



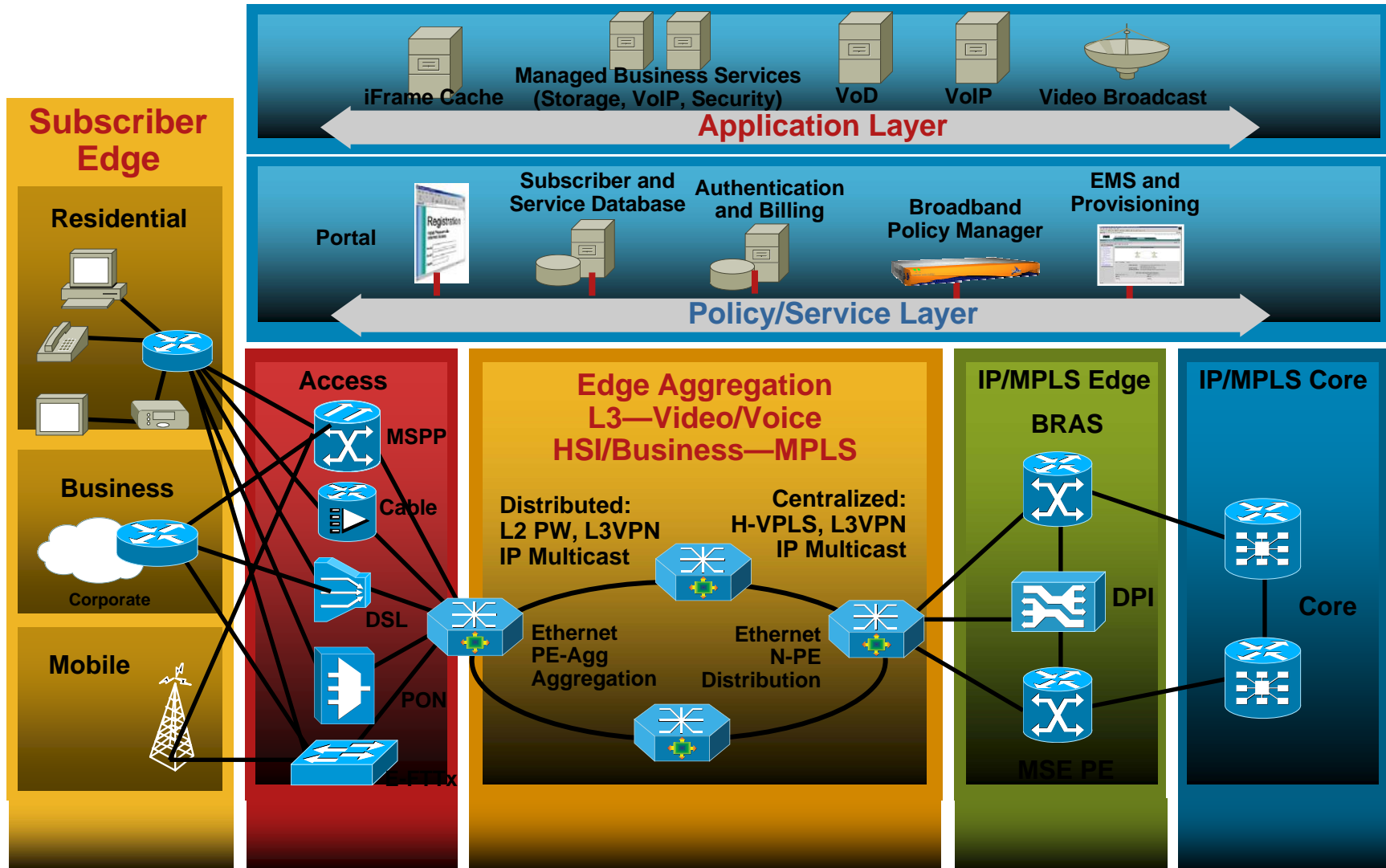
IP NGN Network Ready for IPTV ??



