Business Transformation through Architectures

Enabling Business Transformation with Enterprise Architecture and IT Service Management

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In response to macroeconomic factors such as globalization, information digitization on an unprecedented scale, broadband proliferation, social media, and the consumerization of IT, enterprises all over the globe have been reinventing their business models to take advantage of these trends and gain competitive advantage.

These business trends have resulted in adoption of innovative technologies and increased use of video to communicate and collaborate. All industries – from manufacturing, retail and finance to healthcare, hospitality, education, and the public sector – are undergoing transformation. Often the scale and complexity of such transformation is large, impacting crucial aspects of the enterprise such as target markets, offerings, pricing methods, customers, channel partners, suppliers and the workforce.

Changes in the business affect various aspects of operations: operational scenarios, business processes, policies and important business metrics. All these changes, in turn, have an impact on the systems that are used to automate business operations. Often changes in the company’s technology infrastructure that underpins its business systems are needed to achieve the desired shifts in business model and operations.

At Cisco, the business transformation has been focused on expanding into emerging markets, finding new ways to monetize Cisco’s products and services, and improving productivity and achieving operational excellence to grow profits faster than revenue. To facilitate this transformation, Cisco IT is employing two disciplines: enterprise architecture and IT service management.

Enterprise Architecture

Managing change of enterprise scale and complexity requires a structured approach that can holistically cover all impacted areas of the business and plan for major changes in business capabilities to achieve strategically relevant outcomes. Architecture is critical to managing complexity. According to Proact Business Transformation Inc., enterprise architecture is the process of translating business vision and strategy into effective enterprise change by creating, communicating, and improving the key requirements, principles, and models that describe the enterprise’s future state and enable its evolution.
An effective enterprise architecture practice requires an architectural framework that includes business, operational, system, and technology views, reference architecture, and a well-defined methodology. Robust reference architecture helps various functions within the business work with each other using a common taxonomy and accelerates the business transformation. A good architecture modeling tool and its associated repository enable the creation and management of architectural models, ensuring that information is captured and available easily so that the workforce does not have to rely on tribal knowledge to figure out how the business functions. It provides a single source of truth for the enterprise architecture and can also be used to educate new employees, consultants, and partners.

Cisco uses the BOST Architecture Framework (Figure 1) as a reference model and architectural framework for modeling enterprise architecture. Known by the acronym that represents the four views in the framework, BOST stands for Business, Operational, System, and Technology.

**Figure 1** BOST Enterprise Architecture Framework

- The enterprise architecture framework includes business, operational, system, and technology views
- Reference architecture provides common taxonomy, promotes cross-collaboration
- Operational scenarios provide essential context for identifying gaps and pain points in business capability
- Operational requirements are mapped to systems; systems are mapped to technologies that power them

One of Cisco’s competitive advantages is its ability to provide customers with entire architectures such as borderless networks, mobility, collaboration, and security as opposed to point products. This requires the ability to design and sell solutions composed of products from different business units and, sometimes, products developed by partners.
Cisco’s business operations are undergoing significant changes to enable the sale of solution bundles with a top-line price for the entire bundle. Offering solution bundles requires changes in pricing, sales crediting, revenue attribution, order processing, and supply chain. It also poses challenges such as identifying how a bundle-level service contract should be cascaded to the bundle components, and how all components of the solution bundle will be consolidated for delivery.

The offer structure template (Figure 2) is an example of a business view architecture model that helps articulate new offers such as solution bundles in terms of offerings, markets, pricing methods, location, and routes to market.

**Figure 2  Offer Structure Template**

![Offering Pattern Reference Model](image)

Business architects define operational scenarios such as quote-to-cash for a direct sale (Figure 3) that show how various capabilities will interact to achieve the desired business outcome. These capability flow models become the starting point for defining detailed business processes.

Operational scenarios provide the context for identifying gaps and pain points in business capability. Operational requirements are defined to address the gaps and pain points. Many of these requirements are met by the systems that automate the business processes and are mapped to those systems in the architecture models.
Just as the operational requirements are mapped to the systems that enable them, the systems in turn are mapped to the technologies that power them (Figures 4 and 5). Collaboration systems used by sales account managers, professional services staff, partner account teams, and engineering teams when developing complex solutions for customers are powered by Cisco collaboration technologies such as Cisco WebEx® Social (formerly Cisco Quad™), WebEx, and Cisco TelePresence®.

Business systems running Cisco’s core business processes such as the enterprise resource planning (ERP) and customer relationship management (CRM) systems are likewise mapped to Cisco’s data center technologies. These include Cisco Unified Computing System®, storage-area networks (SAN) made up of Cisco MDS Switches, and Cisco’s private cloud (Cisco IT Elastic Infrastructure Services, or CITEIS).

The enterprise architecture thus provides a comprehensive view, beginning with the business Cisco is engaged in, to the company’s operations, to the systems that are used to run the company and the underlying technologies that enable the systems.
Figure 4  Technology Infrastructure for Service Order Request Management System

Figure 5  Network Model for Data Center Pod with Network-Attached Storage
**IT Service Management**

With advances in information technology and the advent of the Internet and World Wide Web, many companies have come to view information technology as a strategic asset. At Cisco, IT enables every move that Cisco makes. IT is critical to ensuring that new business models can be delivered faster, better, and at lower cost. This strategic partnership has led to transformation of the traditional IT organization into IT as a Service Organization (ITaaSO). While traditionally the business has looked at the IT organization as a provider of technology infrastructure, tools, and systems, ITaaSO is a business model wherein IT delivers value as defined by IT’s clients (i.e., the business) in a cost effective manner, while at the same time reducing risk.

