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Next-Generation IT

Aligning multiple domains to deliver agility

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Summary

Catalyst

New digital services require a lean, flexible, open environment that allows for faster service design and the systems and streamlined processes that can deliver innovative on-demand services. To support this change, communications service providers (CSPs) will need to implement high levels of automation, make effective use of advanced analytics tools, and adopt cloud-based delivery models. However, CSPs are not finding it easy to manage this shift to next-generation IT or decide how new and existing stacks should work together across different IT domains and delivery modes. How they manage this shift will have a major impact on the success of CSPs' digital transformations.

Ovum view

Service provider business priorities are focusing increasingly on speed and agility. This is what will drive a wide range of business and technology initiatives.

However, attaining this agility requires not only investment in cloud, virtualization, automation, big data analytics, and digital transformation, but also a major shakeup in the way organizations are structured, operations are run, and services delivered. Bi-modal operations, and DevOps in particular, will provide the glue that binds CSPs' transformation initiatives into something coherent. Given the complexity and breadth of the technology, process, and cultural changes required for this transformation, it is only natural for service providers to look to industry experts to lead the change. CSPs will expect their strategic partners not just to implement new platforms and architectures but to also help transform their operations, business processes, and organizational structures.

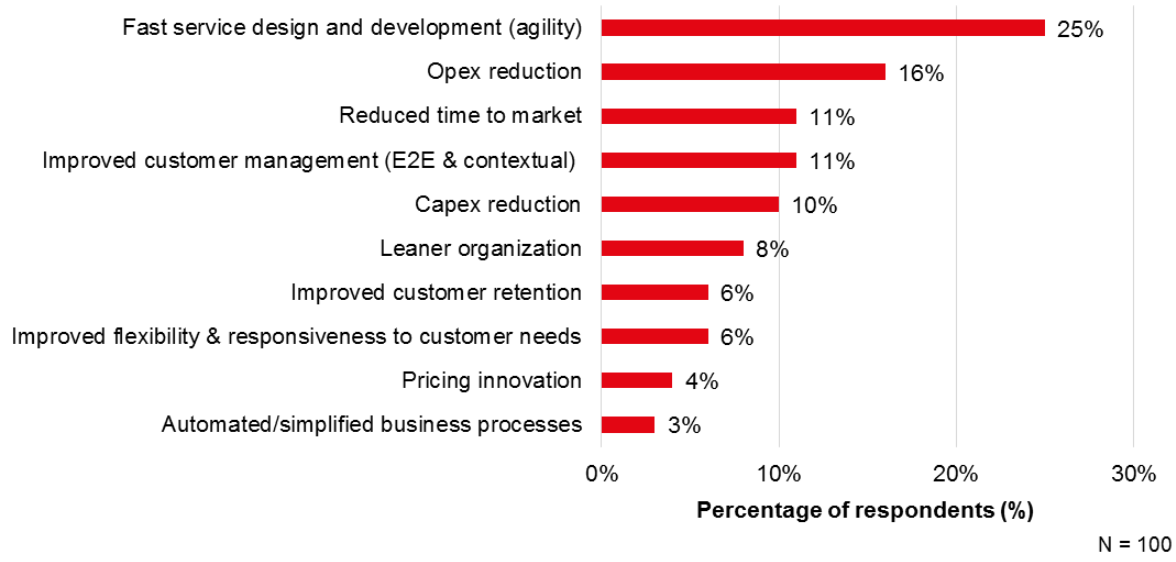
Why next-generation IT?

CSP business priorities

Service provider business priorities are shifting from opex/capex reduction to speed and agility.

A global survey of 100 service providers conducted by Ovum as an input to this white paper shows that the need for fast service design and development (agility) and reduced time to market of new services are of key importance to service providers. When asked about their business priorities over the coming year, CSPs tended to give the highest scores to capex and opex savings, but when the same question was posed about their business priorities over the next three to five years, the top score instead went to fast service design and development, and reduced time to market also moved up the pecking order (see Figure 1).

Figure 1: CSPs' top business priorities over the next three to five years



Source Ovum

In order to compete more effectively against OTT players and keep up with swiftly changing business demands and rapidly evolving customer expectations, CSPs need to speed up design and development times. Long lead times reduce the ability to respond to customer needs, personalize offerings, and deliver on-demand services, and have a negative impact on revenues.

