

# How Cisco Transformed Its Supply Chain

Single global ERP instance, new business models, standardization, and automation throughout supply chain boost Cisco agility, resiliency, and ability to scale.

EXECUTIVE SUMMARY	
<b>CHALLENGE</b>	<ul style="list-style-type: none"> <li>Business agility constrained by highly customized supply chain system and multiple ERP instances</li> <li>Country enablement and ability to introduce new business models hampered</li> <li>Few industry-standard processes and automation efficiencies in the supply chain</li> <li>Long time to market and for acquisition integration</li> </ul>
<b>SOLUTION</b>	<ul style="list-style-type: none"> <li>Simplified operations using 95 percent out-of-the-box Oracle R12 functionality</li> <li>Consolidated multiple supply chain ERP instances into one; standardized end to end</li> <li>Migrated all supply chain processes to highly resilient data center, running on Cisco Unified Computing System</li> <li>Incorporated build-to-stock model into supply chain; integrated industry-standard business-to-business processes</li> </ul>
<b>RESULTS</b>	<ul style="list-style-type: none"> <li>Time to add new node (factory) shrunk from 18 to 6 months</li> <li>30 to 50 percent reduction in time to market</li> <li>Up to 73 percent reduction in order cycle times</li> <li>About 25 percent reduction in product touches</li> <li>Business-to-business model eliminates redundancies and duplicate transactions for Cisco manufacturing partners</li> </ul>
<b>LESSONS LEARNED</b>	<ul style="list-style-type: none"> <li>Secure executive support and commitment up front</li> <li>Socialize business benefits, change impacts, and risks with all stakeholders clearly and early</li> </ul>

## Background

The Cisco supply chain is highly diverse, extensive, and global. With more than 300 product families, Cisco® has a wide range of gear targeted at a spectrum of customers with vastly different expectations and fulfillment requirements.

Most Cisco products use a configure-to-order (CTO) production model. Products are built based on confirmed customer orders. A large percentage of Cisco growth comes through acquisitions, and they bring their own supply chain requirements and processes that need to be integrated into Cisco core operations.

A notable exception was the Cisco acquisition of Scientific Atlanta in 2005, presently rolled under the Service Provider Video Technology Group. Scientific Atlanta set top boxes and modems are fixed-configuration products that have a cost structure and sourcing strategy different from Cisco core products. They use a build-to-stock (BTS) production model. BTS products are manufactured and held in inventory to satisfy demand as orders come in.

Until recently, Cisco maintained separate supply chain processes and an enterprise resource planning (ERP) system for its Scientific Atlanta division.

In addition to more than 1000 suppliers, along with manufacturing partners and logistics providers, the Cisco supply chain encompasses:

- 16 CTO manufacturing sites
- 4 BTS sites
- 8 strategic logistics centers

- 25,000-plus orderable product IDs, or PIDs (about 25 percent assemble-to-order, 75 percent spares)
- Millions of shipments annually (for example, approximately 9 million cartons shipped in the six months ending March 2014).

## Challenge

Like many large enterprises in today's fiercely competitive climate, Cisco looked toward optimizing its supply chain to increase business scale and agility. But the company was stymied by a highly customized supply chain management (SCM) system. Disparate CTO and BTS operations, multiple ERP instances, and redundant, non-standardized processes made scalability nearly impossible, and hampered productivity and the customer experience. The complex, overly tailored Cisco version of Oracle e-Business Suite 11i included:

- More than 2500 customizations, with an estimated 50 percent of them unused
- 250 custom applications
- 30,000 custom data objects
- 19 separate databases

In this cumbersome environment, adding a single data field to an existing report required the full-time-equivalent of one employee per month. Parts data, alone, resided in seven different systems.

