Synchronous Ethernet
Extending Ethernet Beyond Best Effort
Overview

- Description
- The “Five Criteria”
- Use Cases
- System Overview
Description

- A method of synchronizing frame distribution across an Ethernet LAN without compromising compatibility.
The “Five Criteria”

- Broad Market Potential
- Compatibility
- Distinct Identity
- Technical Feasibility
- Economic Feasibility
Broad Market Potential

- Consumer Electronics Applications
- Telecom Circuit Emulation
- Enterprise Content Distribution
- Pro-Audio Industry
- Extends Gigabit+ into New Markets
- Alternative to 1394b Solutions
Compatibility

- Ethernet Compatibility is Required
- Synchronous Mode is Negotiated
- No Sync Mode Below 1 Gbps
Distinct Identity

- Very Distinct Functionality
- High Value Add
- Natural Evolution for Ethernet
Technical Feasibility

- No Bridging
- No Segmentation
- No Change to PHY
- Minor Affect on System Requirements
- Minimal Buffering
Economic Feasibility

- Minor R&D Investment
- Major Product Value
- Economies of Scale (CE, IT, Telecom)
- Low Cost Solution for Expensive Problem
Use Cases

- Consumer Electronics
- (Pro-Audio)
- (Enterprise Distribution)
- (Telecom Circuit Emulation)
- (Industrial Operations)
Consumer Electronics

Next Generation AV Connector

1 to 1

1 to Many
System Overview

- Synchronization Cycle
- Sync Propagation
- Slot Forwarding
- Slot Reservation
Synchronization Cycle

**1000Base-T Standard Link**

- Async Frame
- Async Frame
- Async Frame
- Async Frame
- Async Frame
- Async Frame
- Async Frame
- Async Frame

**1000Base-T Synchronous Link**

- Async Frame
- Async Frame
- Async Frame
- Async Frame
- Sync Frame
- Sync Frame
- Sync Frame
- Sync Frame
- Sync Frame
- Sync Frame
- Sync Frame

1 Cycle (8 kHz)
Sync Propagation

Switch (STM)
Slot Reservation

Switch

Port 1
Port 2
Port 3
Port 4
Port 5
Port 6

Port 7
Port 8
Port 9
Port 10
Port 11
Port 12

Ingress

P1,F1,S1
P12,F1,S1
P3,F1,S2
P7,F1,S2
P9,F1,S2
P11,F1,S2
...

Egress

P9,F1,S1
P10,F1,S4
P11,F1,S6
P1,F1,S2
P2,F1,S1
P5,F1,S1
...

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Questions?

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