



**Melanie Posey**

*Research Vice President, Hosting and Managed Network Services*

## **Network-Enabled Cloud: The Next Phase of Cloud Evolution?**

*January 2013*

*In just a few short years, cloud-based infrastructure as a service (IaaS) has become a viable and increasingly mainstream IT and application delivery/consumption model. Businesses look to third-party multitenant clouds to deliver a wide range of benefits, including increased business agility, lower total cost of ownership, and process efficiency. According to IDC's 2012 WAN Manager Survey, more than 20% of U.S. businesses currently use cloud services in their operations — primarily for data storage, backup/recovery, and variable workload capacity. However, a number of concerns impede broader and deeper cloud adoption, including security, performance, and integration with onsite systems. One major factor is the current level of disconnect between the compute/storage stacks and the wide area network (WAN). Cloud is well established for certain types of IT functions, but the next phase of development will require greater convergence of cloud infrastructure and the networks that enable enterprise-grade delivery of cloud-based applications.*

The following questions were posed by AT&T to Melanie Posey, research vice president of IDC's Hosting and Managed Network Services, on behalf of AT&T's customers.

**Q.      What is the next phase of cloud development?**

A.      Current approaches to cloud computing are somewhat narrow, focusing mostly on the compute and storage aspects of the cloud architecture stack. Typically "the network" is mentioned in relation to intra-datacenter networking or as public Internet connectivity to the cloud. However, enterprise networking (i.e., MPLS VPNs) is a key component of the next phase of cloud development as businesses expand their use of cloud infrastructure from data-centric functions such as storage and backup/recovery to transaction-oriented business applications that require end-to-end route control, visibility, and performance guarantees. Bringing enterprise networking into the equation expands the value of the cloud infrastructure by enabling integrated cloud-network solutions that provide the flexibility needed to provision an entire business application with all of the elements required for scaling and efficient usage.

This next phase involves an evolution from what could be called tactical cloud solutions (i.e., standalone functional silos) to a more strategic enterprise IT approach to cloud. Extending the benefits of cloud flexibility, multitenant economics, and on-demand provisioning throughout the enterprise via the private corporate network — "network-enabled cloud" — brings cloud capabilities inside the enterprise. This type of closed loop cloud framework makes it easier (and safer) for enterprises to consider doing more with cloud.

**Q. What are the benefits of a network-enabled cloud?**

A. One benefit of network-enabled cloud is the preintegration of the required cloud infrastructure components and the ability to provision and scale these resources in tandem to meet application and end-user requirements. Another benefit is security. Cloud-network enablement means that the cloud resources in the service provider's datacenter become nodes on the enterprise WAN, ensuring end-to-end security, traffic isolation, and in-transit protection of applications and data. Furthermore, on-net cloud computing protects enterprises from public Internet threats such as DDoS attacks and malware. A network-enabled cloud allows companies to leverage the security protection already embedded in their WAN that provides secure networking between enterprise locations and datacenters. As enterprises make the move toward cloud, they gain the ability to leverage existing WAN investments because the external network-enabled cloud resource stacks are simply additional nodes on the corporate network. Because companies are unlikely to flash-cut applications and data from internal systems to third-party service provider clouds, on-net clouds make it easier to support hybrid implementations. As a result, businesses can gradually migrate applications and workloads to the service provider cloud, move them between enterprise and service provider datacenters, and support secure access to cloud resources across distributed enterprise networks.

Other benefits of network-enabled cloud include the ability to tap into the inherent performance assurance features of MPLS VPNs, such as quality-of-service (QoS) routing and traffic management and prioritization. These characteristics, combined with the embedded security of MPLS-based WANs, mitigate the risk of cloud transition by creating an enterprise-specific (as opposed to start-up developer-oriented) cloud environment that lends itself to business innovation, transformation, and competitive advantage. In addition, preintegrated cloud-network solutions mean reduced implementation effort and expense and operational cost savings from using on-net bandwidth for cloud workloads.

**Q. Where does network-enabled cloud provide the biggest bang for the buck?**

A. Enterprises that want to leverage the agility, flexibility, and cost benefits of the cloud for mission-critical business applications will reap substantial benefits from network-enabled cloud. We've seen a lot of applications moving to cloud, but for the most part, they have been preproduction tasks such as proof of concept, test/development, and staging, which are important though not necessarily critical. However, when third-party cloud infrastructure is positioned as an extension of a private corporate network, the same types of mission-critical workloads that run on servers in enterprise datacenters (e.g., CRM, supply chain, sales force automation) can be hosted in the cloud and securely distributed among on-net endpoints, including branch offices and other internal datacenters. For enterprises that are wary of cloud due to security concerns or that are interested in the hybrid in-house/service provider cloud approach, on-net clouds provide an integrated best-of-both-worlds solution.

In addition to ensuring the security of cloud-based workloads, network-enabled cloud also supports higher levels of performance assurance and reliability than public Internet-based solutions. Mission-critical business process applications such as ERP tend to be "chatty" (i.e., require multiple network roundtrips to complete a single transaction) and are highly latency sensitive. As a result, they require optimization/acceleration techniques to ensure acceptable performance across multiple locations. With network-enabled cloud, these applications can be hosted on and delivered from cloud infrastructure with end-to-end visibility and reliability by using MPLS classes of service and advanced WAN optimization and application performance management techniques. With network-enabled clouds, the cloud infrastructure stack is just another node on the VPN and able to support applications currently running in WAN-connected enterprise datacenters.

