INSIGHT

Transforming the Service Delivery Model:
The Emerging Service Provider Datacenter

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IDC OPINION

IDC believes there will be a global transformation in how services are delivered and that service providers will need to be open and aware of these new emerging business models. Economic conditions are unlikely to dramatically change, and service providers continue to face the need to find additional revenue to offset the increasing bandwidth on their networks. In addition:

☑ The notion of "direct connect" is fading as access and media-rich video become prolific, on demand, and ever present. This puts new demands on the network, requiring compute resources be always on and available everywhere, anytime.

☑ Streamlining the datacenter is an important step in improving the ability of providers to deliver new services in a rapid and cost-effective manner.

☑ There is a new model emerging, where media becomes richer, where computing becomes more "cloud like," and where virtualization plays an extended role in the network.

☑ Information technology as we know it is becoming a service, open to new business opportunities and becoming network centric instead of device centric. IDC is recommending that providers look at a new way of approaching this service delivery that will eliminate existing service silos and utilize virtualization technology to leverage a common global infrastructure.

IN THIS INSIGHT

This IDC Insight discusses future requirements for service providers and how the datacenter within the service provider is transforming. Additionally, it discusses the new role of the network in leveraging compute resources in the datacenter while providing end-to-end service delivery and resource efficiency.

SITUATION OVERVIEW

The telecom and cable providers are in the midst of significant changes and challenges. As these providers look to the future, they are also working to bring to market new services that will drive revenue and market share growth while at the same time create an operational foundation that is cost effective and efficient. With

control of compute resources and the network, providers will be fortified and emboldened with the ability to build out new applications quickly, provide value for their partners, and maintain control over the network while increasing revenue.

Service providers have a wealth of business opportunities that, if harnessed correctly, can create long-term revenue growth. These opportunities span consumer and business services. They include:

☒ **Satisfying business demand.** Service providers have business challenges as their customers demand more freedom, more features, and increasing connectivity while at the same time utilizing more and more provider bandwidth. Providers will have to deliver services faster to hold customers and provide the means on which those services will run efficiently. New collaboration services are a key requirement as businesses look to leverage the global network to foster employee communications as well as work with business partners and suppliers.

☒ **Enabling consumer freedom.** To capture the growing and vibrant consumer opportunity, service providers must find a way to satisfy seemingly insatiable consumer requirements. These requirements include an ever-growing list of features and functionality that must operate on all three screens — PC, mobile device, and television. Additionally, consumers are demanding context-aware connectivity, independent of location and device, as well as an increasing level of flexibility in service offerings.

☒ **Managing video and delivering bandwidth.** As consumer behavior is now more oriented to the network, and the use of video and Web 2.0 is driving more content to the network, consumers are expecting and utilizing more and more provider bandwidth. Today, Web portals, VoIP services, and streaming video, all traverse an independent silo of hardware based on storage, servers, switching, and routing elements as well as security products, which protect that domain or site. This ultimately slows any new service as a new silo must be constructed for each service, which limits the economies of scale that could otherwise be leveraged.

☒ **Successfully meeting regulatory requirements.** Telecom is one of the most heavily regulated industries. Providers would prefer global offerings, but to do that requires successful navigation of the individual country regulatory requirements for connectivity, data retention, and content limitations.

To successfully harness these opportunities, the service providers must address these operational challenges:

☒ **Enable speed and flexibility in provisioning services.** A single architecture for each service hinders the provider's ability to provision services quickly. The best way to provision services quickly is to leverage a standard architecture of compute and network resources with application flexibility.

☒ **Provide enhanced security.** Both businesses and consumers demand secure storage and transport of their information.

- ☑ **Provide always on service levels.** As the business becomes more and more interconnected, service providers must architect a network that can handle the proliferation of services, content, and data.

- ☑ **Increase efficiency of the infrastructure.** As part of an overall cost-effective infrastructure, service providers need to deploy equipment that lowers power consumption. This includes devices that require less cooling as well as those that can adjust power draw based on utilization rates.

The Service Provider Datacenter

To effectively meet the new and emerging opportunities, service providers are transforming the delivery model into a new service provider datacenter. The service provider datacenter is the datacenter that uses industry-standard compute, storage, and networking as the foundation for network services offerings. It is a datacenter that can now deliver new video and Web 2.0 applications, and that has the speed and flexibility to meet the service provider's operational requirements while enhancing revenue growth.