This is why speed and agility are the key drivers of many of the technology trends mentioned in this white paper, including the adoption of cloud, the drive for greater automation, the deployment of predictive and contextually aware systems, real-time analytics, and DevOps.

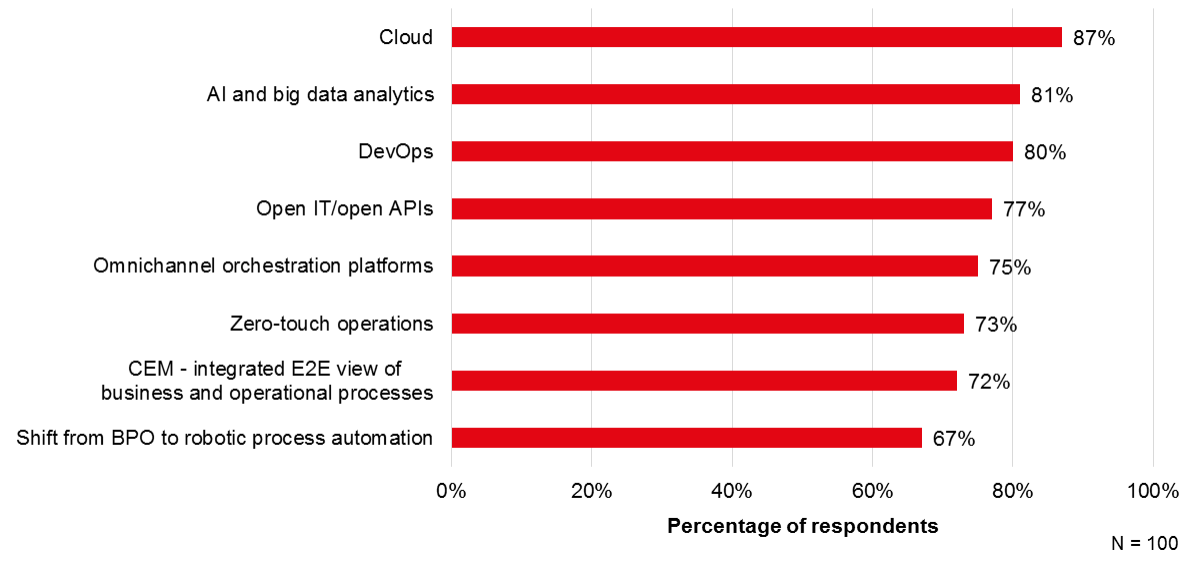
The increasing focus on fast service design and development will have a direct impact on CSPs' technology and domain priorities over the next three to five years. When we mapped the survey responses for the top technology priorities over the next three to five years against CSPs' business drivers, we found that all of them had fast service design and development as a major driver.

The next-generation IT journey

CSP technology priorities

There is increasing momentum for CSPs to implement IT technology and operations changes to support the agility and fast service development mentioned earlier. When CSPs were asked which technologies they expect to be their top priorities over the next three to five years to support agility, the majority selected cloud, AI and big data analytics, and DevOps, in that order (see Figure 2).

Figure 2: Agility as a driver of future technology priorities – the methodologies and technologies CSPs plan to implement in the next three to five years to improve agility



Source: Ovum

CSPs need to adopt cloud models and delivery platforms to become more agile and efficient in the way they run their business. They need automated management systems and elasticity, which will enable them to scale their network and IT capabilities – up and down – to meet their business needs, as well as the self-service, pay-as-you go capabilities that can support services on demand. Cloud delivery goes hand in hand with automation, as this is required to address the sheer volume of network and service activity and to handle the speed and volume of a web-scale environment. The growing importance of digital services and IoT will only accelerate this trend.

To deliver increased agility and efficiency, CSPs need to make investments that help support virtualization and enable cloud delivery models for their IT systems. CSPs are already investing to move IT systems into the cloud and in orchestration systems to manage physical and virtual assets and support the implementation of software-defined networking (SDN) and network functions virtualization (NFV).

CSPs have realized that virtualizing their digital support systems enables them to improve scalability and efficiency and reduce operating costs, and have begun to place some, if not all, of their components into the cloud. As CSPs come under increasing pressure to launch digital services quickly, they will need to roll out support systems that can also be quickly deployed to support these services.

