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## **Network-Centric Service Providers: Enabling Success in the Cloud**

May 2012

*Everybody wants to play in the fast-paced, highly disruptive cloud market, and the land grab continues. IDC estimates that the global cloud services market is poised to reach \$72 billion by 2015, representing a five-year (2010–2015) compound annual growth rate of nearly 28%. The enormity of the opportunity means that network service providers must claim their share of the cloud or risk being marginalized as "dumb pipe" providers. One way to avoid this fate is by approaching "the cloud" not just as a more dynamic model for delivering basic IT and application functionality but as a new, scalable paradigm for the creation, delivery, and consumption of hardware, software, and communications functionality at scale and with service assurance capabilities baked into the back-end operations and processes. Looked at this way, traditional telecom industry strengths (reliability, ubiquity, scale) play key roles in enabling success in the cloud.*

The following questions were posed by Cisco to Melanie Posey, research vice president of IDC's Web Hosting Services and Telecom Services Vertical Views programs, on behalf of Cisco's network service provider customers.

**Q. Why is having a solid cloud strategy absolutely vital for network service providers?**

- A.** The cloud-centric model of flexible, dynamic architectures for the delivery and consumption of IT/network functionality (infrastructure, communications, applications, and content) is now a mainstream feature of the technology landscape. The concept of cloud is no longer emerging — it has arrived. Established service providers no longer have a choice about embracing the cloud, as an ever-expanding array of disruptive "cloud native" providers (large and small) already have taken a position.

As cloud-based service models begin to account for an increasing share of business and consumer technology spending/consumption, network service providers can maximize their positioning by tapping into existing assets and capabilities to expand the breadth and enhance the delivery of cloud services. Because of a history in the service delivery market, network service providers have an opening to influence developments in the cloud space, establishing their networks as key foundational elements to delivering end-user and intercloud connectivity, as well as security, performance, and quality of service.

However, networks alone are not sufficient: Network service providers must also embrace next-generation cloud-native architectures, pricing/billing, partnering, and service creation innovations and harness existing assets and skill sets for sustainable competitive advantage in the cloud.

**Q. What unique strengths do network providers bring to the table for cloud?**

- A. Communication networks are essentially centralized, shared-tenant environments that deliver voice and data services to multiple customers, leveraging capacity management and other optimization techniques to ensure optimal resource allocation and quality-of-service levels. Over time, many providers moved into the converged network-IT space, using network-connected datacenters and service-enabling infrastructure to deliver Web hosting, messaging, security, and hosted/managed services. At a high level, the combination of networks and service-enabling datacenters provides the asset base for the cloud services model, where the datacenters play a role not unlike the telco central offices serving up dial tone.

Working from this base, network service providers bring other important areas of expertise and experience to the cloud party, such as their proven ability to support scale operations and a long heritage of enterprise-grade service management and large-scale engineering expertise. Network providers also have deep expertise in OSS/BSS infrastructures that tie together service elements; govern service availability and delivery; ensure SLA compliance; and provide billing and sales support. Finally, network providers already have existing relationships with enterprise, government, SMB, consumer, and wholesale customers, as well as developed distribution channels and partners.

However, the cloud-native players possess software development prowess and a knack for creating innovative service delivery models. But they are not service companies in the classic sense of providing extensive customer service and operations based on process-oriented service management frameworks. Though this is beginning to change, the ethos of the cloud native/Web 2.0 model tends to be "good enough is good enough." Furthermore, cloud-native offerings tend to be functional capabilities rather than integrated services (i.e., on-demand compute and storage or individual application functionality).

Network service providers have an opportunity to change this paradigm by injecting their value proposition of "finished" services, 5-9s reliability, and "enterprise grade" quality of service into the cloud model of on-demand scalability and iterative, fast-paced service/feature creation. In this way, network service providers can bridge the two worlds — reaping the next-generation benefits of the cloud model while folding into the framework the culture of service management and the service assurance, security, and management capabilities already embedded in their networks.

While network service providers bring valuable assets and expertise to the cloud table, these elements are not enough to guarantee success in the cloud. The pace of innovation, pricing/billing models, partnering approaches, and levels of automation and orchestration are all unique, requiring a transformational mindset shift.

**Q. How can network-based service providers leverage the cloud as an engine of transformation?**

- A. Cloud offers network providers the opportunity to leverage the growing network centrality of IT infrastructure, applications, and content and advance the long-awaited transformation of the network from a collection of pipes and ports into an intelligent, service-enabling platform for performance-optimized delivery of IT/software-based business and consumer functionality. However, the cloud brings both opportunities (more flexible, cost-efficient operations; new service/business model enablement) and challenges (integration with legacy infrastructure, breaking down organizational silos, cultivating and sustaining ecosystems of application development partners) for network providers. To harness the full transformational potential of cloud, network providers need to do more than simply embed dynamic multitenant compute and storage capabilities into their networks: Offering infrastructure as a service alone is not a game-changing cloud strategy.

