



Data Center Consolidation

How Cisco IT Achieves Consolidation and Standardization in the Data Center



A Cisco on Cisco Case Study: Inside Cisco IT

Overview

- Challenge

Current siloed data center structures create problems. They can be solved by creating a highly automated, efficient, cost effective and secure data center environment.

- Solution

Consolidate, standardize and optimize five operational data centers where all resources are virtualized, and allocated through an Intelligent Network Fabric based on structured business goals.

- Results

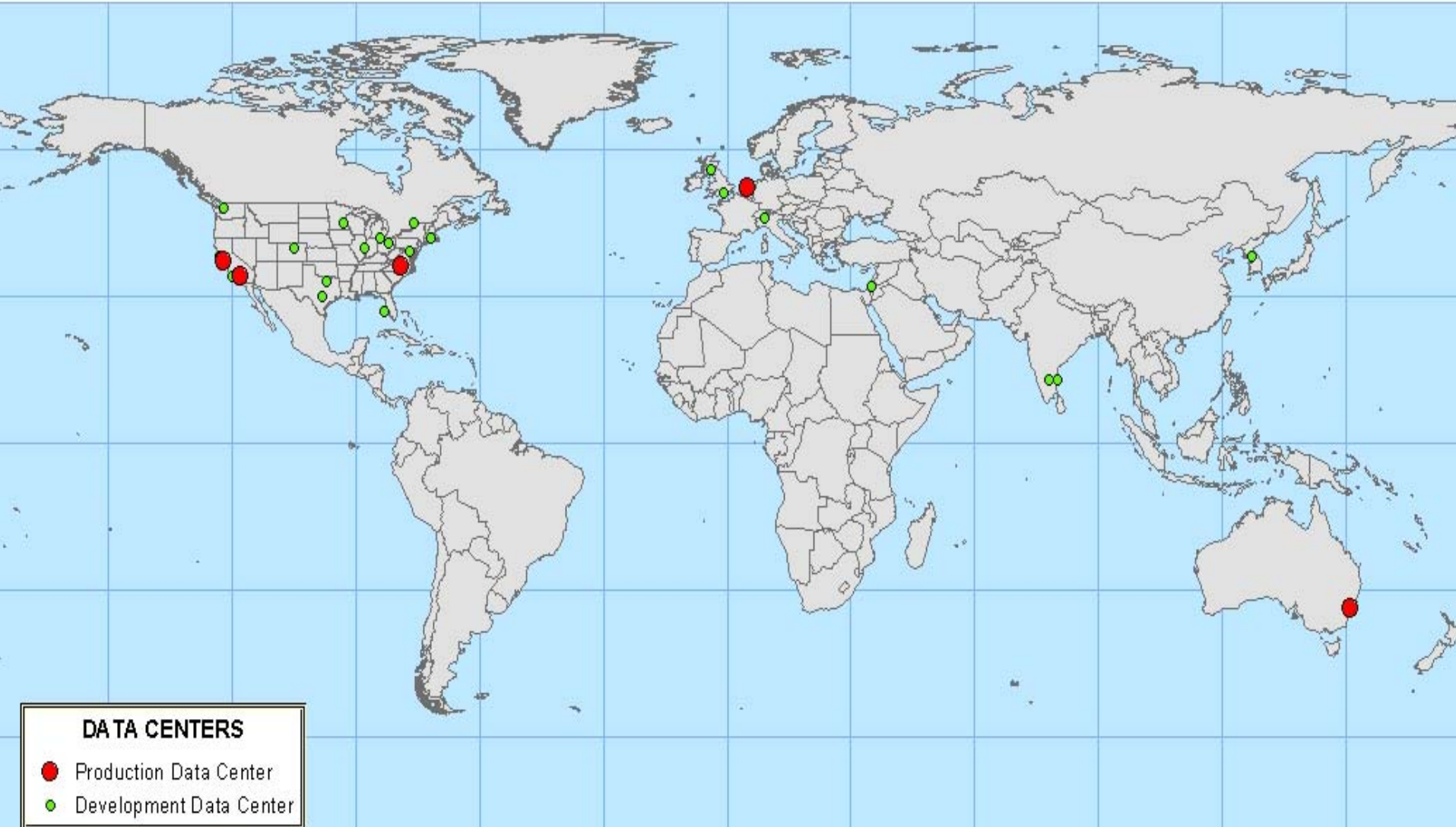
Lower TCO, improved business agility, enhanced business resilience.