However, the move to the cloud is not just about implementing cloud computing technology; it is also about business transformation and all the changes that need to be made to the relationship between the CSP and its IT assets, employees, partners, and customers. A successful cloud transformation requires change across the entire business, including network, customer service, operations, and both the enterprise and consumer lines of business. It requires the adoption of new digital skills in cloud-based computing, data science and coding, and the adoption of new working practices and processes. This is something that even the largest and most forward-looking CSPs are likely to find difficult without external assistance.

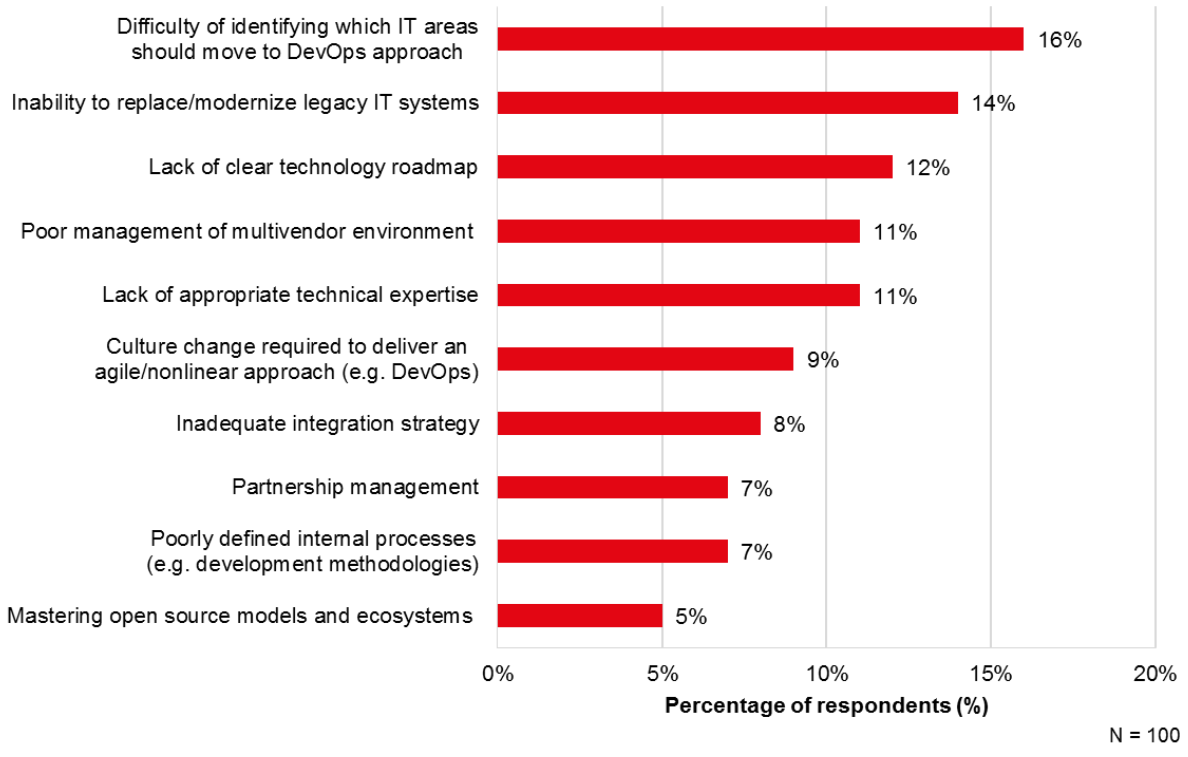
The focus on speed and agility is also leading to a growing emphasis on agile software development, continuous delivery, and DevOps.

DevOps in particular speeds up and automates the process of software development and delivery through improved collaboration between previously siloed IT personnel and organizations. However, DevOps is much more than just the tools or new skillsets; it also requires fundamental cultural and organizational change to support the creation of new DevOps teams and processes.

The shift to DevOps is challenging for CSPs because it is a complex undertaking to synchronize business processes, platforms, and operations and adopt a totally new way of working.

The daunting nature of this undertaking may perhaps be why CSPs do not always view DevOps as high a technology priority as they should. However, when CSPs were asked about the main hurdles to achieving their technology priorities, it was in fact the "Difficulty of identifying what to move to DevOps" that scored highest – so it is clearly an issue that is top of mind (see Figure 3).

