IBM network transformation solutions

Helping communications service providers overcome cost and complexity, while also enabling innovation

The telecommunications industry is in the midst of a period of tremendous change and complexity. Voice and data transmission have become increasingly commoditized, eroding a traditional source of revenue for communications service providers. At the same time, rapid growth in the number of mobile devices in use, the amount of data transmitted via mobile devices, and the number of active cell sites around the world has created new challenges that CSPs must address in order to continue operating successfully.

For one, rapid growth in mobile usage also means the need to invest in new network infrastructure, which in turn creates new capital and operating expenses. These new investments also add complexity, as CSPs find it increasingly difficult to manage both new and legacy network infrastructures.

This piecemeal approach to network infrastructure, in combination with the fact that new devices are being added to networks at an unprecedented rate, makes it challenging for CSPs to provide a consistent, predictable customer experience for all their users. Finally, CSPs need to add new services quickly to replace traditional revenue sources that are drying up due to market forces. Therefore, these CSPs need to implement a network infrastructure that supports innovation.

Network transformation solutions from IBM can play a key role in making network operations more cost effective, encouraging agility and innovation, and supporting a more consistent user experience. The capabilities that make these business benefits possible include IP networking, data center networking in the cloud, video infrastructure, network policy management, and cloud-based networking.
IP networking
IP networking solutions based on IBM service competencies and products offered by the IBM ecosystems of partners can help CSPs upgrade, optimize and consolidate their networks for the best possible outcomes. As a result, CSPs are empowered to cut down on complexity within their network infrastructure, support rapid deployment of the new services that today’s customers demand, and dramatically cut costs.

IBM IP networking solutions are based around the following capabilities, which are all brought together to form the most optimized, modern network infrastructure possible:

- **IP Next Generation Networks**: IP NGN provides mobile and wireless solutions that support the design and deployment of carrier-grade networking infrastructures. These infrastructures allow CSPs to deploy innovative, modern telco services.

- **IP voice infrastructure**: With IP voice infrastructure, CSPs can take something old and predictable like voice infrastructure, and turn it into something new and innovative. IP voice infrastructure services from IBM can help CSPs deploy a rich set of voice applications that provide a new way to increase revenue, while also providing a more consistent quality of service.

- **Service assurance and monitoring**: Using deep packet inspection and policy control capabilities provided by IBM and its partners, CSPs can gain a better understanding of how traffic affects its networks. This includes the ability to identify potential service quality issues and address them quickly, before they have the opportunity to hurt customer satisfaction levels.

Data center networking in the cloud
By offering solutions intended specifically to support the lifecycle of hybrid cloud environments, IBM can help CSPs get the best possible networking infrastructure. Hybrid cloud allows CSPs to capitalize on the benefits of public cloud (affordability, scalability, and reliability) and the benefits of private cloud (customization and heightened security), by moving workloads back and forth between the two, as the situation warrants. Enabling networking within the on-premises cloud and the hybrid cloud provides the ability to leverage the best of both worlds.

IBM’s data center networking capabilities for cloud enable the network within the cloud, and connect cloud instances, data centers, office branches, and voice, video, mobile, social and analytics capabilities in a single networking environment. This environment can provide the basis for a network infrastructure that is simplified, agile and cost-effective:

- **Simplified**: IBM’s vendor-agnostic approach to building network infrastructures ensures that CSPs will always get the right networking tools and products for their specific situation, no matter who manufactures those products. In addition, managed services make it easier to manage a network infrastructure with added visibility.

- **Agile**: IBM’s support for software-defined networking (SDN) and network function virtualization (NFV) helps support rapid deployment of new services within the cloud and data center, while open APIs help with IT orchestration, provisioning and automation.

- **Cost-effective**: Managed services from IBM can help reduce total cost of ownership, while the move to cloud can help turn capital expenses into operating expenses.

With a complete bring-your-own-IP-addresses solution based on SoftLayer technology, CSPs can get everything they need to support an effective network infrastructure based on hybrid cloud.

