

# Service-Assured Network Roadmap: Enabling business agility for Service Providers

Service Providers operate in an environment that is fluid and challenging. To survive and prosper, it's vital to do "more for less," utilizing a secure, reliable and flexible network infrastructure, capable of supporting a range of new enhanced services that meet customers' real needs. Through close partnership and a clear roadmap to achieving operational excellence, Cisco's goal is to enhance Service Providers' business agility, improve network and service performance, and accelerate the introduction of reliable new products and services that provide a sustainable competitive advantage in the marketplace.

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## Meeting the Business Challenge

Today, Service Providers face unprecedented business challenges. The network must deliver more for less not just higher performance and enhanced services, but fewer outages, reduced maintenance overhead and above all, lower costs. To maintain and grow market share, Service Providers must be able to offer products that enable and empower their customers. That means triple play and other bundled services, end-to-end connectivity, video, mobility solutions and much more - all delivered at a competitive price, with maximum operational efficiency, enhanced end customer experience and complete reliability.

### Changing customer demands

A competitive price point is critical. But, it's not just a case of driving down costs through lower operating expenses and increased automation, Service Providers need agility and scale to compete effectively. The real challenge is to transform networks from utility platforms into an infrastructure capable of delivering a rich set of service offerings that satisfy customers' increasingly sophisticated demands. Delivering the new product set and reducing time to market whilst ensuring excellent customer experience brings its own set of technical challenges, from availability and performance management to capacity scaling and stringent compliance.

### New forms of competition

Those service challenges are exacerbated by the growing range and diversity of competition. Over The Top (OTT) consumer plays from companies like Google and Amazon are eroding Service Providers' share of the consumer wallet. In the business sector, traditional IT consulting and services companies threaten Service Providers' high margin service revenues, forcing them into a low margin utility role. To fight back, Service Providers must demonstrate that they are relevant to their customers' core needs.

### End-to-end transformation

Key to the success of this new business model is a fundamental transformation of network infrastructure capability from simple transport utility to comprehensive services platform. To achieve this, Service Providers must control and assure their operations and the entire user experience from end to end. That way, they can offer a quality of experience and service guarantees that no virtual or OTT supplier can match.

Networks must deliver reliably against rapidly changing demands by moving, first, from reactive to proactive and finally, to a predictive state. The ability to plan, design, build and maintain flexibility and controllable reliability into the network infrastructure is mission critical for Service Providers who want to make the successful transition to new service and business models.

## Reducing Complexity

Although the business challenges pose new levels of complexity, Service Providers face equally daunting technical complexities. While traffic is exploding from increasing levels of video streaming in fixed line services to rapidly growing demand for mobile data demand, Service Providers are transitioning from legacy to IP-based next generation networks (IPNGNs) and systems. At the same time as they are trying to manage ever decreasing revenues from traditional sources, Service providers are looking for top line growth from new, richer sets of services. That poses many new complex operational challenges for the network, including:

- Real time provisioning
- Multiple content relationships
- Dynamic load balancing
- Traffic shaping
- Bandwidth on demand
- On demand security
- Support for "X" as a Service (XaaS) applications
- Advanced customer analytics
- Real time billing
- Self provisioning.

### New levels of agility

In this new environment, network professionals need to understand how to harness new network technologies at the same time as introducing innovative new services. They must recognize that the services they introduce today might change or be augmented tomorrow, in line with customer demands and competitive response. Services must be delivered with guaranteed performance without mirroring equivalent growth in their cost base.

The only way to achieve this new level of agility and flexibility with assured service levels is to design them into the network architecture and operational processes. A Service-Assured Network is critical to efficient, cost effective delivery in line with current and future business requirements. It ensures that Service Providers can more easily:

- Optimize network operational efficiency and overall business performance
- Improve service performance and delivery
- Reduce costs to invest in future innovation and growth.

### Optimization Essential

Cost reduction remains a major issue in current economic conditions. Service Provider networks are under pressure from massive increases in traffic from video content, Voice over IP and rapidly proliferating volumes of electronic communication, all contributing to increased complexity across the infrastructure. To ensure that networks are contributing to better business performance and not increased costs, Service Providers must fully optimize the network by eliminating multiple equipment types, release levels, and maintenance loads.