Figure 3: What CSPs perceive to be the top hurdles to their technology priorities



Source: Ovum

Operational tasks and challenges

A bi-modal approach

As we have seen, there is a strong drive to create more-agile IT systems and the lean, flexible, open environment that support faster service design and innovative on-demand services. However, it would be an overwhelming undertaking for CSPs to attempt to implement this agile approach across their

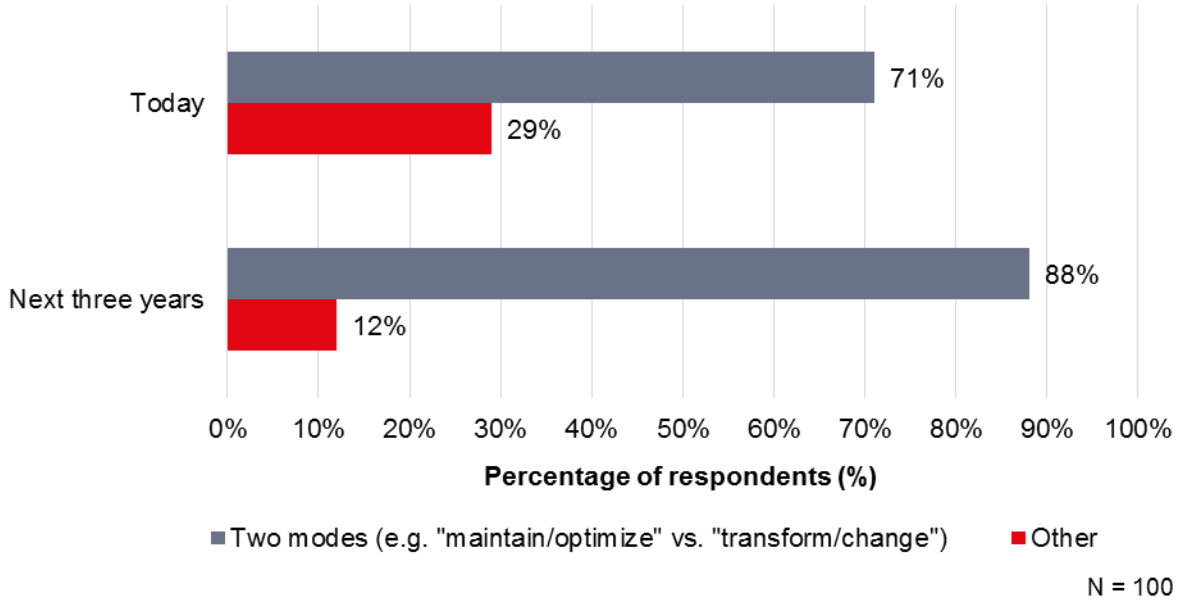
hundreds of systems. Hence, bi-modal approaches, which allow CSPs to focus on transitioning only those systems that are key to achieving agility, are growing in popularity.

A bi-modal approach involves two separate modes of IT delivery where one mode is focused mainly on agility and speed and the other, slower-paced mode is focused on predictability. This approach recognizes the fact that different types of IT systems require the application of radically different skillsets, processes, and budgets.

The "maintain" mode of IT operations focuses mainly on those IT systems that require predictability and continuity, typically "systems of record" that store and control data such as traditional CRM or financial management information systems, and which can make do with legacy and more linear approaches to investment and management. By contrast, the fast-track "transform" mode of IT operations emphasizes agility and speed and is more appropriate to "systems of engagement" – that is to say, IT systems typically focused on interaction and collaboration between different touchpoints, such as digital self-service applications or big data analytics used to personalize customer engagement.

According to our survey, more than 70% of service providers already use a two-mode approach when deciding how to run and invest in their IT, but over the next three years, this is expected to swell to almost 90%. Clearly, technology is moving too fast to make a single-mode approach to IT delivery viable; CSPs need a bi-modal approach that supports both continued operations and transformation.