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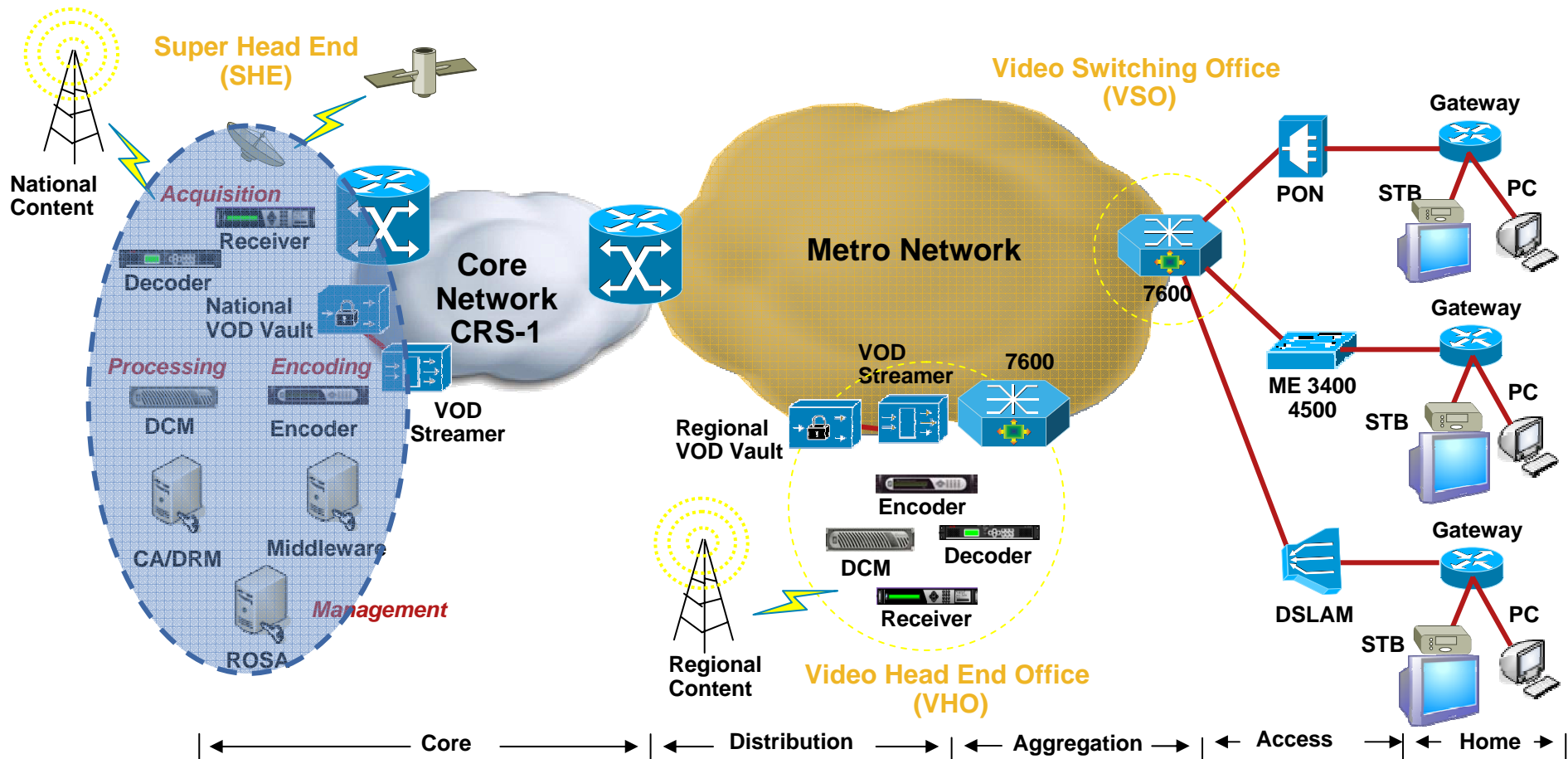
Cisco ServiceFlex Design

Transforming Consumer and Business Services



Continuously Strengthening the IPTV Solution

Dec 2004 CRS-1 8-Slot SCE	Apr 2005 SIP/SP XR12000 7604	Sep 2005 Video-to-Network Linkages ME 3400	Dec 2005 IP DWDM for CRS-1 SEF/IPTV over IPNGN	Feb 2006 Scientific Atlanta Head End Set-Top-Box SciCare	Jul 2006 Video CAC ISG with Policy Server	Sep 2006 CRS-1 4-Slot	Oct 2006 Arroyo
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Cisco Wireline Video/IPTV Solution Test

- C-VISTA – Cisco Video / IPTV Systems Test & Architecture
- First Release Launched AUG 2005, most recent in Dec 2006
 - 324 page DIG, “Cisco IPTV/Video Wireline Solution, Rel 1.2”
- Architecture’s fundamentals driven by leading providers
- Initiated key strategies and innovations
 - Multicast Scale & Failover Performance Tested
 - Video Bypassing the BRAS architecture
 - Multicast N+M Encoder Redundancy using our PIM-SSM solution

