



Network Infrastructure Upgrade Program

How Cisco IT Systematically Upgrades the Network to Support Future Technologies



A Cisco on Cisco Case Study: Inside Cisco IT

Overview

- Challenge

 - Ensure that Cisco IP network infrastructure is always up to date

- Solution

 - Regularly upgrade the core IT networking infrastructure in alignment with business drivers, new opportunities for innovation, and architectural and product roadmaps

- Results

 - Constant infrastructure readiness

 - No need to delay technology adoption while infrastructure is prepared

- Next Steps

 - More than one dozen new infrastructure projects in fiscal year 2007

Challenge: Constant Infrastructure Readiness

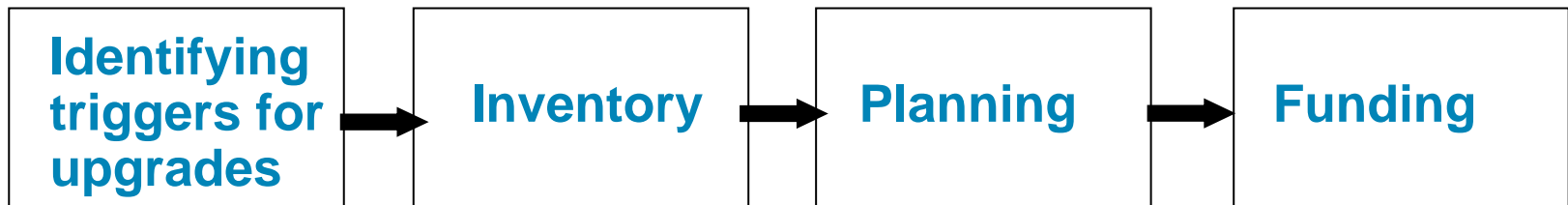
- In 2001, Cisco had begun deferring capital expenditures for refreshing the IP production network
- Therefore, in 2005, Cisco IT would need update 1100 desktop access-layer devices before deploying several new technologies
- Goal ensure that Cisco IP network infrastructure is always up to date

Solution: Fleet Management Program

Program goal: enable Cisco to be an early adopter of technologies by systematically upgrading the core IT networking infrastructure in alignment with:

- Business drivers
- New opportunities for innovation
- Architectural and product roadmaps

Solution: Four Program Steps



Solution: Step 1, Identifying Triggers

- Operational: Product is nearing end of life, or new product provides higher availability
- Innovation: New technology has the potential to increase productivity
- IT demand: IT wants to adopt technologies that require new infrastructure capabilities—for example, newer Cisco wireless access points require IEEE Power Over Ethernet (PoE) cards in Cisco Catalyst switches
- Showcase value: Early adoption of its own technologies enables Cisco to share business benefits and lessons learned with customers

Solution: Step 2, Inventory

- Fleet Management Program team segmented Cisco network into Places in the Network (PINs)
- PINs are defined in the Cisco Services-Oriented Network Architecture (SONA)
- Cisco produces reference designs for each PIN

Cisco PINs

Core	Extranet
Data center	Out-of-band
DMZ	Remote office
Lab	Teleworker
Campus user LAN	WAN interconnect

Solution: Step 3, Planning

Fleet Management team considers input from:

- Network R&D community and industry standards groups
- Cisco Intelligent Network Services (INS) Technologies Group
- Cisco Workplace Resources
- Cisco IT Infrastructure Enterprise Asset Management Group
- Cisco Internal Communications Group
- Cisco Infrastructure Governance Organization

Solution: Step 4, Funding

- Cisco management needed to commit to large, ongoing investment
- Basic funding equation:

$$\text{Total infrastructure investment} \div \text{average lifetime} = \text{Average annual investment}$$

Results: No Need to Postpone Adoption of New Due to Need for Infrastructure Upgrades

- Faster deployment of new technologies
 - Earlier realization of productivity increases or operational savings
- Enhanced ability to predict capital expenditure

Next Steps: Summary

- Cisco will upgrade more than one dozen new infrastructure projects in several PINs in fiscal year 2007

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