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
In 2001, Cisco had begun deferring capital expenditures for refreshing the IP production network.

Therefore, in 2005, Cisco IT would need to update 1100 desktop access-layer devices before deploying several new technologies.

The goal is to 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

- Identifying triggers for upgrades
- Inventory
- Planning
- Funding
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

<table>
<thead>
<tr>
<th>Cisco PINs</th>
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<tbody>
<tr>
<td>Core</td>
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<tr>
<td>Extranet</td>
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<tr>
<td>Data center</td>
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<td>Out-of-band</td>
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<td>DMZ</td>
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<td>Remote office</td>
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<td>Lab</td>
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<tr>
<td>Teleworker</td>
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<td>Campus user LAN</td>
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<td>WAN interconnect</td>
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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:

  Total infrastructure investment ÷ average lifetime = 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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