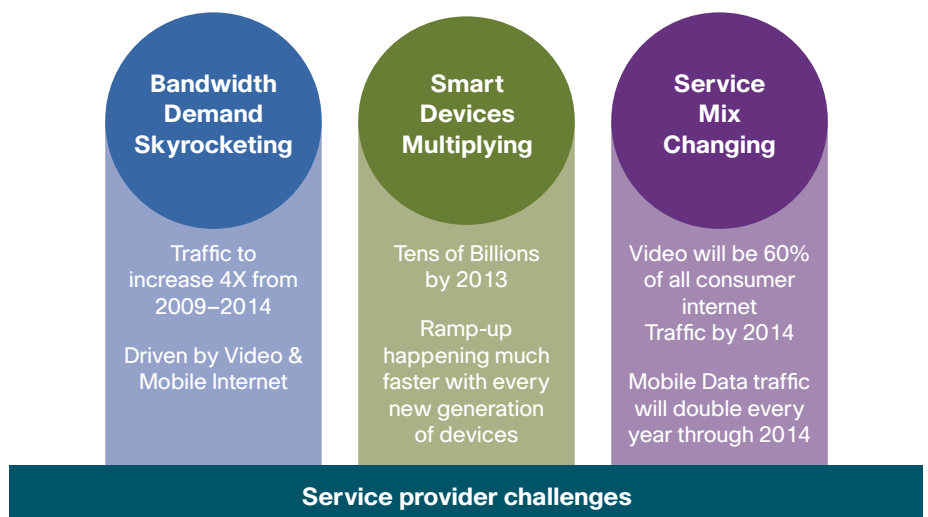# Enabling Service Provider Transformation with Cisco Services

This whitepaper describes the key challenges that service providers are facing in their quest to enable transformation to cater for the needs of the new network generation and identifies solutions that not only overcome the challenges, but can also result in improved operational excellence and business profitability.

Service providers are facing massive challenges to their revenue and profitability—challenges that impact on their strategies and priorities for both network and business decision makers.

These challenges are characterised within the service provider environment by the need to manage converged multi-service networks, major growth in traffic, many new services led by Over The Top (OTT) providers, a growing number of different types of device to support, accelerating pace of change, and challenges from other sources.

Figure 1. SP Market Dynamics

Bandwidth Demand Skyrocketing

Traffic to increase 4X from 2009–2014

Driven by Video & Mobile Internet

Smart Devices Multiplying

Tens of Billions by 2013

Ramp-up happening much faster with every new generation of devices

Service Mix Changing

Video will be 60% of all consumer internet Traffic by 2014

Mobile Data traffic will double every year through 2014

Service provider challenges

While network convergence is delivering many benefits, it also highlights the problems of silo structures faced by many service providers. New service launches, in particular, require the orchestration of engineering, operations and IT departments to ensure a successful end-to-end solution. In other service providers, legacy systems, rigid staff structures and other resource issues are preventing them from moving quickly to meet changing operational challenges.

So how are engineering and operations managers responding to those challenges and how can vendors help them support both their network and business goals?

A survey carried out for Cisco Services by Forrester Consulting in May 2010 found that service providers are focused on three overall goals:

· Managing costs

· Improving the customer experience

· Launching new services quicker.

These goals present engineering teams with a number of specific challenges that include:

· Managing the dramatic increase and changing pattern of network traffic

· Simplifying and managing network complexity

· Scaling the network and increasing capacity within tight budget and timeframe constraints

· Constantly evolving the network while minimising the risk of disruption

· Reducing risk

· Providing predictability in the network.

Operations teams also face pressure on a number of fronts, including:

· Reducing the potential for outages

· Optimising the resolution of outages

· Maintaining and improving service quality, performance and availability

· Doing more with less

· Driving network efficiencies and cost avoidance

· Improving productivity

· Operationalising new features and services.

These factors are posing difficult problems that service providers must address. This whitepaper looks at the way Cisco Services is collaborating with network managers and decision makers to help them overcome the challenges by enabling the essential network, operational and service transformation needed to meet their objectives and deliver business outcomes.

