Centralized Call Processing
How Cisco IT Migrated to Centralized Call Processing

A Cisco on Cisco Case Study: Inside Cisco IT
Overview

- **Challenge**
  Providing a cost-effective method for providing IP telephony features for Cisco’s 230+ remote offices worldwide.

- **Solution**
  Survivable Remote Site Telephony (SRS Telephony), a feature of Cisco IOS® Software and centralized call processing.

- **Results**
  We’re providing better service to Cisco® employees and we save on equipment and application costs—the benefit will increase with each new voice service we deploy.

- **Next Steps**
  Based on the success of centralized Cisco CallManager in hub locations, Cisco is planning to centralize its Cisco Unity™ servers.
Challenge: Supporting IP Telephony at Cisco’s 230+ Remote Offices Worldwide

- In 2000 Cisco® replaced its traditional PBX systems with Cisco CallManager clusters.
  
  Employees on campuses worldwide began using Cisco IP phones and Cisco IP SoftPhone software.

- Cisco installed a CallManager cluster in every office even if it supported only five people (a single CallManager cluster can support up to 7500 phones).
  
  We soon realized that we would not be able to support so many servers without increasing headcount.

- Cisco began investigating a more cost effective alternative to providing IP telephony features for its remote office employees.
Challenge: Distributed versus Centralized Call Processing

- A distributed Cisco® CallManager network is not cost effective for extending IP telephony to small or medium-sized branch offices.

- A centralized Cisco CallManager solution reduces capital and operational expense, but does not inherently provide backup features if the WAN link fails.
Challenge: Distributed versus Centralized

- Cisco® needed a way to ensure business continuity if the WAN link between the hub and the remote office went down.

- **Distributed Cisco CallManager**
- **Centralized Cisco CallManager**

BEFORE SRST

NOT COST EFFECTIVE

HIGH-RISK
Solution: Survivable Remote Site Telephony

- Cisco® developed Survivable Remote Site Telephony (SRS Telephony), a feature of Cisco IOS® Software
  
  SRS Telephony is integrated into Cisco branch office routers.

- SRS-enabled branch router automatically detects a failure in the WAN link to the regional hub where the Cisco CallManager cluster is located, and then uses Cisco Simple Network Automated Provision (SNAP) capability to autoconfigure the router to provide call-processing backup redundancy for the IP phones in that office.
Solution: Survivable Remote Site Telephony (Contd.)

- If the WAN link to the hub goes down, Cisco remote office employees can use their IP phones to dial out to the public switched telephone network (PSTN), receive inbound calls over the PSTN, and make station-to-station calls.
Solution: CCP with SRST Architecture

- Centralized Call Processing (CCP) with SRST
Solution: Geographic Distribution

- With the introduction of SRS Telephony, sites in each Cisco® region were able to centralize call processing in a small number of hubs:
  - America hubs
    - 135 branch offices adopting CCP
  - Asia-Pacific hubs
    - 40 branch offices adopting CCP
  - EMEA hubs
    - 59 branch offices adopting CCP
Solution: Cluster Architecture

- A typical Cisco® CallManager cluster includes three servers:
  - A TFTP publisher
  - Active subscriber
  - Backup subscriber

Centralized Call Processing Architecture
Solution: Cluster Architecture (Contd.)

- The Cisco router in the remote office provides access to the PSTN and delivers basic IP telephony features in the event the WAN fails.
Solution: Asia-Pacific and EMEA Deployment

- All offices in Australia, China, Southeast Asia, and Japan have been converted to centralized call processing with SRS Telephony.
- The European centralized call processing cluster consists of 13 servers, split between Amsterdam and London using clustering over the MPLS IP-VPN WAN.
- A chief advantage of centralized call processing for EMEA is desk-sharing over a larger geographical area.
  
  The Cisco® CallManager Extension Mobility feature enables desk sharing because employees can log on to their own telephone extensions from any IP phone served by a single CallManager cluster.
Results: Summary

- Assured business continuity
  By combining centralized call processing with SRS Telephony, we get the best of both worlds—low equipment costs, low support, and high availability.

- Dramatically reduced support requirements
  By reducing the number of Cisco® CallManager servers from 300 to 40 with centralized call processing, we’re saving our system administrators hundreds of management / maintenance hours a year.
Results: Summary (Contd.)

- **Cost savings**
  - CCP simplified implementation of Vo IP by making dial-plan administration less complex
  - Reduced telecommunications costs for mobile workers
  - Decreased capital expense by reducing the number of Cisco Call Manager server platforms

- **More rapid application deployment**

  With centralized call processing, we can deploy new applications on a single Cisco Call Manager cluster and make it available to employees in all offices connected to that hub site
Next Steps: Summary

- Based on the success of centralized Cisco® CallManager in hub locations, Cisco is planning to centralize Cisco Unity™ servers as well.
- Cisco plans to further consolidate its Cisco CallManager hub sites.
- As SRS Telephony is enhanced to support more IP phones in fall-back mode, Cisco will connect very large branch offices to the CCP architecture, which will further reduce management costs.
A Leading-Edge Enterprise Environment

- Centralized call processing makes it cost efficient to extend IP telephony across the enterprise to any size office

- Cisco® is experiencing ongoing benefits from reduced capital costs, reduced operational burden, and feature parity for remote office employees, ensuring that every employee has access to the same productivity-enhancing IP applications.

- Everyone wins
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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