

Cisco IP Next-Generation Network

A Vision and Architecture for Mobile Operators

Change is a defining characteristic of the mobility industry, which is witnessing an explosion of new products and services. But even more significant changes will come as service providers work to meet the demands for more services, features, and security—all while striving to stay competitive and profitable.

At the center of this rapid change is the operators' network. More than the enabler of exciting new mobile services, it is the key to greater efficiency, security, and cost savings as well as the best source for service management and control for market differentiation and greater profitability.

To meet the challenge of change, Cisco Systems® offers a vision of a converged, IP-based network for data, voice, and video services—anytime, anywhere, over any device: the IP Next-Generation Network (IP NGN).





Mobility

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"It's [the IP NGN] a further step in the direction of convergence of voice and data on both fixed and mobile networks. The role of mobile IP is clear: it's going to be the glue that will deliver this convergence, really, [to] the end customer. The Cisco IP Next-Generation Network is going to be instrumental in delivering this vision into reality."

-Carsten Schlöter, CEO
Swisscom Mobile

A Changing Environment Propels Adoption of Cisco IP NGN

Basic Highway to Value-Added Personal Tollway

Service providers require innovative, converged infrastructures that enable the delivery of current services more efficiently and effectively while providing the framework for the delivery of tomorrow's new, application-intensive services. Deploying solutions that provide greater network intelligence, integration, and overall flexibility will not only provide carriers with short-term relief but, in the end, enable them to combat competitive pressures and address new market opportunities.

As carriers introduce new services, they need a service control framework that supports the key business transition that must be made: moving from a "highway" to a "tollway" service structure where customers choose—and pay for—only those services they require. This transition will provide an unprecedented opportunity for service providers to transform their multiservice networks into intelligent infrastructures that offer customized features that can dramatically enhance subscriber experience, differentiate themselves in the marketplace, and provide sustainable competitive advantage.

Network Control for Lower Capital and Operating Expense

To move to an intelligent network, service providers need a single infrastructure, capable of evolving without disruption. A single, multiservice infrastructure brings efficiencies in operating expenses and capital expenditures compared to the multiple disparate networks of today. Control over the network is critical to assure that these services are customizable, but also rapidly deployed.

The combination of greater network control, lower capital and operating expenses, and the rapid deployment of new, revenue-building services help operators realize new profit potential.

The Transition to IP NGN: Converged Layers

At the foundation of IP NGN is convergence at the application, service, and network layers.

Application Convergence

As customers adopt multifunction devices (for example, dual mode), operators can offer new services that integrate data, voice, and video with mobility, such as video teleconferencing and peer-to-peer (P2P) gaming. While such services promise substantial revenue, they also require network scalability and availability; application-subscriber awareness; and rapid and cost-effective responses to changing application requirements—all qualities inherent in Cisco IP NGN and embedded in the service and network layers.

Service Convergence

Mobile operators must operate, bill, and manage a service over a range of access mediums, enabling a "many services, one network" architecture that builds customer loyalty. By leveraging IP NGN service-enabling control technologies, mobile operators can fully customize service offerings for their customers that include multidimensional identity, policy and session management, quality of service (QoS), class of service (CoS), integrated billing, content filtering, and more.

For greater control and flexibility, Cisco open Service Exchange Framework (SEF) controls access to services without limiting deployable applications by layering new services, such as intrusion prevention and SPAM control, onto existing services. Cisco SEF also affords operators maximum flexibility in the ways in which services are packaged (for example, prepaid, unlimited, or per use).

“We are definitely seeing quicker time to market [with IP NGN]. In addition, the delivery of new services is much more efficient because we do not have to change and re-engineer the network each time—the tools and the processes are all there.”

—Kevin Paige, Director, Core Network and Transport Systems
Vodafone UK

Additionally, Cisco SEF offers a series of new and enhanced products that deliver comprehensive support for all IP applications, including those delivered over an IP Multimedia Subsystem (IMS). This enables mobile operators to offer services based on fixed-mobile convergence (FMC) and to deliver application and subscriber-aware services to achieve greater efficiencies, improve profitability, and enhance control of their networks and businesses for both SIP and non-SIP applications.

Network Convergence

Network convergence takes place in the IP/Multiprotocol Label Switching (IP/MPLS) core, IP-based signaling, and in second-generation (2G), 3G, and 4G backhaul convergence in the Radio

Access Network (RAN). Cisco Intelligent IP Transport solutions are the engine for convergence at the network layer. These solutions provide mobile operators worldwide with carrier-class IP technologies, for better lower-cost transport and faster deployment.

