the top application delivery goal

The top priority for application delivery is reliability; this is reflected in how applications are designed and deployed. However, this is followed closely by access and usability issues, reflecting the need to make it easy to engage with sometimes fickle customers. Advanced platform capabilities, such as multi-tenancy and cloud bursting, are best understood by those already advanced in the provision of online services.

The application platform is only as good as the network used to access it

Supporting external users is now far and away the top priority for building networks. To ensure the scalability and flexibility required, the most forward-thinking organisations are turning to virtualised fabric and/or consolidated networks, as opposed to ones that dedicate physical resources to individual applications. The providers of online services are far more likely to be doing this.

Application delivery controllers are a key building block of advanced platforms

Providers of online services are making extensive use of application delivery controllers (ADCs) to ensure their application delivery platforms provide reliable, scalable and secure access for all users; 80% have already deployed ADCs, or plan to do so, compared with just 43% of non-service providers. Smaller organisations are the most likely to be using advanced multi-tenancy ADC devices with their lower entry-level costs, whilst larger organisations are more likely to be using legacy ADC equipment, with a dedicated device per online application.

Virtualisation and ADC use go hand-in-hand

65% of organisations with fabric networks are using ADCs; the figure is 50% for those with consolidated networks, whilst only 12% of those with a completely physical network are using them. Overall, 85% of organisations now use server virtualisation; commonly, this is used alongside advanced deployment platforms and ADCs; 96% of ADC users employ server virtualisation, whilst only 47% of those with no capability to scale application resources do.

Advanced network skills come at a premium

The majority of organisations struggle to find, or keep up to date, the skills they need for network configuration and management. Many outsource at least some of the tasks, which displaces the problem. The majority recognise the value of vendor accreditations when seeking skilled staff; particularly the providers of online services. Those pursuing a career in IT that hold accreditations will attract higher salaries than those without them.

Conclusions

Many of those businesses that do not currently provide online services will likely find they will have to do so sooner rather than later in order to remain competitive. They can learn from leaders in the field that have already worked out the best way to provide the advanced application and network platforms required to support such services. A challenge faced by all is finding the necessary skilled staff, but for those pursuing a career in IT, this is a great opportunity in itself.

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Introduction – the culture of online service provision

Successful businesses have always needed to develop a culture of providing excellent service. These days, many of those services are supported by online applications, accessed directly by external users who expect them to be always-on. In effect, however they achieve it, the majority of businesses are now online service providers (Figure 1). These services are often central to competitiveness and growth. The task of delivering them effectively falls to the IT function, which must source the necessary resources.

Of course, some businesses would describe themselves as “service providers” anyway; especially high-tech vendors who, along with utility and energy (U&E) companies, are the most likely to be providing online services. However, high-tech firms are not the only providers of online information technology and communications (ITC) services, whilst banks and retailers are not the only organisations to provide e-commerce applications (Figure 2).

For national and local government, it should be of concern that public sector organisations are bottom of the league when it comes to online service provision. Many have declared e-agendas, regarding such services as a cheap and efficient way to engage with citizens; clearly, many have a long way to go in achieving this goal.

Online service provision

Throughout this report, the respondents are segmented into the following four groups by the type of online services they provide:

**ITC-as-a-service** – those that provide only online IT or communications services

**E-commerce** – those that provide online retail and/or financial services applications

**Both** – providers of both of the above types of services

**Neither** – those that do not provide any online ITC or e-commerce services

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Overall, online services are most commonly provided to other businesses; however, consumers and partners are not far behind (Figure 3) – 20% of the respondents to this research are providing online services in all three areas. Banks and the retail, distribution and transport (RDT) sector are most likely to engage directly with consumers, whilst the high-tech and U&E organisations often work through partners (Figure 4).

Large companies may be the most likely to provide online services, but it is not their preserve – more than 50% of those with fewer than 500 employees do so too (Figure 5). They also need to live up to the challenge of providing reliable and secure online services.

Whatever the business sector, size and user groups being served, as any business process becomes more and more dependent on various online services, the pressure on the IT function will increase. It has to ensure the underlying application and network platforms are capable of delivering the services and that technicians with relevant skills are available to deploy and support it.

