Why AV Teams Want Networked Infrastructure & How to Help Them

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CHURCH IT NETWORK

“The Three E’s”

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“The Three E’s”

Anticipating and managing unspoken expectations.

“The Three E’s”

When I ask you what you want...

Exciting	- You didn’t think of these things. - Can be a new way to address Expressed or Expected goals.
Expressed	- This is your answer to my inquiry. - Typically your idea of how to solve your current problems.
Expected	- You assume I already know these things. - Thought of as industry or common knowledge. - Failure here negates performance against Expressed goals.

VoIP vs Audio Networks

Measurement	IT VoIP Call / IT Traffic	Audio Channel
Tx Method	Mostly Unicast & Broadcast	Mix of Unicast & Multicast
High Bandwidth	30 Kbps (typical voice)	1,700 Kbps (48kHz, 24-bit)
Low Latency	≤150msec (45msec)	≤5 msec (0.25-1.0msec)
Synchronous	No (Quality changes on the fly.)	Yes
Security	Certificates, Dynamic Assign	None

A 96x48 stage is like 8,064 simultaneous phone calls with 100x tighter tolerance.

Redundant (Duplicate) Network

Wrong Idea: We Do Not “Failover”

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Redundant Is “Full Time”

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Turn Off EEE

(Also known as Green Ethernet, Energy Efficient Ethernet, 802.3az)

0100 . . . . . 1100 . . . . . .

. . . . 1100 . . . . 0001 . . . . .

. . . . . 0111 . . . . . .

0100 . . 1100 . . 1001 . . . . .

UDP broadcast
QoS TCP
unicast
PTP multicast
IGMP Snooping

1100 . . 0010 . . . . 1011 0001 . . 1101 . . 1111

802.11az
(EEE)

Common Issue: Daisy Chain

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Tip: Set Up Secondary First

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Tip: Establish “Workgroups”

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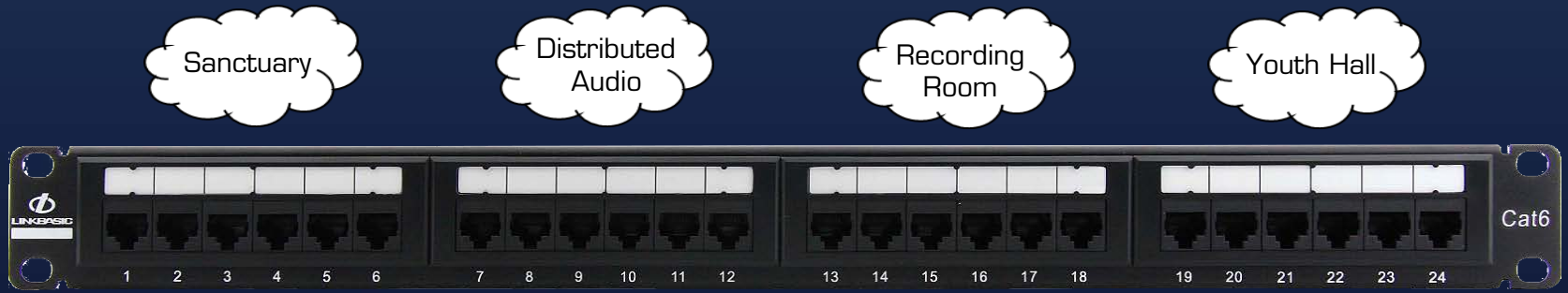
This does not require more switches.

This can be accomplished with VLANs and
Trunk Lines with negligible bandwidth impact.

Linking Systems (Familiar Patchbay Concept)



Link Networks Together

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Strategy: Prevent IP Conflicts

Link Local could easily produce duplicate IP addresses in a modular network design.

Using Static IP Addresses

LAN Range:
169.254. 1. x
172. 31. 1. x
Subnet Mask:
255.255. 0. 0

Sanctuary

Distributed Audio

LAN Range:
169.254. 3. x
172. 31. 3. x
Subnet Mask:
255.255. 0. 0

LAN Range:
169.254. 2. x
172. 31. 2. x
Subnet Mask:
255.255. 0. 0

Recording Room

Youth Hall

LAN Range:
169.254. 4. x
172. 31. 4. x
Subnet Mask:
255.255. 0. 0

Using Static IP Addresses

Bridging Networks

How do I bring in House Music feeds?
How do I feed Overflow Rooms?