Network providers can use cloud architecture (consolidated, virtualized, automated, and orchestrated service delivery) and business models (flexible, scalable, and rapidly deployable services) to establish unified platforms for the creation, management, and distribution of services across business unit (enterprise/SMB/consumer), product (network/IT), and technology (wireline/wireless) boundaries. These platforms create a common infrastructure and application-serving stack, which, when tightly coupled with network capabilities and intelligence, can serve as a massive-scale provisioning factory for packaged software services, on-net "finished" services (unified communications, remote monitoring, backup, security), and new partner-enabled offerings. Componentized network, IT, and application elements can then be federated into standard or custom solutions. This new service creation approach is a key element of network service provider transformation.

Networks must also become more open, with the development of APIs that expose the network capabilities (e.g., billing, presence/location, policy management, mobile device identification) as consumable, SOA-based components for rapid provisioning of the network providers' own cloud services and federated offerings developed with third-party application and content developers. This represents a new paradigm for network providers, but success in the cloud depends in large part on a willingness to work with partner communities on service creation.

**Q. How can network-based providers differentiate their cloud positioning and offerings from those of other players in the market?**

- A. The ability to provide on-demand bare-metal compute and storage resources in an operationally efficient manner is table stakes in the cloud game. At present, first-mover, mass market-focused players such as Amazon could be seen as having come out ahead based on operational scale and price. However, network providers can leverage federated cloud infrastructure and intelligent network offerings to create broader, integrated value propositions for enterprises, SMBs, consumers, and third-party partners/developer communities.

Ownership of the network positions network providers to offer more stringent end-to-end service guarantees to their customers, ensuring not only resource availability but also optimized delivery of the IT service or application. This "quality of experience" view of cloud-based solutions requires deep-dive visibility into cloud services operating conditions — including network latency, application/transaction response times, security threats, and coordinated performance of all parts of the stack. When service providers can track quality of service at the network and IT component level, correlate the data to application/process performance, and dynamically adjust all resources as needed, "telco grade" quality of service and single-source accountability become possible for both enterprise and consumer offerings.

Network service providers can also leverage the breadth and depth of current service portfolios and existing customer relationships to keep customer demand for cloud solutions "in-house." On the enterprise side, a key differentiator will be the ability to support hybrid public/private and on-premises/offsite cloud environments with integrated networking, security, and managed services. In consumer markets, there are numerous opportunities to bundle cloud storage, content delivery, and remote monitoring services with broadband access, mobile devices, and set-top boxes. By federating these offerings with common back-end engines for unified billing and support, network service providers can emerge as one-stop shops that step forward to help consolidate the increasingly fragmented cloud services landscape.

Integrated network/cloud platforms also have the potential to serve as next-generation application development environments from which third-party ISVs and over-the-top players unable or unwilling to build out their own infrastructures can source compute/storage, automation/orchestration, and network components to create their own services. Given the broad-based billing relationships that network providers have with businesses and consumers and indirect channel partners, they can also create aggregated storefronts of homegrown, third-party, and codeveloped services. By enabling both third-party application/service development and sales/distribution, network providers can participate more fully in adjacent IT markets and the over-the-top revenue stream, thus avoiding disintermediation and establishing greater relevance across all customer segments.

**Q. What factors should network-based service providers consider as they plan and build their cloud infrastructure platforms?**

- A. There are multiple starting points along multiple paths to cloud. Network service providers need to be clear on where they want to play initially and for the long term as an internal guide to cloud technology planning, design, and implementation.

Cloud platforms can be implemented alongside existing service platforms such as dedicated hosting or messaging and eventually integrated by deploying a cloud management/middleware layer to facilitate hybrid functionality and interoperability of the cloud and noncloud service variations. Service providers may also decide to take a "net new" approach to cloud, essentially leapfrogging traditional platforms and establishing cloud-based delivery as the go-to deployment and operation model for a range of new service offerings. Over time, the traditional and net-new services may converge on common cloud platforms, resulting in service creation and consumption being completely abstracted from service provider delivery and billing silos while independent of end-user locations and devices.

Other considerations include the anticipated scale support requirements of individual cloud services and the extent to which cloud technology becomes the operational model for service creation, management, and monetization across the entire service portfolio. Service providers also need to think through the service management, support, and delivery implications of cloud service attributes such as pay-per-use/transactional billing, online purchasing, self-service configuration, and third-party ecosystem enablement. These factors will determine the degree and scale of automation, orchestration, and dynamic workload allocation functionality required within individual or across unified pools of cloud systems and resources.

Flexible and extensible cloud architectures and platforms that can accommodate the evolution of network service providers' strategies are vital to success in the cloud. To fully leverage their existing strengths and port these benefits over to the world of cloud, network service providers need robust datacenter infrastructure stacks, common cloud management platforms, and integrated OSS/BSS. To drive the competitive advantages of network centricity even further, service providers can use the localized and distributed nature of their networks to push cloud capabilities further out to the edge. By positioning the network as an indispensable component of cloud and highlighting the importance of intelligent (i.e., stateful, persistent, and application/policy aware) networking within and between datacenters and down to end users, network service providers can take a fundamentally different approach to cloud than their cloud-native competitors. Alongside the table stakes considerations of redundancy, fault tolerance, scalability, and geographic diversity, network service providers need to differentiate their cloud infrastructures with federated stacks that integrate network-based intelligence into the cloud layer.

## ABOUT THIS ANALYST

*Melanie Posey is research vice president of IDC's Web Hosting Services and Telecom Services Vertical Views programs. 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.*

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