Figure 2. The Operational Challenge
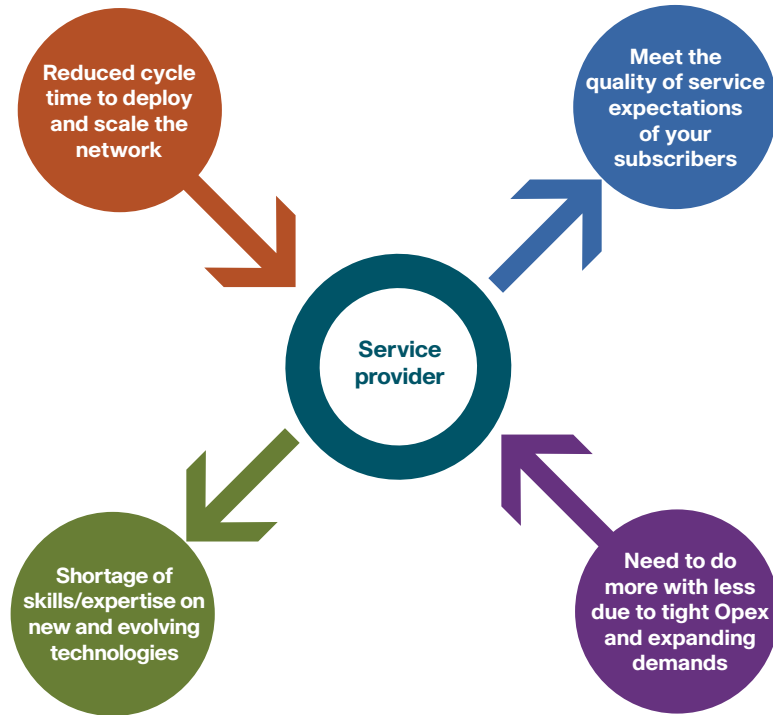
It is important to recognise that addressing each of the challenges in isolation is not the recipe for success - the challenges are inter-related. It is therefore essential for service providers to take a holistic view and address these issues in a consistent way to achieve real business benefit. Service providers must focus on the bigger picture to enable and accelerate success.

Cost Optimisation - Overcoming Cost Challenges

With service provider revenues under threat from intensifying competitive pressures and difficult economic conditions, engineering and operations teams need to reduce costs to help the business maintain margins and price competitiveness. Service providers' plans for reducing costs focused on two main areas—optimising CAPEX and reducing OPEX.

Optimising CAPEX

Where service providers are undertaking new CAPEX projects, service providers need to optimise CAPEX and enable new capabilities cost effectively.

For example, rapid migration to operationalising a new network deployment can help to significantly lower costs. Cisco Services can offer solutions that enable successful migration by ensuring that the network is ready for the new services, with a clear migration plan to guide the deployment.

Even when service providers don't have the resources to take on additional growth projects, they can collaborate with Cisco Services to offload certain projects. Norwegian provider Ventelo, for example, collaborated with Cisco Services who provided services to optimise and stabilise their networks so that they could refocus their people on customer-facing projects without the cost of additional hiring or training.

As well as helping to enable new CAPEX projects, service providers also need to focus on prioritising CAPEX to meet the key objectives of increasing capacity and availability. An example of the way Cisco Services can help is by reviewing the current network infrastructure to identify opportunities to improve utilisation from existing investments. Provided the existing infrastructure is capable of handling the emerging traffic demands, sweating assets can transform network capabilities. Cisco Services' assessment-based approach to network optimisation identifies incremental improvements that require comparatively less funding while delivering significant operational and service benefits.

In addition, Cisco Services' benchmarking services for network and operations help service providers understand where they are compared with the industry and decide on the right business model to meet their objectives. This type of input can help service providers reduce the time and effort to create a business case, as well as creating a more compelling case.

Reducing OPEX

While optimising CAPEX is regarded as important, as revenue per Gb of traffic declines, it becomes essential for service providers to reduce the cost per Gb of the traffic transported.

OPEX reduction initiatives are targeting a number of key areas:

· Reducing the costs of managing network complexity

· Managing the costs of increasing traffic levels

· Improving productivity

· Balancing capacity requirements

· Controlling subscriber management costs

· Reducing the cost and impact of outages.

· Optimising and reducing legacy networks.

