

Network Company Keeps Own Network in State of Readiness

The Cisco IT Fleet Management Program prepares the company to adopt new technologies without waiting for a network upgrade.

EXECUTIVE SUMMARY
<p>CISCO</p> <ul style="list-style-type: none"> • Networking • San Jose, CA • 54,000 employees worldwide <p>BUSINESS CHALLENGE</p> <ul style="list-style-type: none"> • Continually refresh the Cisco network to update latest networking products • Prepare the network for new technologies and services such as IP telephony, presence, and wireless applications • Keep planning and budgets stable and predictable <p>NETWORK SOLUTION</p> <ul style="list-style-type: none"> • Cisco IT Fleet Management Program, working closely with IBM, provides strategic network upgrades through a four-step process focusing on technology triggers, inventory, planning, and funding <p>BUSINESS RESULTS</p> <ul style="list-style-type: none"> • Network maintains a constant state of readiness • Network can accommodate new technology and services as needed, with minimal budget surprises relationship.

Business Challenge

Meet Dale Anderson, Manager of the Cisco® IT Fleet Management Program. Dale is the program manager responsible for making sure that the Cisco network infrastructure, or “fleet,” is always up-to-date, so that the company can deploy new technologies quickly and efficiently. Cisco has one of the largest, most complex IT environments in the world, and demonstrates its industry leadership through its network.

“It is critical for our competitiveness that we are able to roll out technologies as quickly as possible to showcase them for our customers,” says Anderson.

The team must strike a delicate balance as they prioritize network planning. The Cisco business units that the team supports constantly update the Fleet program about new products that are coming out and products that are being replaced. At the same time, executives provide direction on new services

and applications that the company needs to improve productivity or business processes.

“We receive top-down direction on new technologies or ‘big bets,’ and we have to evaluate our current infrastructure and determine if the network can support that deployment,” says Anderson.

The Cisco IT Fleet Management Program must continually refresh the Cisco network to remove obsolete technology, fold in the latest networking products as soon as they are available, and make sure that the network is always ready for the next big bet. The Fleet program team must perform this work while keeping the organization flexible, and budgets stable and predictable.

Network Solution

The Cisco IT Fleet Management Program faced its first major test when it had to update the desktop access layer of the Cisco network. The program team was asked to support Power over Ethernet for wireless LANs and Network Admission Control (NAC) for the Cisco desktop network.

“As we began planning our NAC and wireless LAN implementations, I think it had been somewhat a surprise to our management team to realize that we could not just simply deploy this new technology,” says Anderson. “There were a number of dependencies that were going to cost us more money, as well as delay the delivery schedule.”

The Cisco IT Fleet Management Program was designed to enable the company to be an early adopter of technologies by upgrading the core IT networking infrastructure in alignment with business factors, new opportunities for innovation, and architectural and product roadmaps. The program was implemented in four steps, as described in the Technical Implementation section.

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—Dale Anderson, Manager, Cisco IT Fleet Management Program

Technical Implementation

Step One: Identifying Triggers for Infrastructure Upgrades

To determine which products and technologies require the most attention, the program team first had to identify the various triggers for infrastructure upgrades at Cisco.

“Our triggers are primarily based on operational concerns, such as end-of-life product and end-of-service,” says Anderson. “We can forecast which products will be reaching end of life, look at the duration it would take to perform a global upgrade, and determine the costs and timeline required to upgrade a product within our network.”

Additional triggers include innovative products that can improve productivity through new technology or showcase new Cisco solutions such as IP telephony, presence, videoconferencing, and wireless applications. IT-driven requirements are another trigger to support new infrastructure capabilities.

Step Two: Inventory

Next, the program team conducted a thorough inventory of network infrastructure devices. To facilitate the inventory, Cisco has segmented its global network infrastructure into categories called Places in the Network (PINs), as defined in the Cisco Service-Oriented Network Architecture (SONA).

“Like many organizations, we have network devices that can serve several different functions,” says Anderson. “By creating PINs and assigning every product a place and function, we can clearly identify and categorize our inventory.”

To conduct the inventory, Cisco used the Cisco Network Analysis Toolkit (NATkit), a web-based tool that lists Cisco Catalyst® Switches and their configurations. Cisco customers can also use Cisco NATkit, which Cisco provides as part of its Advanced Services contract.

“The beautiful part of using PINs is that we can pull up a report of a campus desktop access layer, for example, and view all of the products that fit into that category,” says Anderson. “By grouping like products together, we can tell stories about the health of that layer and show its activities.”

Step Three: Planning

After establishing the PINs, the Cisco IT Fleet Management Program team developed a plan to refresh every device in the global network based on business and technology triggers. As part of the plan, Cisco considered how each PIN would be affected by the four main triggers for change: innovation, operational concerns, IT demand, and showcase value. The plan considers input from several groups within Cisco, as well as the network R&D community and industry standards groups.

