



3 Tips to Accelerate Your IP (ST2110) Migration

IPShowcase at NABShow 2022

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Distributed, Remote and Cloud IP Production has Accelerated

This is pushing Studios to move to IP as the lines between remote, campus and studio locations are blurring



IP infrastructure provides the backbone that allows signals, both compressed and uncompressed, to interconnect – removing distance limitations of legacy signal transport

Omdia
37%

Set to embrace remote production
in 2019 – COVID has pushed higher

3 Tips for IP Migration

Three fundamental bits of knowledge that will help ease the migration to IP



Tip 1

Define Your Network
Architecture Well



Tip 2

Timing is Critical
for IP

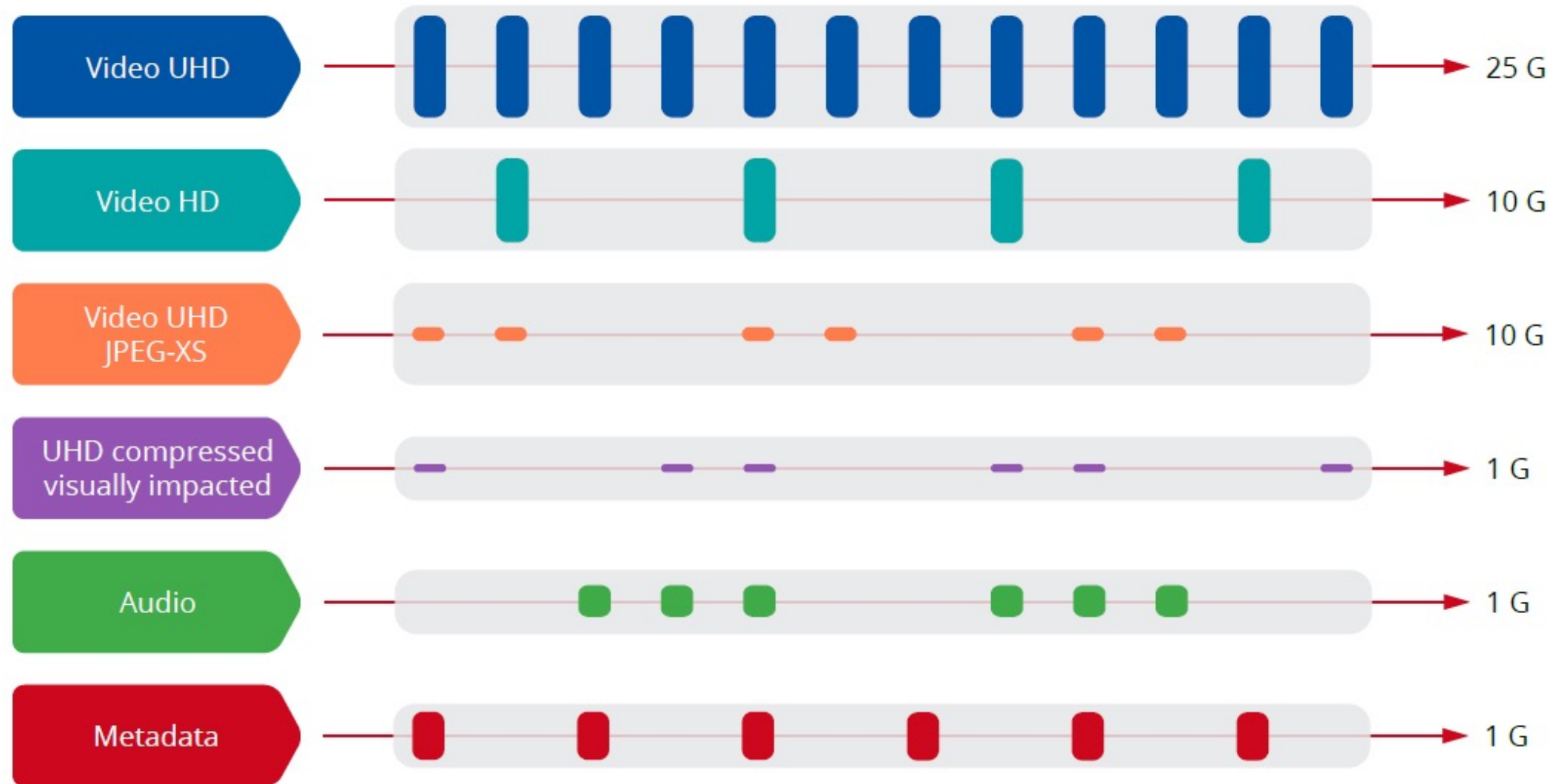


Tip 3

Find and Use the
Experts