Many Service Providers are already reducing the size of their IT estate and cutting maintenance and energy loads through data center oriented projects such as server and storage virtualization. Transforming network infrastructure and supporting business processes into a dynamic resource that supports greatly increased transaction volumes and accelerates the introduction of new services and working practices requires structured planning and the ability to tap into the experience of a network specialist like Cisco and its partners around the world.

## The Roadmap to a Service-Assured Network

While many Service Providers recognize the strategic importance of network transformation, the inflexibility of legacy infrastructures and applications, as well as a lack of service oriented architectures. This has proved a barrier to the operational maturity they require. Cisco believes that the technologies and techniques to overcome these challenges exist today. What has been lacking are the tools and framework to properly discover, map and benchmark the existing infrastructure, the integration of business processes across that infrastructure and an architectural approach that incorporates future flexibility. In addition, the final missing element - a supplier customer partnership is obtained that will ensure the effective deployment and performance of a holistic technology and business solution.

### Transforming Infrastructure

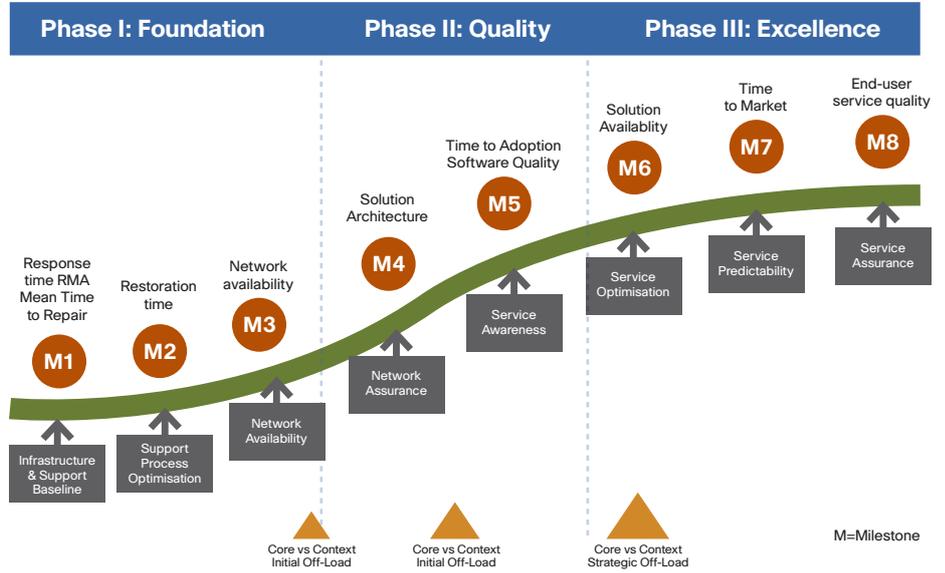
Cisco's response is the Service-Assured Network Roadmap. It's basis is a set of Cisco's customer centric principles that create a powerful framework for transforming network infrastructure into a true enabler of enhanced service delivery. The roadmap helps Service Providers evaluate their current network status, then work towards and move through a series of specific milestones, achieving best practice at each step. Each milestone represents an improved performance target, a plan for prioritizing the actions that support the achievement of key objectives and a further step towards business transformation. The roadmap ensures that the right measures and key performance indicators (KPIs) are in place and capable of evolving to sustain levels of operational excellence.

The roadmap creates a shared vision, defines KPIs and establishes a common language for success. It defines the work that needs to be done, and provides a balanced approach to prioritizing the investments to be made at each stage. Each milestone is defined by a holistic set of attributes (technology and architecture, process, people, and business contribution) that correspond to the level of service assurance attainable.

### Benchmarking Success

By benchmarking against these attributes, the roadmap enables Service Providers to understand the capabilities and limitations of their infrastructure and operations. The framework establishes the requirement for work and investment to reach a defined set of business objectives and provides ROI tools for measuring the success of that investment. By using this roadmap, Cisco can help Service providers define a specific journey tailored to individual business needs, processes, architecture, people, and organization. (See Figure 1.)