This report will go on to show that those companies that have developed a strong culture of online service provision are turning to flexible application support technologies, such as cloud bursting and multi-tenancy, advanced fabric or consolidated networking and, to provide the required level of control, application delivery controllers (ADCs). It also demonstrates that these ADCs are increasingly likely to be multi-tenant platforms in their own right, with the capability to support tens of online applications from a single advanced ADC device.
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Application delivery priorities

Businesses that provide online services need to adapt to the demands of the always-on, 24 hours, 7 days a week expectations of their users. In many cases, there is no longer such a thing as a maintenance window, whatever the time and however short. ITC-as-a-service providers must aspire to build platforms with constant uptime; the e-commerce applications, on which many users have come to rely, often serve global audiences and demand round-the-clock availability.

This is reflected in the priorities for application delivery; most organisations place reliability at the top of their list (Figure 6). They need to invest in the platform that can support this in order to mitigate outages and the loss of custom and reputational damage that can otherwise occur. Given the nature of the data and transactions involved, it is not surprising that security follows very closely, especially in financial services. Scalability may be low on the list but, for those providing communications and technology services, it rises to a score of more than 0.8.

When designing and implementing applications the most important consideration is indeed uptime; however, this is followed closely by user-access issues, reflecting the need to support both external users and the increase in mobile and flexible working amongst employees (Figure 7). Usability is also high on the list; if user-interfaces are too fiddly, external users will go elsewhere.

Figure 6: Top three priorities for application delivery

<table>
<thead>
<tr>
<th>Priority</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reliability</td>
<td>1.50</td>
</tr>
<tr>
<td>Security</td>
<td>1.53</td>
</tr>
<tr>
<td>Performance</td>
<td>1.01</td>
</tr>
<tr>
<td>Flexibility</td>
<td>0.76</td>
</tr>
<tr>
<td>Scalability</td>
<td>0.61</td>
</tr>
<tr>
<td>Manageability</td>
<td>0.45</td>
</tr>
</tbody>
</table>

Average weighted score Max = 3

Advanced application support technologies

Multi-tenancy – the ability to provide flexible support for multiple applications to multiple customers and the need to manage differing resource and security requirements on the same platform. A technology for achieving the economies of scale of many online services

Cloud bursting – the ability to rapidly increase the resources available to a given application by transferring workloads to a cloud computing platform, usually provided by a third party service provider

Fabric and consolidated networks – the move away from rigid physical deployment to flexibly virtualised network capacity, increasingly referred to as software defined networks (SDN)

Application delivery controller (ADC) – a network device that provides advanced load balancing and performs common tasks required by a given set of applications to free up application server and network resources

Figure 7: How important are the following when designing and implementing applications?

<table>
<thead>
<tr>
<th>Feature</th>
<th>Essential</th>
<th>Important</th>
<th>Nice to have</th>
<th>Not of use</th>
<th>Don’t know</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant uptime</td>
<td>59%</td>
<td>36%</td>
<td>5%</td>
<td>2%</td>
<td>0%</td>
</tr>
<tr>
<td>User access management</td>
<td>55%</td>
<td>34%</td>
<td>11%</td>
<td>2%</td>
<td>0%</td>
</tr>
<tr>
<td>Controls for external users</td>
<td>54%</td>
<td>26%</td>
<td>12%</td>
<td>8%</td>
<td>0%</td>
</tr>
<tr>
<td>Usability</td>
<td>52%</td>
<td>33%</td>
<td>7%</td>
<td>5%</td>
<td>0%</td>
</tr>
<tr>
<td>Multi-tenancy for customers</td>
<td>21%</td>
<td>21%</td>
<td>26%</td>
<td>25%</td>
<td>0%</td>
</tr>
<tr>
<td>Support for cloud bursting</td>
<td>16%</td>
<td>30%</td>
<td>20%</td>
<td>28%</td>
<td>6%</td>
</tr>
</tbody>
</table>
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Multi-tenancy, cloud bursting, advanced networking and ADCs are all proving to be key technologies for supporting these goals and getting the most out of available data centre and third party resources. The recognition of the benefits all these provide for flexible application delivery is recognised by providers of online services who rate them more highly than others (Figure 8). Those providing ITC-as-a-service are indeed nearly all building multi-tenancy or hybrid application platforms from which to deliver their services (Figure 9). They see the need to move from dumb infrastructure to intelligent flexible platforms.