The primary tenets of Cisco IT’s service model are:

- Customer-centric
- Business value driven
- Cost effective

A service portfolio and catalog are critical to effectively running ITaaSO. The service portfolio is used to manage services through their lifecycle (Figure 6) from the time they are conceived, then designed, implemented, operated, and eventually reached end of life. The catalog lists only orderable service offerings, the ones clients can currently request.

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Figure 6  Service Lifecycle Stages

![Service Lifecycle Stages](image)
Service offering is what the consumer of a service actually orders. The service is what one markets. The service offering is what one sells. Offerings provide various ways of consuming a service that are differentiated based on the cost, features, purpose, target customer, segment, etc. For example, the offerings of the Collaboration Service provided by Cisco IT are Event Center, Training Center, and Meeting Center. Cisco’s Storage Service includes offerings such as SAN Tier I, SAN Tier II, NAS Tier I, NAS Tier II, and S-Cloud (storage cloud). While the SAN storage offerings are suitable for high-performance online transaction processing (OLTP) database applications, the NAS offerings are less expensive and suitable for file-based storage and S-Cloud for object stores.

Service asset (Figure 7) refers to assets such as systems, processes, documentation, facilities, intellectual property of any kind, and people that are used to deliver a service. An asset may enable multiple service offerings, even across different services. In fact, asset reuse is encouraged. The goal is to monetize an asset in multiple ways, creating different service offerings to deliver value.

**Figure 7**  IT Service, Service Offering, and Service Assets
As one would expect, there is a connection between enterprise architecture and IT service management. New systems and technologies, which indeed become service assets, are conceived as a result of architecture activity. Likewise, changes to existing systems and technology infrastructure to enable new capabilities and meet new operational requirements are also identified as a result of architecture work. Operational feedback from service management, usually related to scalability, availability, manageability, etc., is fed into the systems architecture and drive system improvements resulting in better service quality.

Service orientation and service management are not just concepts or methodologies. They are a mindset, a way of thinking that focuses on delivering value to customers by facilitating outcomes the business wants to achieve, without the ownership of specific costs and risks related to operating IT systems and technologies. Hence, critical to the success of service management is a rigorous training program and clearly defined roles and responsibilities.

At Cisco IT, the service owner and service executive are two essential service management roles that are supported by others to form a service team (Figure 8). The IT Service Roles Handbook (Figure 9) describes the various service roles and responsibilities and how they interact with each other.

Figure 8  The IT Service Team
Service orientation is engrained in how Cisco IT is run. CIO operations reviews are now conducted in the form of service reviews, and include key service metrics such as unit cost, service availability, and service-level agreement (SLA) compliance (Figure 10).

**Figure 9**  IT Service Roles Handbook

**Figure 10**  IT Service Metrics Dashboard

<table>
<thead>
<tr>
<th>Metric</th>
<th>Goal</th>
<th>Actual</th>
<th>Status</th>
<th>Metric</th>
<th>Goal</th>
<th>Actual</th>
<th>Status</th>
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<td>Availability</td>
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<td>99.60%</td>
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<tr>
<td>Unit Cost / Query</td>
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<td>$0.04</td>
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<td>SLA Compliance</td>
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<td></td>
<td></td>
<td></td>
<td>Data Quality</td>
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<tr>
<td>Detection</td>
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<td>Total Queries</td>
<td>36.6M</td>
<td>45.4M</td>
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<td>Recovery</td>
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<td>75%</td>
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</table>
**Architecture-Led Planning, Services-Led Execution**

At Cisco, applying architecture discipline to managing complex business transformation has led to improvements in how quickly business capabilities are enabled. The use of an architecture framework, reference model, and methodology has enabled various business functions and IT to communicate with each other in a common vocabulary.

Architecture-led planning is enabling Cisco IT to take a more holistic, cross-functional view in making investment decisions. A multiyear architecture roadmap is providing a greater strategic perspective, sequencing business capabilities in a logical order and tying them to strategic business outcomes. Likewise, services-led execution and operations are resulting in better IT cost management and improved customer engagement and satisfaction.

*To help solve business problems, an architectural approach that looks at the end-to-end enterprise value can bring business and financial results that far exceed a company's investments. A structured process has to be in place to align business requirements with the right technical architectures, with a strong connection to business and IT processes. Integrating business strategies with technical architectures, and implementing associated IT best practices, can go a long way toward enabling enterprise business transformation. We will continue to share information on the topic of business transformation through architectures with lessons learned from Cisco's own experience.*
For More Information

To learn about Cisco IT’s S-Cloud service offering, see the case study Storage Cloud for Big Data.

To read Cisco IT case studies about a variety of business solutions, visit Cisco on Cisco: Inside Cisco IT www.cisco.com/go/ciscoit.

Note

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