Reducing the costs of managing network complexity

Migrating services to a single IP network capable of running multiple services can eliminate the high costs of running multiple dedicated networks. To achieve full benefit, service providers need to achieve network transformation within agreed timeframes and budgets. One way in which Cisco Services can help is by speeding up the migration and accelerating time to adoption while reducing risk, providing greater predictability and avoiding customer disruption. Cisco Services is able to achieve this through the unique intellectual capital built within their tools, and the decades of experience gained within the service provider environment.

Reducing the number of revisits is also key to meeting transformation targets. Here, Cisco Services can help service providers to optimise the network by providing network teams with design support and assessment of their implementation plans.

However, as more and more services are deployed, each with their own traffic patterns, even a single network can incur increasing operational management costs and lower productivity. The focus must therefore be on reducing Total Cost of Operations. Cisco Services can review current network performance to improve utilisation levels by leveraging the intelligence within the network, as well as helping service providers to automate many processes and simplify operations management.

Managing the costs of increasing traffic levels

Network traffic is increasing exponentially, fuelled by the rapid growth in video traffic. According to a recent Cisco Visual Networking Index Study, global IP traffic will reach 44 exabytes (10^{18}) per month by 2012, with video being the dominant driver of growth. This is more than six times the total traffic in 2007. The study also estimates that video will account for nearly 90% of all consumer IP traffic in 2012.

How can service providers develop their network operations to profitably manage this growth? Service providers need to build an understanding of where high levels of OPEX are incurred and reduce support costs effectively without seriously impacting their customers experience. Cisco Services can help service providers assess and manage capacity, and optimise the network for all traffic types through optimised monitoring and services to assure performance.

Improving productivity

The pressure is on service providers to do more with less. However, although service providers may have large workforces, they may not necessarily have the right skill sets. In some cases, they don't have the funds to hire new skills and it may prove difficult to upskill the existing workforce. Coupled with this, service providers need to continually increase and demonstrate their operational maturity which drives productivity, both in existing services and new offerings.

The needs of the service provider will vary between each and every project. In some cases, where the service provider has the skills and manpower, simple review services may suffice. On other projects, where the skills or manpower are not available, much more in-depth support is required. Cisco Services recognises that "one size" most definitely does not "fit all" and has designed services to offer the optimal level of support appropriate to the project and the needs of the operations department. That might be just review services or full build and operate models where Cisco will subsequently transfer ownership through up-skilling and hand over the operations at the most appropriate time to ensure the success of the project. This can help to reduce the cost of managing the network and dealing with outages, driving cost avoidance and improving productivity.

Balancing capacity requirements

Growing traffic levels are creating network capacity problems. Too much capacity represents under-utilised assets. Running lean can lead to outages and an unstable network with the associated costs and impact on customer experience. It can also slow down provisioning of new customers or deployment of new services.

Cisco Services can help with Assurance Services that manage the capacity in the network underpinned by SLAs, as well as getting the best utilisation from existing networks and simplifying the infrastructure. This, in turn, can help to lower the cost per Gb transported through process and infrastructure improvements.

Controlling subscriber management costs

A major challenge for many service providers is the cost of supporting customers. As customers are demanding more bandwidth-intensive services such as e-books and e-newspapers on mobile as well as fixed lines, it becomes important to balance customer retention targets against additional bandwidth costs. The massive growth in traffic, especially from video, is putting pressure on network capacity while the changing traffic patterns create complexity which can lead to increased outages with an impact on costs and churn.

Service providers are responding to bandwidth demands at the network access points through investment in technologies such as LTE and fibre. In addition to this, they also need to switch off legacy networks and consolidate multiple networks which are costly to run. Deploying video caching with a Content Delivery Network solution, for example, can simplify the network by providing video closer to the edge without it needing to go across the core. However, changes like this can present major risks in terms of customer service costs when migrations and new technologies are implemented.

Service providers therefore need to reduce the risk and cost of customer disruption and take better control of costs. Cisco Services can help to minimise the risk and reduce the number and cost of revisits during a migration by taking responsibility for testing, validation, design and implementation through a range of enablement services. This service utilises a set of sophisticated tools that incorporate the intellectual capital built up from the experience of managing network migrations around the world.

A recent Cisco Services engagement with a major service provider that wanted to upgrade their infrastructure, showed that they faced the challenge of dealing with many years of old configurations at their Points of Presence. Cisco Services' migration service and custom tools enabled an efficient and safe migration, with minimal impact on customers and major benefits in business agility. It is estimated that the migration efficiencies enabled resource savings of up to 15 man-years.