Reliable applications and platforms on which to run them is one thing; however, this is all to no avail if network access is not equal to the job of online service provision. Furthermore, flexible application server and network resources are all well and good, but capacity can only be efficiently allocated if intelligent controllers are in place, which is why providers of online service have invested, or are planning to invest, in ADCs.
Network priorities

When it comes to designing and implementing networks, support for external users is far and away the top priority (Figure 10). Achieving this and meeting the other requirements for advanced networking requires a flexible network platform. In the past, networks were largely rigid, relying on physical devices configured for specific jobs. This is changing fast as deployment moves towards full virtualised fabric networks, which are now the main way 11% of organisations are managing their network platforms (Figure 11). This rises to 33% in the high-tech/U&E sector.

Where organisations place themselves on the spectrum of options in Figure 11 provides a measure of network maturity, which is useful for showing just how valuable a flexible network platform is for providing certain services. Providers of online services are much more likely to have deployed fabric or consolidated networks (Figure 12).

However, a key element of a flexible network is ensuring the capability to efficiently allocate resources. ADCs are the key to this and are an essential component of the advance network being put in place by providers of online services.

Figures 11 & 12 – network maturity options given in full

- **Fabric network** – we have a “flattened”, fully virtualised network
- **Consolidated network** – we virtualise physical links, but still have a hierarchical network
- **Optimised physical network** – we have carried out a survey of our network and removed redundant links
- **Completely physical network** – when we need more ports, we buy more physical switches

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The need for application delivery controllers

The current research shows that providers of online services are making extensive use of ADCs to offload work from servers. ADCs are fundamental building blocks for advanced platforms, enabling the flexible scaling of server and network resources as demand for applications rises or falls. Doing this ensures online service providers have the agility to remain competitive compared with the laggards that still rely on manual processes.

Overall, 37% of organisations have already deployed ADCs. However, this is true for the majority of service providers, whilst less than 20% of non-service providers have done so (Figure 13). ADC use goes hand-in-hand with network virtualisation; 65% of those with fabric networks have deployed them – the correlation could not be clearer (Figure 14). Many of those with largely physical networks said they have no ability to scale resources; providing effective online services is almost impossible when this is the case.

High-tech and U&E companies are twice as likely to have already deployed ADCs; they understand the value of the technology for delivering on-demand services and are also more likely to be service providers.

Network and server virtualisation are commonly found together. The latter is now widespread, with 85% of organisations making use of it in some capacity. The least likely to be using virtualised servers are those with completely physical networks (Figure 15). The same is true for the use of ADCs (Figure 16).

Figure 13: Which of the following does your organisation do to scale resources for applications as demand rises or falls?

<table>
<thead>
<tr>
<th>Type of online service provision</th>
<th>Use ADCs</th>
<th>Manual virtual deployment</th>
<th>Manual physical deployment</th>
<th>Little capability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall</td>
<td>37%</td>
<td>27%</td>
<td>20%</td>
<td>16%</td>
</tr>
<tr>
<td>Both</td>
<td>63%</td>
<td>22%</td>
<td>10%</td>
<td></td>
</tr>
<tr>
<td>ITC-as-a-service</td>
<td>52%</td>
<td>28%</td>
<td>16%</td>
<td></td>
</tr>
<tr>
<td>E-commerce</td>
<td>40%</td>
<td>30%</td>
<td>19%</td>
<td>11%</td>
</tr>
<tr>
<td>Neither</td>
<td>17%</td>
<td>25%</td>
<td>28%</td>
<td>30%</td>
</tr>
</tbody>
</table>

Figure 14: Which of the following does your organisation do to scale resources for applications as demand rises or falls?