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## Transforming Business through Simplification: Large-Scale Services

Efforts to streamline the supply chain got a significant boost in early 2012 when Cisco Chief Information Officer (CIO) Rebecca Jacoby issued a directive about simplifying large-scale services (LSS), the Cisco description for foundational services that any company needs to operate such as SCM, human resources management, and customer care: The directive: Use standardized processes and common practices and customize only when necessary for flexibility. Simplifying LSS functions across the organization is critical to the ability of Cisco to scale, grow, and implement new business models competitively.

Supply chain was the first LSS to be funded, giving rise to the Supply Chain LSS Program. Earmarked for initial implementation was "LSS Bundle 1," consisting of SCM, order management, product lifecycle management, revenue recognition, and country enablement. The Supply Chain LSS Program was guaranteed resources and budget for several quarters. Primary objectives of the supply chain transformation dovetailed (and would be driven by) three top corporate strategic priorities:

- **Improve country enablement.** Country enablement refers to the ability of Cisco to set up subsidiaries or branches (legal entities) in specific countries to enable the sale of products, services, and solutions at competitive prices. Upgrading to Oracle e-Business Suite R12 – specifically, exploiting out-of-the-box (OOTB) functionality such as localization – would be pivotal to advancing country enablement.
- **Decommission the Cisco data center in San Jose, California.** Among critical applications housed at the San Jose data center was the Oracle 11i ERP instance. This data center had no backup, and was located near an earthquake fault line. To minimize business risk, Cisco IT was migrating production applications at the

San Jose data center to its data center in Richardson, Texas, where they would run on the Cisco Unified Computing System™ (Cisco UCS®) in a fully redundant environment.

- **Integrate the Service Provider Video Technology Group (including Scientific Atlanta).** Oracle R12 functionality would enable Cisco to implement a BTS model easily, within the same supply chain system alongside CTO.

First on the LSS team's agenda? Evaluate the feasibility of upgrading to Oracle R12, or more precisely, evaluate the feasibility of adopting R12 OOTB functionality to simplify supply chain business processes. To that end, the team's goal was to use at least 80 percent OOTB functionality, starkly different than the highly customized Oracle 11i setup.

## Solution

Transformation isn't about installing a new system or implementing new processes. It's about achieving business results. Throughout the planning and execution, supply chain stakeholders and Cisco IT kept a laser focus on business requirements and the capabilities needed to support them. In fact, business and IT worked side by side, physically. The two groups collocated in the same building, on the same floor specifically, for the supply chain transformation.

The business-IT alignment is bolstered by planning cycles that follow a "lead with architecture" approach. Cisco stresses the importance of aligning business and technology architectures, and uses an enterprise architecture framework that facilitates this alignment and resulting business value. The BOST reference framework and methodology from Proact Business Transformation Inc. gives IT and business stakeholders a shared taxonomy, and organizes inter-linked planning models based on four architecture views of the enterprise: Business, Operations, Systems, and Technology. Applying BOST helps ensure that the capabilities that IT delivers align with business requirements.

"BOST is very transformational in bringing business and technology architectures together," says Raman Prabhakaran, manager, Cisco IT. "For the transformation, we needed to understand business processes, such as delivery and shipping, and how they transfer to the supply chain. We need to provide data to business stakeholders and discuss operational challenges. BOST helps us get there faster."

### Laying the Groundwork: Global Process Design

For each major area of the end-to-end supply chain (from demand and supply planning to scheduling, managing order backlogs, communicating with partners, and delivering products to customers), the LSS Program team assessed Oracle R12 OOTB functionality against existing outsourced manufacturing and logistics processes. The team focused on:

- What is currently being done: What are the business requirements? Must haves? Unique operational aspects?
- What Oracle R12 OOTB functionality is available: What would the end process look like? Could it be used to run the business without customization?
- Where the business needs to go: What are the next-generation capabilities required for Cisco to be successful?

After three months, the team had crafted a set of business processes that described, at a high level, the scope of the program, how the transformation would look, and the changes that would be required to run the business using at least 80 percent Oracle R12 OOTB functionality.

