Arris (C-COR) Switched Digital Video (SDV) Training

SDV-101

Introductions

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Training Objectives

- Explain the difference between switched digital video and broadcast systems
- List the benefits of SDV
- Identify the major components of SDV
  - Video Plane
  - Control Plane
  - Client Plane
- Describe the major functions of the SM (Session Manager)
- Describe the major functions of the ERM (Edge Resource Manager)

Why Switched Video?

Haven't we got enough to do ALREADY???

Look what we are facing:

- Competitive threat: Direct TV launches 140 HD channels
- Bandwidth issues: Remove unwatched programs from plant
- Content limitations: Enables cable to deliver unlimited content
- No idea what subscribers are viewing
- Advertising challenges: targeted advertising

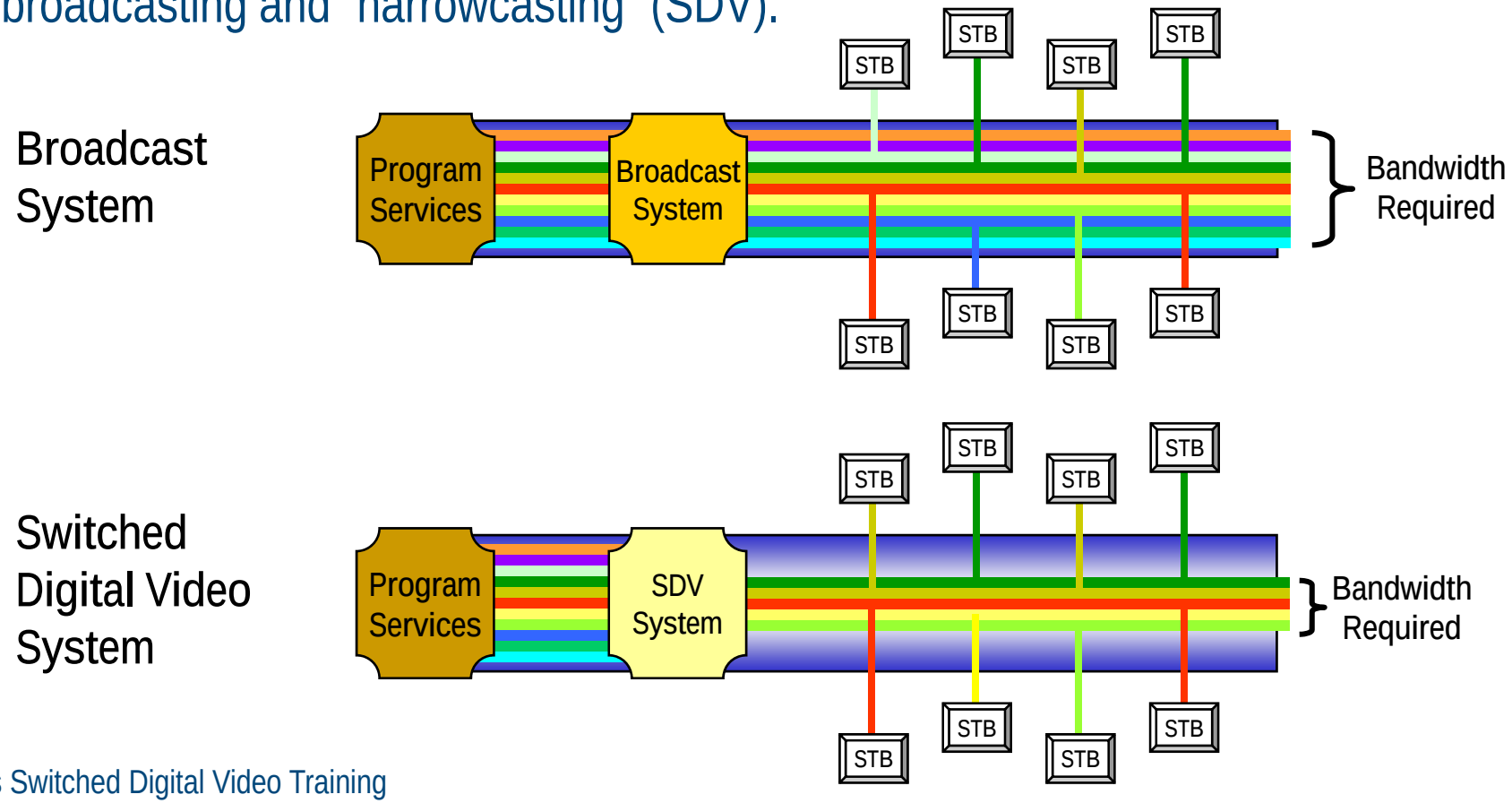
- TWC has over 1 MILLION subs on SDV today!

