THE VIDEO CONUNDRUM – MIGRATING TO IP VIDEO

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Agenda

▶ Why IP Video?

▶ What's holding it back?

▶ How can we make it happen?

Why IP Video?

▶ Changing consumer behavior

   – TV anywhere, any time, any device

▶ Support new video experiences / services

   – Tablet/Smartphone + Main Screen

   – Advanced Advertising

▶ RF spectrum efficiency

   – Advanced codecs (H.264, H.265) reduce channel counts

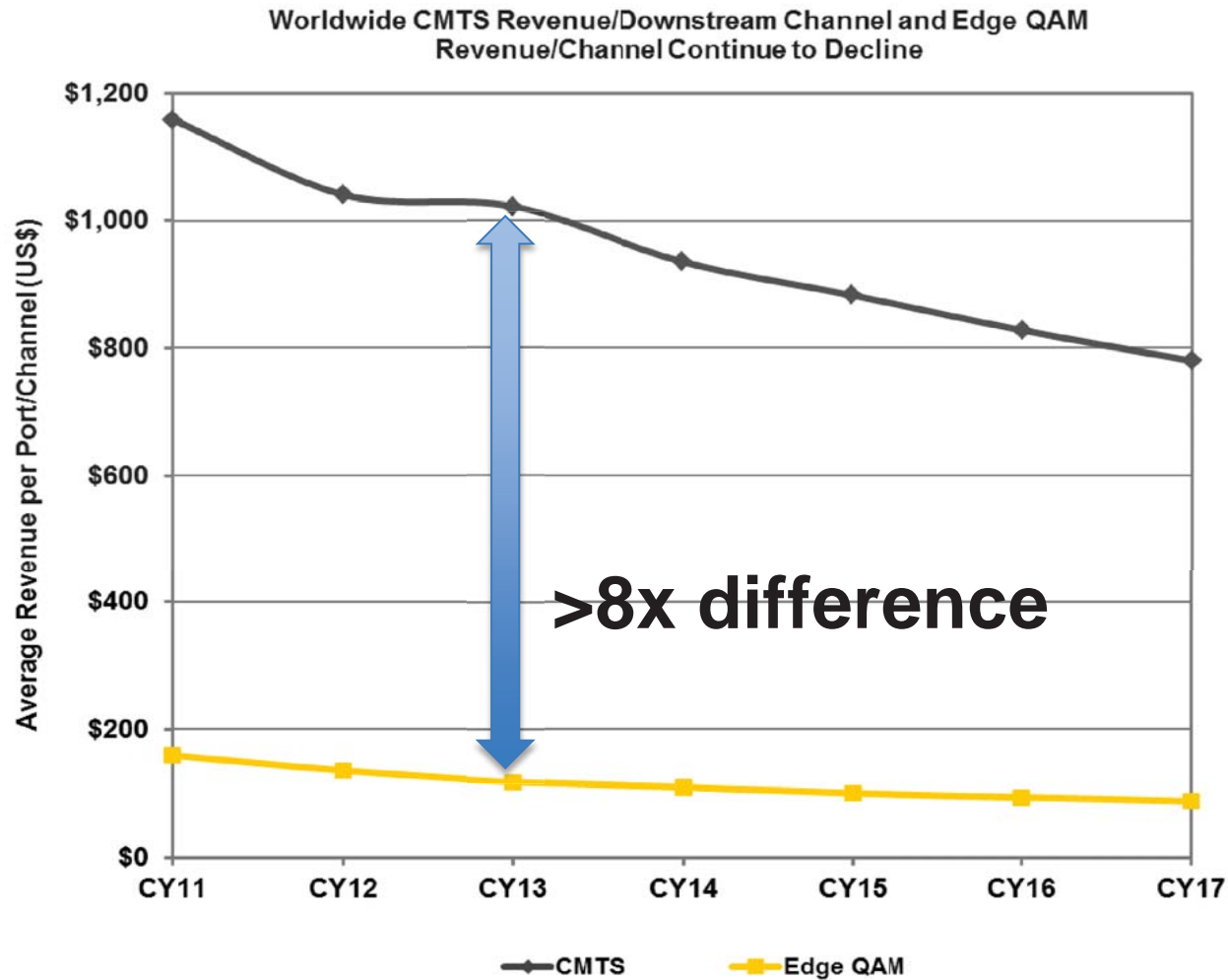▶ Insatiable consumer demand for bandwith

What's holding it back?