TIP 1 :
Define Your
Network
Architecture Well

Types of Media

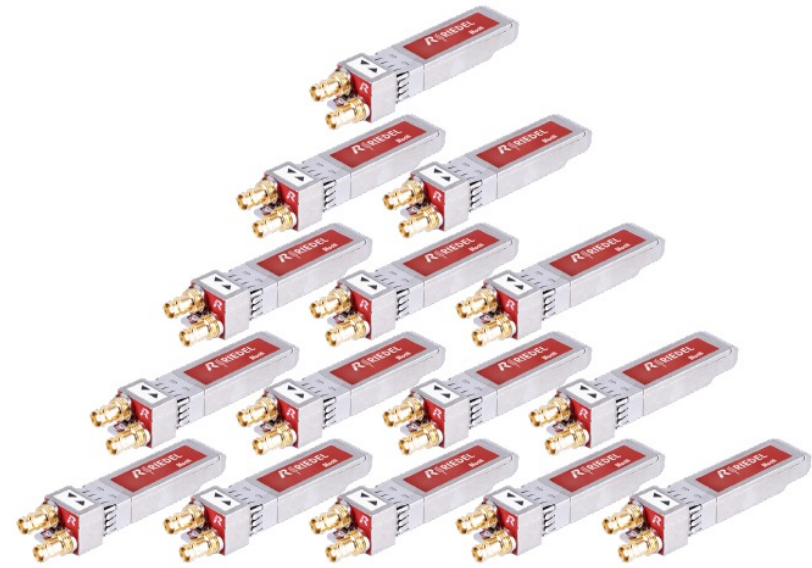


Number of Streams



One

OR



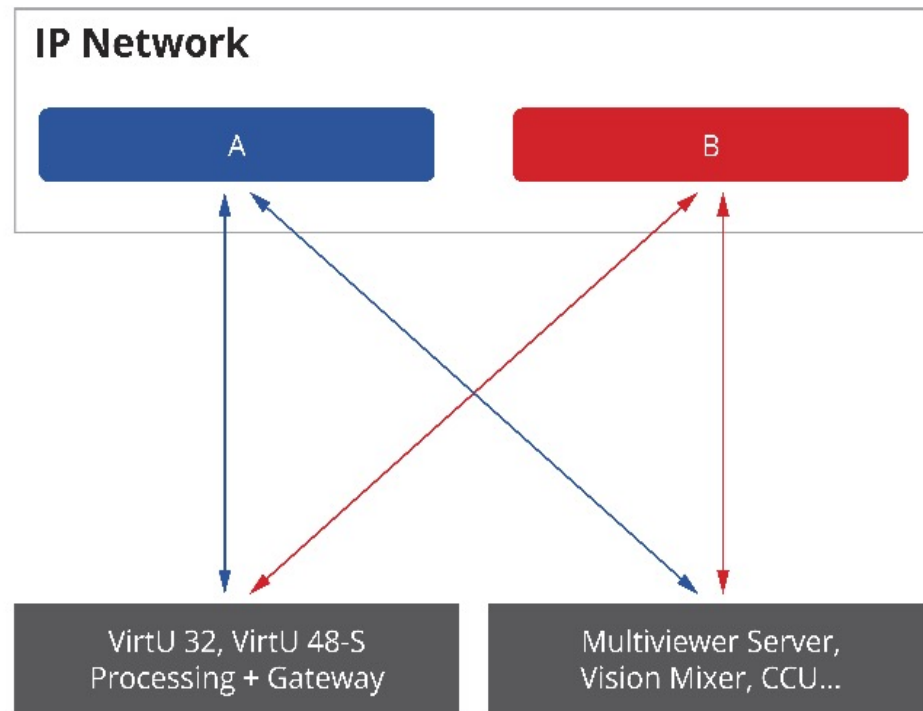
Many

Location and Available Bandwidth & Quality

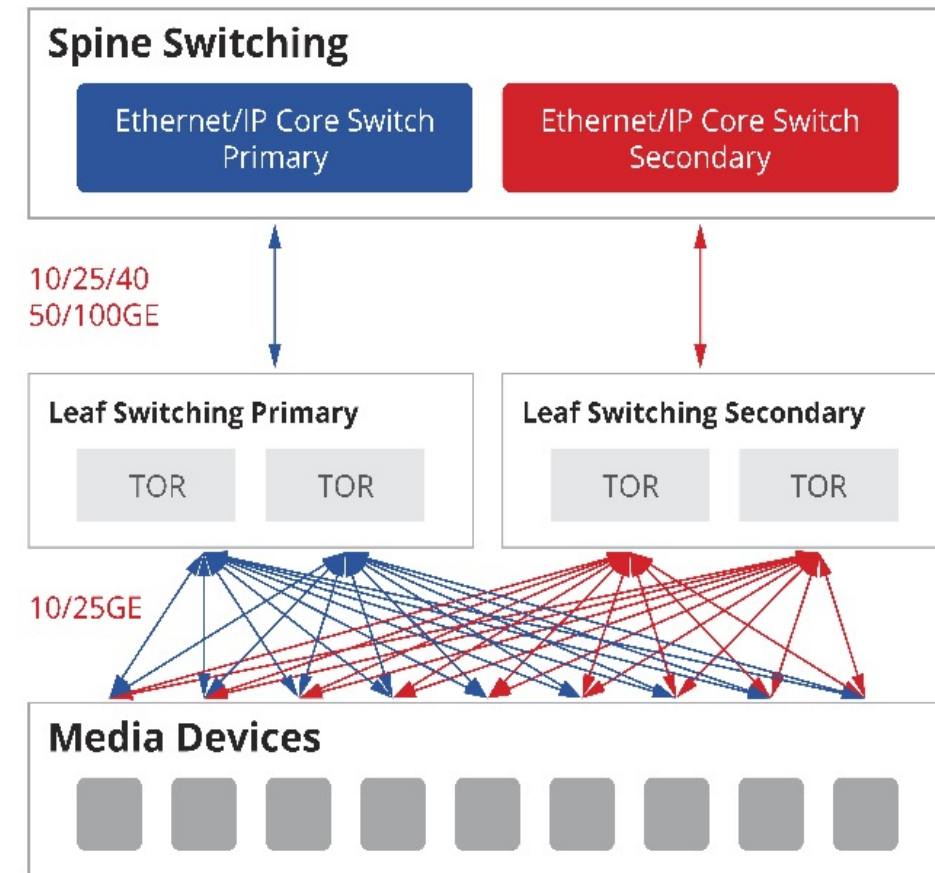
Broadband Internet	MPLS	Internal Lan	Dark Fiber
• Latency : 10 -450 msec • Jitter : 40 msec • Packet Loss : 2% • Speed : < 1.5 Gbps	• Latency : 1 -50 msec • Jitter : 1 msec • Packet Loss : 0% • Speed : < 10 Gbps	• Latency few usec • Jitter : few usec • Packet Loss : 0% • Speed : up to 400 Gbps	• Latency : 5 usec • Jitter : 0 msec • Packet Loss : 0% • Speed : < 100 Gbps
• Compressed • FEC or ARQ (RIST, SRT, ZIXI)	• Compressed • FEC or ARQ (RIST, SRT, ZIXI) • ST2022-7 (comes with cost)	• Uncompressed • ST2022-7 (for maintenance)	• Uncompressed, SDI

