

MAKE THE RIGHT CONNECTIONS

125TH AES CONVENTION

Bridging IEEE-1394 and Ethernet AV

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IEEE-1394 / Ethernet AV bridging Overview

- **Topics Covered:**
 - What is it?
 - Why use IEEE-1394?
 - How does it work?
 - When?



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What is it?

- Bridging Ethernet AV and IEEE-1394 allows using existing shipping devices with new media friendly Ethernet technology
- Leverages investment in existing hardware and software
- Co-exists with new devices going forward



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Problems with IEEE-1394

- Limited to 63 devices per bus
- Limited distances
- Incompatible devices on same bus



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Some solutions

- Long Haul Repeaters
 - IEEE-1394 over Cat5
 - Optical
- IEEE 1394.1
 - More devices
- IEEE-1394 over coax
 - AVC over IP
- Multiple interface cards



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Why Bridge 1394 to Ethernet AV?

- Apple is a big supporter of High Speed Serial Audio interfaces
- Support for existing IEEE-1394 devices
- Use Ethernet AVB for long haul and IEEE-1394 for the last meter (or two)
- Increase the number of connected devices



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IEEE-1394/ Ethernet AV Bridging Technology

- IEEE-1394.1 (concepts)
- 1394 UWB over coax Part 3: FCP and CMP over IPv4 Specification
- Ethernet AV
- Bonjour (Zero Config)
- IEEE-1394 Proxy
- AVC Controller



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IEEE-P1722

- CIP based packet format
 - Added Ethernet header
 - Presentation time in nanoseconds
- Supports 61883-X formats
- Added a Quadlet for bridging
- Can be extended for other formats



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IEEE-1394.1 bridging

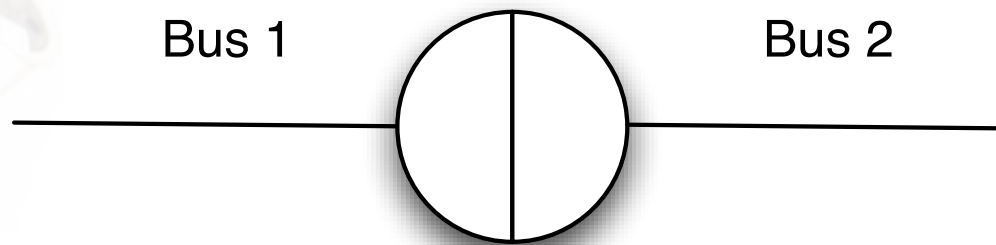
- Allows more devices
- Can extend the network by adding bridges
- AVC not bridge friendly