Cable Access Infrastructure Challenges

- ▶ DOCSIS Costs
- ▶ Capacity Requirements
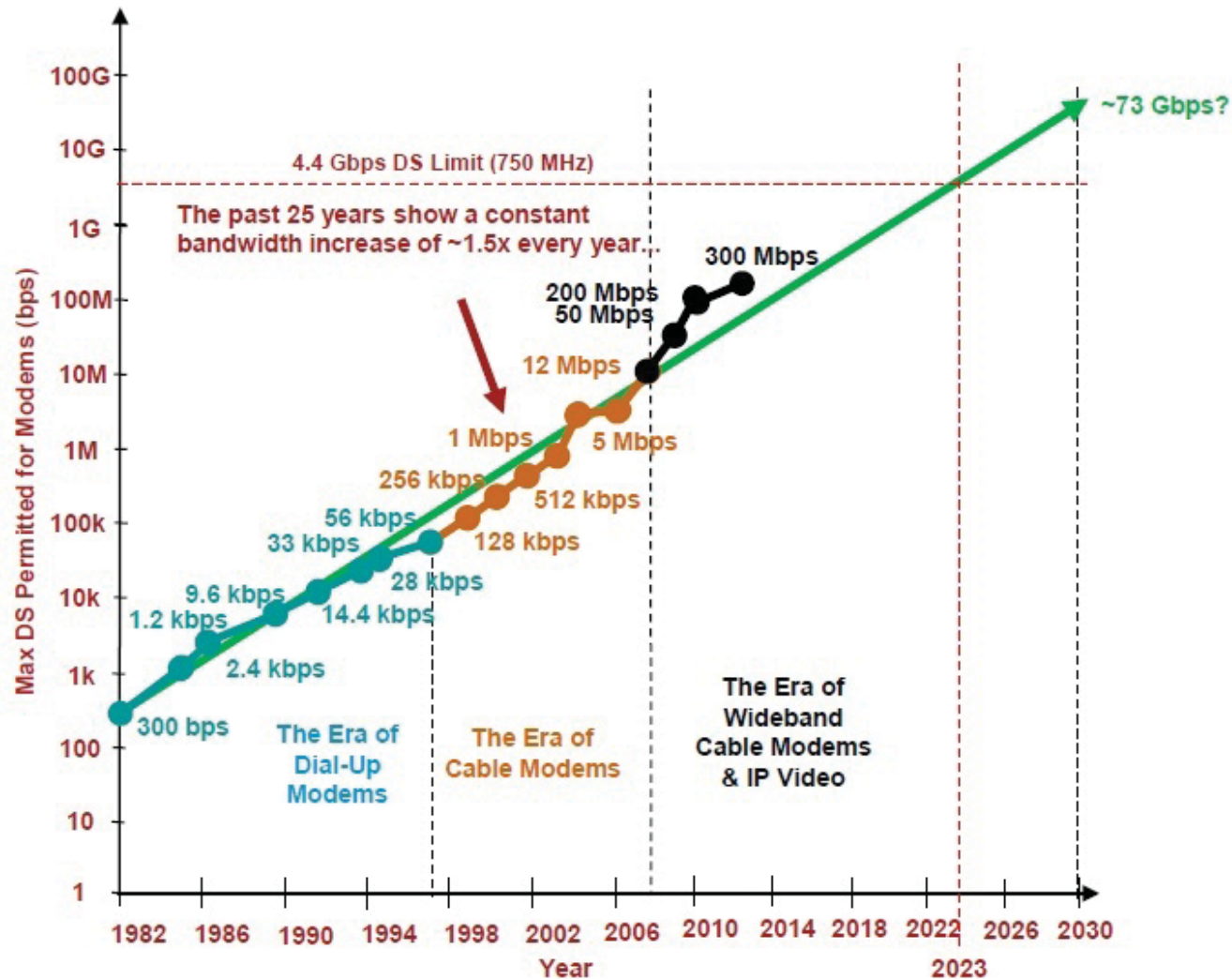- ▶ Facilities Challenges