Overview (Contd.)

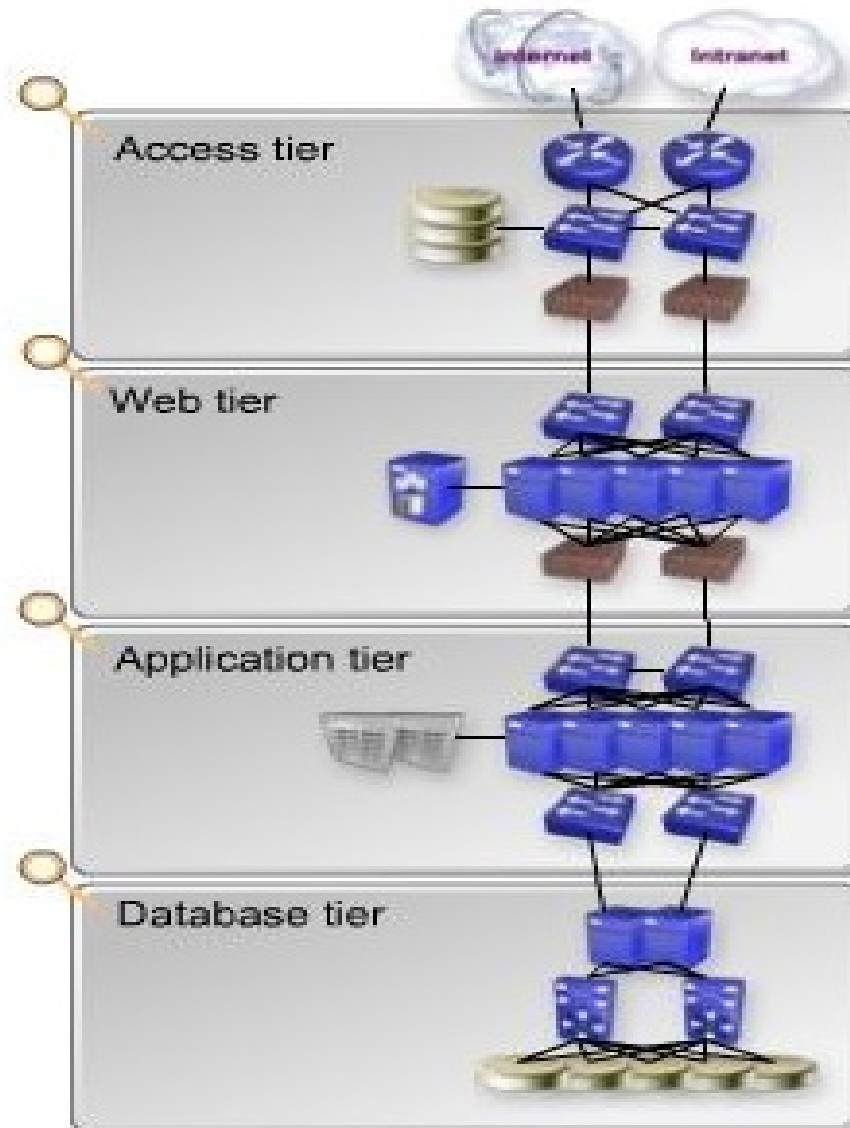
- Next Steps

Continue the consolidation and virtualization phases for further gains.