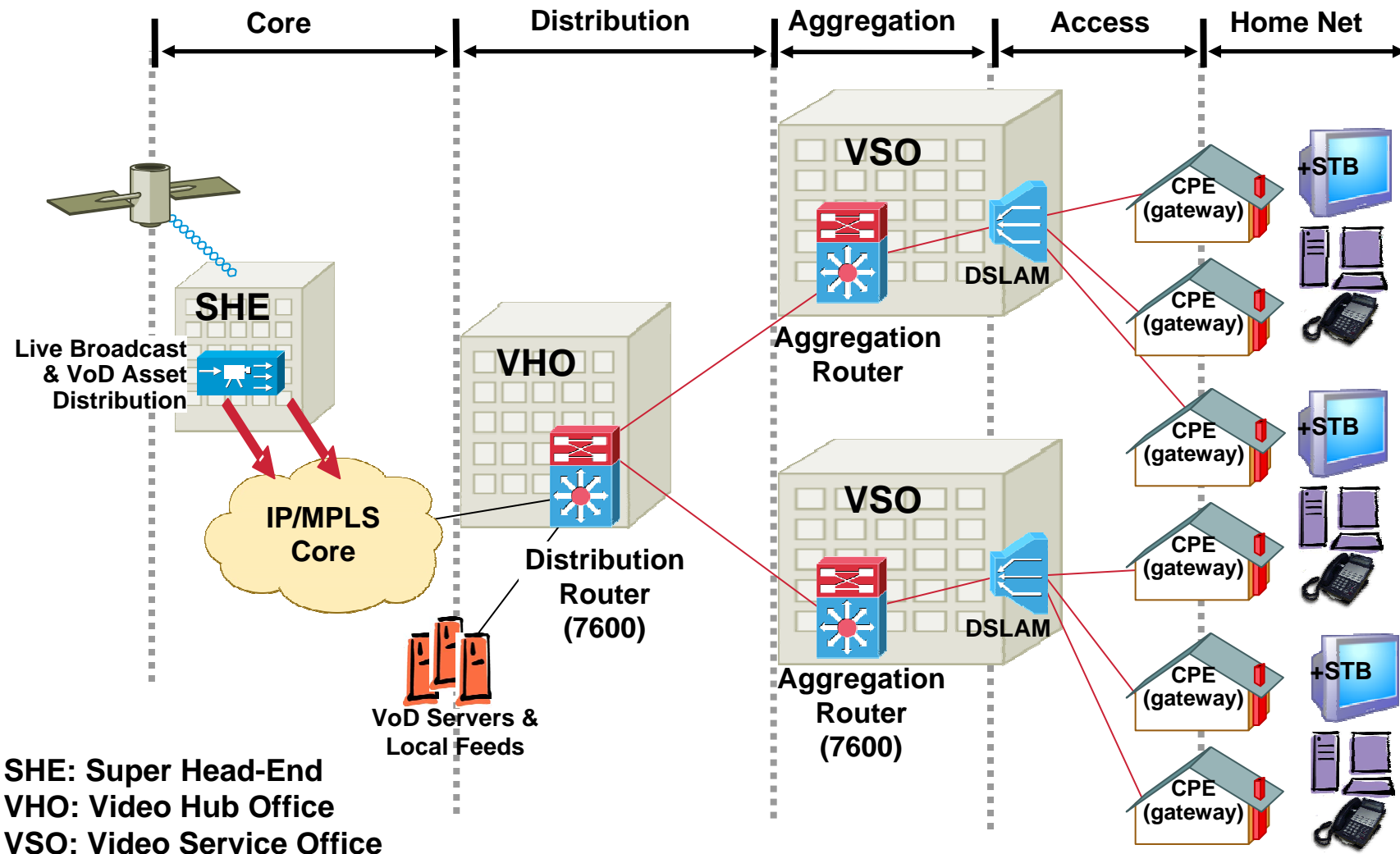
http://www.cisco.com/en/US/products/ps6902/products_implementation_design_guides_list.html

Wireline Video/IPTV Solution Test Suite in San Jose, CA

- System Verification & Performance Testing in a **real** Video Service environment
- Solution Train Process
 - Ongoing Testing & Support
 - Phases in new platforms, functions
 - Secure software quality and feature consistence
- 7600s, 6500s, 4500s
 - CRS-1 being added as DER option
- Specialized video test gear (eg, Ixia & Ineoquest and more)
- Digital Satellite Feed (HD & SD)
- SFA head-end
- VoD, EPG servers, STBs, TVs
- Publishes Solution Design & Implementation Guide (SDIG) for each release along with various whitepapers, etc