SDV Enables more ('unlimited') Niche Programming

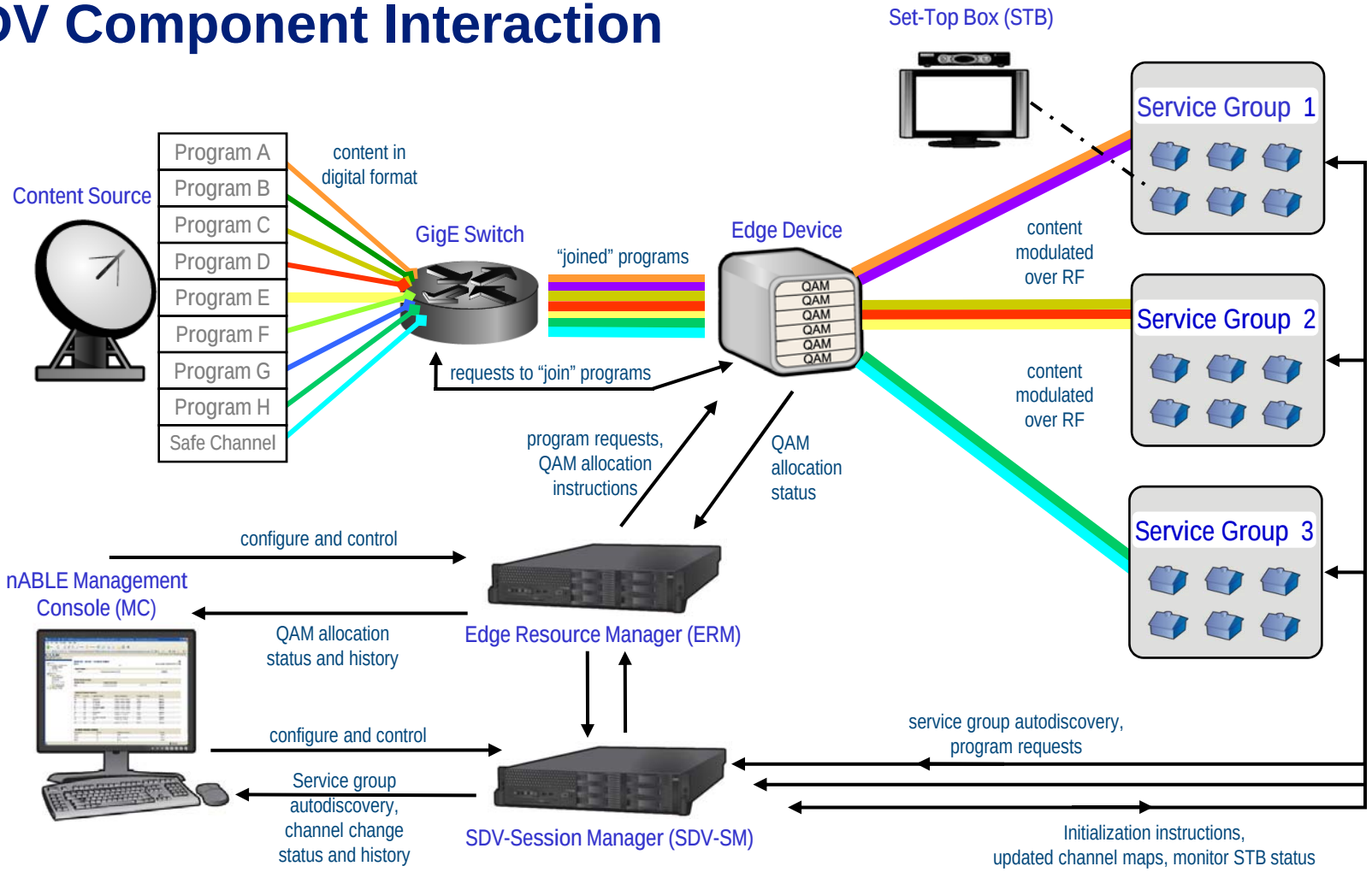
- Niche programming represents the vast majority of broadcast tier
- 10% of the programs represent 90% of the views
- In one trial 50% of the broadcast tier was NEVER watched
- Switched Digital Video takes advantage of the way subscribers watch "large collections" of content