<table>
<thead>
<tr>
<th>Type of network maturity</th>
<th>Use ADCs</th>
<th>Manual virtual deployment</th>
<th>Manual physical deployment</th>
<th>Little capability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall</td>
<td>37%</td>
<td>27%</td>
<td>20%</td>
<td>16%</td>
</tr>
<tr>
<td>Fabric</td>
<td>65%</td>
<td>24%</td>
<td>12%</td>
<td></td>
</tr>
<tr>
<td>Consolidated</td>
<td>50%</td>
<td>34%</td>
<td>13%</td>
<td></td>
</tr>
<tr>
<td>Optimised physical</td>
<td>22%</td>
<td>25%</td>
<td>33%</td>
<td>20%</td>
</tr>
<tr>
<td>Completely physical</td>
<td>12%</td>
<td>21%</td>
<td>29%</td>
<td>44%</td>
</tr>
</tbody>
</table>

Figure 15: Network maturity and server virtualisation

<table>
<thead>
<tr>
<th>Network maturity</th>
<th>Use server virtualisation</th>
<th>No server virtualisation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall</td>
<td>85%</td>
<td>15%</td>
</tr>
<tr>
<td>Fabric</td>
<td>94%</td>
<td>6%</td>
</tr>
<tr>
<td>Consolidated</td>
<td>96%</td>
<td>4%</td>
</tr>
<tr>
<td>Optimised physical</td>
<td>86%</td>
<td>14%</td>
</tr>
<tr>
<td>Completely physical</td>
<td>57%</td>
<td>43%</td>
</tr>
</tbody>
</table>

Figure 16: Use of ADCs and server virtualisation

| Use ADCs                          | 85%                       | 15%                      |
| Manual virtual deployment of resources | 96%                       | 4%                       |
| Manual physical deployment of resources | 98%                       | 2%                       |
| Little capability                  | 47%                       | 53%                      |
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Big companies are the most likely to have invested in ADCs (Figure 18). Today, these are more likely to be advanced ADCs capable of multi-tenancy support than dedicated single devices (Figure 19). This is especially true of smaller organisations, which would have been less likely to invest in dedicated devices but now see the availability of advanced multi-tenancy capabilities as an affordable way to offload work from their servers. In effect, a multi-tenancy ADC acts like a whole series of micro-ADCs.

ADCs are also more likely to be in use when the range of services provided is broader (Figure 19). Those with the widest range of services (5 or more) are likely to have been in the game for longer and, consequently, using ADCs for longer; therefore, they have legacy equipment without advanced capabilities.

However, as small and mid-market organisations increasingly provide online services, they will also value the benefits of ADCs. This should lead to increased interest in on-demand ADC services, as these become more widely available and entry-level costs plummet. Currently, 8% of ADC use is on-demand and is more likely in smaller organisations.

Considerations for ADC selection and deployment

- **Multi-tenancy capability**: with advanced ADCs, a single physical appliance can support tens of applications; in effect, a single ADC device acts as a whole series of micro-ADCs. This makes ADC technology affordable for business of all sizes.
- **Affordable redundancy**: not every physical ADC needs its own backup device, multiple ADCs should able to failover to a single backup device providing N+1 redundancy
- **Modular technology**: ensure the ADC software can be deployed and paid for as independent modules making it easy to add functionality and upgrade as requirements evolve
- **Avoid over licencing**: to ensure affordable scalability, look for charging models based on usage rather than unit costs
- **Capable virtualisation**: virtual ADC appliances provide flexibility, but make sure the performance levels of dedicated physical hardware are maintained
- **Consider on-demand**: if ADCs have always seemed an expensive enterprise option, consider an on-demand ADC service where entry-level costs are much lower
- **Hybrid deployment**: on-demand ADC services can also be used for scaling up when demand exceeds that of on-premises deployed physical devices and for failover
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Overall, nearly half of those without ADCs plan to deploy them (Figure 20). Many providers of online services say this will be in the next 12 months. Taken together, the data for actual and planned deployment show that 80% of service providers have or plan to deploy ADCs compared with just 43% of non-service providers.

All this said, just as with advanced applications and network platforms in general, organisations will only be successful in deploying ADCs if they have access to the necessary skills.

<table>
<thead>
<tr>
<th>Overall</th>
<th>Will do in next 12 months</th>
<th>Will do long term</th>
<th>No plans</th>
</tr>
</thead>
<tbody>
<tr>
<td>21%</td>
<td>27%</td>
<td>52%</td>
<td></td>
</tr>
<tr>
<td>Both</td>
<td>45%</td>
<td>23%</td>
<td>32%</td>
</tr>
<tr>
<td>ITC-as-a-service</td>
<td>25%</td>
<td>25%</td>
<td>50%</td>
</tr>
<tr>
<td>E-commerce</td>
<td>25%</td>
<td>38%</td>
<td>38%</td>
</tr>
<tr>
<td>Neither</td>
<td>12%</td>
<td>20%</td>
<td>69%</td>
</tr>
</tbody>
</table>

The war for talent

Having the application and network platforms in place to enable the provision of reliable and secure online services is all well and good. However, even with increasing virtualisation, it is still necessary to find the skills to configure these platforms in the first place and maintain them thereafter.