Transport Architecture Components

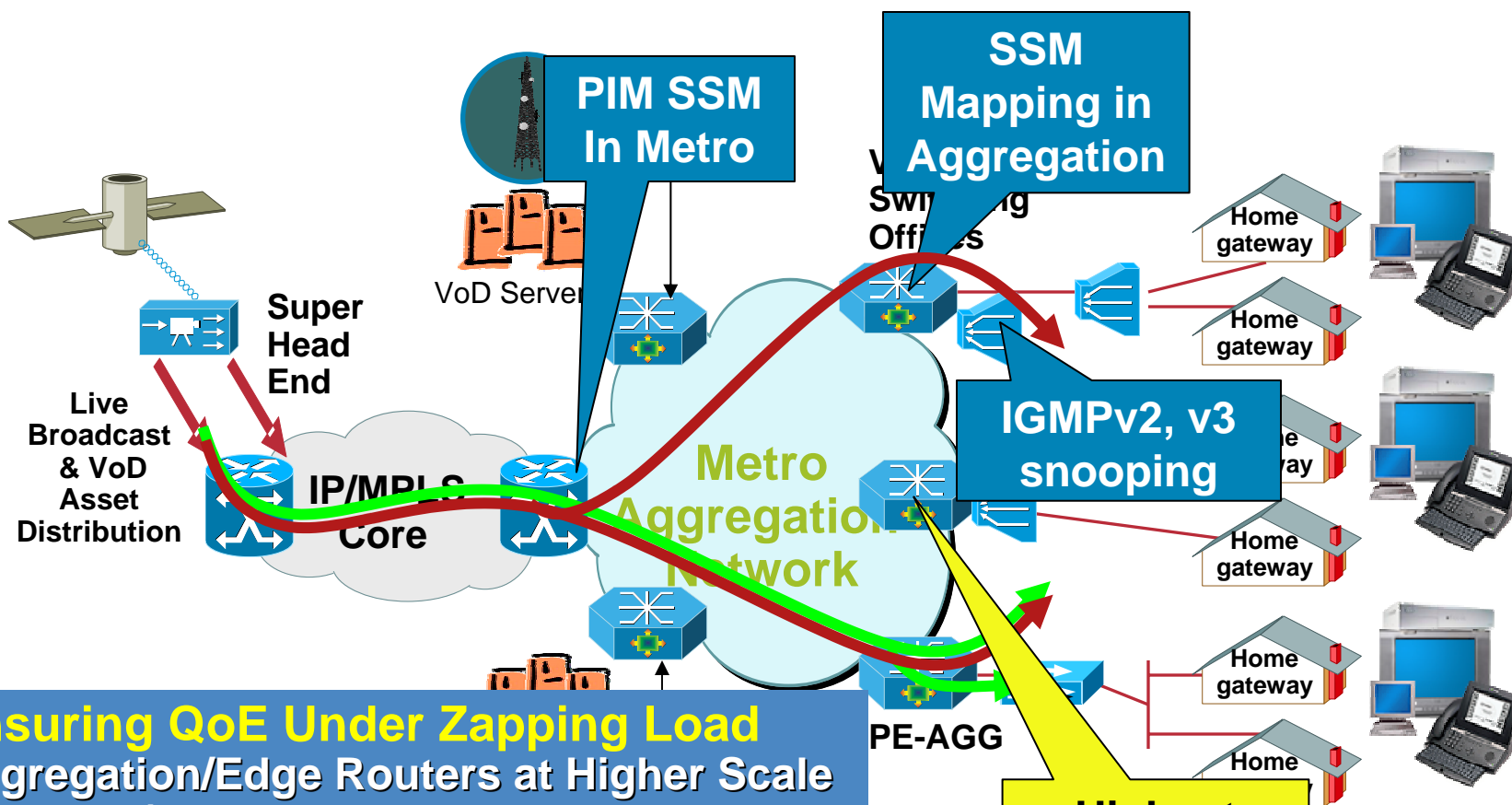


Cisco Wireline Video/IPTV Solution Test – Next Release Focus Areas

- Adding 7600 Carrier Ethernet Modules options
- CRS-1 as Distribution Router (DR) option
- More Head-End / Encoder Redundancy options
- Application Layer Redundancy
- Integrated Service Delivery Platform & IP-STB SFA Platforms
- Content Delivery System (CDS) platform inclusion
 - VoD & nPVR [eg, Anything Time-shifted, Start-Over]
- Integrated Video Admission Control (VoD)
- Visual Quality of Experience (VQE)
 - Error Repair and QoE monitoring/collection, etc