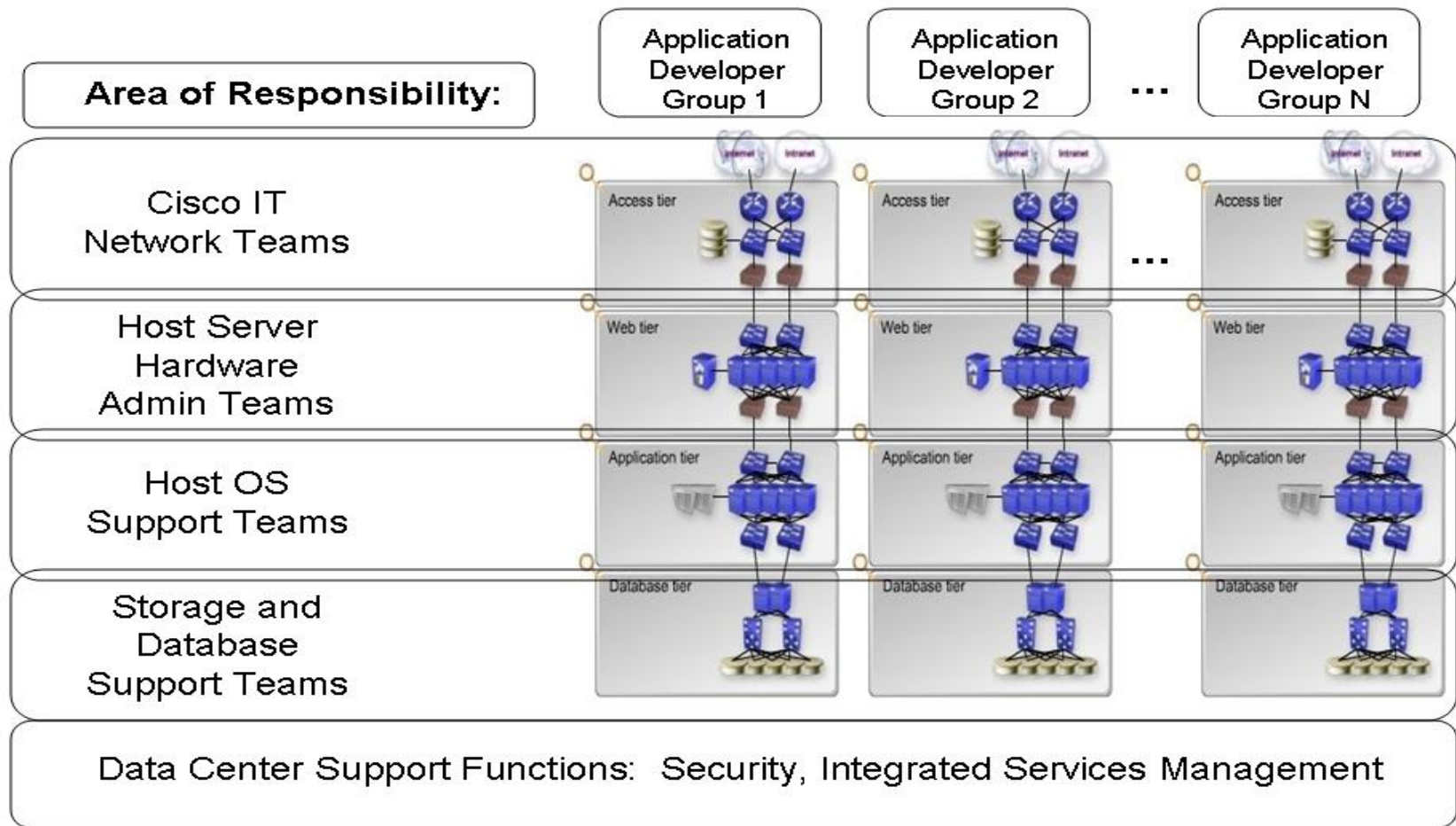
Background: Current Cisco Data Centers



Background: Four Data Center Tiers



Challenge: Data Center Silos



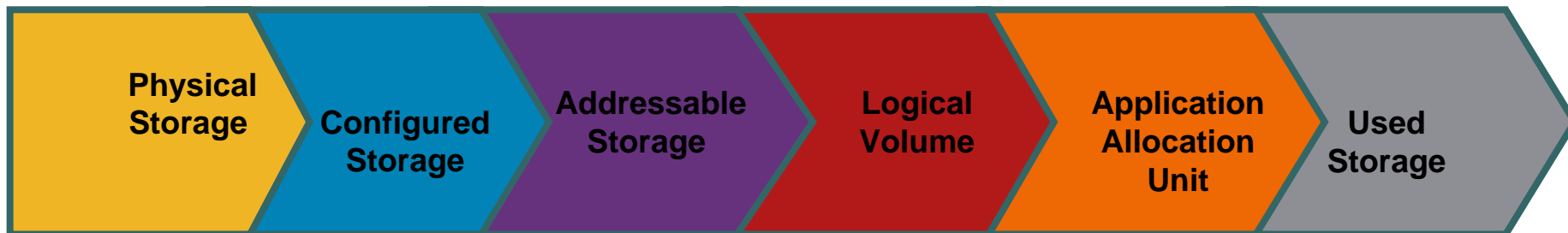
Challenge: Data Center Silos Cause Problems

- This silo model is inefficient, expensive, and difficult to manage for several reasons:
- Vertical, per-application infrastructures were often built with proprietary point products, making standard management and consistent security nearly impossible
- Diverse maintenance, management, and training requirements increased the total cost of ownership (TCO) of each application
- Applications cannot scale easily when built on isolated islands of computer and storage resources; scaling resources requires downtime;

Challenge: Data Center Silos Cause Problems

- Processing and storage resources assigned to single applications significantly reduces resource utilization
- Divergent, nonstandard applications made it extremely difficult for the various applications to communicate and share data between each other

