

Cisco on Cisco

## Service-Oriented Architecture: Transforming Commerce and Unifying the Customer Ordering Experience

How does a business present a consistent ordering experience to customers and partners while simultaneously accommodating the numerous, diverse processes used by its sales, service and support, channel, and finance organizations? In a large business like Cisco, meeting this challenge requires more than just technology; it requires a holistic enterprise perspective that aligns business with technology using an architectural approach. This paper examines Cisco's journey from basic, Internet-based commerce to a collaborative commerce experience, and demonstrates how people, processes, and a Service-Oriented Architecture (SOA) approach are delivering results.

### The Goal

Cisco wanted to create a consistent, unified ordering experience for users of its online commerce applications. Ideally, customers, channel partners, ecosystem partners, and Cisco® sales representatives could visit the Cisco site to register an opportunity, configure products, place and track orders, renew maintenance agreements, or evaluate leasing options, all from a single interface, instead of having to navigate multiple portals. Cisco also wanted to improve operational efficiency by reducing the number of online transactions that required human intervention. Simplifying the user experience would make it easier for Cisco customers and partners to do business with Cisco; increasing back-end processing capabilities would allow Cisco to more easily and cost-effectively support new business models and enter new markets.

### The Starting Point

In 1999, Cisco pioneered use of the Internet for customer ordering. To provide online ordering capabilities, Cisco IT began by launching new, web-enabled versions of its wide range of back-end ordering applications. The company's initial Internet commerce platform allowed customers to conduct the majority of their transactions online:

- 92 percent of all Cisco orders were electronic.
- 83 percent of all support issues were closed online.

However, the back-end sales, ordering, configuration, finance, and other processes that were required for shipping products or delivering services were still inefficient. Initially, only 12 percent of transactions were completed without human intervention. After upgrading the company's enterprise resource planning system, implementing middleware, and standardizing application development, 36 percent of all transactions were completed without manual intervention. Still, customers had to use multiple online applications for ordering, pricing, configuration, and financing from multiple Cisco organizations. The overall customer experience was far from unified.

Numerous initiatives were underway to improve the situation, and that was also complicating the process. Each group took a different approach. There had to be a better way to achieve the common goal of delivering a single customer ordering experience. And so Cisco began a journey to maximize available technologies and create a consistent experience by starting with an architectural approach.

## The Road to a Consistent Ordering Experience

A council including representatives from business operations and IT was created to guide the early stages of a program designed to unify the ordering experience for customers and partners. Its role was to create a strategy, set priorities, and deliver a roadmap. An architecture team provided insight into foundational technologies required to support the effort, and presented a range of possible solutions. At the same time, discussions were occurring throughout Cisco about Service-Oriented Architecture (SOA) and how it would fit into a commerce transformation strategy.

The council's efforts led to the formation of Cisco Commerce Transformation, and it involved almost every functional group across the company. The first step in the journey was to develop an integrated roadmap for achieving a unified ordering experience. To do that, the group within Cisco responsible for enterprise architecture had to:

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

This process yielded a prioritized list of required business capabilities and services. At the top of the list was a pricing service. The pricing process was then analyzed from two perspectives. First, how did the pricing service have to work from start to finish? And, second, how must the service scale to work with additional services that are required to deliver a unified ordering experience?

## Build a Capabilities Roadmap

The enterprise architecture team came up with a 45-day plan to create a roadmap to support pricing capabilities that accommodated different organizations' needs, delivered a unified ordering experience, and would scale for expansion to other growth initiatives. The roadmap included:

- Essential infrastructure building blocks, such as critical data, data-cleaning processes, localization support, and identity and access management
- Business activities and interdependencies across Cisco and its partners
- Execution plan in which organizations were aligned to achieve the common goal

The Cisco sales organization had a similar pricing project underway. It joined with the enterprise architecture team to align efforts under the broader strategy of creating a unified ordering experience. This approach required some architectural adjustments to accommodate the sales organization's specific needs and enable other business groups to adapt and subscribe to the pricing service. As this partnership evolved, well-defined roles emerged:

- Individual business groups defined their rules and policies, and how they would manage changes to them.

The IT organization understood the business groups' overall goals, as well as rules and policies, so that they could build (or buy) the service capability and know that it would scale and adhere to the architectural framework.