Figure 4: The number of categories or modes CSPs use when deciding how to run and invest in IT



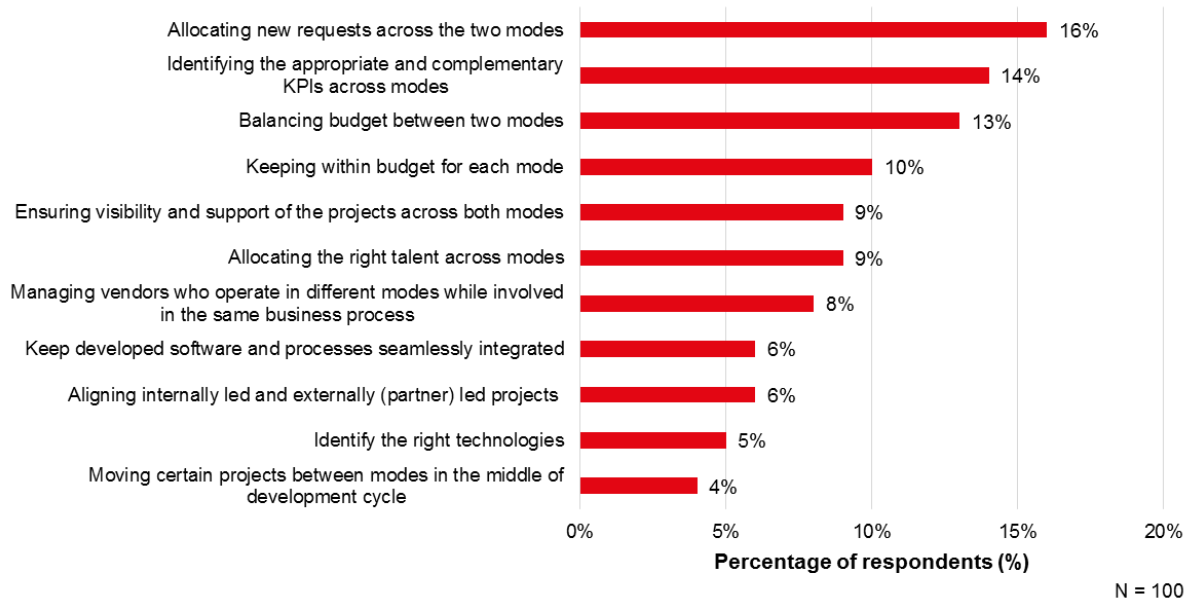
Source: Ovum

This bi-modal approach may solve one problem for CSPs but it also raises a number of challenges, including how to allocate new requests to the correct mode, identifying the appropriate KPIs across modes, and allocating resources and balancing budget. This is not helped by lack of visibility of business and operational metrics and the difficulty of interpreting them.

It has often been pointed out that a bi-modal approach, if misinterpreted, risks a company sidelining development and investment in core or legacy IT systems. But even if this trap is avoided, the issue remains of how to choose where to apply each of these modes and how to fine-tune their application and operation within the organization. For example, ensuring that the time required to make changes to front-office systems, such as user interfaces, is not adversely impacted by the slower speed of change in the back office.

As Figure 5 shows, CSPs feel that their biggest challenge is allocating new requests across two modes, i.e. deciding whether the organization should allocate an IT system to a fast-track "transform" mode or to a "maintain" mode.

Figure 5: The challenges associated with working in two IT operation modes simultaneously



Source: Ovum

The allocation process can be improved by establishing an assessment framework that allows the CSP to identify the best deployment and delivery model for each category of IT system and project. Assessment criteria will vary from operator to operator but might include not just system type (e.g. a system of record) and deployment model but also the number of dependencies on that system, the complexity of the business it will need to support, the data sources involved, and the acceptable levels of risk. This sort of structured assessment can also help CSPs identify whether particular IT systems and projects should be outsourced or require the assistance of strategic partners.

Another issue that looms large for service providers is identifying the appropriate and complementary KPIs across modes. There is a need not only to identify the right parameters and KPIs across the different modes but to also synchronize how they are applied. There is always the risk when fast-tracking those IT systems that are in "transformation" mode that a CSP does not fully account for the dependencies and interfaces with those systems in "maintain" mode. Without synchronizing the two, CSPs can end up with bottlenecks and breakdowns.

When we asked CSPs what business issues they needed to overcome, they emphasized metrics and KPIs. In the survey, "difficulty of interpreting business and operation metrics" was seen as the top issue, followed by "lack of visibility of business and operational metrics" in third place (see Figure 6).

