

Connecting to the Cloud: Business advantage from Cloud Services

A Vodafone White Paper.

As people become increasingly IT literate, mobile access to the web accelerates and Unified Communications solutions mature there has been a huge rise in the adoption of Cloud Services.

How have these trends impacted on Cloud Services – and what are the issues IT managers should be considering in their evaluation of these services?



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Mobility driving cloud services

The last 2-3 years have been a turbulent period for the business community. The economic downturn has forced businesses to focus on cost, constrained their growth and placed a higher value on agile solutions. At the same time a number of market trends have together begun to re-shape the workplace itself:

- The consumerisation of IT
- The mobilisation of the Web
- The maturing of Unified Communications solutions

In each of these trends 'mobility' has played a key role. Mobile services have helped shape our attitudes to technology, made it possible for us to access our content anywhere and provided the missing ingredient in the development of positive business cases for Unified Communications. This liberation of data and content in a connected world has led to the rise in Cloud Services.

Cloud Services offer a combination of opportunities and risks for businesses. Those businesses that can best optimise these services have the potential to improve the productivity and customer service capabilities of their organisations, driving significant competitive advantage.

This white paper explains the driving forces behind the rise of these services and some of the issues businesses need to consider if they want to fully exploit the potential offered.

Consumerisation of IT

With the explosion of computers in to almost every aspect of everyday life, people have become more comfortable in dealing with technology. Many people will already undertake tasks in their own homes that would have been the preserve of IT support functions a few years ago; managing computer networks, updating virus and firewall protection, managing data archives (music and photo) and implementing data back-up routines.

The increase in home working and mobile email devices in recent years has led to a less clear distinction between home and work environments. People now expect to be able to access their work systems (not just email) from anywhere. Big web-based brands offering such services have emerged, driving awareness amongst potential users – and employees are willing to experiment, typically at zero cost. End users are now beginning to take control of their own infrastructure through services such as salesforce.com – often taking decisions without reference to their IT department. In Nov 2009 Gartner¹ reported that whilst around of 2% IT managers believed company employees were using web storage services, the real usage amongst end users was nearer 18%.

As employee IT literacy matures, and the connectivity potential inherent within new devices increases, the ability of IT managers to control and dictate the devices or the services used by the company's employees will decrease over time. IT departments face the dilemma of trying to block these trends (and risk alienating the teams they are looking to support) or looking to embrace and exploit the opportunities offered.

This familiarity with technology and its decreasing price, as well as individuals' passion for their personal devices has led to users using their own devices within the work environment – and they no longer need IT support to make this happen. Recent industry analyst data has suggested that over 40% of all knowledge workers were using non-company equipment on company systems and networks.

The decision to use their own devices is often driven by a combination of factors:

- They feel they know better than the IT team what tools they need to do their jobs
- They have asked for the device internally and IT have either turned them down or have taken too long to arrange it
- It provides them with the user experience/form factor they are most comfortable with
- It is a way of expressing their personality

Businesses have the opportunity to exploit this advanced technological literacy within the workforce. Through the mobilisation of those business processes that bring the most benefit to the organisation IT can improve flexibility, efficiency and control within the business.

It is now more likely than ever that employees will not only accept, but look to embrace new technology that helps them perform more effectively – indeed, many people are already doing this with their own equipment. With the desktop already heavily penetrated with technology and applications the next generation of IT driven business benefits are likely to be found away from the office, amongst the mobile workforce.

By placing mobility at the heart of their strategies, IT teams can be seen to be taking the lead in giving users the access and flexibility they seek but retaining control of the delivery of these services either via a 'private cloud' mobile platform for the existing internal system or a trial of a 'public cloud' alternative. IT can then use their expertise to ensure that key features are present, the data is transferrable both out of, and back in to, internal systems and appropriate SLA's are established including data recovery procedures.

¹: Gartner "The Web, Social Media and Consumerization: Critical Synergies for Effective Web Presence", Nov 2009
Gartner Symposium/ITxpo, October 2009

Mobilisation of the web – Devices

As the importance of the Internet has grown in recent years so has the ease with which it can be accessed. At the start of the millennium most people were still accessing the web via limited dialup connections at home, or via the company network in the office. Over time more convenient, and casual, methods of connection have emerged ranging from home broadband connections, to Internet cafes, to Wi-Fi based wireless hotspots. However, it is arguably the mainstream adoption of smartphones and mobile broadband devices that have done most to facilitate web connections in a mobile environment.

