DATA SHEET

CISCO IOS IPv6 MULTICAST TECHNOLOGIES

Companies now require the ability to maximize Network investment. IP Multicast applications enable efficient use of existing network infrastructure.

Cisco IOS® Software is the foundation networking software that allows customers to deliver Cisco IP Network Services on a flexible infrastructure that is scalable, reliable, and secure. It provides industry-leading, standards-based technologies proven in use across the broadest and largest networks in operation today.

IP Multicast technologies enable scalable distribution of data, voice, and video streams efficiently to hundreds, thousands, even millions of users. Cisco IOS Multicast enables corporate communications, financial trading, Hoot & Holler, video conferencing, E-learning, commercial Television and Radio over IP, streaming media applications and Multicast enabled VPN services.

MULTICAST ARCHITECTURES

Multicast deployments require three elements: the application, the network infrastructure, and client devices. Cisco IOS Multicast technologies reside in the network infrastructure within Cisco routers and switches. IP Multicast utilizes a single data stream, which is replicated by routers at branch points throughout the network. This mechanism uses bandwidth much more efficiently and greatly decreases load on content servers, reaching more users at a lower cost per user.

BENEFITS OF IP MULTICAST

Cisco IOS Multicast technologies make it easier for enterprises and service providers to leverage their network resources for massively scalable content distribution applications. Cisco IOS Multicast enables customers to:

- Efficiently deploy and scale distributed group applications across the network
- Create a ubiquitous, enterprise-wide content distribution model
- Solve traffic congestion problems
- Allow service providers to deploy value-added services that leverage their existing infrastructure
- IPv6 brings specific multicast benefits such as scope management