"Purchasing Cisco Network Optimisation Support and High-Touch Technical Support Services was one of the best decisions we've ever made. In fact, we cannot remember the last time we had a serious incident with the core network."

Vidar Moen, *Chief Technology Officer, Ventelo Networks*

Reducing the cost and impact of outages

It's also important for service providers to reduce the cost of outages which impact on the ability to meet SLAs and increase internal support requirements to monitor and fix any problems.

To achieve this, operations teams need to maintain service quality, and improve performance and service availability. Cisco Services can help to keep the network optimised with Assurance Services that supporting fault, availability, capacity and performance management with a service underpinned by SLAs. This can help operations teams maintain service quality and improve performance and service availability. This, in turn, directly supports the SLAs between the service provider and their customers, increasing cost avoidance as well as improving productivity.

Cisco Services supports this with a Smart Services strategy. It is no longer appropriate to just rely on break-fix support, so Cisco Services has developed proactive services and diagnostic tools that give greater predictability, mitigate risk and reduce costs. These services have been developed based on the years of intellectual capital that Cisco Services has developed through experience of providing support services to large numbers of service providers.

Optimising and reducing legacy networks

Reducing the number of networks and nodes and rationalising them is seen by many service providers as key to success. OPEX is a function of complexity so a key goal is to simplify the topology and concentrate the intelligence to reduce the number of sites, truck rolls to the sites and highly-skilled engineers at those sites. In particular, service providers want to consolidate third-line engineering and support functions across legacy platforms. Legacy networks can prove a drain on service provider resources, incurring high ongoing maintenance costs while they remain operational. As a result, service providers are retiring older equipment with high maintenance and operational demands, replacing it with modern technology with lower cost of ownership. Cisco Services can help service providers accelerate decommissioning of legacy networks to reduce ongoing maintenance costs.

Although service providers intend to put new services on new networks, they recognise the value of leaving old services on legacy networks while they can still get revenue from them. Where legacy networks continue to provide profitable revenue, Cisco Services can also help to support those networks cost effectively.

Operational Excellence
- Improving the Customer Experience

Network managers are helping to achieve the second overall goal—improve the customer experience—by improving service quality and achieving operational excellence. This helps the business to protect its existing base and win new customers by offering high-quality innovative services.

Figure 3. Operational Transformation
Structured Approach

Quality of the network is important, especially for delivering third-wave video services anytime, anywhere on any device. However, delivering on this is challenging. Different pieces of the network are evolving at different rates and service providers can lose sight of the holistic picture when looking to complete on short-term deliverables. To maintain and improve service quality, service providers need a robust operational process so that they can plan and be confident in delivering the right level of customer experience. That requires a rigorous process and the right level of skills. It's also essential that network performance is not impacted by the introduction of new services.

Cisco Services has methodologies and processes to enable and support network transformation and help service providers achieve the necessary level of predictability by supporting the transition from engineering to operations and efficiently introducing new services into the process flow. Cisco Services has the experience and resources to support a complex network upgrade or simple refresh to deliver consistent network behaviour regardless of the technology or service and ensure that the network operates in a predictable, cost-effective way by supporting fault, availability, capacity and performance management with a service underpinned by SLAs.

Cisco Services has developed a range of business, operational, network and build stage SLAs designed to support and accelerate service provider transformation by incorporating elements of both risk and reward. Where Cisco Services over-performs against SLAs, service providers can achieve business benefit from additional revenue or improved customer satisfaction levels, for example. This aligns SLAs to business needs and provides a mutually-beneficial solution to performance metrics.

As well as measuring against SLAs, service providers need to benchmark themselves against their peers so that they can assess their own performance and identify opportunities for improvement related to increasing profit. Cisco Services has the experience of working with service providers around the world and support benchmarking exercises with identified areas for improvement.

Improve service levels

Poor network reliability and frequent outages have a major impact on the customer experience. They make it difficult to guarantee a quality customer experience and that can lead to an increase in customer churn. There are also cost implications with the risk of penalty charges and the internal costs of monitoring and maintaining service availability.