The rise of these devices has created a user expectation that content that was previously only available intermittently, or from specific locations, is now accessible everywhere:

- MP3 players & music streaming services have liberated music collections from the hi-fi
- Online services like Flickr have released photos from their physical albums
- Information and reference data such as cinema listings, banking, weather forecasts or stock prices are now available on the move, either via the mobile web browser access or from a mobile application
- Smartphones and other products, such as RIM's BlackBerry devices, have meant that employees now expect to have email available universally
- Mobile Broadband services have made it possible to access the Internet from almost anywhere
- Mobile workers now routinely expect to be able to access the company network whilst away from the office

Even recent phenomena such as social networking sites like Facebook are seeing an explosion in mobile usage. In Jan '10 Facebook² reported that their iPhone application user base grew by over 3.5m users during the previous month, that they have over 65m unique users accessing Facebook from mobile devices with mobile users almost 50% more active on Facebook than non-mobile users.

The acceleration of this 'untethered world' is set to increase further as the use of smartphones and mobile broadband connections rise significantly in the coming years:

- In their predictions for 2010 IDC³ predicted that there will be a range of new sub €105 smartphones which will accelerate levels of adoption of these devices
- Data from Strategy Analytics⁴ suggests that smartphone sales will grow from 2% of mobile phones sold in 2002 across Western Europe to 19% by 2009 – and 30% by 2014
- IDC⁵ have estimated that mobile broadband connections in Western Europe grew by almost 250% between 2007 and 2009 and that over 36% of all business broadband connections will be mobile by 2013
- Morgan Stanley⁶ have recently outlined their belief that "more users may connect to the Internet via mobile devices than desktop PCs within 5 years"

2: Facebook reference.

There are more than 65 million active users currently accessing Facebook through their mobile devices. People that use Facebook on their mobile devices are almost 50% more active on Facebook than non-mobile users. There are more than 180 mobile operators in 60 countries working to deploy and promote Facebook mobile products <http://www.facebook.com/press/info.php?statistics> Facebook iPhone application grew from 18.7m users on 1 Dec 09 to 22.2m users by 30 Dec (as reported on 31 Dec 09) on their applications statistics page <http://statistics.allfacebook.com/applications/single/facebook-for-iphone/6628568379/>

3: IDC "IDC Predictions 2010 – Recovery and Transformation", Doc # 220987, Dec 2009

4: Strategy Analytics datasheet, Aug 2009. "Handset Sales Forecast by Type: Smartphone, Feature Phone & Basic Phone"

5: IDC Telecoms Database 3Q09 and IDC Mobile Business Database 2H09

6: Morgan Stanley report Dec 2009. "The Mobile Internet report" "The mobile Internet is ramping faster than desktop Internet did, and we believe more users may connect to the Internet via mobile devices than desktop PCs within 5 years." http://www.morganstanley.com/institutional/techresearch/mobile_internet_report122009.html

Mobilisation of the web – Devices (continued)

This combination of user expectation and device capability has already been exploited in a high-profile manner by the Apple iPhone⁷. Since the launch of the iPhone application store in July 2008 over 120k different applications have been launched for the device resulting in over 3bn downloads⁸, with a billion of these occurring in a period of just over 3 months. Whilst many of these applications are for games or free downloads, data from MobClix⁹ suggests that over the last 12 months applications in the Reference, Productivity, Business and Finance categories within the UK accounted for around 10% of all downloads.

The willingness of users to access data on the move is evident from Cisco's¹⁰ statement that "Global mobile data traffic reached one Exabyte¹¹ per month in half the time that fixed data traffic did". More recently Cisco¹² has forecast that mobile data traffic will double every year through to 2013, with overall traffic growing 66-fold from 2008 to 2013.

As sales of smartphones continue to grow device manufacturers have become more focused on this segment of the market. As the level of functionality on smartphones increases the Operating System (OS) is becoming a key component, and differentiator, and is receiving greater focus. As a result the battle for the mobile OS is seeing fierce competition – which in turn is driving significant innovation, user interface improvements and sophisticated developer programmes. These improvements, particularly those to the user interface, are making it easier than ever for users to experiment with – and get value from – mobile access to content and services.

