WHITE PAPER

Why Are Enterprises Connecting to Multicloud Services?

Sponsored by: XO Communications

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EXECUTIVE SUMMARY

Enterprise IT managers face significant challenges in balancing the needs of demanding business unit stakeholders for application agility, performance, and ubiquity with core IT responsibilities to deliver efficiency, security, and privacy. Today, many enterprises are embracing the use of both public and private cloud services to deliver business applications to their end users.

IDC and XO Communications' 2014 Network-Enabled Cloud Study on the use of multiple clouds shows that a significant number of enterprises of all sizes are already using public (67%) and private (58%) cloud services. The study confirms that 31-35% of enterprises plan to use hybrid (infrastructure as a service [IaaS], platform as a service [PaaS], software as a service [SaaS]) cloud services in the next two years, and 86% agree that they will need two or more cloud service providers to support their multicloud strategy. This does raise the importance of and need for a cloud architecture that adapts to a variety of network connectivity types and network providers, with the attributes of a multicloud solution that incorporates enterprise IT and wide area network (WAN) requirements.

IDC notes that XO Communications’ Network Enabled Cloud initiative is an example of a new multicloud offering that facilitates a hybrid cloud architecture, in which businesses can optimize investments in both private and public cloud resources and seamlessly integrate them across their enterprise network and with their WAN services.

IDC strongly recommends that enterprises in all key vertical segments and businesses with more than 500 employees develop an integrated IT and network strategy plan that specifies WAN connectivity requirements enabling enterprise users high-speed, dedicated access to emerging business-grade multicloud services.

Enterprise IT Challenges for Cloud Connectivity

The cloud's capacity to upend long-standing IT practices — and vendor business models — knows no bounds. Having changed the way IT organizations deliver applications and cloud computing infrastructure, cloud services are now changing the way enterprises design, deploy, and manage IT network infrastructure, including WANs. IDC's 2014 U.S. Enterprise Communications Survey confirms that 40% of enterprises already allocate 50-100% of their IT budget for cloud computing/IaaS.

In addition to supporting the ongoing IT and networking needs of their enterprise end users, enterprise IT executives are faced with increasing demands to migrate support for enterprise applications that are hosted in the public cloud or need to connect to hosted SaaS software applications such as salesforce.com, Microsoft Office 365, or SAP.com. The cloud is impacting WANs in two important ways: how distributed networks are managed and how they're delivered.
The first change amounts to a SaaS approach to network administration, whereby management consoles and device configuration screens sit in a cloud service, are accessed via browsers, and use Web APIs to push changes to remote network equipment. This type of orchestrated provisioning is often achieved via a Web portal.

The second change entails delivering WAN services over the public network. Although public cloud services inherently rely on the Internet, they’re obviously not all public services – companies have tunneled private traffic over the Internet using VPNs for years. As much as Salesforce Inc. and Workday Inc. use the cloud to deliver dedicated instances of enterprise applications, key concerns for enterprise IT executives are data security and access to authorized users.

That change is occurring faster than IT executives can cope with end-user demand, according to IDC’s 2014 U.S. Enterprise Communications Survey. While over 35% of respondents continue to see demand increasing for WAN access and transport bandwidth during the next year, over 57% of these enterprises plan to use their MPLS VPN to connect office locations to third-party cloud application services (SaaS) during the next one to two years and, today, 29% already are using the MPLS VPN to connect to these cloud services (see Figure 1).

FIGURE 1
WAN-Based Cloud Connectivity in the U.S. Market

Q. Which of the following best describes your organization’s plans to use your network-based MPLS IP VPN to access third-party cloud application services (SaaS)?

<table>
<thead>
<tr>
<th>Plan Description</th>
<th>Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>Currently use</td>
<td>29%</td>
</tr>
<tr>
<td>Planned in next 12 months</td>
<td>39%</td>
</tr>
<tr>
<td>Planned longer term</td>
<td>18%</td>
</tr>
<tr>
<td>No plans</td>
<td>9%</td>
</tr>
<tr>
<td>Don’t know</td>
<td>5%</td>
</tr>
</tbody>
</table>

n = 274

Source: IDC’s U.S. Enterprise Communications Survey, 2014
This means the enterprise WAN is evolving to become a hybrid network that supports Internet access, MPLS VPN connectivity, and connectivity to cloud services. This new role for the WAN also presents new challenges for IT administrators who now have to also manage the use of new cloud-based enterprise applications, including unified communications (UC), Web conferencing software like WebEx or GoToMeeting, and CRM software services from salesforce.com, that are accessible to all users in remote, branch, and large offices, often via the MPLS VPN.