Mobile operators that deploy these solutions from the cell site to the network core enable IP-based transport and signaling in a mobile IP NGN. IP-based network convergence helps operators achieve technology and service differentiation, for long-term success in a competitive market.

Intelligence—Integral to IP NGN

Over the years, Cisco has laid the groundwork for a converged, scalable, and IP-based mobile operator network where intelligence and security are built in—not bolted on—at every level.

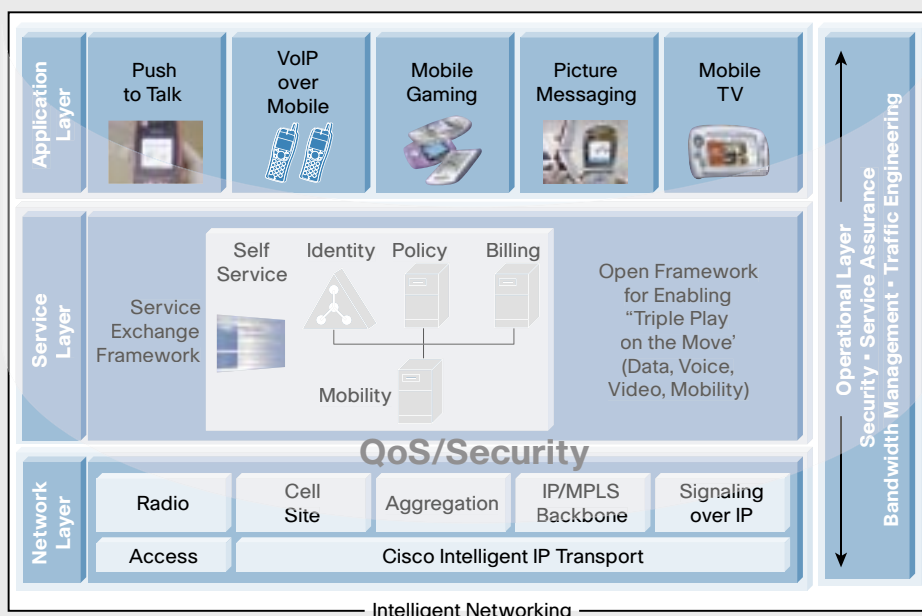
Embedded intelligence, a primary element of IP NGN, is found in all network layers for more efficient and productive communications. The services layer connects and unifies the network layers, turning the embedded intelligence into intelligent customized services. At the same time, intelligence simplifies operational tasks by making the network more resilient, integrated, and adaptive. Simply put, converged layers infused with intelligence make up the Cisco IP NGN.

Cisco IP NGN Supports Both IMS and Non-IMS Applications for More Services, Better Control and Greater Efficiencies

Cisco has significantly enhanced its IP Next-Generation Network architecture at the service layer, where the Service Exchange Framework (SEF) enables network operators to support IP Multimedia Subsystem (IMS). IMS simplifies and accelerates the delivery of session initiation protocol (SIP) applications for increased flexibility across mobile, wireline, cable, and other network infrastructures. The Cisco SEF allows service providers to deploy a variety of IMS applications such as push-to-talk, video

communications and presence applications. The SEF also supports non-IMS services like peer-to-peer (P2P), VoD and IPTV, business IPVPN, messaging applications (SMS and MMS), and much more. Aligned with the IP NGN strategy, Cisco, along with its strategic partners, enables carriers to quickly and profitably deploy both IMS and non-IMS services. This comprehensive approach differentiates Cisco by offering greater flexibility for mobile operators.”

Cisco IP Next-Generation Architecture





Join the Journey to an IP Next-Generation Network

The Cisco IP NGN vision and architecture is the ideal platform for rapidly and cost-effectively deploying revenue-enhancing, customized services; achieving new cost efficiencies; and taking greater control over the network. It is a vision and architecture that accommodates operators' needs today while positioning them for success tomorrow.

Look to Cisco as your network and business evolves to an IP Next-Generation Network. Cisco Systems has the global presence, resources, and expertise to successfully implement the Cisco IP NGN vision and architecture. Cisco products and technologies were developed for IP, and Cisco continues to lead the industry in IP innovation.

Learn More About Cisco IP NGN

To learn more about Cisco IP NGN, visit www.cisco.com/go/mobile or contact your account manager.



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