7: iPhone is a trademark of Apple Inc., registered in the U.S. and other countries

8: Apple press release, 5 Jan 2010
<http://www.apple.com/pr/library/2010/01/05appstore.html>

9: MobClix iPhone Application Statistics
<http://www.mobclix.com/appstore/1>

10: Cisco Visual Networking Index Forecast, Feb 2009
"Global mobile data traffic reached one exabyte per month in half the time that fixed data traffic did"
http://newsroom.cisco.com/dlls/2009/prod_021009d.html

11: An exabyte is equal to: 1 billion gigabytes, 1,000 petabytes or 250 million DVDs

12: Cisco Visual Networking Index Forecast, Jun 2009
"Globally, mobile data traffic will double every year through 2013, increasing 66x between 2008 and 2013. Mobile data traffic will grow at a CAGR of 131 percent between 2008 and 2013, reaching over 2 exabytes per month by 2013." http://www.cisco.com/en/US/solutions/collateral/ns341/ns525/ns537/ns705/ns827/white_paper_c11-481360_ns827_Networking_Solutions_White_Paper.html

Mobilisation of the web – Connectivity

At the same time that smartphones have grown in penetration and the mobile OS has developed, the speed and ubiquity of connectivity options has also improved. Average connection speeds for fixed connections across Western Europe have risen as fixed operators look to derive competitive advantage.

Access to these fixed connections is being transformed as people install their own home based Wi-Fi networks. A 2008 UK survey from Linksys¹³ amongst homes with a broadband connection found that almost 60% of them had installed a wireless network. These wireless extensions to the fixed network mean that devices seamlessly roam from home Wi-Fi hotspots, then on to mobile networks and then on to the office Wi-Fi network across the day.

Mobile network connectivity has witnessed an explosion in take-up over the last 3 years. IDC¹⁴ estimate there are now over 25m active mobile broadband connections across Western Europe. This user adoption has been driven by a combination of 3 factors:

- Lower pricing – mobile data costs have fallen significantly across Western Europe. In the UK 5 years ago mobile data typically cost around £7.50/Mb. Today mobile broadband packages often cost less than a penny per Mb
- Improved device form factors – a range of new mobile broadband options such as USB modems, USB sticks and laptops with embedded mobile broadband modems have made it easier to add mobile connectivity to devices
- Faster access speeds – mobile broadband connection speeds have risen from a maximum of 364kbps a couple of years ago to now supporting speeds of up to 14.4Mbps, depending on location and device type. These speeds are set to grow further with the introduction of LTE and Mobile WiMax technology in the coming years.

IT managers need to examine their own development budgets to see how much of their resources they are currently utilising to exploit mobile working opportunities. By making their internal tools and applications available to workers away from the office (either via Cloud Services or VPN access) they can make significant productivity gains. In practise these productivity gains are not restricted to mobile workers, but are available to employees throughout the company. For example, an employee in the Finance function may need to wait several days before the final mobile worker returns to the office and uploads their data before they can pull together period ending figures. With a mobile solution in place this latency can be removed almost entirely with figures uploaded, and compiled, in real-time.

13: Linksys survey, Jul 2008
"The survey revealed that people are already beginning to dispense with unnecessary cabling. 59% of UK residents surveyed, with a broadband internet connection at home, reported that they already have a wireless network."
http://www.realwire.com/release_detail.asp?ReleaseID=9288

14: IDC Telecoms Database 3Q09 and IDC Mobile Business Database 2H09

Mobilisation of the web – Connectivity (continued)

IT managers can also look to develop competitive advantage and improved customer satisfaction through the immediacy that mobile applications can deliver. By having full mobile access to traditionally office based systems mobile workers can enhance and accelerate a wide range of business processes, driving customer intimacy through enhanced service capability:

- Real-time activation of customer orders, reducing the potential for processing errors and eliminating wasteful 'briefcase time'
- Updating customer contact details and status immediately within the organisation
- Updating and activating orders/services/subscriptions with immediate effect, giving customers the services they need at the point of request
- Immediate capture of customer issues/service faults, reducing fault resolution times.