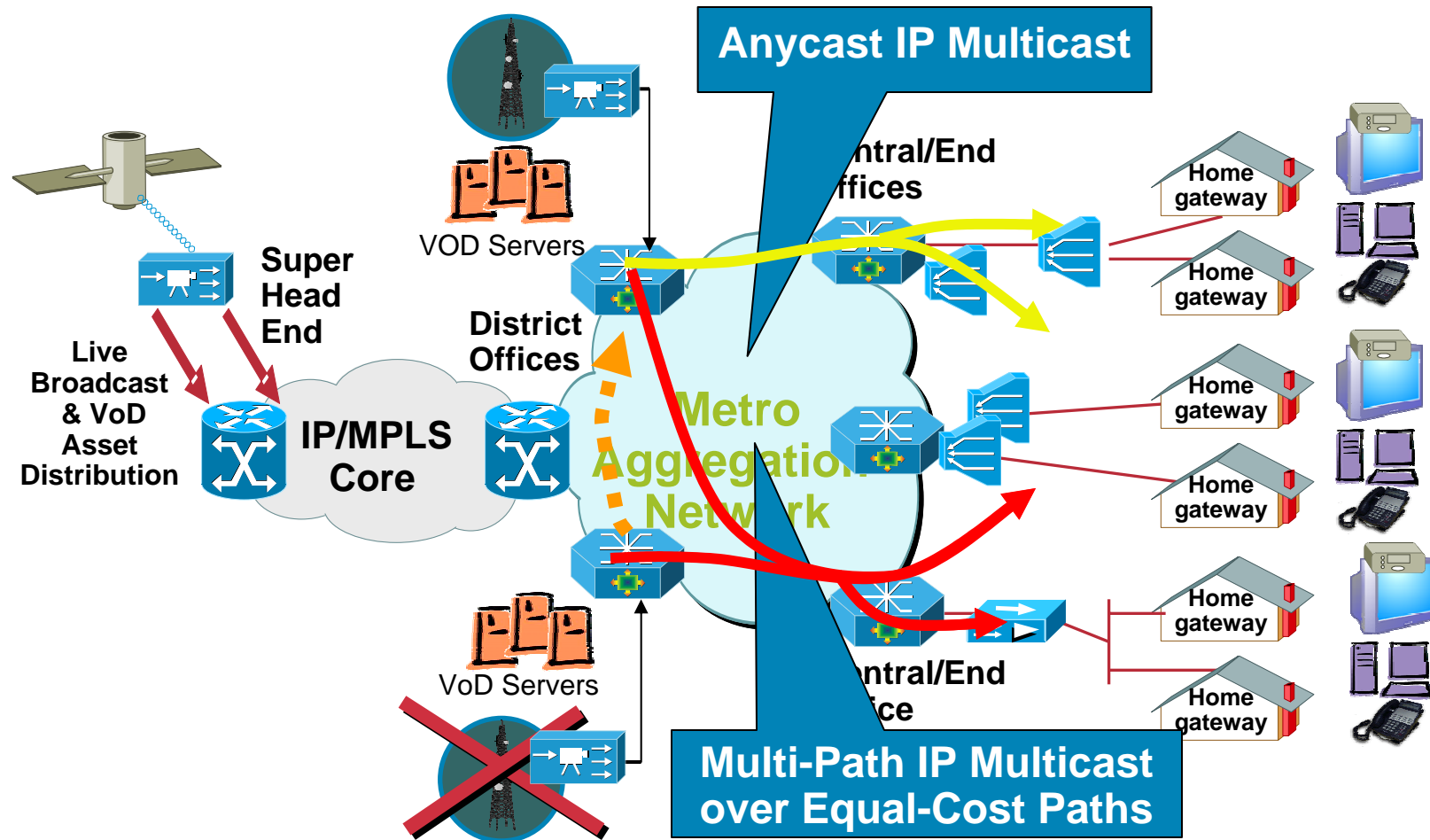
Ensuring high QoE Under “Zapping” Load

HDTV Head-end, Core, Edge



Ensuring QoE Under Zapping Load
 Aggregation/Edge Routers at Higher Scale
 Leave/join times ave <50ms under load
 Handles 15K channel zaps / Edge
 PIM-SSM Routing Optimizes Utilization
 • Multiple video sources – National, local
 over the air, inter-region content sharing