Defining Switched Digital Video (SDV)

Switched Digital Video (SDV) delivers broadcast content *selectively* on subscriber requests. The graphic below depicts the difference between broadcasting and "narrowcasting" (SDV).



SDV Component Interaction



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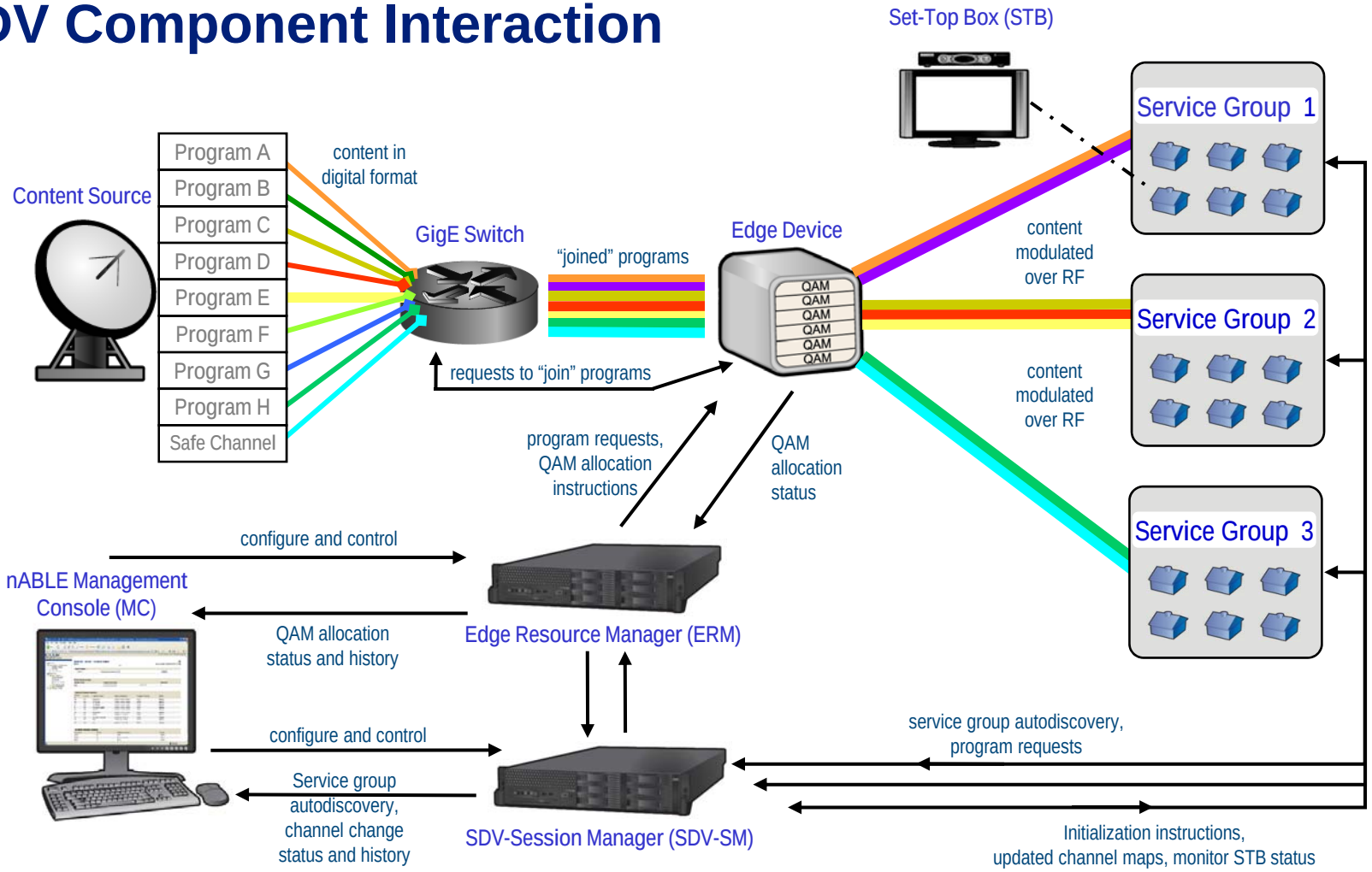

