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# **Residential Ethernet Objectives Update**

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# Original Objectives with edits for possible 802.1 work (from May meeting)

- ~~Auto-configuration of MAC/PHY, e.g., auto-negotiation, Auto MDI-X~~
- A mechanism to request/grant/assign resources and the default rule(s) for managing the resources ~~(e.g., 802.3ah MPCP)~~
- Support both time-sensitive and best-effort traffic simultaneously, with some bandwidth reserved for best-effort traffic.
- Time-sensitive traffic only supported over 100Mb or greater full-duplex
- Time-sensitive traffic is not disrupted when any station/session is added or removed from the network
- Bounded maximum delay time-sensitive traffic (2ms end-to-end through network; 250us maximum through 1 hop; values to be validated in TF)
- Low jitter and approaching zero wander
- Network provides “house” clock for application synchronization within 5us.
- ~~Based on existing 802.3 PHY(s)~~
- ~~Supports IEEE 802.3 Power Over Ethernet~~

Needs to be specified  
by “trademarking”  
organization

# Additional objectives which were out of scope for 802.3

- Bridging between 802.3, 802.11 and 802.15.3 (and other 802 MACs) preserving QoS
- Compatible with 802.1q
- No streaming frames dropped, bandwidth is reserved
- Default policy is first-come, first-served by request
- Network will automatically reclaim allocated but unused resources
- Support arbitrary topologies within reasonable limits (802.1d)

# Assumptions

- Not intended to be used in provider networks
  - Really for the endpoint “subnets” of the provider networks
- Control path to assign resources/establish timing hierarchy/etc uses existing 802 services
- Default policy for resource assignment is first-come, first-served
- Network will automatically reclaim allocated but unused resources
- Some bandwidth will always be available for best-effort traffic
- Latency guarantee of 2ms means that delivery jitter is no more than 2ms as well

# Proposed 802.1-based objectives

(from May meeting)

- Guaranteed QoS attributes for streams over small diameter (home-sized) network with 7 Ethernet hops max
  - smaller number of hops for MACs with more inherent latency
- QoS attributes are:
  - latency less than 2ms
  - guaranteed bandwidth (assignable per stream)
  - packets are not dropped
  - once a stream is established, its performance is guaranteed
- Timing synchronization between DTEs with low jitter and approaching zero wander
  - specs TBD

# “Trademark Organization” System Objectives

- Integration with DLNA/UPnP
- Specific options required in “ResE” bridges ... E.g.
  - 802.1 enhancements (ResE QoS/synch)
  - 802.1 performance requirements (max delay limits)
  - 802.1 management visibility (for SNMP)
  - Full 802.3 autoconfig, auto-MDX, etc.
- Specific options required in “ResE” endpoints
  - If PoE used, must have UPnP management
  - 802.1 enhancements (ResE QoS/synch)
  - Full 802.3 autoconfig, auto-MDX, etc.
- Bridging to non-802 nets
  - 1394/USB/MoCA



Specifications  
must be met to  
use Trademark

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**Thank you!**