DOCSIS vs. Video Costs

Worldwide CMTS Revenue/Downstream Channel and Edge QAM Revenue/Channel Continue to Decline

>8x difference

Bandwidth Demand – Nieilsen's Curve

Channel Allocation – IP Video Transition

Legend:
- ■ Legacy MPEG-TS DVB Broadcast Channels
- ■ Legacy MPEG-TS/DVB SDV + VoD Channels
- ■ DOCSIS Advanced Digital Cable Channels
- ■ DOCSIS HSD Channels
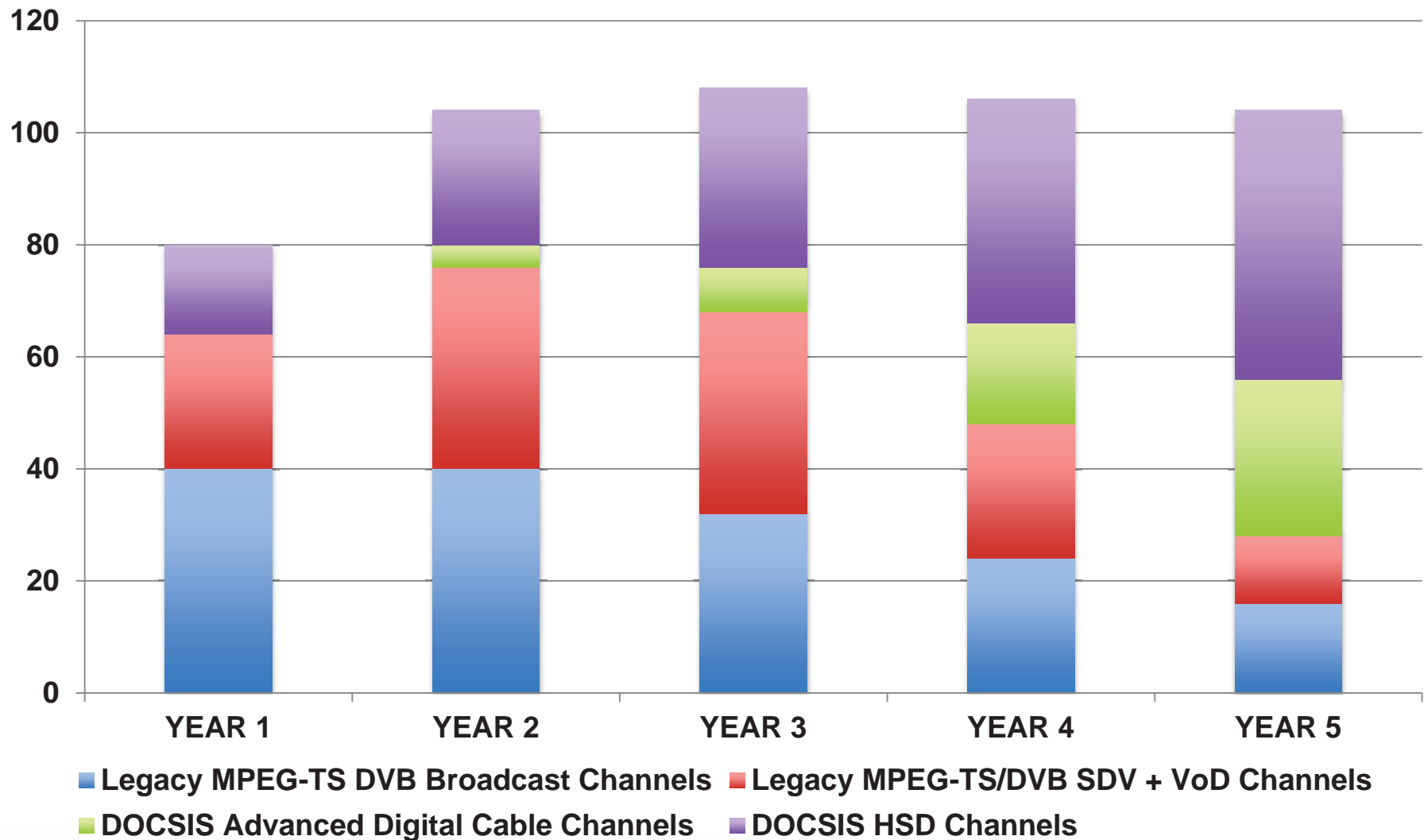
Facilities Challenges