Spine-Leaf versus Monolithic

Monolithic

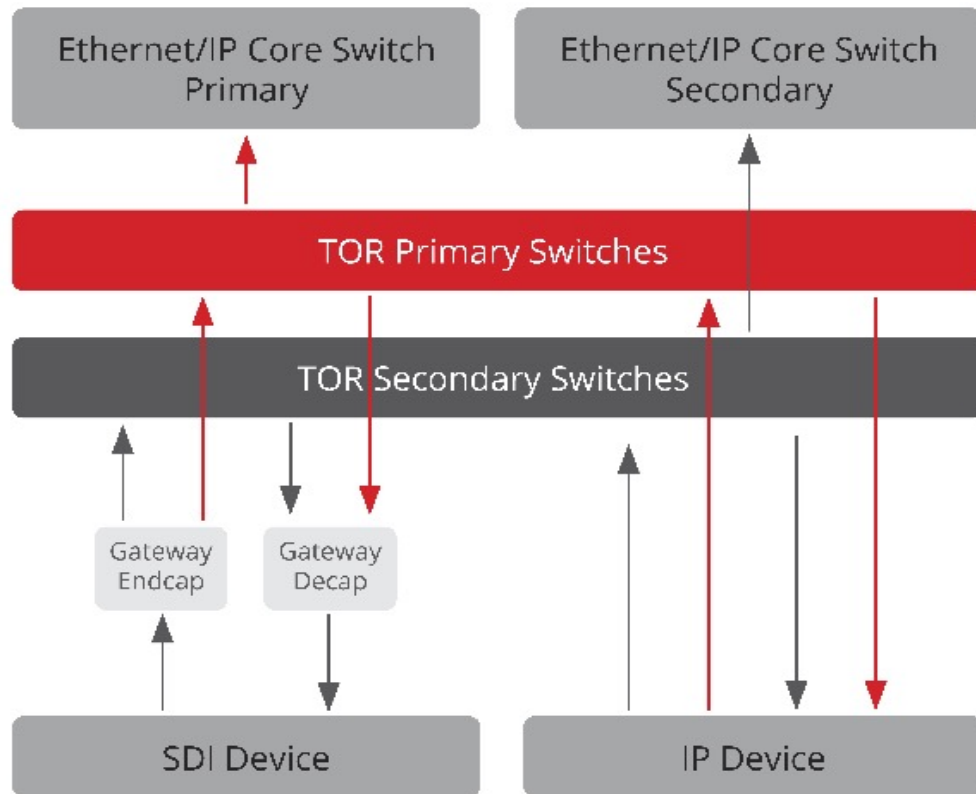


Spine-Leaf

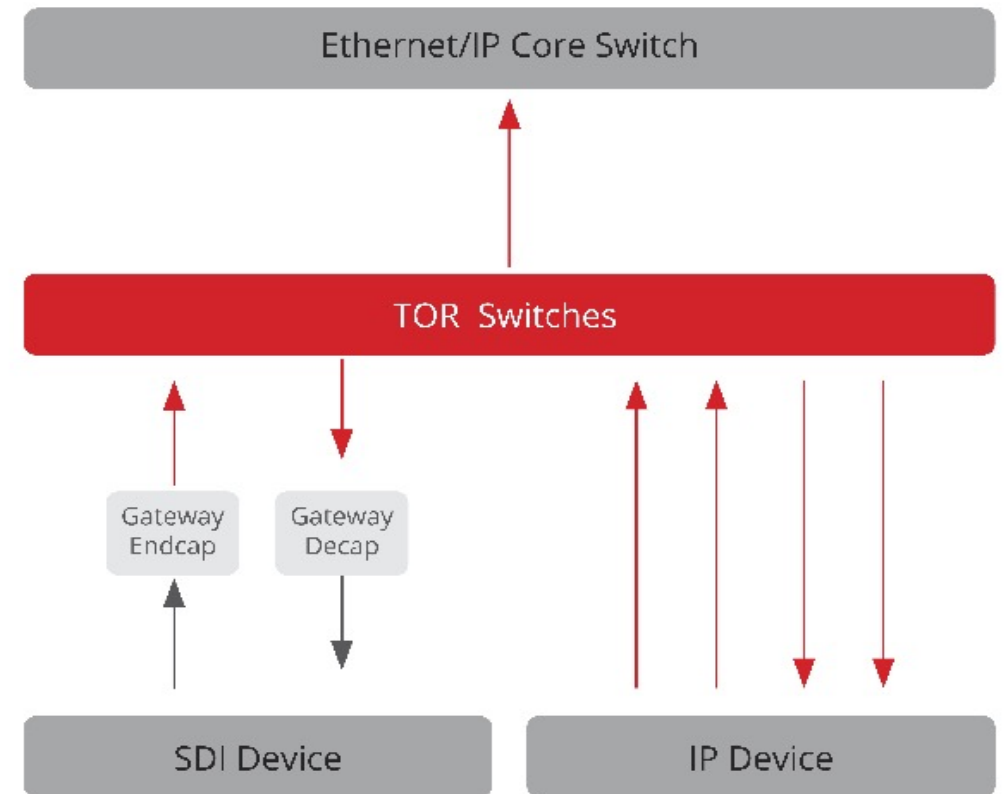


Redundant versus Non-Redundant

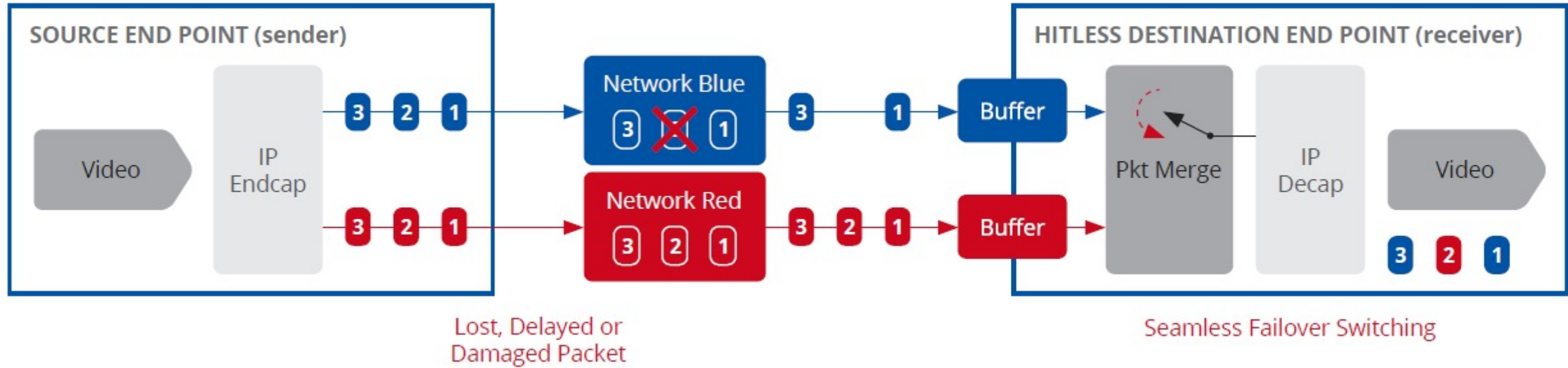
Fully Redundant Topology



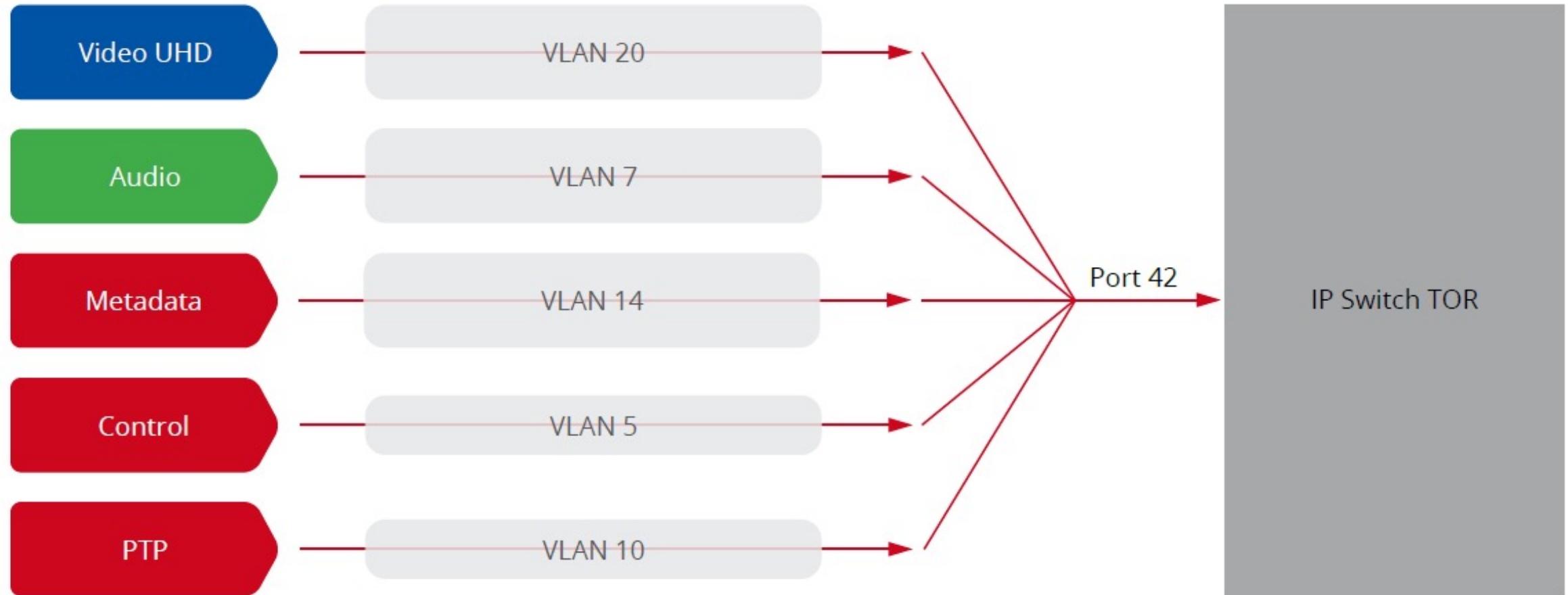
Non-Redundant Network



Redundancy Explained

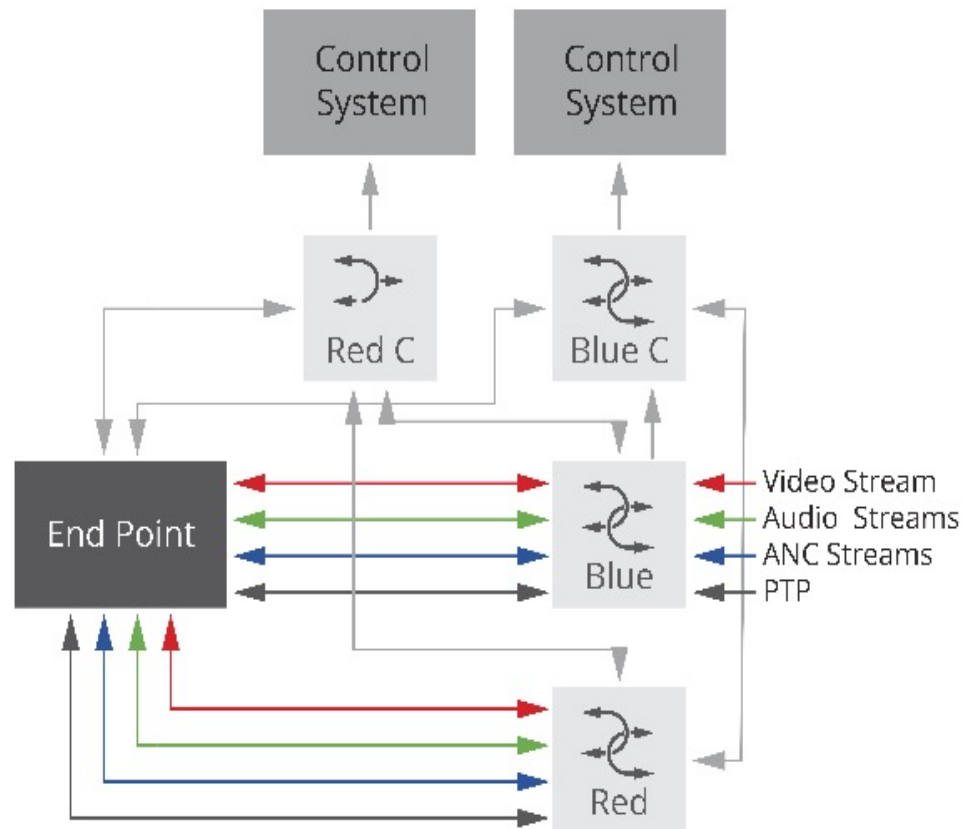