Storage Utilization and the Storage Lifecycle



FY03

Utilization*	100%	67%	70%	82%	86%	60%
Cumulative	100%	67%	47%	39%	33%	20%

FY04

Utilization*	100%	85%	80%	87%	86%	60%
Cumulative	100%	85%	68%	59%	51%	30%

FY05

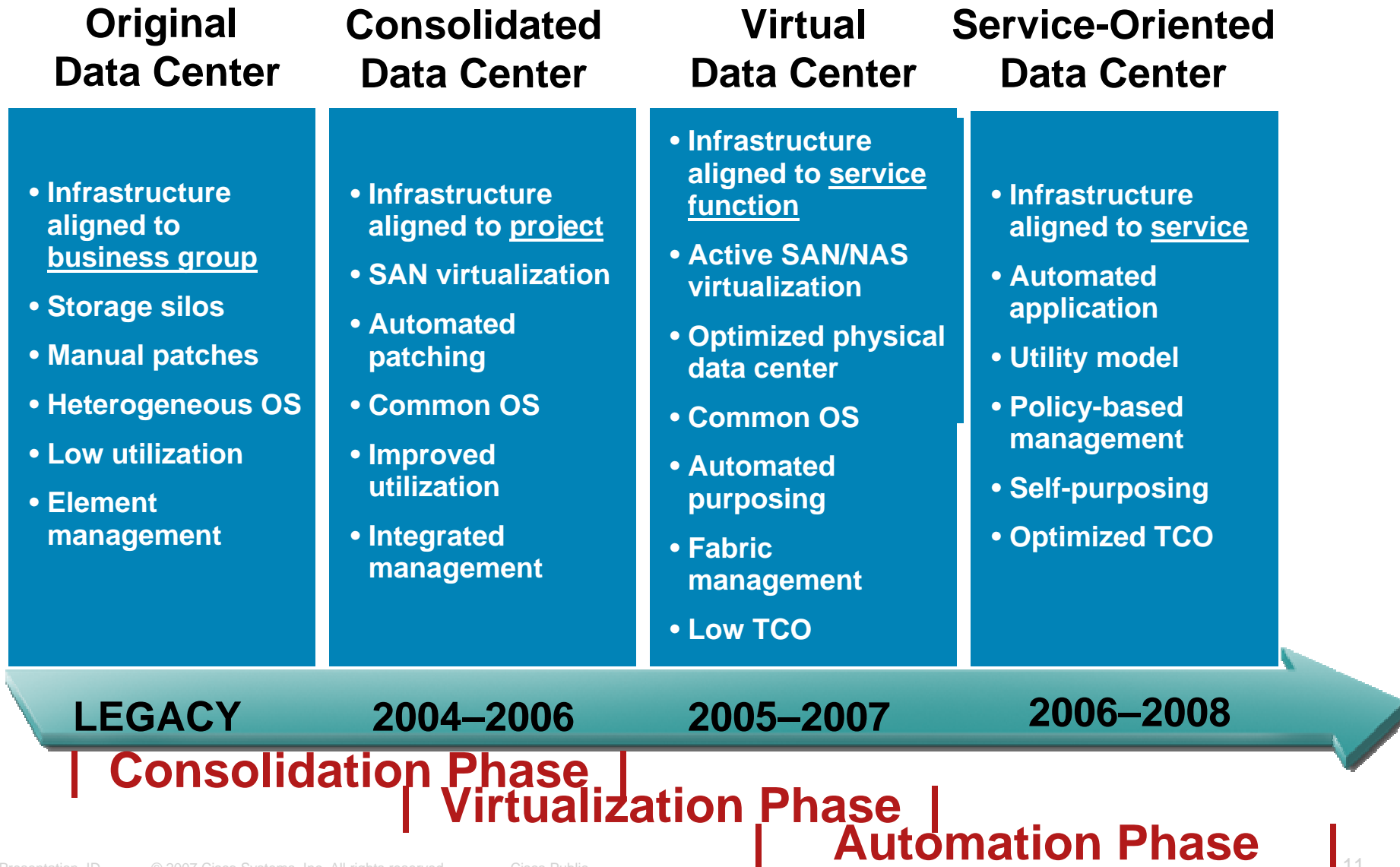
Utilization*	100%	97%	77%	87%	86%	60%
Cumulative	100%	97%	75%	65%	56%	34%