The service provider datacenter is also leveraging the advances IT is making in the datacenter today. It includes infrastructure components such as industry-standard server platforms, the use of virtualization, and best practices in datacenter design. Pervasive server virtualization for servers is the backbone of the future datacenter. The movement toward virtualization allows service providers to quickly deploy servers, increase utilization rates that maximize capital investments, and move virtual machines across a physical layer of compute resources as demands for processing ebb and flow. In conjunction, service providers are looking for logical abstraction of storage assets between the physical storage elements and services that are deployed.

The network is evolving as well in how it can be optimized to support server and storage virtualization. The network will play a leading role in enabling service providers to increase the speed and agility of bringing new services to market. IDC believes a unified network architecture will help service providers move away from individual compute clusters and enable an architecture that can be provisioned based on business demand. Service providers will need to move to this new datacenter architecture while still maintaining their strict security policies.

Transformation of the Service Provider Network

Service delivery is currently limited to the hardware associated with that service, limiting its scalability as well as efficiency for delivering services. Typically, each service is established as a separate silo running on that specifically allocated equipment. This is not a very efficient infrastructure for new services that are emerging in the marketplace today. Adding to this segmented approach to service delivery is the reality that service providers are internally organized and structured around specific services. These organizational and infrastructure barriers make it difficult to transition what is a hardened network into an application provider network.

The network is also transforming as the telecommunications industry needs to look at services holistically to determine the best total cost of ownership (TCO) models for their needs. They need infrastructure that can be assembled quickly to deliver solutions that can drive next-generation services across provider networks worldwide. Each of these provider sites are looking more and more like IT infrastructure, except they have yet to leverage virtualization, consolidation, and modularity, which is rapidly changing in the datacenter.

Benefits of the Unified Network and Datacenter Infrastructure

IDC believes that the telecom providers of the future will harness the power of a new dynamic datacenter within their global network. The goal is to create a more integral approach to service delivery. The practical implementation of this new end-to-end architecture is to dynamically provision the network to work in concert with the datacenter. Segmentation is critical to add specific and distinct policies for different types of traffic. Security policies, multiple bandwidth options, and specific application acceleration features for distinct end users or transactions coming into the datacenter bring flexibility and consolidation benefits. The ability to customize the policy and management around those distinct pieces of network traffic enables the network to support multiple types of traffic — in effect, consolidating multiple networks. The final piece to an end-to-end intelligent network is for the network to support and enable dynamic datacenter provisioning based on real-time events. This is the real key to unlocking revenue potential.

Service providers see a wealth of business opportunities that if harnessed correctly can create long-term revenue growth. This end-to-end platform will leverage across the entire service portfolio to help providers:

- **Improve the time to market with new services and features.** The use of common compute, storage, and networking components enables service providers to deliver new enhanced services in a more timely fashion. This common infrastructure facilitates integration between service offerings and more effective and efficient billing.

- **Enable workload balancing.** A common platform has the potential to enable service providers to shift workloads based on user demand, enabling the infrastructure to scale appropriately.

- **Effectively balance capital and operating costs.** To increase market share, services providers must find the appropriate balance between investing for revenue growth and cost reduction. The use of virtualization in its multiple forms on servers, storage, and networking enables increased utilization rates of existing assets. A common unified and consolidated infrastructure improves operational disciplines by reducing training and staffing costs and can help reduce energy and consumption costs.

- **Ensure and secure the user experience.** Customer data in transit and within the datacenter must be safeguarded. The new infrastructure must protect the data while it is stored and during its transmission. The network must be secure within the virtualized infrastructure and must support secure delivery paths all the way to the end user.

- ☑ **Assure availability.** To deliver new media content services to millions of users with 24 x 7 x 365 availability, the infrastructure deployed must provide carrier-class scale and resiliency.

- ☑ **Manage quality of experience.** In addition to these operational concerns, the network needs to take an active role in managing service quality and the quality of experience.

- ☑ **Ensure energy efficiency.** The ability to increase utilization rates of installed infrastructure reduces up-front purchasing costs but also has the potential to reduce power consumption.