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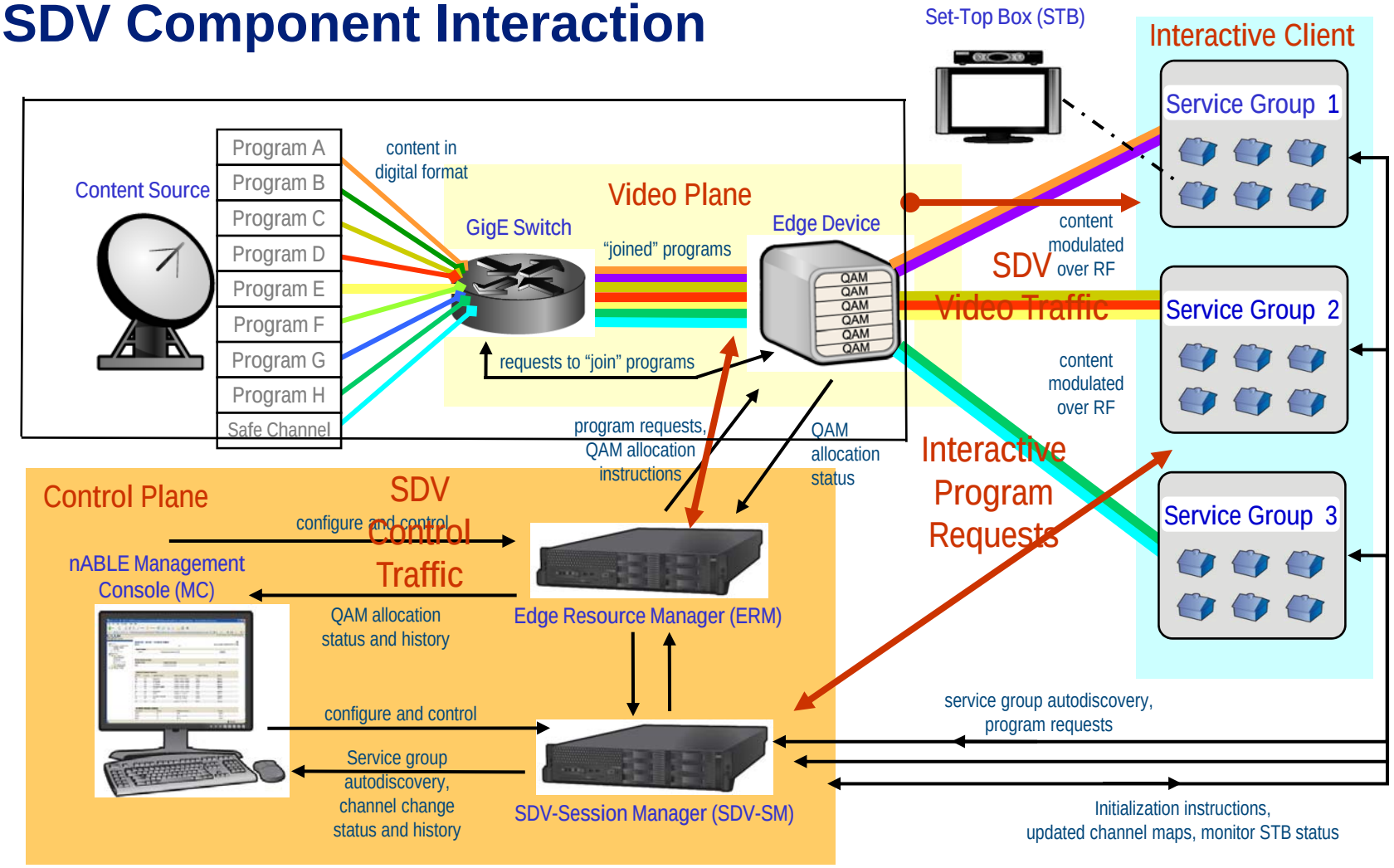
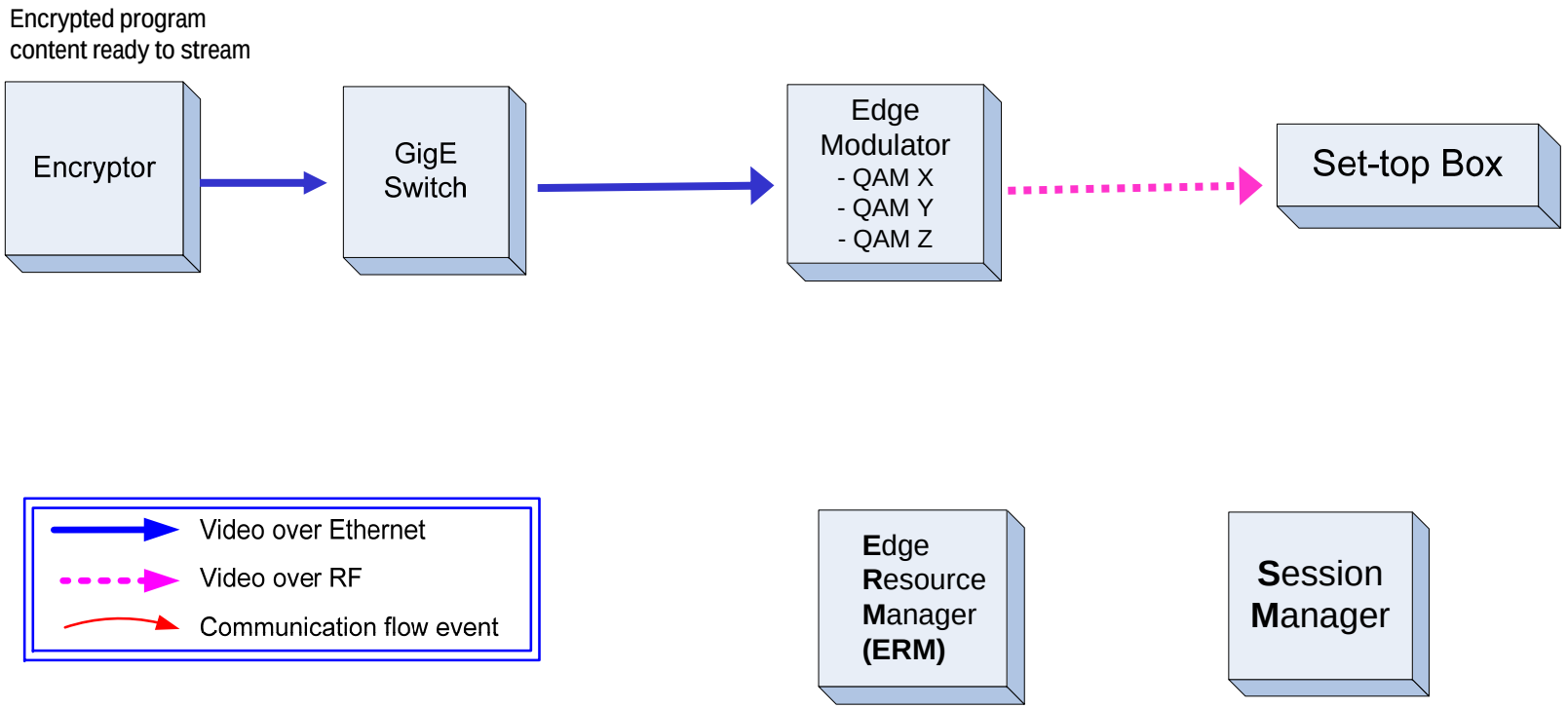