VLAN

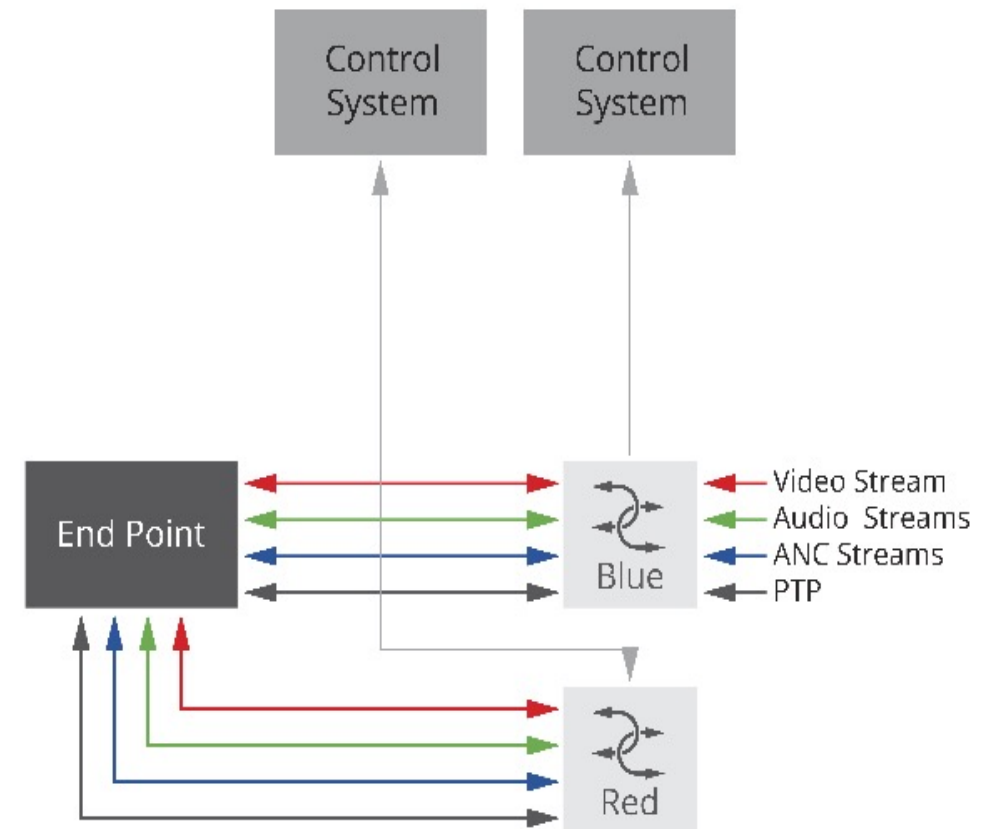


OOB versus In-Band control

Out-of-Band Control

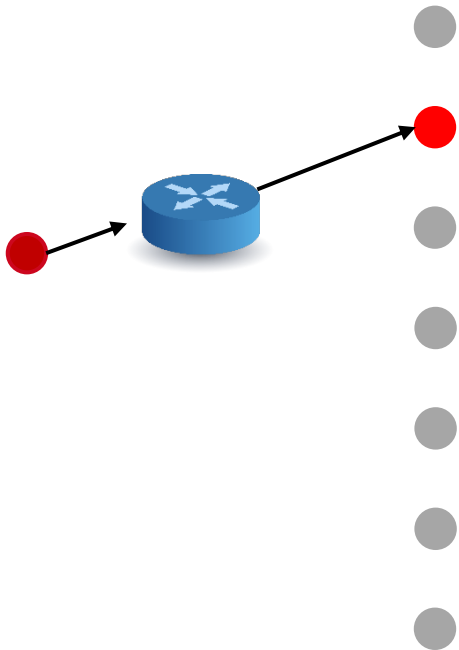


In-Band Control

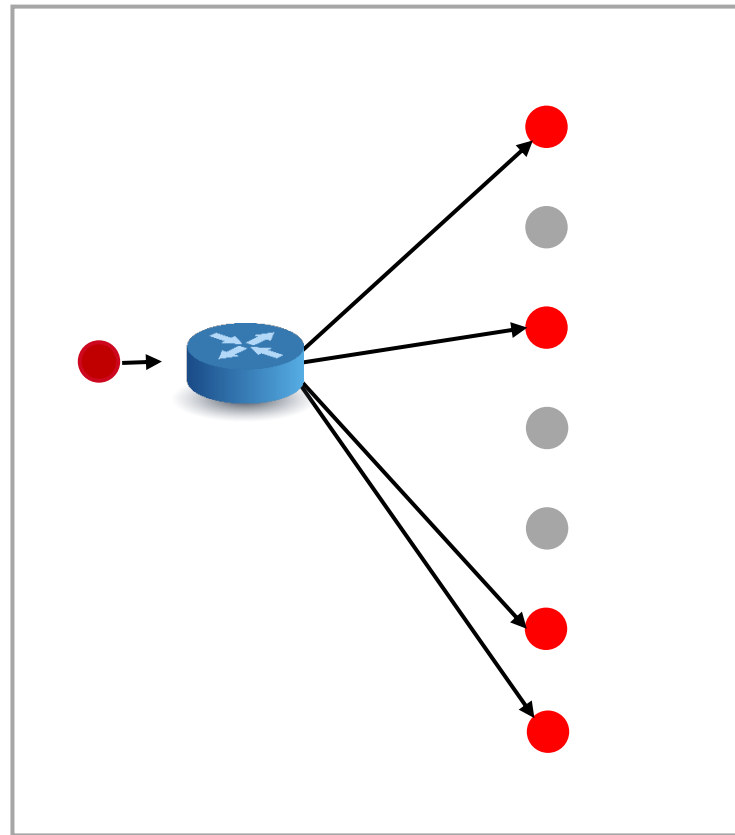


Multicast traffic handling, IGMP, PIM or SDN

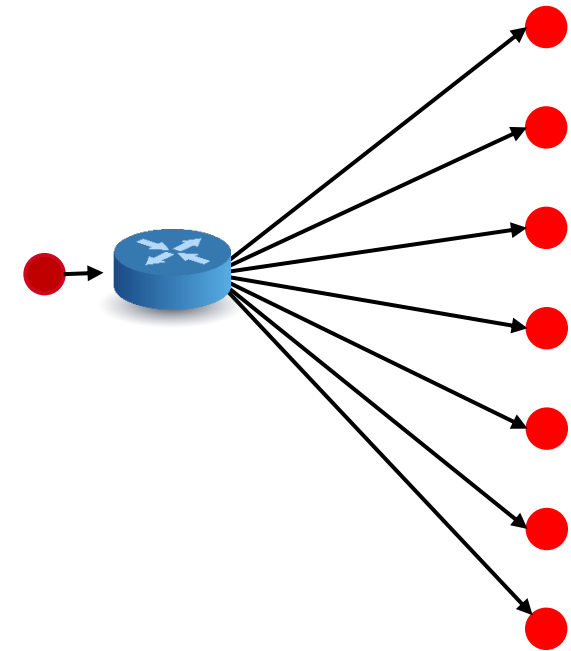
Multicast



Unicast



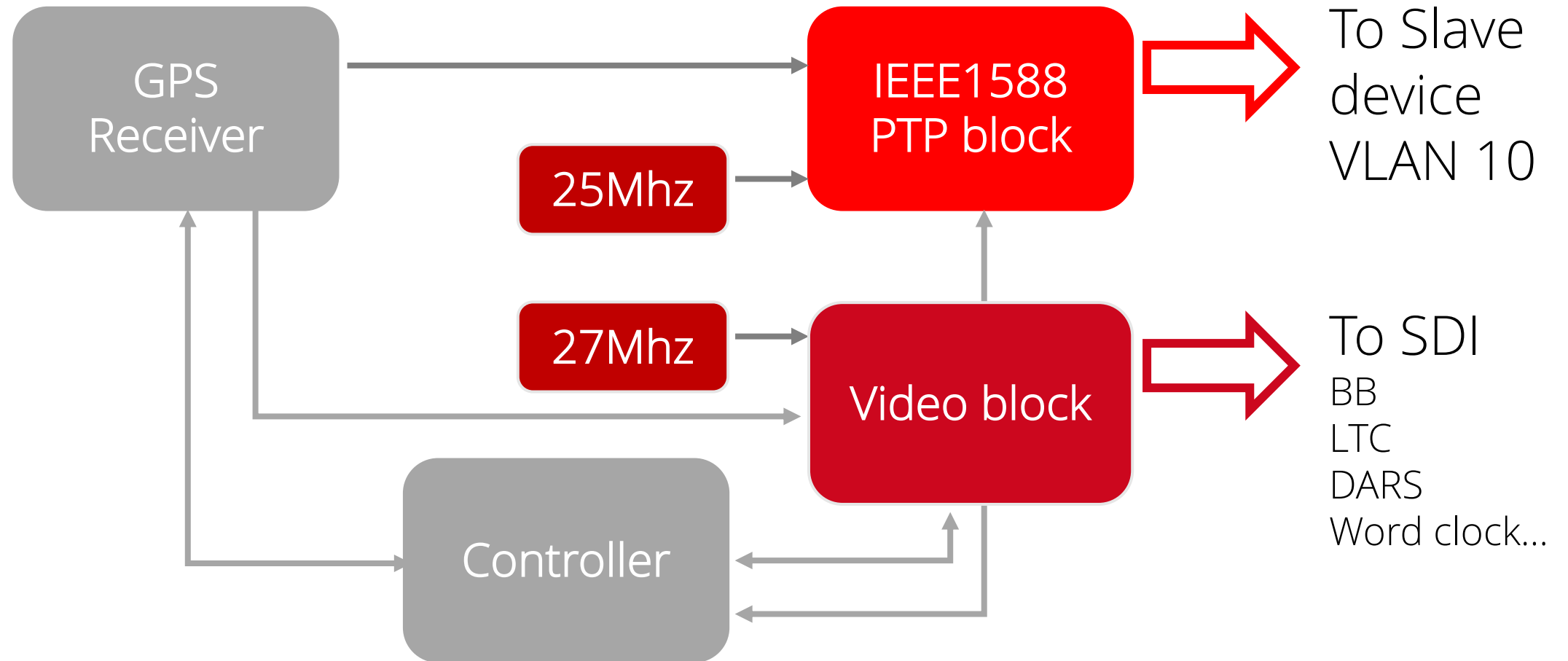