**Q. How does a network-enabled cloud help enterprises develop holistic cloud strategies?**

A. Network-enabled clouds seamlessly integrate the world of the locked-down and manageable private corporate WAN with the scalability of cloud infrastructure resources that reside "out there" on the public Internet. The security, performance, and control differences between these environments mean that enterprises currently use service provider cloud infrastructure in a selective and, arguably, suboptimal manner. On-net clouds open up the possibility of using external cloud to run a broader range of applications and workloads in an enterprisewide (i.e., nonsiloed) manner because cloud resources are provisioned on and distributed through the enterprise network. Bringing the WAN and its embedded security and access authentication functions into cloud architectures, businesses can start thinking beyond the traditional IT approach of enterprise datacenters, hardware procurement, and up-front capital expenditure. With scalable, externally sourced, on-net compute and storage resources, businesses can use IT to support more cost-effective ways of performing familiar tasks such as disaster recovery and application development and implementing transformational strategies that align IT more tightly with overall business objectives and promote increased leverage of IT-based applications and workflows for internal and external business functions.

Another way that network-enabled cloud helps enterprises think more broadly about their cloud strategies is mobility. An MPLS network can provide a high level of secure access to cloud resources for both traffic in transit and wired and wireless endpoints by authenticating user access to the WAN. Innovation is enabled by the ability of the MPLS VPN to authenticate not just end users but also other devices used for next-generation mobile applications. This might include, for example, remote diagnostics or automated smart metering communicating with a centralized data processing repository in the cloud.

**Q. If an enterprise is looking to take advantage of network-enabled cloud, what kind of partner should it look for?**

A. Ideal network-enabled cloud partners will have experience, expertise, and enterprise-grade solutions in the networking and cloud infrastructure domains. While many cloud IaaS providers have compute, storage, and datacenter networking capabilities, few also have the broader enterprise networking and WAN skills to implement, secure, and operate on-net cloud solutions. When an enterprise is evaluating a network-enabled cloud partner, the first place to look is the existing WAN provider. Key selection criteria on the WAN front include service-level agreements (SLAs) specifically built for enterprise-class operations and mission-critical applications guaranteeing not just availability but also performance, latency, and even application-/transaction-level service assurance. The service provider's network and datacenter footprints are another important consideration because the on-net resources must be available in the primary locations where business operations are performed.

Another thing to look for is the ability to securely connect to other clouds (both enterprise and service provider) using APIs and seamlessly federate the cloud resources inside and outside the corporate network. Service providers uniquely positioned to offer network-enabled cloud solutions generally have broad offerings covering a range of network and IT needs and supporting multiple delivery options. Key elements of a full-service network-IT portfolio include traditional hosting/IT outsourcing solutions, communications and collaboration services, and managed security solutions. In addition, the extent to which the service provider is able to support standard applications such as ERP and CRM, as well as internally developed or customized applications, expands the provider's ability to help businesses leverage cloud as an engine for IT-based business enablement and transformation. As businesses increasingly rely on network-connected systems to run their business operations, service providers under consideration for network-enabled cloud solutions should also have

well-developed WAN optimization/application acceleration capabilities. Furthermore, providers with an ecosystem of partners that can expand the functionality of hybrid network-enabled cloud architectures and layer capabilities on top of on-net clouds are ideally positioned to take businesses into the next stage of cloud development.

#### ABOUT THIS ANALYST

*Melanie Posey is research vice president of IDC's Hosting and Managed Network Services. In this position, Ms. Posey provides analysis, forecasting, and consulting on telecom and Web hosting sector dynamics, service provider positioning, technological and business model innovation, and industry evolution. Ms. Posey is a frequent speaker at industry and client events and a widely quoted source in a variety of business publications.*

---

#### ABOUT THIS PUBLICATION

This publication was produced by IDC Go-to-Market Services. The opinion, analysis, and research results presented herein are drawn from more detailed research and analysis independently conducted and published by IDC, unless specific vendor sponsorship is noted. IDC Go-to-Market Services makes IDC content available in a wide range of formats for distribution by various companies. A license to distribute IDC content does not imply endorsement of or opinion about the licensee.

#### COPYRIGHT AND RESTRICTIONS

Any IDC information or reference to IDC that is to be used in advertising, press releases, or promotional materials requires prior written approval from IDC. For permission requests, contact the GMS information line at 508-988-7610 or [gms@idc.com](mailto:gms@idc.com). Translation and/or localization of this document requires an additional license from IDC.

For more information on IDC, visit [www.idc.com](http://www.idc.com). For more information on IDC GMS, visit [www.idc.com/gms](http://www.idc.com/gms).

Global Headquarters: 5 Speen Street Framingham, MA 01701 USA P.508.872.8200 F.508.935.4015 [www.idc.com](http://www.idc.com)