Through the mobilisation of these types of enhanced customer-facing processes businesses can reap a number of associated benefits:

- Deliver an increased agility within the business, reducing bottlenecks, improving productivity and reducing the 'time to decision'
- Ensuring all functions within the organisation have access to richer customer data, leveraging existing IT investments
- Initiating customer payment processing from the moment of contract signing, reducing payment cycles and improving cash flow
- Increasing customer responsiveness, providing a clear signal to customers that the customer experience has been prioritised

The maturing of Unified Communications solutions

Unified Communications (UC) is the integration of real-time communication services with non real-time communication services in to a single platform. As such, UC is not a single product but a portfolio of products that provide a consistent user interface and user experience across multiple devices and media types. In many cases these solutions can be hosted remotely, effectively providing a fully scalable Cloud Service. Whilst it is possible to implement UC solutions with or without a mobile component (depending on your definition of UC) the scope for productivity gains and cost reduction greatly increases when a mobile component is present.

As UC solutions have matured they have become capable of delivering substantially more in the mobile environment than simply an extension of the office fixed line PBX functionality. The latest UC solutions now incorporate features including:

- Single telephone number for mobile and fixed phones
- Geographic numbering for mobile phones
- Single voicemail account
- Full mobile email
- Integrated messaging including instant messaging
- Synchronised calendar and contacts, including both the corporate address book and social networking sites such as LinkedIn, Plaxo, Facebook, etc
- Transparent, real-time synchronisation of all data and documents in to the cloud

Across all of these applications 'presence' is shared, allowing colleagues to determine the most appropriate method of contact. In addition, UC services typically default to the lowest cost routing for calls – for example selecting the internal network for internal company calls.

This advanced feature set is rapidly driving UC adoption within enterprises. IDC¹⁵ forecast that revenues from Unified Communications services, across Western Europe, will rise by a CAGR of over 32% from 2008 to 2013, reaching €3.7bn by 2013.

In the past it has been difficult to develop a compelling business case for Unified Communications as the costs of transition could be substantial and often didn't make the savings worthwhile. In some cases it was also possible to deliver a large amount of the potential cost savings through other means such as switching to a single telecoms provider.

However, in the last couple of years, the technology and business models associated with Unified Communications have evolved making UC a more commercially attractive proposition. UC solution providers have looked to overcome the barriers to entry, such as high upfront CAPEX costs, by offering these services on a 'per seat per month' OPEX model. For mobile operators OPEX only pricing is a natural step to take, with most mobile services currently offered on this basis. This flexible approach to pricing makes it easier for businesses to control cost, provides pricing transparency and gives true scalability.

Recent UC solutions integrate mobile services within their scope much more comprehensively than solution offered in a couple of years ago. By leveraging the mobile component within the UC platform, for example to mobilise internal processes, significant benefits can be realised, proving the opportunity to create a more compelling business case. In Apr '09 IDC¹⁶ stated that "...we believe that the real UC opportunity lies with communications event management platforms that enable the enterprise to build new applications and enhance existing applications in order to streamline voice-intensive processes and deliver productivity gains."

15: IDC report "European unified communications services market 2008-2013", Apr 2009 (page 5). "While UC is poised to drive widespread adoption of unified messaging, enterprise instant messaging, and conferencing applications, we believe that the real UC opportunity lies with communications event management platforms that enable the enterprise to build new applications and enhance existing applications in order to streamline voice-intensive processes and deliver productivity gains."

16: IDC report "European unified communications services market 2008-2013", Apr 2009 (page 5). "While UC is poised to drive widespread adoption of unified messaging, enterprise instant messaging, and conferencing applications, we believe that the real UC opportunity lies with communications event management platforms that enable the enterprise to build new applications and enhance existing applications in order to streamline voice-intensive processes and deliver productivity gains."

The maturing of Unified Communications solutions (continued)

A case study published by Gartner¹⁷ in Sept '09 looked at the productivity gains made by a Spanish company called 'Technosite' following their deployment of a real-time collaboration solution. The study found that Technosite's chosen solution increased staff productivity by 15%, avoided annual office costs of more than €240k, cut staff churn to 2% and gained the company the ability to hire talent from anywhere in Spain. It is by looking at the holistic benefits delivered, in addition to the traditional cost savings delivered by Fixed Mobile Converged solutions, that solid business cases can be developed.

