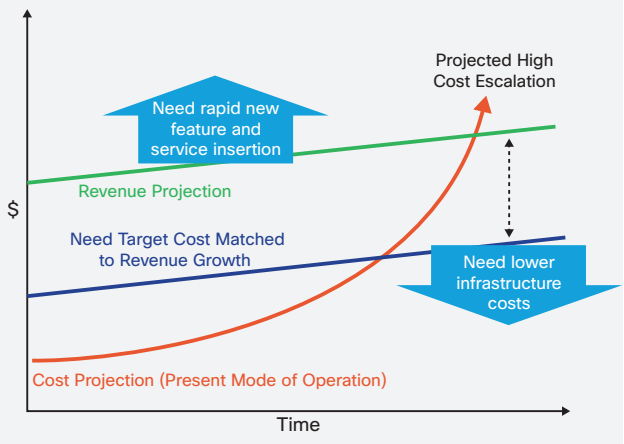
Simplify and Automate for Enhanced Service Agility

Faster, changing market demands. Revenue pressures. New business models and applications. With so much in your environment in flux, it's no surprise that operational processes have to change as well. Digital business transformation demands faster business responsiveness and economies of scale. Services and their features must be made available more quickly and with lower cost to make sure of competitiveness and acceptable margins. The current network service provider model is unsustainable (Figure 1).

Several industry initiatives and technologies such as network functions virtualization (NFV), programmability and software-defined networking (SDN), open source, well-known APIs, and cloud computing contribute to a more agile operational model. This model is expected to provide a high level of service agility that benefits both you, the service provider, and you customers. The important characteristics include rapid introduction of new services, modifications, and features; responsiveness to user demands; flexibility in offers; real-time scalability (up and down); and high operational efficiency.

Figure 1. An Unsustainable Operations Model



One of the biggest challenges for all network operators is the high complexity of provisioning, which is time-consuming and costly. Operations that encompass network infrastructure and services must be simplified. A crucial component necessary to achieve this is orchestration. The right orchestration will contribute much to improved profitability.

The Mandate for More Agile Services

How do you adapt very quickly to address market demands for new services, applications, devices, and business models? Applying agile processes and attributes to their services should be considered from the perspectives of both customers and providers. Is the fast turn up or turn down of new services and features required to retain customers?

Is service flexibility a differentiating feature? Can you scale services up or down quickly enough to serve customer expectations when and where they are needed? These questions must be carefully balanced and answered with features and solutions that support agile attributes while improving overall costs.

You need to be able to quickly reconfigure networks to meet the requirements of different types of customers and venues - from the Olympics in a remote region to a convention with 70,000 attendees in a major city. Infrastructure for special events themselves can be planned out in advance and built out. However, an agile infrastructure can help you avoid a lot of costly and underutilized build. It can quickly and dynamically spin services up or down in real time, on demand.

This is an important attribute because surges in demand, which are ever-increasing, cannot be easily predicted. These surges can occur anywhere, sometimes beyond dense urban areas. So overbuilding will not necessarily solve the problem and can lead to under-utilized capital investment. But demand surges are easier problems to handle in regard to demand predictability. Trends in mobility, high-definition (HD) video, machine-to-machine (M2M) applications, and cloud-based services promise even more challenging demands that increase the need for you to reengineer for flexibility and adaptability rather than relying on forecasting with the current model.

Fast adoption and introduction of new business and revenue models is an important facet of becoming more agile. Business and revenue models are changing from counting minutes and bandwidth used to measuring content views, clicks, social media trending, interest patterns, and other behavior. You need to be very responsive, sometimes in real time, to changing customer demands and new business opportunities. Responding quickly isn't enough however; you will need to maintain quality of service (QoS) and increase or decrease capacity in response to demand.

You and other service providers are not alone in your need to be increasingly agile. Digital business transformation is requiring your customers to be more agile too. It is a big factor for enterprises for moving services to the cloud and therefore achieve greater agility and speed in their service deliveries.

The desire for increasing agility spans demanding individual subscribers, businesses that are subject to rapidly changing market conditions, and industries that are disrupting old business models (as Apple disrupted the recording industry and Amazon disrupted retail). Understanding your customer requirements for speed and flexibility is critical when formulating and delivering a compelling business case for increased agility.

The Role of Orchestration in Automating and Simplifying Service Provider Environments

The network infrastructures form the technological foundation for agile businesses. SDN, NFV, open source software, well-known APIs, and more all help create a more flexible infrastructure that can adapt quickly to demand surges and trends. Critical to achieving a lean, agile environment for services is an orchestration system with full view of the whole network infrastructure and control of it. This orchestration system automates the processes needed for the network to adapt in real time or near real time to increasing or decreasing demands. In so doing it also greatly simplifies your operations. Important components in a good orchestration system include appropriate repositories for such things as service profiles, service catalogs, network functions, and a simple way to control the business and operational intent.

Today's networks are arguably too complex, with too many platforms, too many silos, and vertical implementations. Virtualizing many applications and functions and converting appliances into software elements to run on reusable servers could increase operational complexity if not done right. Like the early days of server virtualization, which decreased capital costs while increasing complexity and operational costs, virtualization everywhere in an attempt to lower capital expenditures is not a prudent approach.

The orchestration system can simplify your networks but it too must include several critical capabilities so the intended business outcome can be achieved. Operators need visibility and control across the data center and WAN – from application to user. An optimal orchestration layer can simplify networks while providing speed, flexibility, and value if you have included these attributes:

- A repository that defines all network functions and catalogs them in a simple way. These are the basic building blocks that comprise a service.
- A repository that defines service profiles and policies which can then be applied to a new service instantiation.
- A structure that accepts and responds to the business intent for each service, which provides the appropriate instructions for the orchestration layer to perform its task to instantiate a new service.
- Well-known, simple, bidirectional interfaces to other layers and elements for greater use and innovation, which means no more complex APIs and greater plug and play.
- The ability to assemble or enchain in the right order all the network functions, both physical and virtual, compromising neither while meeting the needs of higher layer applications and services.
- Automation of workflows, provisioning, and configuring of tasks associated with the various network functions.
- Automated management tools and processes which provide full views across the services and the ability to control them continuously towards optimal operation.

Service agility relies on automation across policies, service levels, workflows, network functions, platforms, multidomain provisioning, billing, metering, change management, and other service attributes. Careful consideration of the issues outlined here will be the foundation for a simpler network and operational model and for the necessary agile service delivery.

For More Information

- Automating the WAN
- Automate Innovative Network Services
- Automating a New Class of Carrier Cloud
- Cisco® Evolved Services Platform
- SDN for Service Providers
- Network Functions Virtualization

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