As network complexity increases, service providers need to improve their ability to maintain and improve service levels

Service providers are looking for smarter networking tools with the intelligence to find, diagnose and fix problems before they affect customers. Network managers feel that current network instrumentation is not capable of providing a clear view of what is going on. They are looking to equipment vendors to instrument their equipment in a sophisticated way for it to diagnose automatically and at a fine level of detail. In the longer term, they see this as a way of achieving more predictive and proactive monitoring of the network.

Cisco Services knows the technology and can give service providers greater control over the network by supporting fault and performance management and providing smart tools and capabilities that are tuned to Cisco networks to support greater predictability and simpler, faster corrective actions. These tools drive more predictable performance in complex networks and help to identify and resolve problems before they happen. The tools are based on Cisco Services' intellectual capital which gives service providers a greater insight into the network, eliminating the problem of human error and enabling service providers to achieve Quality of Service, even on complex multi-service networks.

"Cisco helped us to evaluate our current status and then work toward, and move through, a logical series of milestones, achieving best practice at each step of the way,"

Per Magne Olsen, Head of Group Procurement, Ventelo Networks.

Figure 5. Cisco IC, Tools & Platform
Greater Predictability to Assure the Outcome
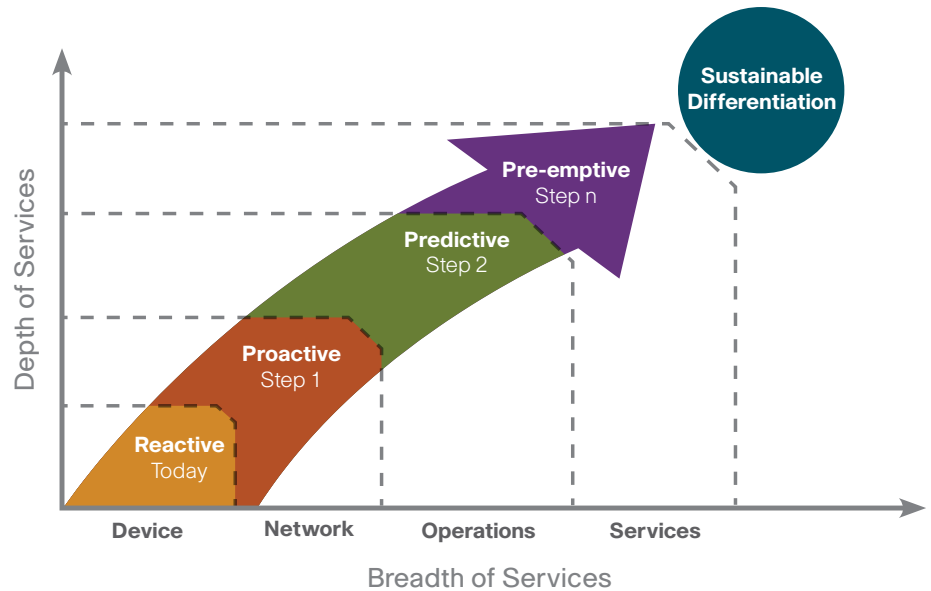
Cisco Services has the tools, processes and delivery platforms to help service providers improve service levels and productivity by making networks easier to manage. These tools and processes are aligned with industry standards such as ITIL and eTOM, supporting service providers who want to achieve governance objectives.

Measuring quality of customer experience

Quality of customer experience needs to be carefully managed and measured. There is a trade-off between delivering the highest quality of customer experience and the cost of delivering that. For example, how cost-effective is it to deliver 1:1 contention ratios on a VPN service?

The problem is increasing as demand for mobility and video-based services grows. In the enterprise, the growth of collaboration tools, video-on-demand and other video services makes Quality of Service a priority. Video in the home presents another difficult challenge for service providers with multiple devices on multiple networks all trying to work together.

With video services, it is difficult to measure and justify improvements in end-to-end Quality of Service because service providers can only control the quality of the network, not the source or customer end device. Although it is possible to measure performance in areas such as sensitivity and jitter, quality of customer experience is based largely on subjective factors. With more and more complex services coming on stream, translating these factors into meaningful SLAs will continue to pose major problems.

Monitoring is critical in this complex environment and Cisco Services has developed sophisticated monitoring tools embedded in the network that can provide the basis for assessing Quality of Service and supporting performance and capacity management with a service underpinned by SLAs.