Requirements for Enterprise-Grade Network-Enabled Cloud Service

IDC and XO Communications' 2014 Network-Enabled Cloud Study highlights some of the most important cloud connectivity attributes, including service reliability/availability, secure data transport between the enterprise and public cloud(s), availability of hosted/cloud-based security, and performance management (visibility and control) (see Figure 2).

Business-grade cloud applications underlie the need for more than just network connectivity, since many enterprises' business operations rely on these cloud applications and any network downtime or network congestion can disrupt ecommerce and have a financial consequence. The concept of the network-enabled cloud is really about the attributes of combining a business-grade network with high-speed dedicated cloud connectivity and entails the following capabilities:

- **Reliability.** The network-enabled cloud has to support a minimum of 99.99% network availability.
- **Class of service.** The usage patterns of various cloud-based software apps are frequently unpredictable, and when the most critical apps need the bandwidth, the network must prioritize those apps over less critical apps. Enterprises want to ensure that large email attachments or YouTube usage does not choke out bandwidth that may be required to take an order when the customer is live on the phone.
- **Security.** Security is more challenging as more virtualization of enterprise IT infrastructure and network services occurs. Critical apps cannot be open or susceptible to hackers, viruses, denial-of-service (DoS) threats, and so forth, both on the WAN and also when connecting to a public cloud or private cloud service in a multicloud environment. Regulatory compliance can also become an issue – for example, retailers need to comply with the PCI DSS data encryption security standard for all credit card transactions, and there are HIPAA requirements to comply with in the healthcare sector.
- **Reach.** The network must be connected to the applications that businesses need and where those apps are needed. Even though the network in a business environment is private, it can still provide connectivity to apps outside those offered by a service provider directly. The hardware supporting a private network, ironically, physically resides in the same datacenters that house servers owned by third parties offering their own apps. Providing connectivity from a private network to third-party apps is often a simple cross-connect within the datacenter. Service providers must be able to make these connections on behalf of the enterprise.
- **Elasticity.** The enterprise wants its network provider to be able to scale capacity up or down automatically and still be able to connect to different types of cloud services and then scale back network capacity or cloud services when there is no need.

Most service providers can offer the first three elements of a network-enabled cloud. When it comes to cloud services, reach is often the most challenging requirement to fulfill. Businesses prefer the Apple App Store model, which means the communication service provider (CSP) has to offer connectivity to these business apps developed by third parties and connect to third-party app providers but in a secure and reliable manner.
Figure 2 also illustrates the importance that enterprises place on accessing multiclouds from a single network connection and the related importance of orchestration with multiclouds. IDC believes that enterprise IT staff will expect to use a Web portal to view the performance of their multicloud connectivity. There may also be a future expectation to use a Web portal to change some parameters such as time of day, workload, or policing of applications for user classes. This is more relevant as software-based cloud licensing pricing evolves to a more usage-based model, whereby IT administrators will want to manage and track usage across the entire WAN.

**FIGURE 2**

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**Key Cloud Connectivity Attributes**

*Q. How important are each of the following cloud connectivity attributes to your organization’s cloud operations? (Rate on a scale of 1 to 5 where 1 = not at all important and 5 = extremely important.)*