The business case for a Unified Communications installation is not straightforward due to the many different components and areas of benefit that the solution provides. However, IT managers should ensure that they invest the time to examine the ROI for their business. UC has the potential to provide an OPEX based fixed/mobile solution, with the flexibility to grow as the company expands, liberating employees from a fixed place of work and providing significant productivity benefits. As such UC represents a flexible investment capable of either fuelling growth or providing cost savings during times of economic restraint.

17: Gartner case study, Sep 2009 "Case Study: Technosite Proves the Potential of Teleworking"
"Technosite's challenge was to improve staff productivity and morale, lower costs and support its parent company's mission of integrating disabled people into the workplace. Technosite's chosen solution increased staff productivity by 15%, avoided annual office costs of more than 240,000 euros, cut staff churn to 2% and gained the company the ability to hire talent – whether disabled or able-bodied – from anywhere in Spain. This case study looks at how Technosite achieved these benefits with a teleworking solution that enabled real-time collaboration."

Cloud Services – Back to the future

The idea of “Cloud Services” is not a new one – the first mainstream computer services were built on remote processing power accessed via dumb local terminals. This model was replaced in the 1980’s following the emergence of the PC when data processing, applications and data files all moved to the local PC. Whilst the PC model is still the dominant one a hybrid of these two approaches is emerging for a growing number of applications and services – Cloud Services.

The Cloud Services model has evolved out of behavioural and technological trends that have developed, and accelerated, in recent years. In the Cloud Services model applications and content have returned to being hosted remotely. However, the devices accessing these services are now much more advanced, with significantly more local processing power, leading to faster (less ‘chatty’) applications with much improved user interfaces. These developments have occurred at the same time business users have been liberated from their desks by the advancement of mobile data connectivity – and it is this mobilisation element that provides the commercial rationale for much of this transition.

The ‘National Business Centre’ (a US government agency) describe Cloud Services as having three distinct layers of service:

- Infrastructure as a Service (IaaS) – Computer infrastructure such as servers, desktops or network equipment, delivered over the Internet. IaaS resources are able to scale easily according to demand (e.g. AWS, Amazon EC2, RightScale, iLand)
- Platform as a Service (PaaS) – A fully-fledged software development and hosting environment available as a service over the Internet. Applications are built to run on a specific PaaS platform (e.g. Microsoft Azure, EMC Decho, App Exchange salesforce.com)
- Software as a Service (SaaS) – Software applications delivered over the Internet. SaaS applications are available on-demand, and typically run from within a web browser (e.g. Google, salesforce.com, Microsoft Online Services)

Across all of these layers there is the opportunity to run one of these services as either a ‘Private Cloud Service’, where the service is dedicated to just one customer (run either as a managed service or in-house service). All of these categories offer different opportunities (and risks) for businesses and should be considered on their own merits separately.

A recent IDC¹⁸ survey suggested that 21% of all companies were already using Cloud Services, with a further 18% looking to start doing so within a year.

In their predictions for 2010 IDC¹⁹ stated that “2010 will be a very big year in the continuing build out and maturing of the cloud services delivery and consumption model – which, for the past three years, IDC has identified as the most important transformational force in the IT market”. In Gartner’s²⁰ list of top 10 technologies and trends that will be strategic for most organisations in 2010 they list Cloud computing as the number one strategic technology area.

As Cloud Services become more prevalent within the business community attitudes to these services are changing. A 2008 survey, undertaken on behalf of Easynet Connect²¹ in the UK, reported that 53% of SMEs suggested that they would never use Cloud Services. The same survey, repeated in 2009, reported that just 27% of SMEs still held this view.

18: IDC survey “Understand Your Customer: IDC WAN Manager Survey Results, 2009”, Oct 09, (page 7).

19: IDC “IDC Predictions 2010 – Recovery and Transformation”, Doc # 220987, Dec 2009

20: Gartner report “Top 10 Strategic Technologies for 2010”, Oct 2009
<http://www.gartner.com/it/page.jsp?id=1210613>

21: Easynet Connect Survey, published Jan 2010 – “Is 2010 the year SMEs fully embrace Cloud computing?”

Cloud Services – Back to the future (continued)

Gartner²² estimate that revenues from Cloud Services in 2009 were worth around €42bn globally, with these revenues growing at an estimated CAGR of 27% a year to 2013. Gartner go on to say that "In the field of payroll processing, one of the oldest 'bureau services,' we find that major suppliers have already migrated almost half of their business to cloud models".