SDV Communication Flow



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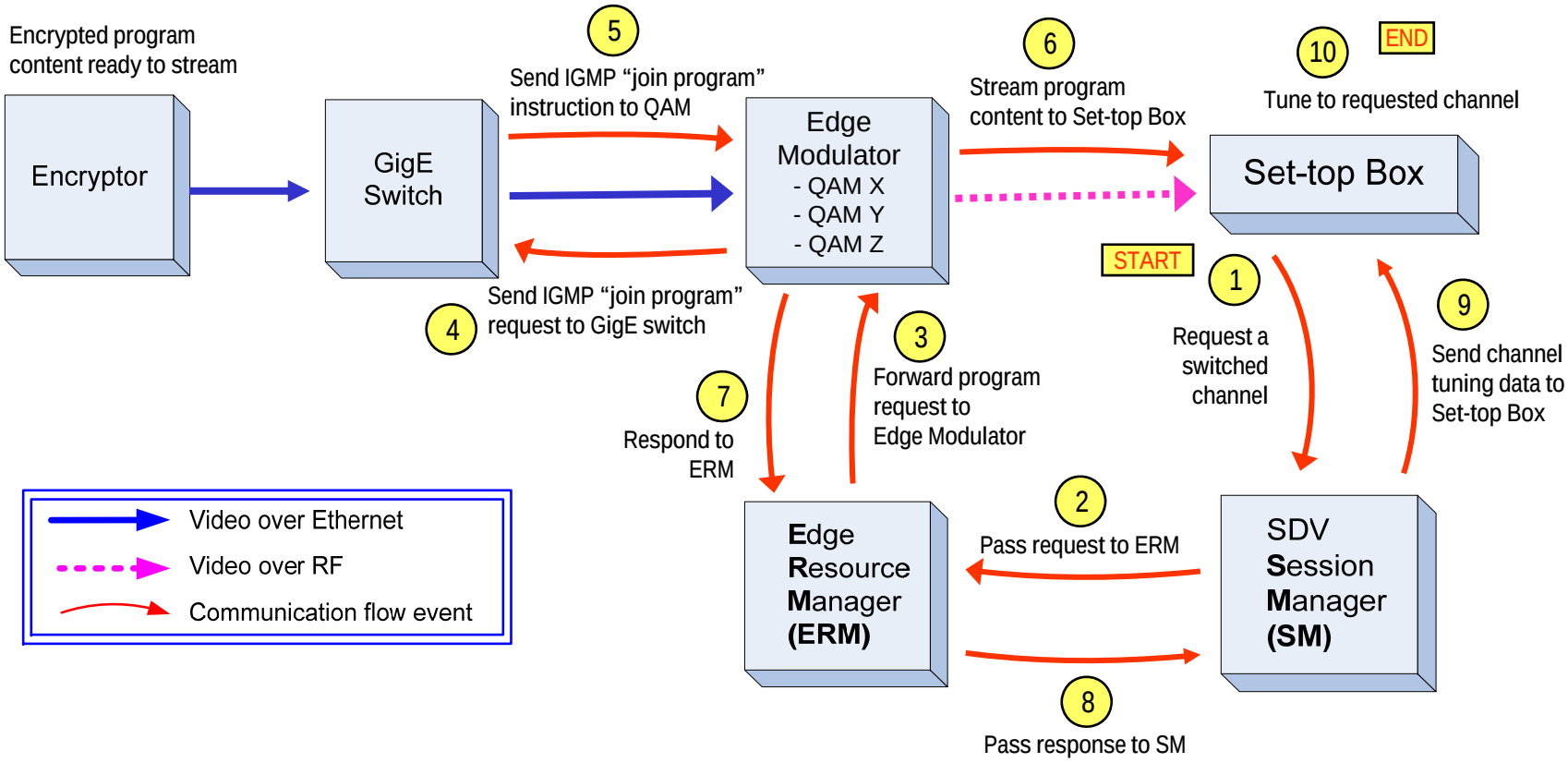
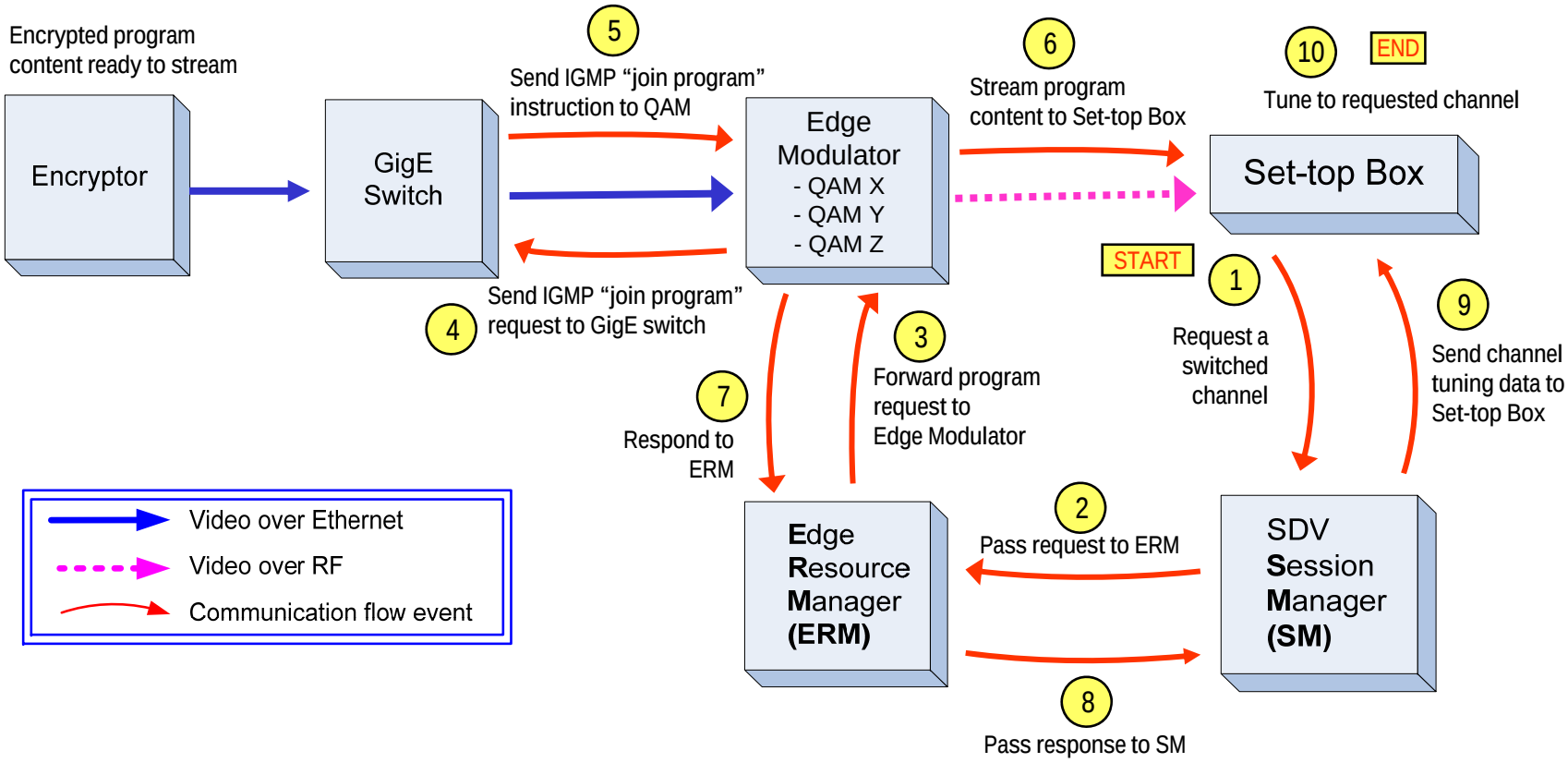


SDV Communication Flow



Role of the Management Console (MC)