Figure 1
IPv6 Multicast Components

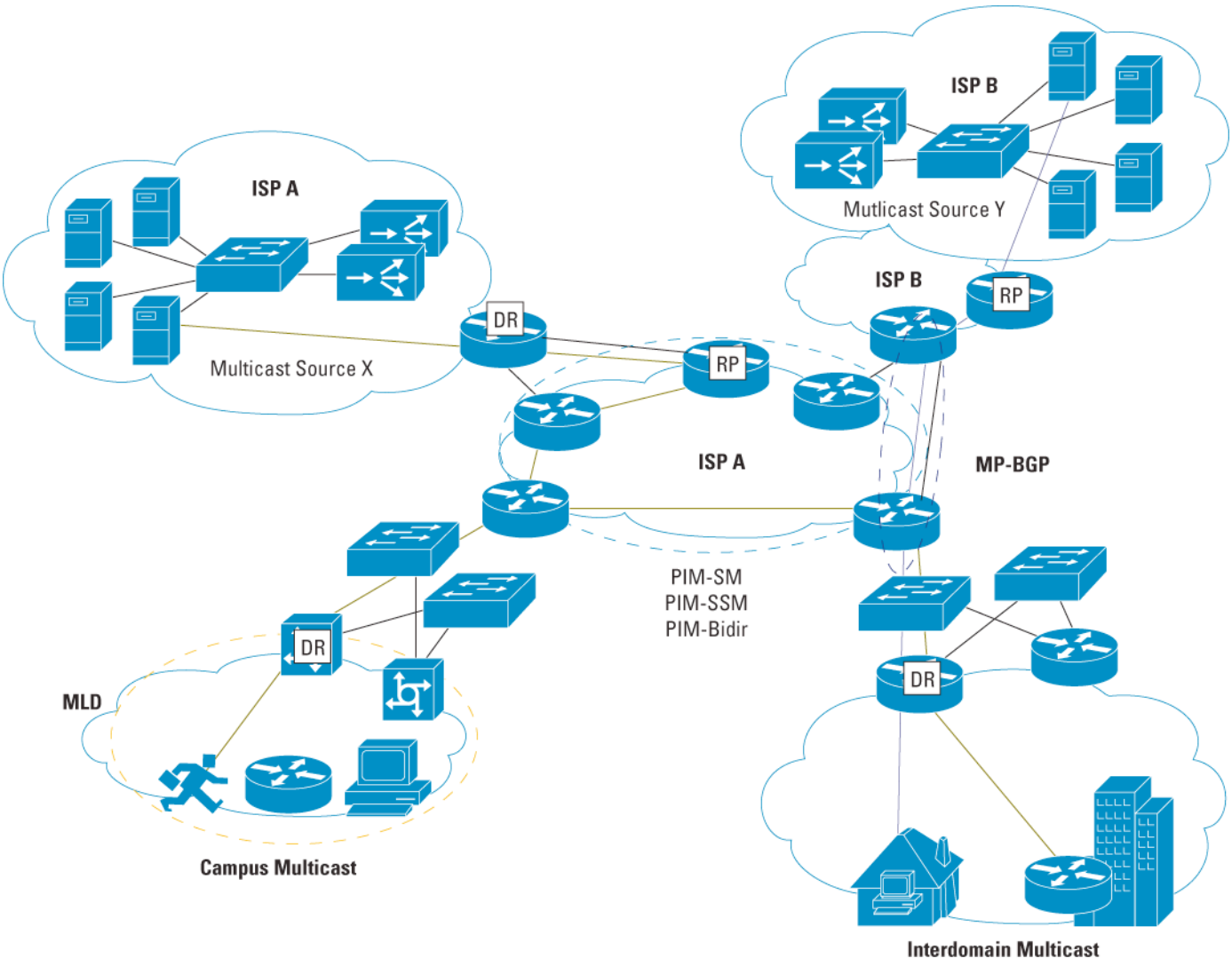

Table 1. Cisco IOS Multicast Features

Feature	Description
Protocol Independent Multicast v2 (PIMv2)	Provides intradomain multicast forwarding for all underlying unicast routing protocols Independent from any underlying unicast protocol such as Open Shortest Path First (OSPF) or Multiprotocol Border Gateway Protocol (MP-BGP) Supports explicit join (sparse mode), flood-and-prune (dense mode), or hybrid sparse-dense modes Sparse Mode: relies upon an explicit joining method before attempting to send multicast data to receivers of a multicast group
Multicast Listener Discovery (MLD) v1 and v2	Protocol used by IPv6 hosts to communicate multicast group membership states to local multicast routers Version 2 of MLD adds source awareness to the protocol. This allows the inclusion or exclusion of sources. MLDv2 is required for Source Specific Multicast (SSM) Cisco IOS Software also supports the explicit tracking of MLDv2 receivers
PIM Source Specific Multicast	SSM forwarding uses only source-based forwarding trees. SSM range is defined for inter domain use, and Cisco IOS Software allows other groups to be configured using the SSM forwarding model.
Multiprotocol Border Gateway Protocol	Multiprotocol extensions to the BGP unicast inter-domain protocol that carry multicast specific routing information. Adds capabilities to BGP to enable multicast routing policy throughout the Internet and connect multicast topologies within and between Border Gateway Protocol (BGP) autonomous systems Carries IP multicast routes. MP-BGP carries multiple instances of routes, for unicast and for multicast routing PIM uses routes associated with multicast routing to join Reverse Path Forwarding (RPF) decisions at the inter domain borders
PIM Bi-dir	A variant of the PIM, whereby data flows both up and down the same distribution tree Bi-directional PIM uses only shared tree forwarding, thereby reducing state creation
Boot Strap Router (BSR)	BSR is a mechanism where a PIM router learns the set of group-to-RP mappings required for PIM SM
BSR flooding	The ability to flood BSR messages without processing them
Embedded Rendezvous Point	Utilizes unicast based prefix addressing to include within the group address (the Rendezvous Point address)
Static Rendezvous Point	Allows the manual configuration of the IPv6 PIM SM RP address
Routable Address Option	In IPv6 a router may have multiple addresses on a link. PIM assumes that the neighbor address and the next hop address for Joins or other messages are the same. This feature allows the PIM message to include all the addresses on the interface on which the PIM hello message is advertised
IPv6 multicast over IPv4 tunnels	An aid to IPv6 Multicast deployment This feature allows IPv6 multicast to be forwarded through IPv4 tunnel
IPv6 multicast over IPv6 tunnels	An aid to IPv6 Multicast deployment This feature allows IPv6 multicast to be forwarded through a non multicast supportive IPv6 infrastructure

ADDITIONAL INFORMATION

For more information about Cisco IOS Multicast, contact your Cisco account manager or global service manager or visit:

http://www.cisco.com/go/ipmulticast

http://www.cisco.com/go/ios

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