The shift to continuous delivery and a DevOps approach implies a shift away from an ad hoc approach to one that is based on well-defined and monitored metrics, but clearly this is something that CSPs are finding difficult to address. These concerns mirror the earlier finding about the importance of identifying appropriate and complementary KPIs across different modes.

When we mapped these troublesome issues with business and operation metrics (Figure 6) onto the CSPs' business objectives (Figure 1), we found that the problem CSPs are facing with metrics appears to be most closely linked to their desire to achieve "fast service design and development (agility)" and "reduced time to market." In other words, CSPs clearly need to get their metrics in order if they want to streamline and speed up their operations. Good governance across modes requires that capabilities, processes, and KPIs are well aligned.

Figure 6: The top hurdles to achieving CSPs' business priorities

Source: Ovum

Delivering next-generation IT transformation

As we have seen, the shift to next-generation IT is a major undertaking. Given the complexity and breadth of the technology, process, and cultural changes required for this transformation, it is only natural for service providers to look for guidance. CSPs will expect their strategic partners to deliver on a number of fronts. They will expect them to provide assistance with implementing the platforms, architectures, and frameworks that will support agile service design and the rapid delivery of innovative services. They will also expect them to help transform their operations, business processes, methodologies, and organizational structures.

The type of support CSPs require in the three key areas highlighted at the start of the white paper is detailed below:

- **Cloud:** CSPs, if they are to realize a full range of benefits from a cloud transformation, will require a comprehensive strategy and framework. They will need a cloud strategy that delivers benefits across different parts of the organization, that uses short-term goals as stepping stones to achieving long-term objectives, and is supported by a reliable roadmap and strong governance. This is something that even tier-1 operators may find difficult to achieve and smaller operators may baulk at attempting, so it makes sense for CSPs to turn to services partners for external support. CSPs will seek assistance with the shift to cloud-based models, including assistance with cloud migration, and implementing and enabling cloud-based services. With the shift to a virtualized environment, there will be a need to address operational issues associated with network management and orchestration, DevOps strategies, and associated organizational and cultural changes.
- **AI and big data:** Big data analytics is essential to support agile and real-time operations. It is an essential component of the systems and processes that CSPs plan to use to automate operations and deliver richer personalized services and enhanced customer engagements. It is also a cornerstone of artificial intelligence and machine learning that will be required to process actions and commands in real time. With the adoption of SDN and NFV, big data analytics will also play an important role in the management and orchestration of hybrid networks, supporting the allocation of network resources as well as service deployment and assurance. However, as things stand, it is not always obvious where responsibility for big data analytics sits within a CSP's business and it is rare for projects to be centralized and fully integrated across the business. This is where a service partner can provide support, applying best practice and learnings from previous engagements and helping to align platforms and processes and training staff to maximize value.
- **DevOps:** The difficulty of identifying what to move to DevOps and carrying out such a complex undertaking was highlighted earlier in the paper. CSPs clearly have concerns about the best way to carry out this major change. The prominence of such concerns suggests that CSPs need to find partners who can help them with strategy, planning, and organizational issues, including guiding them through their DevOps journey, whether through gap analysis, maturity assessments, organizational change management, or training. This will then help to both identify DevOps quick wins and develop an implementation roadmap.

Given the complexity and breadth of the technology, process, and cultural changes described in this white paper, CSPs will need to pursue a number of parallel strategies to deliver a successful transformation. Specifically, they need to:

- Adopt cloud delivery platforms and models to become more agile and efficient in the way they run their business.
- Invest in automation and big data analytics in order to handle the speed and volume of a web-scale environment and support the move to virtualization and cloud delivery models.

- Develop more agile working practices, in particular adopting DevOps in order to speed up and automate the process of software development and delivery.
- Adopt a bi-modal approach to allow them to focus on transitioning only those systems that are key to achieving agility.
- Appoint a trusted advisor with a track record of success in complex IT networks who can lead them in implementing their next-gen IT journey.

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Appendix

Methodology

This report is based on a combination of primary and secondary research, including briefings, interviews, surveys, and industry events. The report also utilizes Ovum's ongoing research into service provider operations and IT.

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We hope that this analysis will help you make informed and imaginative business decisions. If you have further requirements, Ovum's consulting team may be able to help you. For more information about Ovum's consulting capabilities, please contact us directly at consulting@ovum.com.

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