

Demonstrating the Value of Enterprise Architecture in Delivering Business Capabilities

Traditionally, enterprise IT applications have been implemented to automate and optimize individual business processes. Today, however, business objectives change frequently, and critical processes often cross organizational boundaries. Enterprises find themselves amid a fundamental shift in perspective as they move from asking IT to “help us make what we are already doing better,” to “tell us what we’ll need, so that we can achieve our business goals.”

The Cisco[®] IT Architecture and Technology organization’s role is to align the company’s technology architecture with its business priorities, which include driving growth, innovation, and globalization. This paper examines the Cisco approach to enterprise architecture and the metrics that it uses to measure results.

A Unique Approach

Cisco’s approach to the practice of enterprise architecture is notable in several ways:

- Although the practice of architecture is recognized and encouraged at many levels throughout Cisco IT, the IT Architecture and Technology group is responsible for defining strategies and governance processes that span the IT organization.
- The same organization owns operational responsibility for foundational platforms such as the enterprise data warehouse, business intelligence systems, and enterprise identity and access management.
- It also owns critical business functions such as vendor management, acquisition IT integration, and managing enterprise business-to-business relationships.

Delivering Business Value

The Cisco IT Architecture and Technology team is empowered by the CIO to execute strategic business imperatives. For example, because IT Architecture and Technology owns vendor management functions, it can create and manage integrated IT roadmaps and move quickly to deliver what the business needs.

Owning broad IT resources places IT Architecture and Technology in the planning sessions for major enterprise initiatives that require improved or new business capabilities. For example, the team performs due diligence for potential acquisitions that will enable Cisco growth. Cisco must integrate these companies and their infrastructures at an architectural level to help ensure that they deliver the expected business value.

The IT Architecture and Technology team is currently focused on designing the next-generation Cisco data center. In this effort, its role is to create blueprints for infrastructure virtualization, which will play an important role in helping Cisco achieve its cost savings and energy efficiency goals.

Guiding Principles

The IT Architecture and Technology group has adopted a framework for guiding IT that consists of three strategic levers:

- Using the network as the platform for all strategic content and processes
- Adopting service-oriented architecture (SOA) to enable process agility
- Implementing collaboration technologies to accelerate productivity, encourage interactions, and spur innovation

Keeping these three fundamentals in mind, the IT Architecture and Technology team helps ensure that the correct capabilities are implemented to enable a secure, productive, personalized experience for everyone who interacts with Cisco, including employees, partners, and customers.

How Cisco Operationalizes Enterprise Architecture

Cisco enterprise architecture incorporates three elements, which often occur in parallel over an approximate three-year time horizon.

- **Architect to Operate**

“Architect-to-operate” means seeing what is in place today. Does the business have a set of reliable systems, processes, and skill sets? Where are the gaps, and what are the priorities for the next 12 months?

- **Structure to Scale**

“Structure to scale” refers to identifying the common foundational services or technology platforms that are needed to deliver the business capabilities required for achieving the business goals.

- **Business to Technology Strategies**

With an architectural framework in place, the company’s technology and business architectures become increasingly aligned, and the resulting foundation becomes a platform for business innovation. The final element of enterprise architecture planning at Cisco is imagining and preparing for the future, which includes evaluating and deploying new capabilities that further accelerate progress toward goals.

Architect to Operate

The objective of enterprise architecture is to help ensure that the business gains clear operational outcomes. Every aspect of the architectural framework must result in stable, scalable, reliable systems and processes that support specific business goals. Therefore, the IT organization thinks from the perspective of architect-to-operate.

Ask the Right Questions

The architect-to-operate lens is used to evaluate what is currently in operation, and asks the following questions:

- Is there a stable, scalable, reliable set of systems supporting the business?
- If so, how much growth can the business sustain before limitations affect the customer experience or the company’s ability to conduct transactions?
- Are there systemic issues?
- If so, what sustainable long-term corrections must be made at the architectural level?

- Are the right processes in place to build, provision, deploy, operate, manage, and monitor the capabilities?
- Are the right processes in place for effective capacity planning?
- Are the right people with the right skills in place, both to operationally deliver today and to meet the requirements as the business changes? Cisco IT Architecture and Technology has defined an operating model that explains the linkages and relationships between all of the IT and business teams and shows how they support Cisco's overall business operations.

As priorities are identified, Cisco IT Architecture and Technology synchronizes, aligns, and prioritizes with the business what it will execute over the next 12 months, which informs the development of an integrated capabilities roadmap. And as appropriate actions are taken to correct or transform the infrastructure and its processes, the business is increasingly able to build the right systems, from the right architecture, to achieve operational excellence from the start.