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reliability and availability</td>
<td>4.41</td>
</tr>
<tr>
<td>Secure data transport to our cloud service provider(s)</td>
<td>4.31</td>
</tr>
<tr>
<td>Hosted/cloud-based security services</td>
<td>4.23</td>
</tr>
<tr>
<td>Performance management capabilities</td>
<td>4.22</td>
</tr>
<tr>
<td>API management</td>
<td>4.13</td>
</tr>
<tr>
<td>Application acceleration/optimization capabilities</td>
<td>4.13</td>
</tr>
<tr>
<td>Multicloud orchestration/management capabilities</td>
<td>4.12</td>
</tr>
<tr>
<td>Access to multiple clouds using a single network connection</td>
<td>4.11</td>
</tr>
<tr>
<td>Scalable on-demand bandwidth capability</td>
<td>4.07</td>
</tr>
<tr>
<td>Rapid, automated provisioning</td>
<td>4.07</td>
</tr>
<tr>
<td>Self-service customer portal</td>
<td>4.06</td>
</tr>
<tr>
<td>Usage-based bandwidth pricing</td>
<td>4.02</td>
</tr>
<tr>
<td>Class-of-service (CoS) mechanisms</td>
<td>3.99</td>
</tr>
<tr>
<td>Geographic reach to serve dispersed locations</td>
<td>3.99</td>
</tr>
</tbody>
</table>

n = 150

Source IDC and XO Communications’ Network-Enabled Cloud Study, October 2014
IDC and XO Communications' *Network-Enabled Cloud Study* clearly indicates the importance of managing and supporting a hybrid cloud environment, but the definition of how enterprises use hybrid cloud can vary (see Figure 3).

**FIGURE 3**

The Many Meanings of Hybrid Cloud

Q. Which of the following best describes the type of hybrid cloud you are currently using or plan to use?

![Hybrid Cloud Types](image)

Source: IDC and XO Communications' *Network-Enabled Cloud Study*, October 2014

Study respondents expect to increase use from an average of two cloud service providers to four cloud service providers within the next two years, which may also influence whether WAN will be used to extend connectivity to support these new cloud services.

**Network-Enabled Cloud Service**

Today, enterprises face a plethora of choices when they are trying to develop a network-enabled cloud strategy. Possible alternative approaches are as follows:

- Enterprise internal IT organizations develop an architecture or platform strategy that involves enterprise IT taking ownership to develop and extend WANs to various cloud services. This is a challenging and complex task. It involves significant resources and time to develop and implement solutions that support hybrid public cloud-based and private cloud-based enterprise applications. Developing a set of application-based use cases and service-level agreement (SLA) parameters is helpful in advance of discussions of these requirements with CSPs.
Enterprises can outsource the development and hosting of their hybrid cloud networking strategy to an outsourcing IT company such as Accenture, IBM, HP, CSC, or Wipro, but then enterprises face the daunting task of developing the "magic integration" of the cloud services to their CSP, which provides WAN connectivity. This can lead to issues of compatibility and often compromises flexibility to change cloud services or manage the performance of applications.

Enterprises can evaluate available CSP WAN-cloud connectivity solutions that are a combination of a managed MPLS VPN or public Internet and a separate hosted cloud service. Enterprises should be careful to avoid CSP cloud connectivity solutions that are offered only by the CSP for a specific suite of cloud services and do not allow enterprises the flexibility to use their own cloud service or easily connect to another third-party cloud service. Integrated SLAs and performance metrics for these two separate services are challenging, especially where the CSP may even use two different internal networks that are supported and handled by two different business units within the CSP.

XO Communications’ Network Enabled Cloud concept integrates wide area networking technology with direct access to the public cloud resources that enterprise users prefer for more on-demand applications and workloads. It does this with enhanced security, greater visibility, and better control of data and applications than a company could achieve using cloud services accessed over the public Internet.

**IDC Recommendations**

IDC research shows strong evidence that enterprises are on a rapid transformation path to adopt and use more cloud-based IT services, including the increasing use of their corporate WAN to connect to these public and private clouds over the next two years. Network-enabled cloud services, such as XO Communications’ Network Enabled Cloud, will see rapid adoption in the next two to three years, especially when offering the same SLA and performance attributes for an MPLS VPN as they extend enterprises to connect to public and private cloud services. IDC recommends the following:

- Enterprises should evaluate and develop their security, availability, and reach requirements for MPLS VPN and cloud services with a goal to allow for future flexibility to add or change cloud services.
- Enterprises that host their own applications on the WAN and that are migrating some applications to a cloud-based alternative should look for performance and latency SLAs from the CSP and other tools to help quantify the end-user experience.
- Enterprises should consider CSPs like XO Communications that have expertise with MPLS VPN and WAN solutions and implementing cloud-based service offerings from leading third-party IaaS, PaaS, and SaaS providers.
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