“For our NAC and wireless LAN initiative, we determined that we should upgrade our desktop access switches to the new Cisco Catalyst 6509E Series Switch, which provides an enhanced backplane,” says Anderson. “If we upgraded this chassis and its blades and components, we could quickly roll out NAC and wireless LAN, as well as support next-generation IP phones. By touching one product in our network we could not only take care of immediate needs, but also plan for the future.”

Step Four: Funding

The Cisco IT Fleet Management Program team needed to secure management’s commitment to a large, on-going investment to keep the entire network infrastructure up-to-date. Consistent, predictable budgeting is key to the program’s success.

“What we have sold to upper management is consistency,” says Anderson. “If we know that we have a certain amount of dollars in depreciation that we will be managing each quarter, it makes it easier for finance to plan, project, and forecast. We also have the flexibility to slow things down and conserve dollars, or speed things up and increase dollar spend if required.”

Choosing an Implementation Partner

The program team partnered with IBM to implement the desktop access layer changes. By choosing a qualified technology partner to perform the network infrastructure changes, Cisco was able to maintain an aggressive upgrade schedule without needing to pull additional resources from its operational pool.

“The majority of our projects are repeatable and can be outsourced,” says Anderson. “We work closely with IBM to perform the first five percent of the upgrades. After their engineers understand the project, they are able to take over. We are very confident in our partnership with IBM.”

Business Results

The Cisco IT Fleet Management Program has achieved its major objectives: providing operational excellence and helping ensure that the infrastructure does not postpone the company's ability to adopt new technologies.

"Our IT infrastructure is always at a waiting stage, and ready for the next-generation product to fall on top of it," says Anderson.

Today, Cisco's desktop access layer global upgrade project is more than 97 percent complete. More than 1000 Cisco Catalyst Switch chassis have been upgraded globally, and the project will be completed on schedule. The project team credits their four-step approach with providing the planning and budgeting tools needed to be successful.

"We can document the health of our network in a very simple, user-friendly format, which was something we could not do before," says Anderson. "We can accurately estimate and forecast our spending, and keep it consistently flat. This helps us eliminate the spikes and valleys that were a major concern that we had to overcome with the IT finance team."

Partnering with IBM has also unlocked several advantages, improving efficiency and resource allocation.

"What would normally take Cisco two years to upgrade just one PIN, we are able to complete in 12 months under our IBM partnership," says Anderson. "Our previous model, in which we were looking for internal resources to perform these upgrades, was definitely resource-dependent. With our new implementation model, we have changed from product-specific upgrades to site-specific upgrades. We no longer have to borrow resources from service and support teams to perform upgrades in addition to their daily support work."

Lessons Learned

The Cisco IT Fleet Management Program incorporates lessons learned from each infrastructure upgrade project. "Whenever we upgrade a product on the network, we document what went well and what needed improvement, and apply lessons learned to the next project," says Anderson. "The goal is that each successive project will be more cost-effective and require fewer resources."

The project team learned a great deal as the Cisco IT Fleet Management Program was launched. By following a few best practices, companies of all sizes can take advantage of Cisco fleet management strategies.

- Be sure to conduct a thorough inventory and do not underestimate the time needed.
- Realize that deployment resources can be a limiting factor. Upgrading the network infrastructure is a manual process that requires onsite personnel and sometimes deployment partners.
- When developing the plan, consider future plans as well as today's immediate triggers for change. If the team knows about impending product changes six months ahead of time instead of one month ahead of time, for example, they can more efficiently plan the necessary upgrades.

- Know when you can be flexible. Changes such as new product introductions, new buildings, and building closes can require changes to the schedule.
- Coordinate with other business groups within the company. The Fleet team attributes its ability to stay ahead of business needs to close alignment with the company's business strategy, real estate strategy, and technology strategy.
- Consult standards bodies such as the IEEE (Institute of Electrical and Electronics Engineers) and organizations such as IETF (Internet Engineering Task Force) for early awareness of technology directions.



Americas Headquarters

Cisco Systems, Inc.
170 West Tasman Drive
San Jose, CA 95134-1706
USA
www.cisco.com
Tel: 408 526-4000
800 553-NETS (6387)
Fax: 408 527-0883

Asia Pacific Headquarters

Cisco Systems, Inc.
168 Robinson Road
#28-01 Capital Tower
Singapore 068912
www.cisco.com
Tel: +65 6317 7777
Fax: +65 6317 7799

Europe Headquarters

Cisco Systems International BV
Haarlerbergpark
Haarlerbergweg 13-19
1101 CH Amsterdam
The Netherlands
www-europe.cisco.com
Tel: +31 0 800 020 0791
Fax: +31 0 20 357 1100

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