The combination of these key trends has made it possible for Cloud Services to gain traction – and they have been doing this steadily.

- salesforce.com revenues have risen from \$250m in 2007 to over \$1bn in 2009
- Google are starting to win large public and private sector clients for their hosted business email solution (including Capgemini, District of Columbia Government and salesforce.com)

As services traditionally managed internally migrate to the Cloud a growing number of users will become aware of the Cloud Services model and look for other areas where similar benefits can be delivered. IT managers should be at the forefront of this exploration, working in conjunction with internal teams, to determine whether Cloud Services can bring significant benefits to the organisation.

IT managers can look to add value as part of this evaluation process by using their expertise to minimise the potential downsides associated with Cloud Services. These issues need to be addressed from the outset in order to ensure an appropriate solution is delivered. The main areas of concern associated with these services revolve around the establishment of relevant SLA's, data and application security, data portability, interoperability with other internal systems and processes, data back-up and recovery procedures and whether key functionality is present. In all cases these risks need to be prioritised and assessed to ensure that time and resources are not wasted trialling inappropriate solutions.

Cloud Services can also create opportunities for IT managers to outsource what are now effectively 'utility' applications such as email. By migrating a service like this to the Cloud IT teams are suddenly freed from activities such as routine administration and can instead look to develop services that deliver truly strategic competitive advantage and higher productivity. In addition, as Cloud Services are typically device agnostic and independent of the local network infrastructure, the IT department does not need to worry about the nature of the device used to access them.

22: Gartner "Sizing the Cloud; Understanding the Opportunities in Cloud Services" Mar 2009 (page 6). Gartner estimate a market size of \$56.3bn for Cloud Services globally in 2009, which at \$1=€0.7401 equates to €41.67bn.

For businesses the time is now

Businesses, both large and small, are looking to tackle long standing business issues in new ways. Their desire to look for new approaches has been shaped by recent experiences as well as their views on the future.

Smaller companies are now being drawn towards solutions where they are only charged for what they use. To some extent this is being driven by necessity; during the recent economic downturn businesses have had to focus on managing cost and cash-flow in order to survive and this mindset is likely to prevail for some time. As the economy improves and these businesses look to expand they will need to move on from 'Excel management' and implement more sophisticated business processes. However, with this more prudent approach to investment, this is unlikely to involve betting the farm on a big software deployment and a more gradual 'test and learn' model is being sought. Cloud Services offer exactly this kind of solution; limited up-front investment, no expansion of the internal IT resources and a fully scalable solution that can grow, or contract, along with the company.

Larger companies are much more likely to have prior experience of the solutions of the past – large scale business process deployments (CRM, Finance, etc) which have, by and large, over promised and under delivered. Allied to these negative experiences the recession has also reminded these businesses of the need to focus on their cost base and to simplify their infrastructure and processes. As these businesses look to exploit the economic recovery they will look for solutions that allow them to be more agile in response to changing circumstances and be able to collaborate much more quickly across organisational boundaries. Again, Cloud Services represent an attractive alternative to the large, heavy infrastructure and slow implementation solutions of the past decade.

Those businesses that have already experimented with Cloud Services are reported to have high satisfaction with the service. A Gartner²³ survey from April 2009 across businesses in the UK/US suggested that 89% of them indicated that they will either maintain or expand their current use of Web platform/Cloud computing in the next two years.

²³: Gartner survey, "Dataquest Insight: Web Platform/Cloud Computing Adoption Patterns in the U.S. and U.K., 2009 and 2010" Apr 2009

Conclusions

As employees have become more comfortable with technology they have begun to use this knowledge to help them access the data and content they need wherever they are. Mobile services have helped facilitate this desire, providing the link between devices and content. This in turn has led to a rise in Unified Communications and Cloud Services as employees and IT departments both look to explore the potential offered.

There is a momentum building for Unified Communications and Cloud Services; the technology is now mature, end users have demonstrated a willingness to work in this way and there is now a compelling commercial business case for switching.

Through the adoption of these services businesses can reduce cost, improve their productivity and make a visible commitment to their customers that they are willing to invest in improving the customer experience.

IT managers need to ensure that they have mobility at the heart of their strategies if they are to exploit the significant opportunities available from Cloud Services.

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