Video technology is proving to be particularly disruptive, changing the traffic patterns on service provider networks and creating a need for higher levels of Quality of Service. Cisco Services can optimise the network for video with support for IP across many different formats all the way to the end user device.

Innovation and Monetisation - Launching New Services Faster

The third major goal for service providers is to enable and speed up the introduction of new services to meet business requirements.

Figure 6. Service Transformation
Complete Offer To Accelerate Time To Market
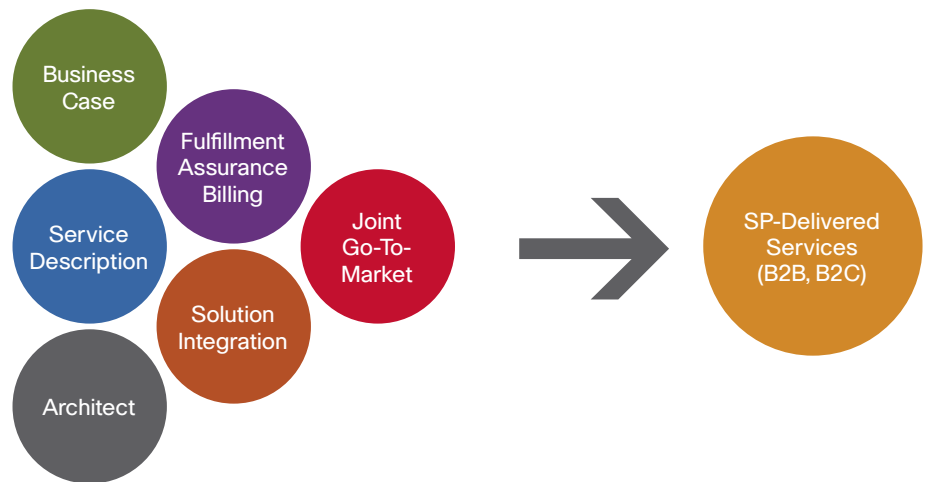
Increase revenue and accelerate growth with new services and monetisation models.

Services transformation is vital, but it involves risk in two key areas:

· Operational risk – has the service provider got the right people, skills, infrastructure and processes to deliver the right quality of user experience?

· Technical risk – will it work?

To ensure success, service providers want to share the risks and responsibility with vendors.

Through collaboration, Cisco Services can help service providers reduce risk at all stages of the service provider journey from vision and initial business case to practical implementation.

End-to-end perspective

The end-to-end approach to service enablement is particularly important for the deployment of new services – and in particular video. Through Video Readiness assessments, Cisco Services can help service providers assess their networks to ensure they can cope with the explosion in video traffic. The Video Readiness assessment is the basis for planning an optimised end-to-end architecture with embedded monitoring for high-quality delivery to any device.

Upskilling the team

Network teams are under intense pressure to deliver new services faster. The situation is further complicated by the proliferation of new devices, multi-service networks and new technologies to support. This requires new skills to manage the services and technologies, so changes to the architecture must also be considered in terms of their internal impact on people and processes,

Service providers have mature, advanced skills in traditional services and technologies. However, if they plan to introduce new services, they will need to make an investment in training and upskilling to reach the same level of maturity. This can also extend the launch period, slowing time to revenue. Cisco Services can help overcome resource challenges with a range of assisted options and flexible business models such as Build Operate Transfer, Build Integrate Transfer or hosted/white label services supported by SLAs. In some cases, Cisco Services can take the lead on implementation then hand operations back, allowing the service provider to build up skills at their own pace while the service is live and delivering revenue. This derisks the service launch and takes service provider skills to a higher level of maturity.