Users can *configure* the entire system using the MC GUI

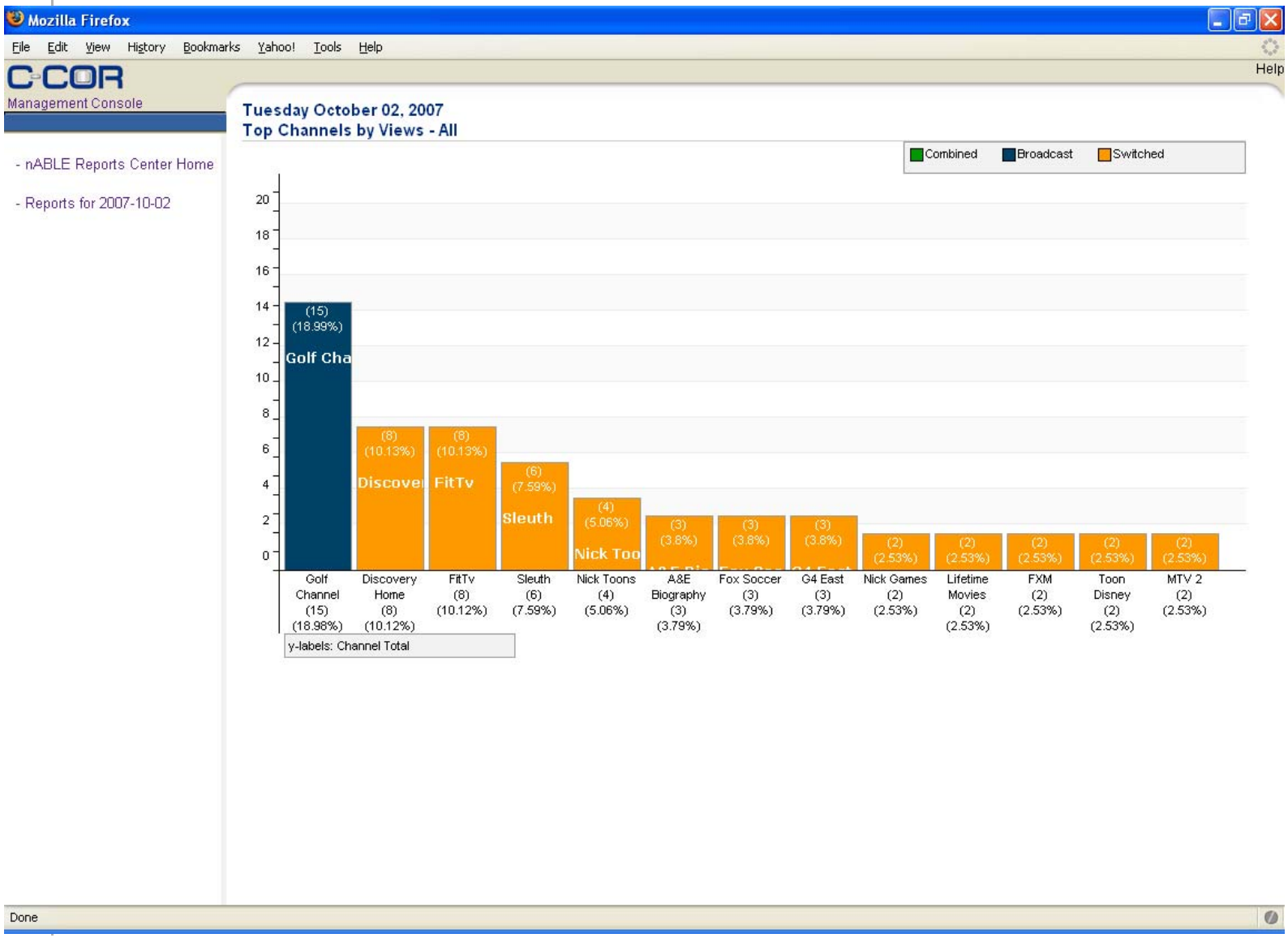
- For example:
  - Configure switched programming
  - Select timeout and other critical values
  - Identify edge resources (modulators)