Linking Everyone is One Big Network

Linking Everyone is One Big Network

Linking Everyone is One Big Network

Option 1: Bridge Through Audio Device

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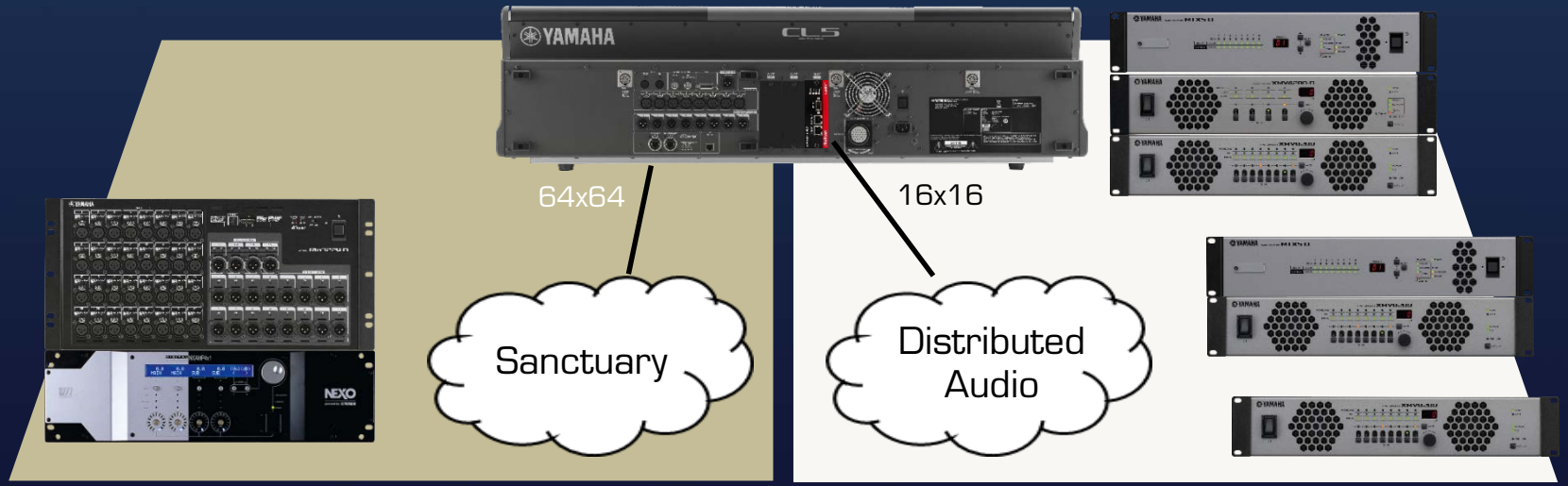

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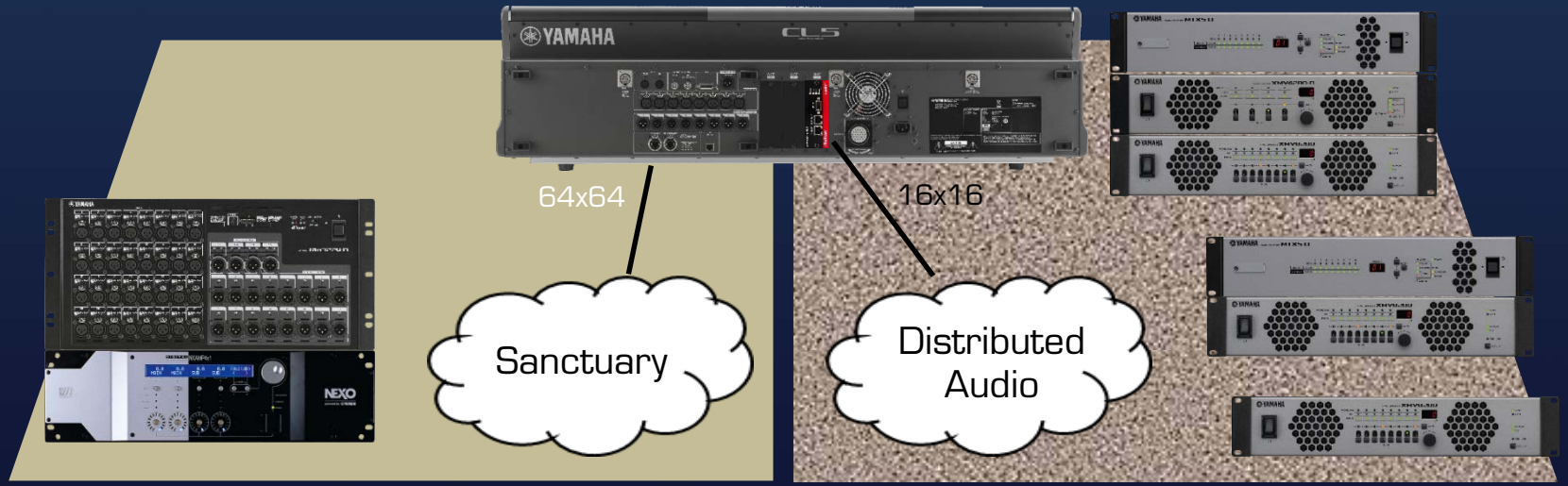