By using the Service Assurance Roadmap, service providers are able to benchmark their operations maturity and use Cisco Services to "leapfrog" to higher levels of maturity for new offerings that they want to take to market

Figure 7. Outcome Based Engagements
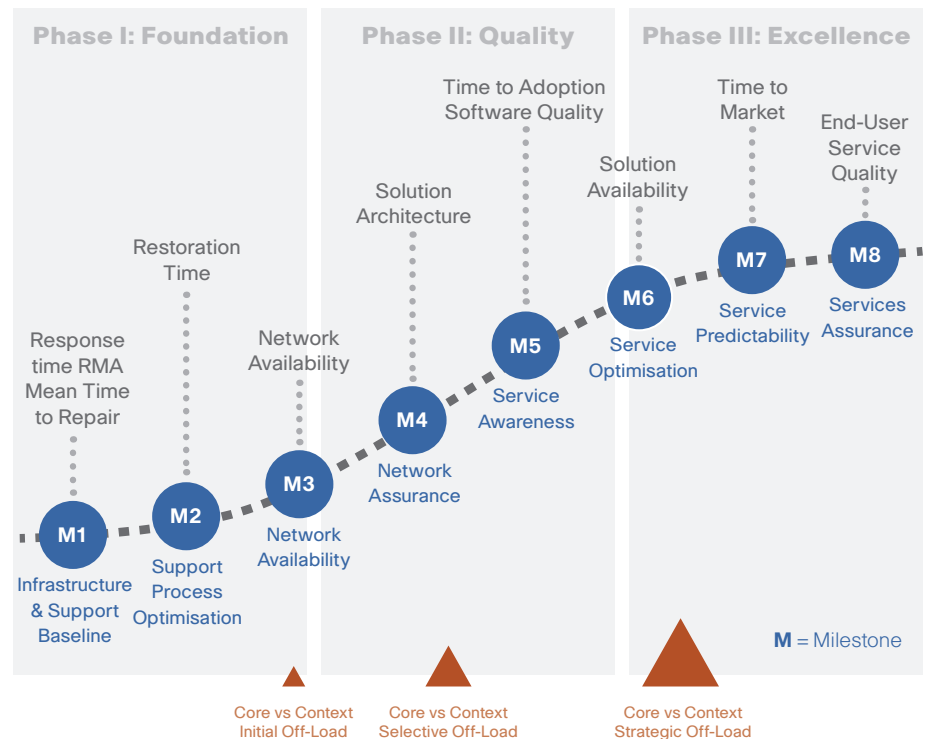
Cloud and managed services opportunity

Although OTT providers have made initial inroads in delivering services over the cloud, service providers have the opportunity to offer a range of cloud-based managed services more closely aligned to enterprise needs and standards. By combining the power of the IP Next-Generation Network (IP-NGN) with a virtualised and orchestrated data centre such as the Cisco Unified Services Delivery (USD), service providers can offer production-level capabilities with an end-to-end Service Level Agreement. This is a significant evolution from non-critical test and development environments which OTTs and data centre service providers offer. It enables service providers to reduce their customers' capital requirements and provide them with customised portals that provide a user experience that is closer to the customer's own organisational requirements.

Cisco Services can help service providers develop compelling offers across the range of cloud-based services including::

Infrastructure as a Service comprising:

· Business Continuity

· Cloudbursting

· Compute as a Service

· Desktop Virtualisation

Hosted Collaboration Services comprising:

· Unified Communications as a Service

· TelePresence as a Service

· Webex.

Cisco Services can help service providers accelerate new cloud service launches, enabling them to generate revenue faster by reducing time to market, while reducing risk and enhancing the customer experience. As an example, Cisco Services recently helped a major telecoms company to enter the TelePresence market, delivering the solution as a managed service and taking it to an operational level in just nine months.

Enabling Service Transformation

Cisco Services brings together the people, processes, tools, platforms and partners to enable and accelerate service providers' success through operational, service and network transformation.

Cisco Services' approach and differentiation in services comes from a heritage of network capabilities and a wealth of experience in providing solutions to service providers in all sectors around the world. That is reflected in more than 20 years' involvement in the market with services and solutions that are strategically aligned with those of the service provider. Cisco Services has also made a massive research and development commitment to the service provider community, developing innovative roadmaps and solutions to keep the sector ahead of the competition.

To help deal with network complexity and optimise their networks for profitable service delivery, service providers can draw on Cisco Services' unrivalled expertise in IP networking and intellectual capital based on managing networks for thousands of organisations around the world. Cisco Services has more than 2900 certified IP experts with experience unmatched in the industry. With strength in depth across the globe, Cisco Services can help multi-national providers offer customers a consistent and predictive standard of service anywhere in the world, regardless of local resources. An ecosystem of certified partners provide essential specialisations to enable end-to-end capability.