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1394.1 Diagram

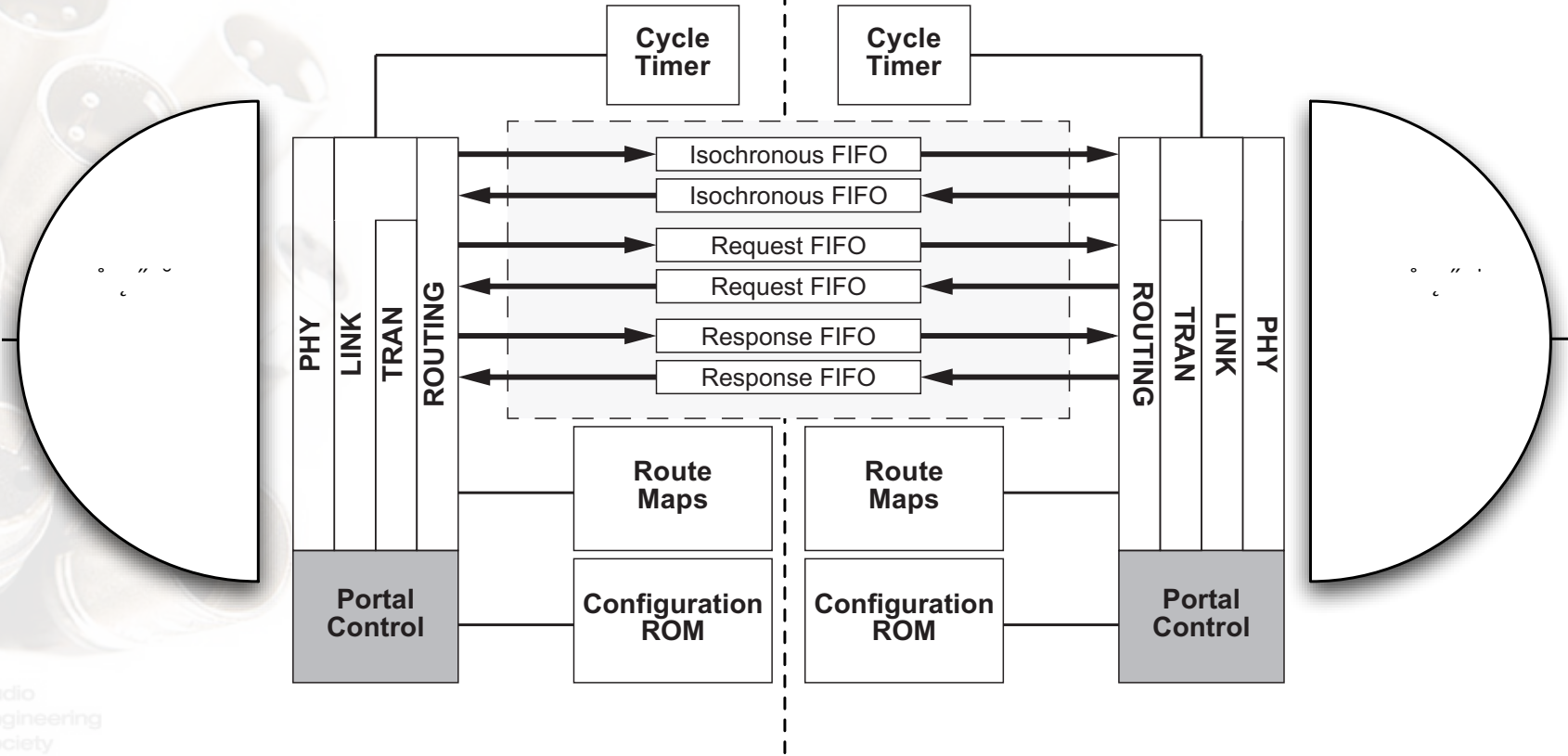


1394.1 Portal



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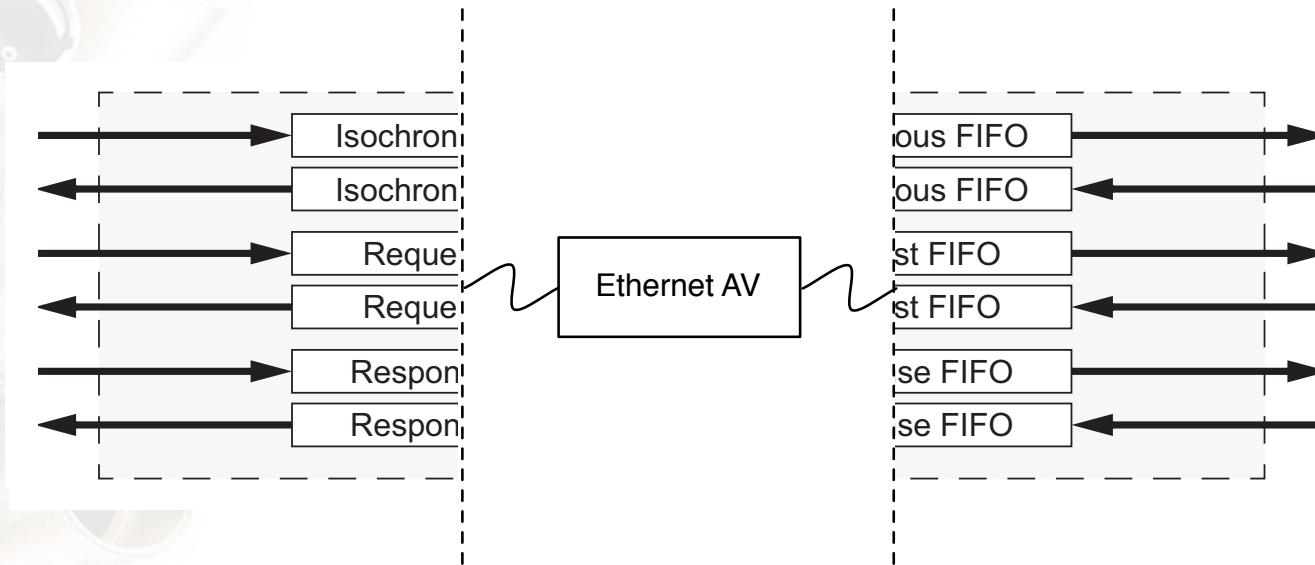


1394.1 Portal Expanded



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Split the FIFO across Ethernet AV



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IEEE-1394 UWB over Coax

- Started by wireless working group (1394ta)
- Relay agents help AVC clients
- Needs lots of bridges
- Part 3: FCP and CMP over IPv4 Specification