## Implementing Commerce Transformation

With the capabilities roadmap defined, Cisco IT set about selecting the proper technologies to provide the services for the unified ordering experience. Because of the vast number of internal business groups and external partners that would use the ordering services, a Service-Oriented Architecture, or SOA, approach became a strategic technology decision in implementing commerce transformation.

Adopting an SOA means that Cisco IT builds common business services, such as the pricing service, one time, and makes it available to those that need it. Flexible rules are created along with the services to make it easier for Cisco organizations, and eventually, partners and customers to incorporate the service into their business process.

During the development of the business services, it became clear that there were common requirements for each of the SOA modules. Cisco IT realized that it could use the infrastructure in the form of network-based services to address requirements in such areas as security, virtualization, and application delivery. For example, security policies for all the SOA services are implemented as network-based services. This provides a flexible, context-aware model that optimizes policy information, administration, and enforcement, eliminating the need for these to be built into each SOA service. This approach shortened the development time and reduced the number of development “bugs” that had to be resolved before going to production with the services.

### Lessons Learned During Commerce Transformation

- Change management is important to success. Do not underestimate the change in process and the impact on behaviors.
- Large organizations will always have a diverse set of business requirements that must be accommodated. Representation from each of the business groups in the organization is imperative in the planning and architecture phase of the project.
- Services must be uniformly governed, secured, and monitored effectively to make sure that they are always available for business-critical functions such as pricing.
- Scalability is critical. Each service may be called by multiple applications and must be able to scale and handle many requests per minute.

### Improving Partner Interaction

As part of Commerce Transformation, IT had to manage the changes required for partners to adopt the new SOA-based services. This responsibility required addressing the people and process aspects of commerce transformation:

- Partners had to adapt their familiar processes to use the new services, so the new processes had to be defined and communicated properly in order for the new services to be adopted.
- Incentives for change were developed. Cisco IT developed a high-touch training model, recorded Cisco WebEx™ sessions, and worked with partners’ end-of-quarter sales deadlines to help partners adjust to the new services.
- An important lesson identified was that IT must be involved with the partners early in the process so that the services and applications are built with partner needs in mind.

### Results

Enterprise architecture defined the strategy for Cisco to meet the vision of a unified ordering experience for customers and partners. Adopting a Service-Oriented Architecture is how Cisco executed on the commerce transformation strategy and has yielded the following results:

- **Growth:** Steady growth in the number of partners, deals, and bookings through the commerce transformation services.
- **Productivity:** Reduced deal cycle time by 50 percent, allowing a sales representative to spend more time working with customers on value-add solutions and services.
- **More detailed tracking:** Today, an SOA dashboard provides deep visibility into service usage and delivers data that enables service architects to continually improve services.
- **Improved customer experience:** Correct pricing is always delivered to the correct user, whether a Cisco sales representative, partner, or customer. This consistency makes it easier to conduct business with Cisco.
- **Increased back-end efficiency:** Almost 70 percent of quotes are processed with no human intervention. The pricing service is now centrally managed to reduce overhead.

## The Future of Cisco Commerce

Although the goal of a unified ordering experience is closer to being achieved, there is still work to do. Additional services are being launched, such as Item, Configuration, and Access.

Ultimately, a customer will be able to visit Cisco to identify a product, configure it for a specific environment, obtain pricing for that configuration, obtain service recommendations, finance it, inquire about implementation or architectural services, or engage a partner, and it will be all in one place, without regard for which internal Cisco groups are responsible for the different pieces.

The architectural foundation is in place, and the business rules are being developed for additional organizations so that they can begin to use these services as well. And because services are secure and scalable, they are available for Cisco's ecosystem of partners to use.

Cisco has refined its approach to enabling the goal of a unified commerce experience by adopting an SOA approach. The project team's perspective is based on delivering services for Cisco as a whole, rather than delivering services for individual functions. Instead of viewing business processes as transactions, they are viewed as interactions. And instead of trying to integrate disparate applications, Cisco IT is migrating functions such as ordering, configuration, and pricing, to become application-independent common business services.

## Summary

Cisco Commerce Transformation is a significant step forward in the journey to a unified ordering experience. By using SOA and a services-based approach to simplifying critical business processes, Cisco has already achieved notable increases in revenue, productivity, and process visibility.

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