Challenge: Data Center Optimization

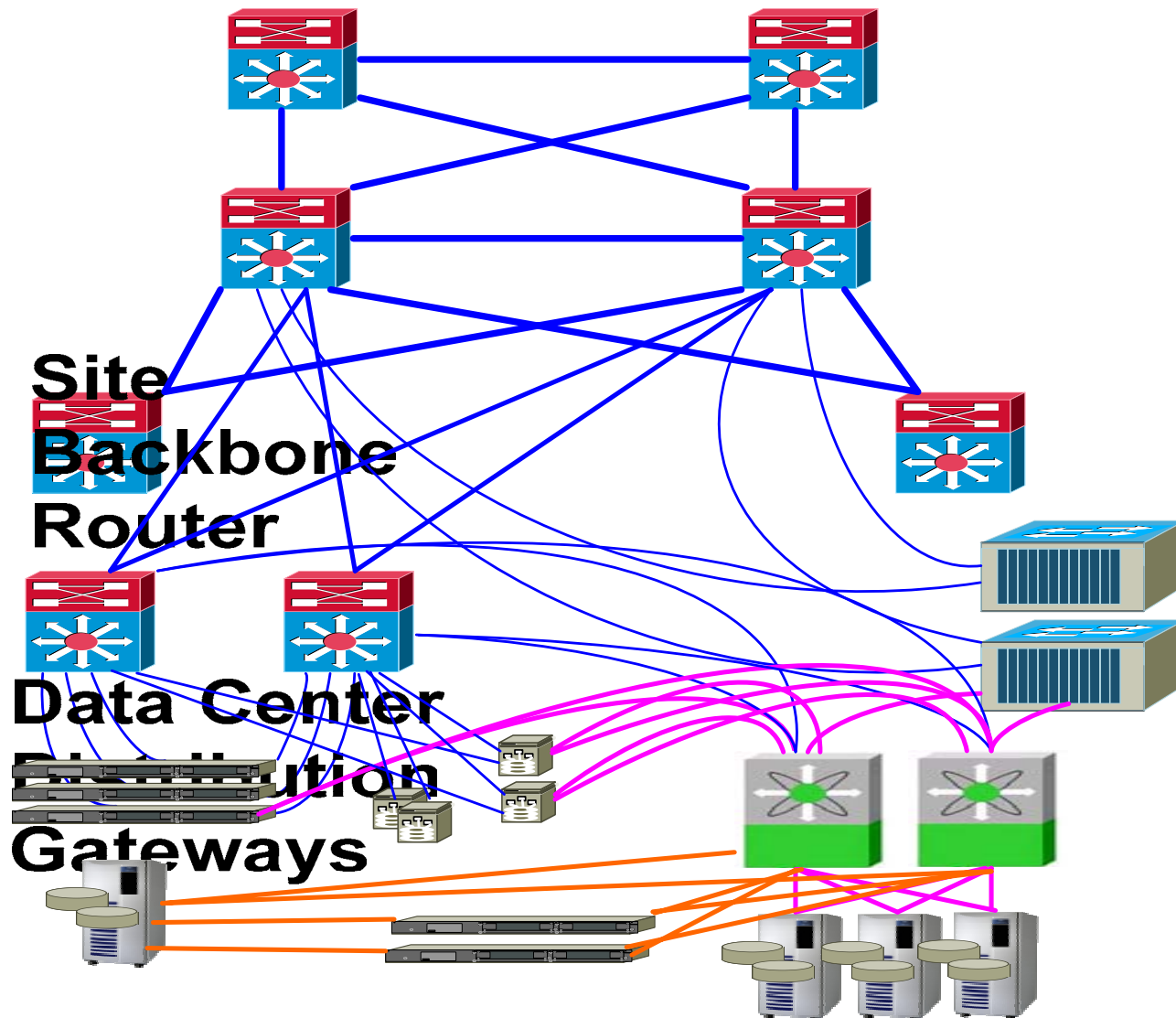
Consolidate, Virtualize, and automate a Service Oriented Data Centre providing:

- Intelligent Management Fabric for easy management
- On demand utilities
- Rapid deployment of services
- Optimization of storage, servers and applications
- End to end security

Solution: Three Phases of Reengineering



Solution: SODC Architecture



Results so far: Agility, Resilience, Cost Savings

- \$10 million annual storage cost savings
- Improved business resilience
- End to end security
- Rapid utility provisioning
- Faster services deployment
- Easier management
- Less data center downtime

Next Steps: Continue Data Center Reengineering

- **CONSOLIDATION PHASE.** Consolidating isolated resource islands and disparate networks into enterprise wide networks.

Consolidating SANs – mostly done

Consolidating data centers – just starting solution

- **VIRTUALIZATION PHASE.** Virtualizing computing, network, and storage resources to be dynamically partitioned, provisioned, and assigned with ease to different applications.

Virtual storage from a storage pool – mostly done

Virtual servers from a server pool – just starting

Next Steps: Continue Data Center Reengineering (Contd.)

Application oriented networking to guide application requests to resources – **just starting**

- **AUTOMATION PHASE.** Flexible service automation, to rapidly and automatically detect and respond to the applications' changing needs, and to provision processing and storage and security resources as needed.

To read the entire case study, or for additional Cisco IT case studies on a variety of business solutions, visit Cisco on Cisco: Inside Cisco IT

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CISCO



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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