Structure to Scale

Architecture processes are built on a framework that allows the organization to build highly scalable platforms or systems. Whether an organization chooses IT Infrastructure library (ITIL), The Open Group Architecture Framework (TOGAF), or some other framework, the best framework for a given enterprise is one that the entire IT organization adopts and uses. Cisco is progressing toward deployment of standard technology stacks, which enable a highly scalable, self-service execution model that does not require continuously adding more architects or support teams to sustain.

Example: Orchestrating Commerce Transformation

An important Cisco goal is to improve and personalize customers', partners', vendors', and employees' experiences with Cisco. The Cisco commerce process involves almost every functional group across the company, so to develop an integrated roadmap, the implementation team had to:

1. Identify each constituent group
2. Define each group's business needs
3. Map business needs to the appropriate technical capabilities

With help from Cisco IT Architecture and Technology, the commerce team identified common business functions and services that were needed across Cisco. The team then created a set of common business services.

Using SOA, the team built pricing, quoting, and configuration services that are accessible to internal and external constituents over the network. SOA allowed IT to optimize its investment while maximizing a return for multiple business stakeholders. Customers, partners, and the Cisco sales team can obtain pricing and quotes at their convenience online, and the system can automatically suggest appropriate services for the products quoted.

When operated as a business service, pricing can also be easily combined with identity and access management services to securely extend pricing functionality to large Cisco partners in a manner that integrates with their own business processes. Commerce transformation has delivered the following benefits to date:

- SOA-based pricing enables customers' business models, making Cisco easy to do business with.

- Correct pricing is always delivered to the correct user, whether a Cisco sales representative, partner, or customer.
- Pricing can be strategically managed from one place.
- Cisco can deliver personalized services to users in ways that comply with its own security and regulatory requirements.

Example: Identity Access Management

Many companies have focused on providing employees, partners, and customers with access to a diverse application portfolio through single sign-on initiatives. By taking an enterprise architecture approach to identity access management, Cisco delivers a single sign-on and further extends the capability to its HR processes.

For example, when employees are hired, they receive sign-on privileges based on their role as defined by the company. The system automatically provisions access to the right systems, the right tools, and the right data. When someone leaves the company, all access is automatically turned off. Cisco is working to extend this service to support people transitioning to different roles, so that the system can automate the transition. Identity and access management services enable Cisco to:

- Automatically deploy a segregation-of-duties control into its processes
- Automatically provide appropriate localization, customization, and personalization
- Better protect intellectual property and secure data
- Manage risk

Business to Technology Strategies

As the preceding examples illustrates, an architectural foundation becomes the departure point for innovating business capabilities. Today, Cisco is implementing a service-oriented data center strategy that supports its global business goals. Data center virtualization is a priority for Cisco, as it is for other companies. In addition to helping the company reduce costs, Cisco is extending its technical ability to support new business capabilities. For example, once servers, storage, and network-based services can be virtualized, the company can begin to virtualize other data center resources to gain greater agility. Cisco IT envisions completely virtualizing its data center assets, its data, and its collaboration capabilities all the way through to the user experience.

For example, one initiative on the enterprise architecture roadmap is enterprise-wide implementation of Cisco WebEx[®] solutions. Cisco WebEx virtualizes on-demand collaboration capabilities, allowing businesses to cost-effectively improve collaboration within their companies, as well as across boundaries to customers and partners. Rather than deploy a range of collaboration tools themselves, WebEx allows Cisco business units to easily bring their existing communication tools into the WebEx environment for conducting virtual meetings with high quality and reliability. WebEx solutions offer full integration with Cisco Unified Communications technology, which enables Cisco employees to collaborate anytime, anywhere.

Measuring Architectural Effectiveness

Cisco IT Architecture and Technology measures architectural effectiveness by collecting metrics associated with production data fixes, decreased time to capability, and increased budget spent on innovation.

- Production data fixes: identifying processes that currently require constant, often manual intervention and eliminating or minimizing these actions.
- Time to capability: measuring how often IT can reuse foundational frameworks to solve business issues. The goal is to achieve a 90 percent reuse of existing frameworks. The remaining 10 percent of business issues must be referred to the IT Architecture and Technology team to be solved at a higher, architectural level.
- Innovation: measuring the percentage of IT budget allocated to growth initiatives instead of simply keeping operations running. The goal is to shift as much of the budget as possible to innovation.

Next Step: Facilitating Alignment

Adopting an enterprise architecture approach can significantly help organizations align their technology and business strategies to achieve their goals. An enterprise architecture approach helps ensure that the business has the capabilities that it needs to be successful today and in the future. And demonstrating impact through metrics enables enterprise architecture teams to maximize their effectiveness in aligning people, processes, and systems with business and technology goals.

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