Multicast
Can flood network switch



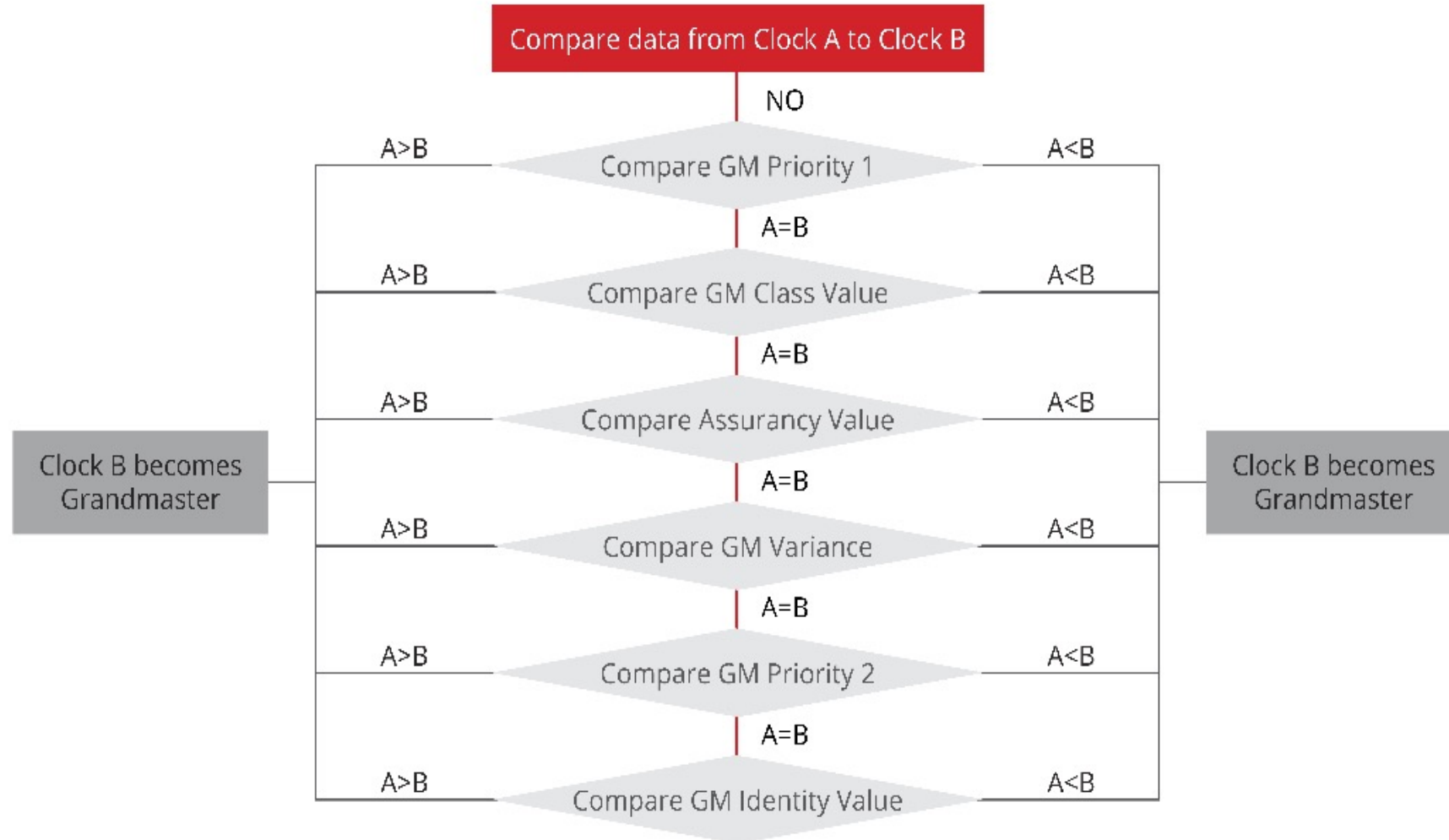
Broadcast
Can flood network switch

TIP 2 :
Timing is Critical
for IP

SPG with PTP grand masters

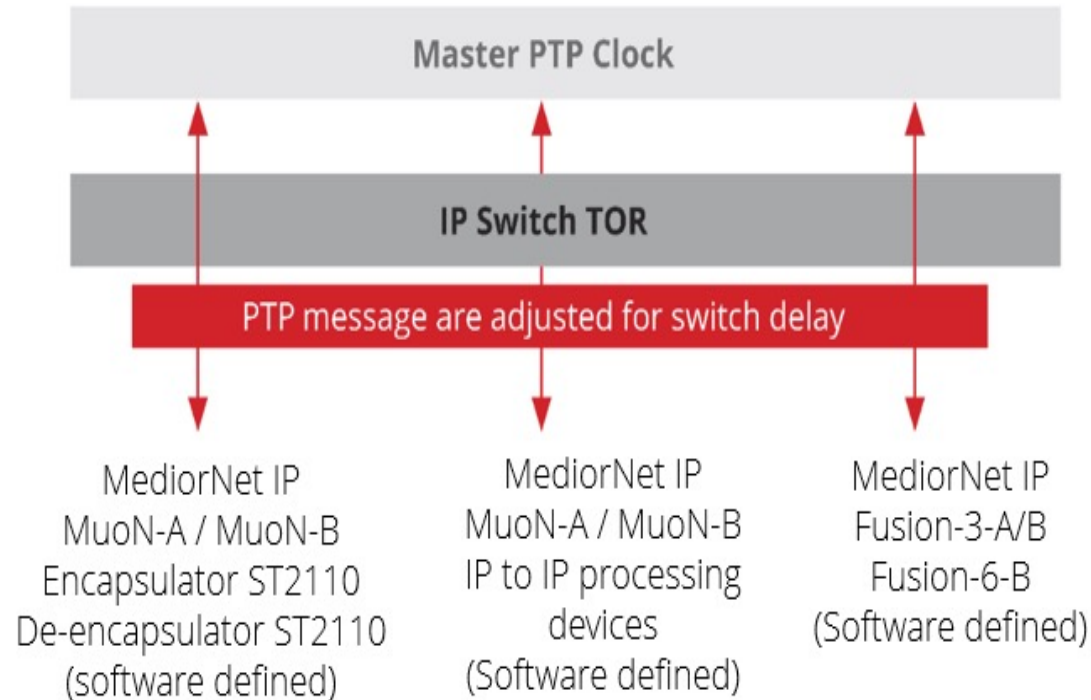


BMCA Decision Criteria

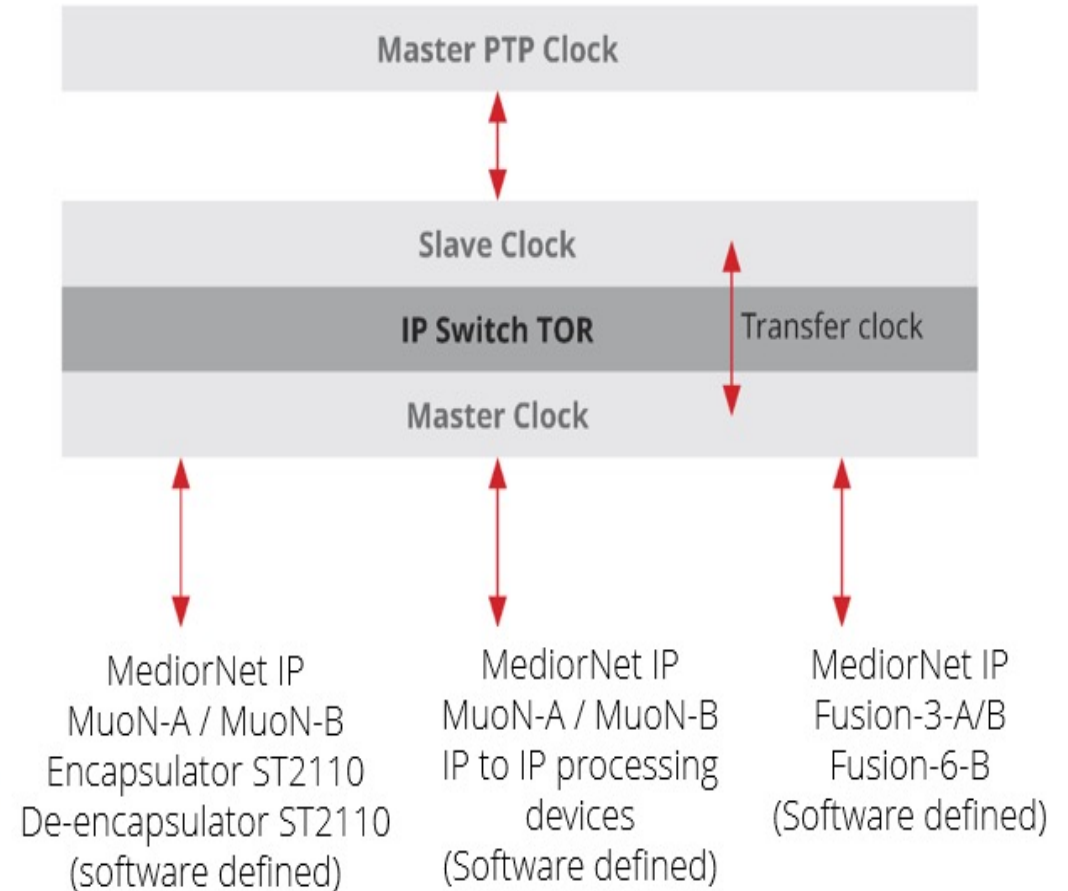


Transparent versus Boundary Clock