Following the end-to-end process mapping, the team identified about 60 essential design decision scenarios. For example, at what point in the process flow should a purchase order (PO) be created in Oracle? After all the answers were logged, the team reduced the design decisions to 12 that were considered foundational.

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“Going through the questions and answers not only informed the design, but gave us direction on how the process would look and what needed to be transformed,” says Joe McMorrow, director, Supply Chain Transformation, Global Business Operations at Cisco. “We also matched business requirements to potential IT activity.”

Using information culled in the design phase, program leads produced a visual called the “circle of light.” It represented the entire supply chain process, starting with forecasting. Stars marked milestones in the process, and callouts along the circle corresponded to the 12 foundational design decisions.

“The circle of light represented what the transformation would look like and identified areas that had change impacts to the business,” says McMorrow. “We used this one-page visual to help socialize the program with senior management. It gave them an opportunity to digest, in a quick way, what it would mean to transform from Oracle 11i in-house manufacturing to R12 OOTB functionality and outsourced manufacturing.”

### Decommissioning the San Jose Data Center

Housing critical supply chain systems and ERP in the San Jose data center put Cisco at risk. The site has no backup and is located near an earthquake fault. Cisco IT transitioned all ERP and non-ERP supply chain processes and systems from the San Jose production data center to the Richardson, Texas, data center. In January 2014, Oracle 11i in the Cisco San Jose data center was fully decommissioned. The move to the Richardson data center, one in a pair of active-active data centers, closes a critical gap in business resiliency that existed in San Jose. The paired data centers run critical applications in both places simultaneously. In case of a disaster at one site, the other can protect the uptime and availability of data.

In the Richardson data center, Oracle R12 operates entirely on the Cisco UCS platform. Cisco UCS combines computing, networking, storage access, and virtualization in a single system. The move to Oracle R12 on Cisco UCS, along with integrating business-to-business and BTS models on the same SCM system, has greatly reduced infrastructure and process complexity. Onboarding new manufacturing partners and nodes is faster, 6 months versus 18 months, and engineering change order (ECO) communication is more efficient.

As part of the Richardson data center cutover, the release team tested 10 regression scenarios that included backlog management and all key downstream steps in the order fulfillment process. No issues arose during the business verification testing. More than 14,000 ship sets moved through the system in the first week and a half without any major incidents. Cisco IT has turned its focus on delivering and validating R12 reports required for fiscal quarter-end reporting and U.S. Sarbanes-Oxley Act (SOX) records storage compliance.

### Enabling New Business Capabilities

During the transformation, the supply chain ERP underwent significant consolidation (Table 1). Cisco IT also simplified and consolidated hundreds of reports, and transformed or lifted and shifted more than 300 business capabilities and applications.

**Table 1.** Cisco Supply Chain ERP: Before and After Transformation

	Before Transformation	After Transformation
Custom Applications	250	10 to 15
Percent Software Customization	~80	5
Separate Databases	19	1
ERP Instances	3	1

Working with business stakeholders, Cisco IT re-engineered and automated several processes and new capabilities throughout the supply chain. All the IT-enabled capabilities aligned with identified business requirements (Table 2). These efforts, coupled with the consolidation to a single global ERP instance, have yielded a host of supply chain process improvements, including:

Order fulfillment:

- Reduced response time latency of request and order statusing
- Automated prioritization of designated customers during supply constraints
- Reduced order fulfillment time from 11 days to 3 days using the BTS model
- POs processed in minutes instead of hours
- Faster change management (due to eliminating multiple systems)

Scheduling and returns:

- Customer-segmented supply used for scheduling customer orders
- Near real-time communication of backlog with configuration details
- Parallel fulfillment of low-margin products through BTS supply chain
- Improved returns handling with Return to A Stock capability