With unified control of the network and the datacenter, providers could have the best of all situations to build out a full service delivery network. In fact, with a virtual infrastructure in place, applications could be *drawn* to the network, which now can adequately support them. This dramatically opens the supply chain for providers to claim additional revenue based on this new virtualized and distributed network.

A unified approach to service delivery also brings advances in packaging and pricing. Personalized service bundles can be tailored to a specific type of customer or geographical location and can be easily created, delivered, and billed for. By leveraging a common platform, the cost of operating services is reduced, giving the provider additional pricing options.

FUTURE OUTLOOK

The future unified service delivery model will support the demands of businesses and consumers in the new media-rich and mobile environment. This new model will have the following attributes:

- ☑ **Secure delivery.** A unique security policy for each service or workload would provide isolation for security incidents. If there's a security problem in one area of a datacenter or network, it doesn't affect the other areas. Having a secure wall, if you will, between a different service and application is key.

- ☑ **High quality.** Virtualization enables IT organizations to customize service-level agreements (SLAs) for different constituents. Each individual group of network customers can have specific bandwidth allocations, or a specific response time, or a specific number of sessions per second over the course of a day or year — all of which can be written into their SLA.

- ☑ **Application awareness.** An end-to-end intelligent infrastructure can analyze and manage specific applications. By understanding these applications and the traffic patterns, they create the service that can be more profitable.

If a provider moves toward this model, it opens up new pricing options that can be offered (as the cost of operating these services across one infrastructure goes down) and the very nature of partnerships for providers and media outlets can change. Rather than trying to manage over-the-top (OTT) players on the network, a provider can now do business with them by offering a value-added services network, which is enabled to immediately deliver services. Providers can now offer a scalable quality network, which is secure for next-generation services.

Ultimately, this also leads to reduced capital expenditures and energy efficiency. It also reduces strained capacity in provider sites and allows the organizational and operational structure to migrate services to the new logical network on its own time. In other words, providers do not need to immediately change their internal organizations to achieve these efficiencies. Human networks often mirror the infrastructure they depend on, and this is another example where collaboration flattens the network to enable the virtualization of services to scale.

ESSENTIAL GUIDANCE

Service providers do not need to radically change how they do business, but they do need to be open to transforming the network to become more agile. IDC recommends a service delivery model, which eliminates the service silos in a provider network by integrating the virtualization capabilities of compute and networking resources.

If providers ultimately have control of their entire network, new paradigms open to offer value-added services. Healthy partnerships can be struck between telecom providers and application and content providers. This will enable the telecom providers to gain a greater share of the revenue over and above the value of bandwidth. A provider can now leverage the network for revenue-enhancing partnerships instead of bandwidth managing over-the-top vendors; IDC believes telecom providers can partner and do business with content providers, transforming the services delivery model in new and exciting ways.

IDC believes that the telecom providers are on a journey to build an end-to-end infrastructure foundation that provides granular management, visibility, and control of their entire network. This new foundation has the potential to enable strong partnerships and create revenue opportunities with organizations that require the underlying network such as over-the-top providers.

IDC recommends the following:

☒ Streamline the datacenter as an important step in transforming the ability to deliver new services in a rapid and cost-effective manner.

☒ Align the datacenter operations with the network operations. While both are moving toward more IT-like architectures, the unique structure of networks must be positioned to efficiently connect to the applications running on the datacenter.

☒ Align both the network and the applications running in the datacenter to the specialized back-office operations (OSS and billing) to create secure, reliable, and billable application delivery to the end customer.

☒ Introduce a new service to test the environment. Hardware can be consolidated, virtualized, and tested for billing accuracy, service delivery, and quality of experience. When the environment is stable and secure, add new services to the network or migrate legacy services.

Effectively, linking the network and datacenter assets will evolve over time, but a new architecture can enable service providers to optimally manage infrastructure assets to increase overall revenue from both businesses and consumers.

LEARN MORE

Related Research

- ☒ *Datacenter Network Customer Requirements* (IDC #217999, April 2009)

- ☒ *The Service Provider Edge: Is It Time to Break the Gordian Knot?* (IDC #216985, March 2009)

- ☒ *2009 Worldwide Telecommunications Prediction: The Year Ahead* (IDC #216832, February 2009)

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