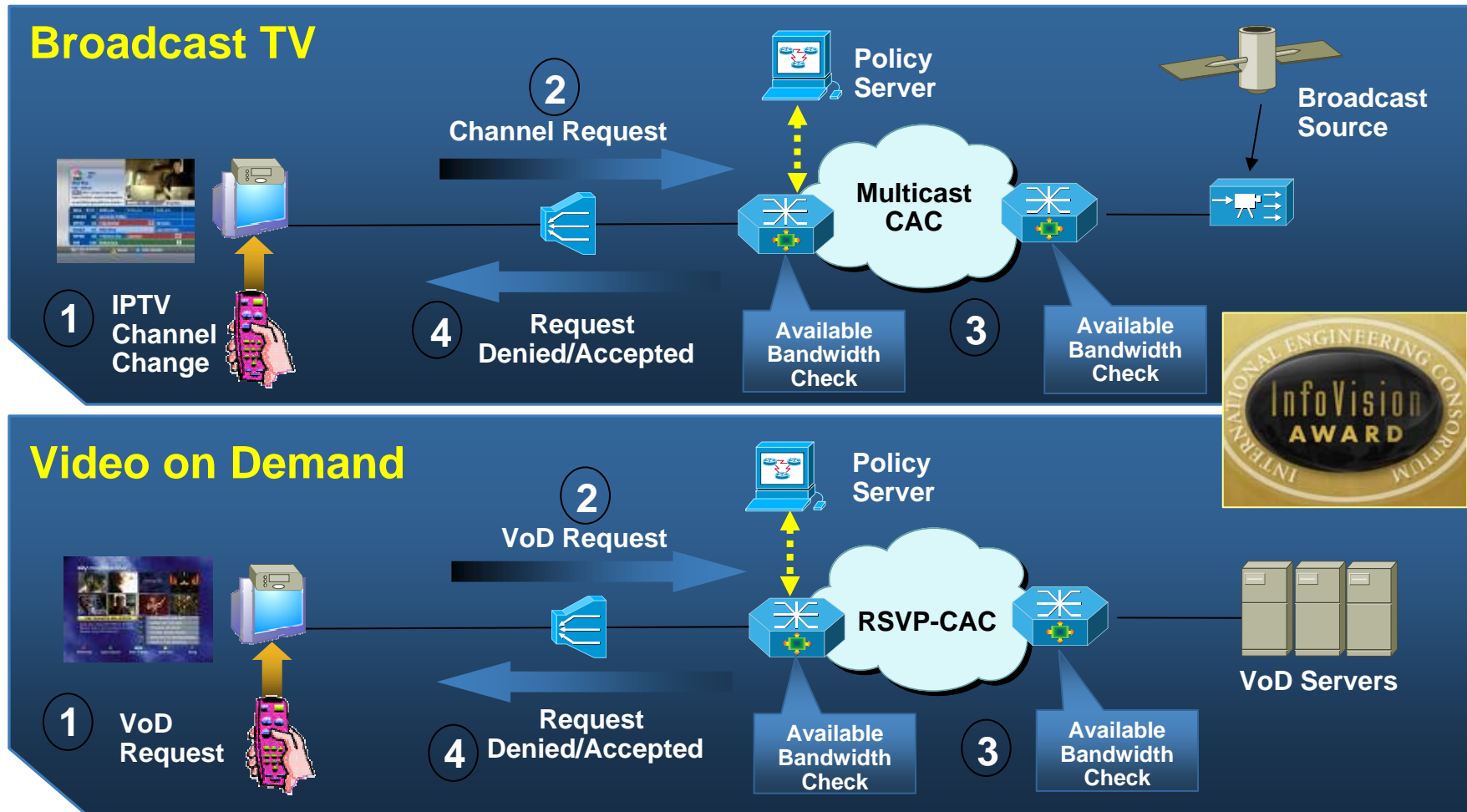
Protect QoE Against Outages, Reducing Impact IPTV Head-end, Core, Edge



Redundant, Live IPTV Broadcast Streams per Channel

Cisco 7600: Video and Multicast Connection Admission Control

Unmatched, end-to-end connection admission control manages Network oversubscription



Think Video



Think IPTV



Think Cisco