**Table 2.** IT-Enabled Capabilities Align with Business Requirements

Business Requirement	Business Capability
Increase agility to respond to customer and segment needs	<ul style="list-style-type: none"> <li>• PO-based order fulfillment</li> <li>• Scalable BTS model</li> <li>• Return to A Stock capability</li> </ul>
Reduce cost and time to enable new sites	<ul style="list-style-type: none"> <li>• Scalable local manufacturing</li> </ul>
Eliminate redundant processes and inefficient transactions	<ul style="list-style-type: none"> <li>• Business-to-business practices</li> <li>• Industry-standard payment process</li> <li>• Streamlined change management</li> </ul>
Improve productivity and time to market	<ul style="list-style-type: none"> <li>• Intelligent component selection</li> <li>• Industry-standard compliance and risk management</li> </ul>
Increase flexibility to serve different market needs	<ul style="list-style-type: none"> <li>• Customer-segmented supply for scheduling key customer orders</li> <li>• What-if analysis for bill of materials (BOMs)</li> </ul>
Improve time to integrate acquisitions Accelerate time to value / time to monetization of acquisitions	<ul style="list-style-type: none"> <li>• Adoption of Oracle R12 out-of-the-box functionality and standardization</li> </ul>
Decrease infrastructure costs and complexity	<ul style="list-style-type: none"> <li>• One global ERP instance for the entire supply chain</li> <li>• Item and BOM integration with event management system (EMS)</li> <li>• Lead time-based and available-to-promise (ATP) scheduling</li> </ul>
Improve customer satisfaction and experience	<ul style="list-style-type: none"> <li>• Automated order prioritization (from booking to shipping)</li> <li>• Automated prioritization of key customers during supply constraints</li> <li>• Near real-time communication of backlog with configuration details</li> </ul>

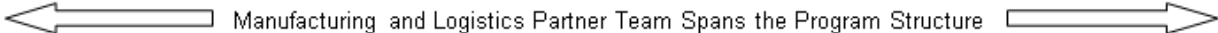
### Structuring the Supply Chain LSS Program

The Supply Chain LSS Program team is composed of Cisco IT and business stakeholders and subject-matter experts throughout the supply chain organization. Table 3 shows the program team structure and responsibilities.

Governance and assigned roles provide focused oversight. The executive steering committee sets the strategic direction, reviews and approves the portfolio roadmap, and manages resources. The operating committee maintains the consolidated roadmap, escalates funding recommendations, and develops operational scenarios. For example, to ensure thorough evaluation of derived business value from the business unit and executive perspectives, key design decisions (the level of R12 customization required, associated risks, etc.) were created and vetted by both the LSS Program team and operating committee members at the executive level. The program management office maintains planned-versus-actual results, governs projects, and resolves issues.

**Table 3.** Supply Chain LSS Program Team Structure and Responsibilities

Functional Leads	Data Strategy and Transition	Architecture and Planning	Solutions Management, Adoption, and Training
<ul style="list-style-type: none"> <li>• Functional business requirements</li> <li>• Process flow development</li> <li>• Liaison for business stakeholders and program resources</li> <li>• Functional go / no go</li> </ul>	<ul style="list-style-type: none"> <li>• Data architecture, migration, and integrity</li> <li>• Business intelligence architecture, solutions definition, and execution</li> <li>• Reporting</li> </ul>	<ul style="list-style-type: none"> <li>• Scope, schedule, and budget</li> <li>• Integrated capabilities roadmap management</li> <li>• Release scoping and process mapping</li> </ul>	<ul style="list-style-type: none"> <li>• Roadmap execution</li> <li>• Partner joint solutions</li> <li>• Business-to-business standards</li> <li>• Stakeholder engagement, adoption, training, and communications</li> </ul>


 Manufacturing and Logistics Partner Team Spans the Program Structure

### Training Stakeholders

The training team uses several communication methods to prepare the organization for each set of releases and their corresponding functionality. Different training methods are used based on the audience and purpose:

- Instructor-led training for reaching a wide audience; used for communicating complex process changes.
- Web-based training for large, regionally dispersed groups; used for content not likely to change and situations with additional development time.
- Handy, short reference guides used for describing low-impact, system-specific changes. Guides were available online in a centralized location.
- Video-on-demand recordings of instructor-led sessions or SME training; good for users who could not attend live sessions and training refreshes.