The majority of organisations admit to suffering from a skills shortage or at least struggling to keep skills up to date (Figure 21). Finding the right people is clearly as big a challenge as putting in place the supporting technology when ensuring capable network and application platforms.

Many end-user organisations address this problem by procuring resources and/or management skills from ITC-as-a-service providers Figure 22). This displaces the problem of finding the relevant skills. However, for those seeking a career with a focus on technology, this is largely good news. ITC-as-a-service providers will be more likely to provide the experience, training and career path to which they aspire.
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One way to judge the skill of potential employees is by the supplier accreditations they hold, which are respected by the majority (Figure 23); 35% say they are essential and a further 34% deem them “nice to have”. However, these figures rise sharply for the providers of online services, especially those in the technology and communications sector. The message here is that those that are highly reliant on their network and application platforms trust their key suppliers to put in place the programmes to ensure engineers are capable of supporting them.

For the engineers, the current research shows that companies that have deployed advanced fabric and consolidated networks will pay more for engineers with vendor accreditations, as will those providing online services (Figure 24). It seems the best career prospects are to be found in those organisations with a culture of online service provision.

The research presented in this report has shown advanced networks are reliant on ADCs and, therefore, so are the organisations that use such networks to provide online services. It has also highlighted that even where ADCs are not currently deployed, they are likely to be soon. So, engineers that seek better returns through working on advanced platforms with providers of online services must increase their value by obtaining accreditations for one or more ADC products on their CV.

Of course, this all turns full circle to the benefit of the businesses concerned. It should take fewer highly skilled engineers to deploy and maintain advanced platforms; therefore, whilst the individuals may cost more, the overall wage bill need not be higher and the platforms come with considerable long-term cost benefits too. As more businesses become providers of online services, more of the best paid jobs go to those with the relevant skills to build the supporting platforms.

Figure 23: What value do you place on supplier network engineer accreditations?

Figure 24: Do you expect to pay more or less for an engineer with multiple supplier accreditations?
Conclusions

On-demand applications are now fundamental to the majority of businesses across all sectors for serving consumers, business customers, partners and employees. Such services are often essential to remaining competitive and ensuring growth. Those at the forefront of providing such services deploy the same application and network platforms as traditional service providers; they have developed a culture of online service provision.

The task of delivering these services falls to the IT function, which must source the necessary resources and adapt infrastructures to ensure the goal of delivering reliable and secure online services is achieved. This includes extensive use of server and network virtualisation as well as the use of cloud-based resources. The majority regard ADCs as key building blocks for advanced application and network platforms.

To provide and maintain these platforms, businesses need to attract staff with the relevant skills or outsource the job to third parties who need to find the same skills. Supplier accreditations are seen as a valid means of measuring the skill levels of individual engineers, for which many will pay a premium. For those pursuing a career in IT, it is not only the prospect of a higher salary that should be attractive, but also the chance to be part of the future of IT delivery rather than its past.
Demographics

The following figures present the demographics of the survey. The figures on the graphs are actual sample numbers.
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REPORT NOTE:
This report has been written independently by Quocirca Ltd to provide an overview of the issues facing organisations delivering online applications.

The report draws on Quocirca’s extensive knowledge of the technology and business arenas, and provides advice on the approach that organisations should take to create a more effective and efficient environment for future growth.

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Quocirca is a primary research and analysis company specialising in the business impact of information technology and communications (ITC). With worldwide, native language reach, Quocirca provides in-depth insights into the views of buyers and influencers in large, medium-sized and small organisations. Its analyst team is made up of real-world practitioners with first-hand experience of ITC delivery who continuously research and track the industry and its real usage in the markets.

Through researching perceptions, Quocirca uncovers the real hurdles to technology adoption – the personal and political aspects of an organisation’s environment and the pressures of the need for demonstrable business value in any implementation. This capability to uncover and report back on the end-user perceptions in the market enables Quocirca to provide advice on the realities of technology adoption, not the promises.

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