Figure 8. Cisco – Services Evolving Capabilities
Build, Buy and Partner for Success
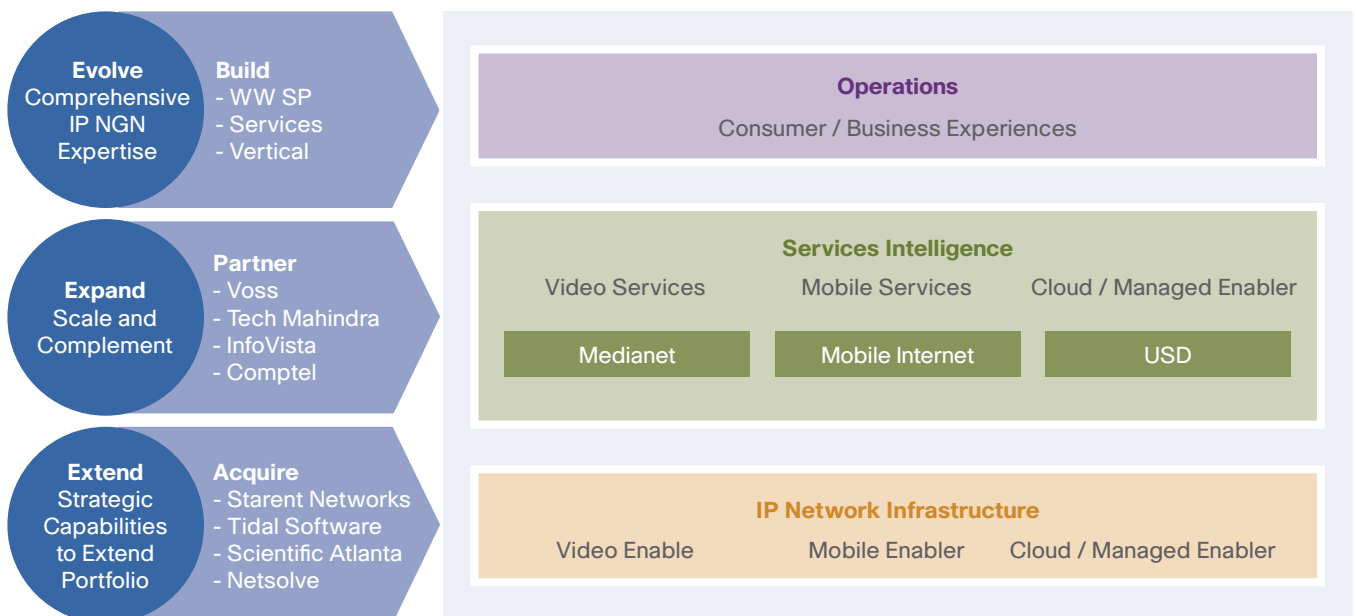
To ensure the highest standards of governance and project management, the Cisco Services team works to internationally-recognised best practice and standards such as ITIL and eTOM when designing and implementing solutions.

Cisco Services' intellectual capital underpins the diagnostic and management tools, processes, delivery platforms and automation that reduce risk and improve service provider productivity by making networks easier to manage.

Cisco Services is uniquely positioned to support service providers in meeting their networking and business challenges with comprehensive end-to-end solutions that enable service providers to take a holistic approach to business transformation.

Further information

For more information please contact your **Cisco account team.**

Americas Headquarters
Cisco Systems, Inc.
170 West Tasman Drive
San Jose, CA 95134-1706
USA
www.cisco.com
Tel: 408 526-4000
800 553-NETS (6387)
Fax: 408 527-0883

Asia Pacific Headquarters
Cisco Systems, Inc.
168 Robinson Road
#28-01 Capitol Tower
Singapore 068912
www.cisco.com
Tel: +65 6317 7777
Fax: +65 6317 7799

Europe Headquarters
Cisco Systems, International BV
Haarlerbergpark
Haarlerbergweg 13-19
1101 CH Amsterdam
The Netherlands
www.europe.cisco.com
Tel: +31 0 800 020 0791
Fax: +31 0 20 357 1100

Cisco has more than 200 offices worldwide. Addresses, phone numbers, and fax numbers are listed on the Cisco Website at **www.cisco.com/go/offices.**