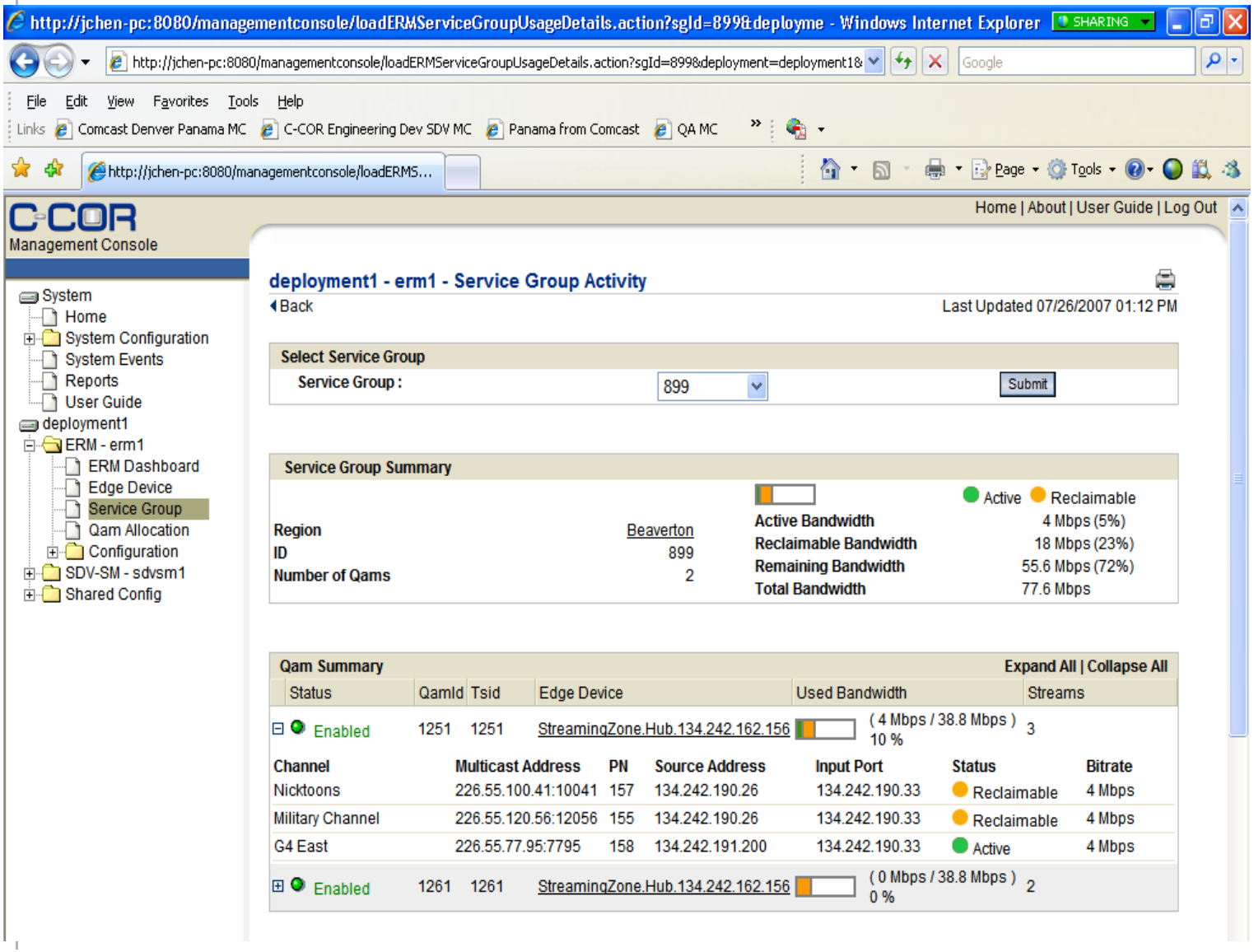
Users can *troubleshoot* the entire system using the MC GUI

- For example:
  - Determine the status of either the ERM or SM
  - View active tuners in a service group
  - Determine QAM status
  - Monitor system event status including warnings and error

A *report* feature gathers statistics on subscriber activities

- For example:
  - Top channels by viewing time
  - Top service groups by views
  - Channel views by day, hour, and minute


Mozilla Firefox
File Edit View History Bookmarks Yahoo! Tools Help
Help
C-COR
Management Console
- nABLE Reports Center Home
- Reports for 2007-10-02
Tuesday October 02, 2007
Top Channels by Views - All
Combined
Broadcast
Switched
20
18
16
14
12
10
8
6
4
2
0
(15) (18.99%) Golf Cha
(8) (10.13%) Discover
(8) (10.13%) FitTv
(6) (7.59%) Sleuth
(4) (5.06%) Nick Too
(3) (3.8%)
(3) (3.8%)
(3) (3.8%)
(2) (2.53%)
(2) (2.53%)
(2) (2.53%)
(2) (2.53%)
(2) (2.53%)
Golf Channel (15) (18.98%)
Discovery Home (8) (10.12%)
FitTv (8) (10.12%)
Sleuth (6) (7.59%)
Nick Toons (4) (5.06%)
A&E Biography (3) (3.79%)
Fox Soccer (3) (3.79%)
G4 East (3) (3.79%)
Nick Games (2) (2.53%)
Lifetime Movies (2) (2.53%)
FXM (2) (2.53%)
Toon Disney (2) (2.53%)
MTV 2 (2) (2.53%)
y-labels: Channel Total
Done


http://jchen-pc:8080/managementconsole/loadERMServiceGroupUsageDetails.action?sgId=899&deployme - Windows Internet Explorer
http://jchen-pc:8080/managementconsole/loadERMServiceGroupUsageDetails.action?sgId=899&deployment=deployment1&
File Edit View Favorites Tools Help
Comcast Denver Panama MC
C-COR Engineering Dev SDV MC
Panama from Comcast
QA MC
Home | About | User Guide | Log Out
Management Console
System
Home
System Configuration
System Events
Reports
User Guide
deployment1
ERM - erm1
ERM Dashboard
Edge Device
Service Group
Qam Allocation
Configuration
SDV-SM - sdvsm1
Shared Config
deployment1 - erm1 - Service Group Activity
Back
Last Updated 07/26/2007 01:12 PM
Select Service Group
Service Group : 899
Submit
Service Group Summary
Region Beaverton
ID 899
Number of Qams 2
Active Reclaimable
Active Bandwidth 4 Mbps (5%)
Reclaimable Bandwidth 18 Mbps (23%)
Remaining Bandwidth 55.6 Mbps (72%)
Total Bandwidth 77.6 Mbps
Qam Summary
Expand All | Collapse All
Status QamId Tsid Edge Device Used Bandwidth Streams
Enabled 1251 1251 StreamingZone.Hub.134.242.162.156 (4 Mbps / 38.8 Mbps) 10 % 3
Channel Multicast Address PN Source Address Input Port Status Bitrate
Nicktoons 226.55.100.41:10041 157 134.242.190.26 134.242.190.33 Reclaimable 4 Mbps
Military Channel 226.55.120.56:12056 155 134.242.190.26 134.242.190.33 Reclaimable 4 Mbps
G4 East 226.55.77.95:7795 158 134.242.191.200 134.242.190.33 Active 4 Mbps
Enabled 1261 1261 StreamingZone.Hub.134.242.162.156 (0 Mbps / 38.8 Mbps) 0 % 2