### Results

Predominantly using 95 percent Oracle R12 OOTB functionality, Cisco simplified and consolidated supply chain business processes and the ERP system, and created a standardized, automated, end-to-end workflow. Today, 85 percent of the US\$43 billion Cisco revenue is captured on the new platform.

Chief among the business benefits resulting from the supply chain transformation:

- Time to add a new node (factory) shrunk from 18 months to 6 months.
- 30 to 50 percent reduction in time to market
- Up to 73 percent reduction in order cycle times
- Approximately 25 percent reduction in manual product touches
- Increased profitability from 12 percent target reduction in cost-to-serve ratio
- 30 to 50 percent reduction in support costs

What's more, the transformation has enabled:

- Nimble expansion into new and emerging markets: Rapidly set up legal entities in emerging markets; end-to-end business capabilities and processes; common global capabilities for country-specific needs; local regulations and practices compliance.

- Shorter time to market for new products and offers: flexibility in offer structures, commerce model, sourcing and delivery options; ability to handle whole offers.
- Rapid acquisition integration: Flexibility to leverage BTS or CTO production models.
- Business-to-business model with Cisco manufacturing partners: Eliminates redundant transactions; simplifies fulfillment processes and infrastructure.
- Freight savings: Flexibility to ship direct from a manufacturing site or from a manufacturer direct to customer's distribution center.
- Intelligent scheduling: Ability to see the material availability at a detailed assembly level across the whole supply network.
- Improved customer and partner experience: For customers - visibility of status throughout the order cycles; better lead times due to node reductions; shorter time to delivery; better synchronization of demand and supply; order and invoice accuracy. For partners - smooth integration through Cisco Commerce Workspace (CCW) and supply chain connectivity; improved collaboration; product lifecycle management (PLM) services with flexible deployment options.

## Lessons Learned

Cisco offers the following best practices for organizations embarking on a supply chain transformation.

- Secure executive focus and commitment up front.
- Socialize business benefits, change impacts, and risks with senior management clearly and early.
- Engage executives for timely mitigation of program issues and risks.
- Seek cross-organizational sponsorship to help overcome roadmap hurdles and customer concerns.
- Ensure business and IT alignment across all program tracks. Encourage well-informed, timely decisions and resolutions made together.
- Reduce employee burnout by establishing a dedicated program team. Leverage subject-matter experts from functional groups as needed.
- Manage stakeholder engagement at a functional level.
- Nurture a strong partnership with suppliers and manufacturing and logistics partners.
- Encourage well-informed, timely decisions and resolutions.
- Ensure you have support of senior management, internal project teams and leads, implementation partners, and vendors. Keep the lines of communication open.
- Use collaboration technology, such as synchronous and asynchronous video, with supply chain partners for quicker, more cost-effective decision-making.

## Next Steps

The last node in Cisco's supply chain went live in the fourth calendar quarter of 2013. Cisco IT and the LSS Program team are focused on the following:

- Stabilizing the R12 platform and all the new capabilities that have been implemented.
- Optimizing the platform for any additional functionality and capabilities, or enhancements to existing ones.
- Transforming other LSS processes related to the supply chain. The IT foundation between order management and the supply chain is under way, which will facilitate the buildout of fully automated entities in emerging countries.





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## For More Information

For Cisco IT case studies about a variety of business solutions, visit Cisco on Cisco: Inside Cisco IT [www.cisco.com/go/ciscoit](http://www.cisco.com/go/ciscoit).

## Note

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