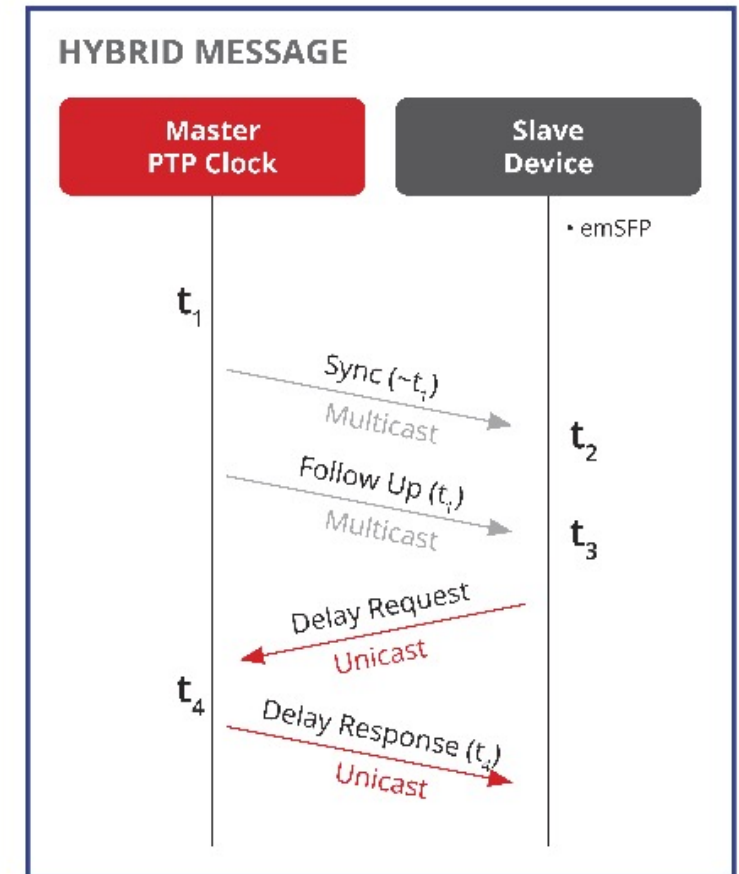
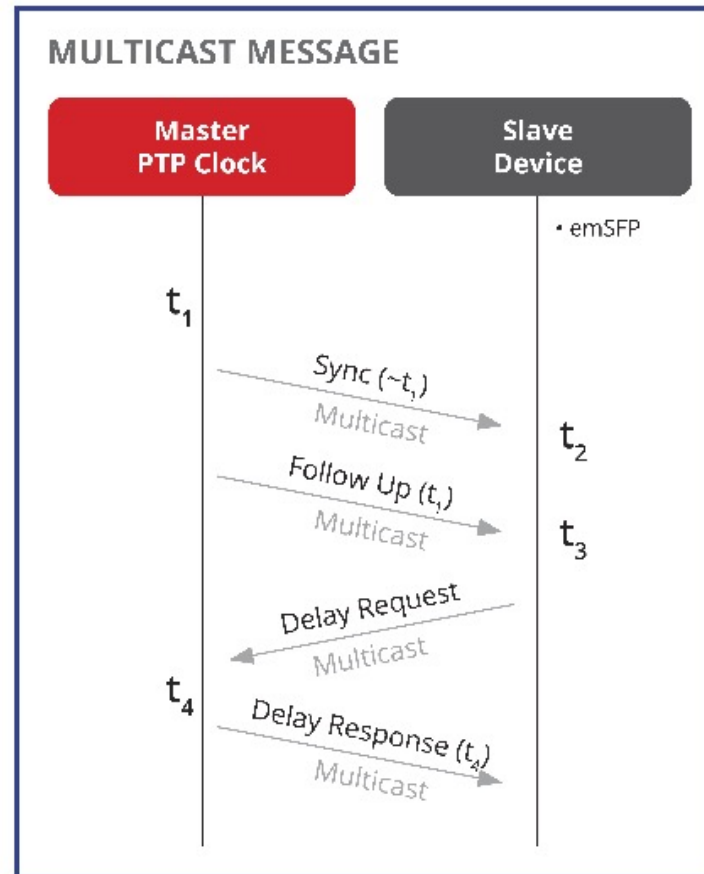
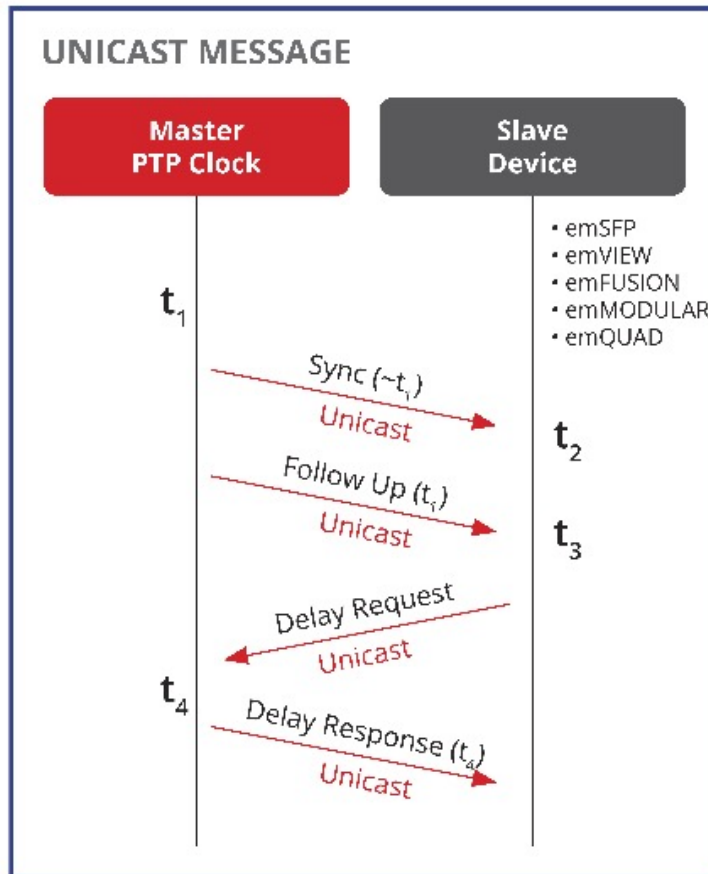
Transparent Clock System



Boundary Clock System



Type of PTP messages



TIP 3 : Find and Use the Experts

The Expert Partners

Both Manufacturing of Audio and Video Equipment and Network Equipment, plus a System Integrator(s) to pull it together



Manufacturers

Video and Audio Product
Manufacturers

System Integrators

System Integrators, that work
for and/or with manufacturers
and the clients

Manufacturers

Network Switch and
Fiber/Cabling Manufacturers

Training

Need to know BOTH AV and Network

- Hybrid IP Network/Media Engineers
 - For an IT person, bandwidth is the concern.
 - For a Media person, bandwidth, packet drop, and Latency are the concern.
 - Cross training between IT and Media is needed



Summary of 3 Tips for IP Migration

If you start with these, the transition is simpler and smoother



Tip 1

Architect Your
Network Well



Tip 2

Timing is Critical
for IP



Tip 3

Find and Use the
Experts

Q&A
Thank You!