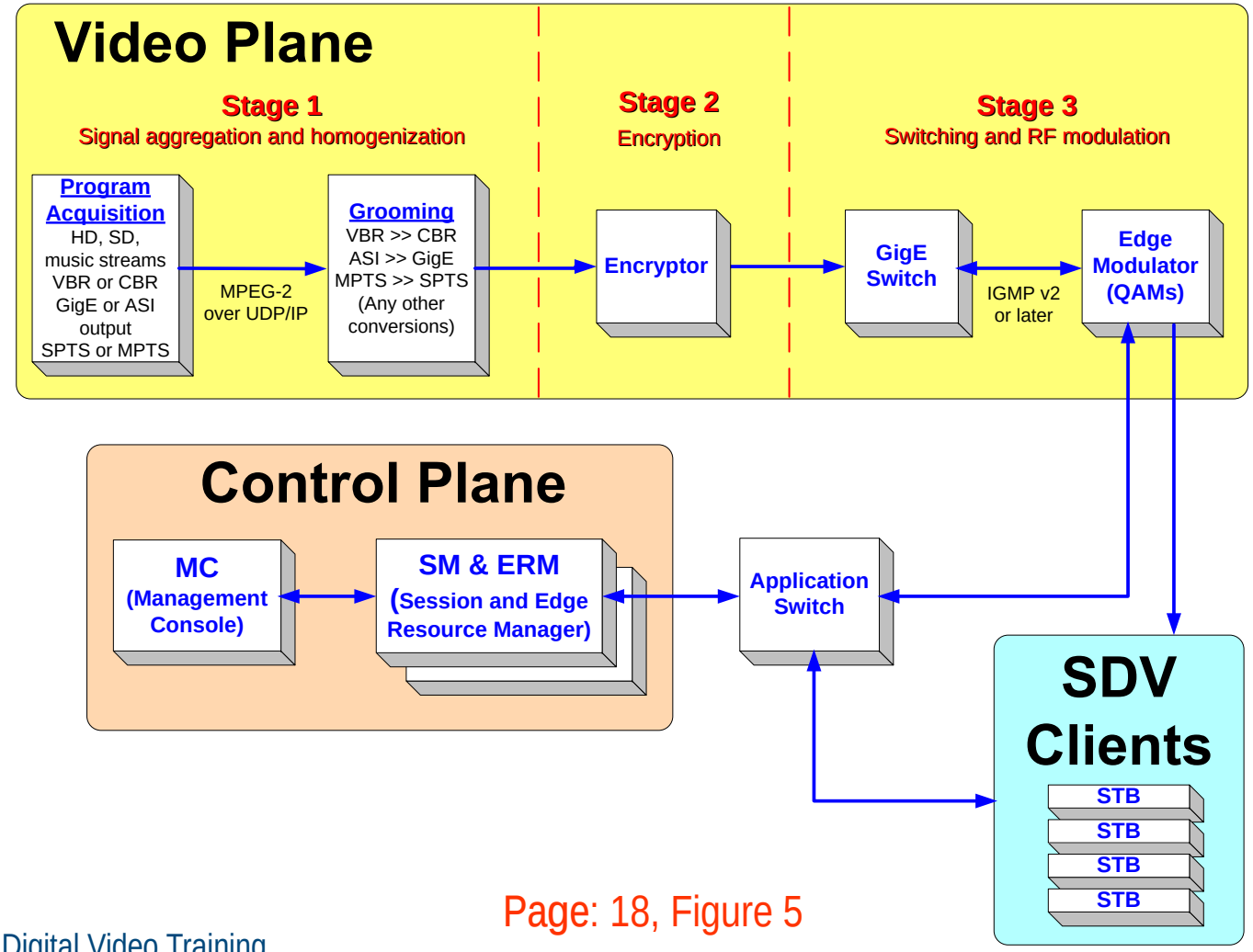
Role of the Session Manager (SM)

- Manages communication with the SDV client
- Tracks ALL switched services
- Monitors the state of every tuner within every STB
- Sends usage data to the Management Console for processing
- Receives configuration information from the Management Console, and adjusts accordingly
- Sends out the mini-carousel
- Directs the Edge Resource Manager to allocate/de-allocate bandwidth.

Role of the Edge Resource Manager (ERM)

- Processes requests from the SM to setup or teardown sessions on the edge device
- Supports the RTSP protocols (S6/D6/R6)
- Manages BOTH used and available bandwidth. (The “capacity” for bandwidth is in the QAM itself)
- Managers the process of both adding and deleting Edge Devices (eg., D5 edge QAM) from the resource pool

SDV System Components



Page: 18, Figure 5

SDV Servers

In the High-Availability configuration: 6 **total servers** in a basic SDV system

- The Management Console: 2 servers (one active, one standby)
- The SM: 2 servers (one active, one standby)
- The ERM: 2 servers (one active, one standby)
- Both SM and the ERM are clustered and utilize virtual IP (VIP)
- The MC, SM and ERM are high availability (HA) servers and are configured for failover.
- The MC, SM and ERM constantly communicate, replicate information between each other

SDV Acronyms

- SM: Session Manager (Arris, Motorola)
- ERM: Edge Resource Manager (Arris, Motorola)
- MC: Management Console (Arris, Motorola)
- HA: High Availability
- VBR/CBR: Variable Bitrate, Constant Bitrate
- SD/HD: Standard Def, High Def
- ASI/DHEI: Async Serial Interface, ?
- GigE: Gigabit Ethernet
- SPTS/MPTS: Single Program Transport Stream, Multiple Program Transport Stream
- RTSP: Real Time Streaming Protocol (ERM <> Edge QAM)
- IGMP: Internet Group Multicast Protocol
- S6/D6: Comcast speak for “Session” and “Discovery” protocols

Questions?
Thanks!