CMTS + EQAM Requirements for 360 SGs
36 SGs per CMTS; 2 CMTS per rack

Row 1	EQAM EQAM	EQAM EQAM	EQAM		
Row 2	CMTS CMTS	CMTS CMTS	CMTS CMTS	CMTS CMTS	CMTS CMTS

Facilities Challenges

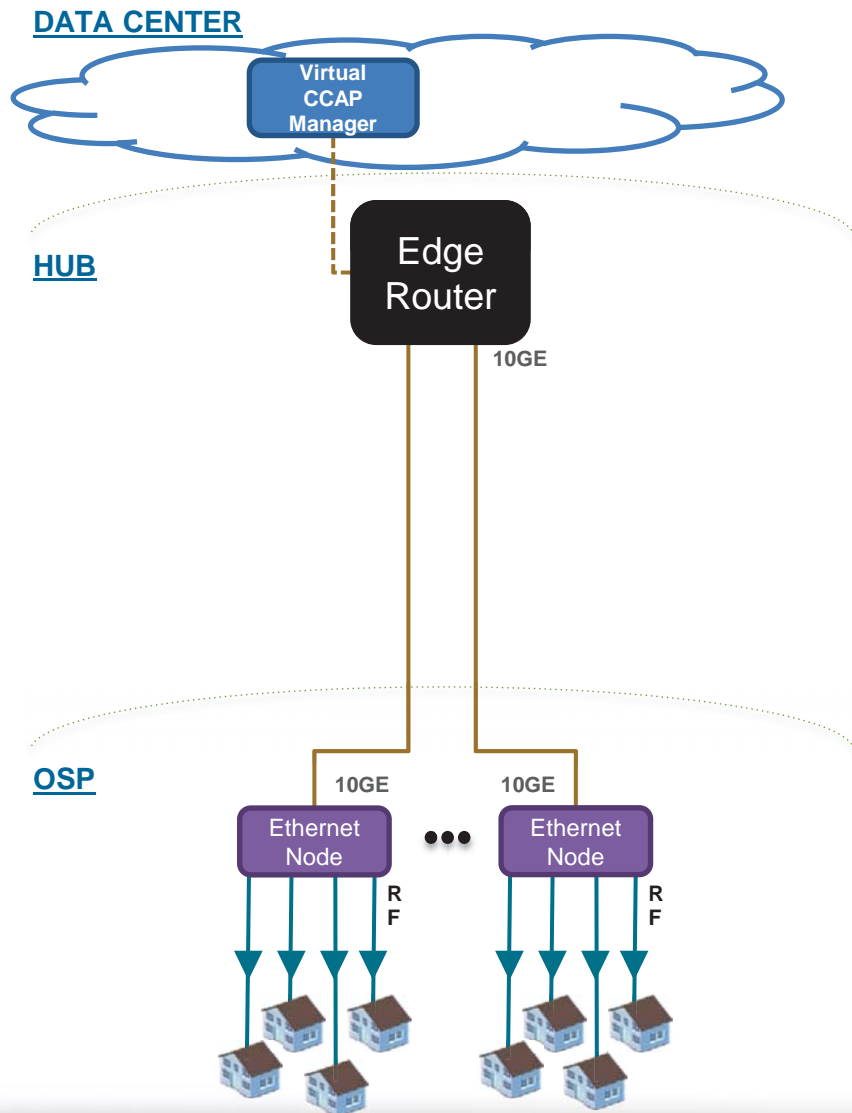## CCAP Requirements for 4,320 SGs
40 SGs per CCAP; 2 CCAPs per rack

Solution – Virtual CCAP Architecture

DATA CENTER

Virtual CCAP Manager

HUB

Edge Router

10GE

OSP

10GE   10GE

Ethernet Node   • • •   Ethernet Node

R F   R F

- **Vision**
  - Re-think HFC network construction
    - Distribute processing and centralize control
  - Eliminate duplicate functionality in the end-to-end service delivery chain
  - Leverage technologies from the broader telecommunication industry

- **Benefits**
  - Maximize scalability
  - Minimize space and power
  - Leverage industry standard compute components
  - Improve RF performance
  - Lower total cost

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