Figure 1. Service Assurance Roadmap



### Focused on Business Outcomes

The roadmap is supported by Cisco's unique combination of people, processes, tools, and technologies, helping Service providers move their network operations from reactive to proactive and on to to a predictive state. That transition is backed by stringent Service Level Agreements (SLAs) and KPIs, ensuring that that the climb through the maturity curve is clearly focused on creating positive business outcomes.

One crucial factor in the roadmap is that it should be underpinned by mutual expectations, risk/reward schemes, and solid governance. This is at the heart of Cisco's framework for sharing the workload and the rewards of success.

## Foundation, Quality, Excellence

The roadmap incorporates three major phases of development along eight milestones - foundation, quality, and excellence.

### Phase 1: Foundation

This phase ensures that the network and related processes are suitable at the foundational level. The network is currently perceived as a collection of routers and switches and not holistically managed as an end-to-end system and network operations management is reactive. Frequently, assets are unknown, and network staff spend too much time fire fighting as the operational processes have not created consistent adherence to central policy guidelines for configuration, process and governance.

### Phase 2: Quality

The network and related processes focus on achieving quality. The installed base infrastructure has been stabilized, and processes such as asset management and incidence management are working well. However, primary process indicators such as end-to-end availability, quality of service (QoS) metrics, and closed loop change management for software updates are not necessarily optimized. As a result, new services can behave in an erratic fashion, service creation is slow, and too much money is spent on operating the network rather than developing the innovative customer solutions that are enabled by the network.

### Phase 3: Excellence

The network and related processes have reached a level of operational excellence. High performance and quality have been established end-to-end, and the network now consists of a number of standard service modules that can be combined dynamically and on demand. This allows the Service Provider to focus on higher value services that accelerate revenue and growth. New services can be created and deployed dynamically, each with a goal oriented SLA. The infrastructure is now dynamic, with applications responding in real time to events identified at the network level.

Cisco uses benchmarking tools, remote monitoring, and onsite analysis to categorize the current state of a Service Provider's network into one of eight maturity (M\*) stages:

- **M1: Infrastructure and support baseline** Fundamental to any operational maturity improvement is the ability to fully discover the underlying infrastructure, manage assets and configuration consistently and identify and mitigate potential risks. This means that assets and related support are being risk and cost optimized.
- **M2: Process optimization** Some of the greatest potential improvements in operational efficiency and effectiveness are associated with processes. It is best practice to simplify, automate, and optimize each process to the greatest extent possible. Vendors and other third parties are formally integrated through process interlocks, with improvements measured using KPI based governance.

- **M3: Network availability** Each business, application and network has a specific availability target. Securing and maintaining this is crucial for every Service Provider. While assets, architecture, and processes play a primary role in network availability, business requirements and costs are equally important. The target network availability should be established at attainable cost and assured through a consistently managed and measured set of SLAs.
- **M4: Network assurance** The network is a converged IP-based platform that delivers a variety of enhanced services to Service Providers and their customers, with support for all forms of communication. Full availability is taken as read; the network should also deliver services at optimal quality and speed to enhance the user's experience. As a result, the infrastructure needs to be managed beyond its pure availability to deliver agreed quality standards. Where changes in demand require extra capacity or infrastructure upgrades, these must be implemented quickly with minimal impact on any service or customer. While network assurance is quality and time focused, the cost of delivering to agreed standards must be transparent and optimized where possible.
- **M5: Service awareness** Legacy networks have been independent of many aspects of the services they delivered, with no application awareness. The network as a platform needs to be transparent in terms of which assets transport which services to which customers. It must also enable the quality of service that delivers the highest levels of end user experience. Network operations need to understand how certain behavioral patterns of the network affect services delivered to the customers. Mapping and continuously measuring and controlling the relationship between network and service are fundamental milestones on the way to a service centric and service assured infrastructure.
- **M6: Service optimization** When the relationship between infrastructure components and services has been identified and continuously tracked, the entire infrastructure can be optimized to deliver the same or higher levels of service quality in a more cost effective way. Modularization, virtualization and automation, regional optimization, and global alignment are common techniques to increase asset efficiency and improve manageability and associated costs.
- **M7: Service predictability** The high levels of maturity and control over infrastructure, service, and supporting processes at this level enable organizations to consistently understand and predict service behavior, quality, and cost. It is also technically and operationally feasible to achieve transparency in the effect on existing services and infrastructure of a service introduction or upgrade as well as reliable predictions on cost and time to market for new services.
- **M8: Service assurance** The ultimate goal of operational excellence is the ability to assure a service end-to-end across the entire infrastructure, components, and applications, while consistently managing and controlling its quality and cost levels through an adaptive policy based approach and through globally integrated support and governance. Vendors and other third parties are accountable partners in ecosystems like this where activities are sourced based on core/context decisions and commercially underpinned by risk/reward schemes utilizing SLA based and KPI based governance. The network has become an integral part of the Service Provider's go-to-market strategy and enables the borderless enterprise.