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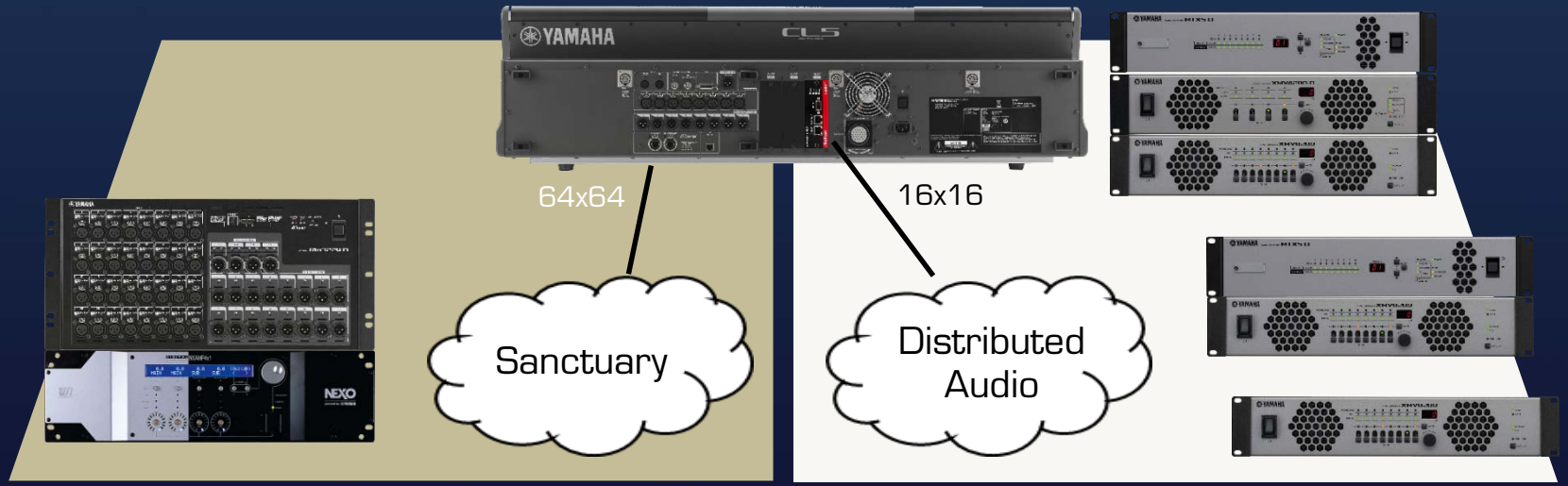

Option 2: Create a Dedicated Bridge

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Engage Sample Rate Conversion to localize clocking setups

Option 2: Create a Dedicated Bridge

Combining Techniques

Can I combine linked and bridged networks?

Linking + Bridging Networks

Linking + Bridging Networks

Isolating Networks

Can I lock out patching to the main PA DSP and amps?

Isolating Networks

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