Video infrastructure
As video content continues to account for a larger share of all data traffic, and demand among customers for high-quality video service continues to increase, CSPs that include video infrastructure in their network transformation strategy will be in a unique position to establish a competitive advantage. At the same time, video content from over-the-top (OTT) providers has started to eat into the subscriber base for traditional pay television, as more tech-savvy consumers start to recognize the value of a fluid video experience that works on-demand and across all devices. A new video infrastructure can help CSPs keep their existing subscribers satisfied.

The IBM Video Grid solution was designed with these facts in mind, and can help CSPs optimize the performance of video traffic, conduct video analytics to collect the most valuable insights possible, and quickly roll out new video services in order to better compete with OTT video providers.
The solution removes silos to combine high-performance computing systems, sophisticated analytics and management software, and innovative clustered storage and video processing to provide a better experience for demanding video subscribers, and make it easier to monetize subscribers.

IBM Video Grid helps CSPs provide a level of video service that can match the quality of service offered by OTT providers, with video on demand provided across a wide variety of devices, and video striping to support the most resilient video streams possible. In addition, IBM Video Grid allows CSPs to take advantage of:

- A high-performance video delivery system built to handle today’s demanding video workloads
- Detailed segmentation analytics to identify the right programming choices for the right areas
- Targeted advertising services that help identify what messaging might interest subscribers based on the video content they’ve recorded in the past

**Network policy management**

How well your network performs can go a long way toward determining how satisfied your customers are. If network outages or poor quality of service frequently interfere with users’ ability to do the things they want to do, chances are high that they’ll grow frustrated quickly, and start to consider other options for how they could meet their communications needs.

Network policy management solutions offered by IBM and its ecosystem partners are designed to help address this issue by giving you everything you might need to ensure a high quality of subscriber experience. In addition, resource allocation and network policies can dynamically adapt to changing situations, allowing you to run a more efficient network.

With policy enforcement capabilities, IBM can help CSPs better manage traffic and optimize the network. If certain times lead to very high levels of traffic, IBM can help create policies that account for this, dynamically adding network capacity so that subscriber quality of experience does not suffer. At the same time, the network can be scaled back to save on resources during slower periods.

In short, the policy and network management tools help save resources, simplify your network, and provide the quality of user experience today’s customers demand.

**Cloud-based networking**

Traditional service development lead times can be measured in months and years. In an environment defined by speed and flexibility, this is no longer acceptable. Cloud-based networking capabilities from IBM can serve as the key that helps CSPs unlock reduced levels of cost and new levels of innovation and agility.

In addition to helping CSPs speed up their service delivery dramatically, cloud-based networking also helps these companies move away from the traditional cost structure still found in many network infrastructures. It has now become clear that vendor-specific, hardware-centric network infrastructures are no longer sustainable. Cloud-based networking allows CSPs to take advantage of a vendor-agnostic infrastructure, without the need for prohibitively expensive hardware investments.

IBM’s strategy for building and operating a converged cloud infrastructure for cloud-based networking is based on three key success factors:
• **One cloud for networking and IT**: A single integrated hybrid cloud with an open architecture to support multiple locations, vendors, domains and platforms.

• **Real-time operations**: Analytics-enabled processes for fulfilment and assurance help deliver real-time, zero-touch operations to enable orchestration and network operations.

• **Agile network DevOps**: Network service lifecycle management enables service development from concept through reality.

**Why IBM?**
IBM is uniquely positioned to help CSPs transform their networks in order to thrive in a changing world. We combine decades of experience in the telecom industry with the latest expertise in cloud, analytics and networking technology. We’ve also been a longtime champion of open source technology, which helps our customers quickly, affordably and flexibly build the exact network infrastructure that’s right for them.

Our deep knowledge and experience with transformation and integration projects allows us to support the entire lifecycle of your network transformation. Whether you need assessment, design, deployment, or ongoing management services, IBM can help. From start to finish, IBM is the only company you’d need to work with to get the network infrastructure you’re looking for.

IBM’s network transformation solutions are also backed up by IBM Research, the largest private research organization in the world, as well as our network of industry solution centers. As a result, we’re always innovating, and redefining what’s possible when it comes to network infrastructure.

**For more information**
To learn more about network transformation solutions from IBM, contact your IBM representative or IBM Business Partner. You can also learn more about IBM solutions for the communications industry by visiting ibm.com/industries/communications.

**IBM Global Financing**
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