Enterprise IP Multicast
How Cisco IT Uses IP Multicasting Globally

A Cisco on Cisco Case Study: Inside Cisco IT
Overview

- Challenge: One-to-many real-time traffic needs
  Corporate meetings and videos

- Solution: Multicast – ASM and SSM
  Efficient one-to-many transport
  Recently upgraded network to SSM

- Results: Multicast and SSM is a success
  Stable and usable within the network

- Next Steps: New applications
  Music on Hold and Info Cast
Challenge: One-to-Many Real-Time Traffic Needs

- Corporate videos of meetings and training saved travel money, but were expensive
  - Sending video tapes to remote sites – too much delay
  - Setting up switched digital circuits – too expensive
- Cisco® IP/TV® can send video across corporate WAN, but …
- Corporate WAN could not manage thousands of video streams simultaneously
Solution: Multicast – ASM and SSM

- Multicast ASM (Any Source Multicast) – in use for 4 years
  Requires Internet Group Multicast Protocol (IGMP) v2
- Multicast SSM (Single Source Multicast) deployed July 2003
  Requires IGMP v3
- All Cisco® IP/TV®, VoD training, video and audio streaming uses multicast in the WAN
ASM and SSM

- Multicast SSM learns about sender IP address from the application; ASM learns from the Rendezvous Point router.

- Multicast ASM requires complex multicast group and tree setup process; SSM is much simpler.

- With ASM, multiple senders can send traffic within a multicast group, causing:
  - Excess network traffic
  - Traffic collisions
  - Possible security concerns

- SSM migration increased stability of multicast sessions.
ASM and SSM

Internet

RP

ASM

RP

RP

ipmc source

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Results: Multicast and SSM Is a Success

- Multicast is enabled and stable globally across 1035 routers
- SSM deployment is complete, with no unplanned network downtime or stability issues
Next Steps: New Multicast Applications

- Multicast Music on Hold support
  Multicasting music on hold signal to multiple IP phones

- Info Cast support
  Multicasting corporate announcements to IP phone displays

- Continue to monitor technology and standards for new multicast enhancements