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Ethernet AV

- 802.1 AS
- 802.1 Qav
- 802.1 Qat
- IEEE-P1722 Annex B



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Bonjour

- Device Discovery
- Device Enumeration
- Zero Config



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AVC Controller

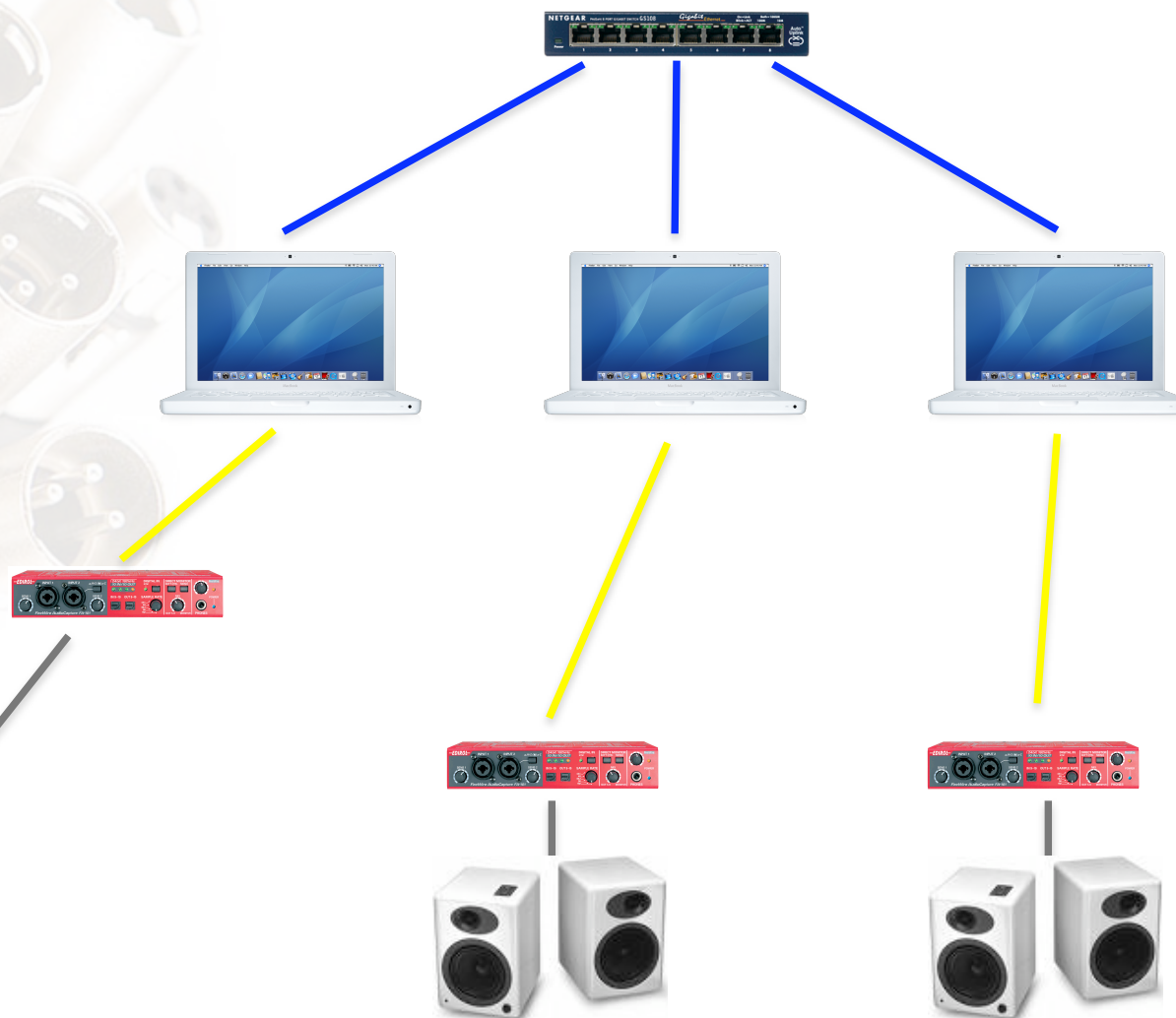
- Discovers devices
- Enumerates devices
- Connects devices
- Plug and Play
- Manages latencies



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Demo Setup



Audio Engineering Society



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Demo



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Technology used in Demo

- AVC Device Discovery
 - Bonjour based
 - AVC over IP
- Device Proxying
- FireWire / Ethernet Bridging



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When?

- We hope to have System Software available when 3rd party hardware is ready
- Will likely be implemented in stages
- Absolute Plug and Play
 - It just works™



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Q & A



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Thank You

Questions: email to
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