## Working Together Toward Best Practice

The Cisco Service-Assured Network Roadmap is built on best practice garnered from Cisco networks around the world that link network performance to the processes required to operate the existing business and develop new enhanced services. Using a set of fully defined processes, Service Providers can work more effectively with partners, creating “process interlock” and gaining better value from the supplier’s resources and skills. A well managed network and efficient Service Delivery Platform (SDP) will also support optimal analytics, fundamental to providing customized services. The best practice journey is one that few Service Providers are currently following. It is becoming increasingly important to enhance and accelerate that journey by integrating partners, which can contribute to the process. Cisco’s approach to partnership through the Service-Assured Network Roadmap is our contribution to helping Service Providers achieve best practice across their entire network infrastructure and improve business agility as a result.

## Enabling Business Agility

Business agility is the ability to respond instantly to changing market demands, customer requirements or competitive action by rolling out new products and services rapidly and reliably. Service Providers already have many products in the market; they are most likely robust from an operational and support point of view, and working well. But, when a new service such as video or IPTV is designed and implemented or an acquisition brings a new set of products, it is possible that operational maturity will be at a much lower level for those new products. The Cisco Service-Assured Network Roadmap will help to restore or maintain the right level of business agility.

## Why Cisco Services?

Cisco has been working with Service Providers as a leading supplier of communications technology for more than 20 years. During that time, Cisco has helped Service Providers and enterprise customers around the world to overcome their business and technical challenges. Cisco Services represents the distillation of all that experience.

The evolution of the Cisco Service-Assured Network Roadmap adds a framework to that experience to define the Service Provider position today, and the way forward to attaining the flexibility and reliability needed to meet future customer demands and leapfrog the competition with new service offerings. Cisco's operational assurance services not only support progress, but also share risk with Service Providers.

Cisco "leapfrog" services offer the option to design, build, and potentially even host new services until a Service Provider is ready to take them on. Leapfrog services are addressed through the Cisco build and operate services, in which Cisco takes on the task of building up the support and operations for a new service, prove its reliability and maturity, then hand over to the Service Provider to operate and take to market. The benefits are simple but vital - lower risk and greater responsiveness to market opportunities.

## Starting the Journey

To help Service Providers achieve the full benefit from a Service-Assured Network, Cisco and its ecosystem of partners offer a new paradigm of customer intimacy. In the Service-Assured Network model this intimacy comes from a flow of information to and from all levels of a Service Provider's business enabled by services in the broadest sense. This new level of intimacy opens the door to creating solutions that are crafted to a Service Provider's individual needs, delivering business outcomes, while using remote monitoring, data collection and collaboration to reduce operational risk and enhance customer experience.

Starting the journey could not be simpler. Service providers should contact Cisco for an in depth analysis utilizing our Service Assurance Assessment workshop. This will establish primary business objectives and current operational challenges, analyze the position on the roadmap, and suggest remedial actions that can help a Service Provider move rapidly to a higher level of operational maturity and service excellence.



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