802.1 and Energy Efficient Ethernet

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September 2007

Initial outreach to 802.1

- **While attending the 802.1 Stockholm meeting and its Audio Video Bridging (AVB) Task Group**
  - **Mentioned the importance of energy efficiency to AVB products**
  - **The EEE project obviously came up and I was asked to summarize its direction for work**
  - **Presentation included personal opinions about some 802.1 issues that should be considered in AVB**
  - **Received initial reactions for individual members of 802.1 related to EEE**
- **EEE should consider how to engage 802.1 contribution to our work**

EEE implications to AVB

- **Link unavailable during speed change**
  - **EEE will produce short term (1ms?) link unavailability**
  - **Frames will be delayed during link unavailability unless discarded**
- **Link speed will produce latency variation**
  - **Transmission time of frame**
  - **Latency of component data paths**
- **Speed change affects available bandwidth**
  - **Obvious impact on reservation protocol**
- **Power state may need to be an AVB consideration**
  - **Quick start as devices become sentient**
  - **Grandmaster selection**
  - **Can EEE be enabled on any but edge links**

Comments and observations (1)

- **Significant recognition that energy efficiency was relevant (even important) to AVB products**
- **Transition time is important to many in AVB**
  - **10 ms struck people as being too long to be useful**
  - **Same response to some people with 1 ms**
- **Some "guidance" to do none of EEE with auto-negotiation**
  - **No significant tradeoff discussion about RPS changes v. capability announcement**
  - **Some assertion that there should be no announcement**

Comments and observations (2)

- **No discussion on subset PHY**
  - **Opinions probably based on switching between legacy PHYs**
- **They will want to be involved (dictate?) frame protocol to be used by control policy**
- **Some thought that they might need to do some control policy**
- **Initial reaction that they might only care about lowest power speed (0BASE-T) and max speed**
  - **Avoids transition time issues**
  - **Coupled to bandwidth reservation**

Comments and observations (3)

- **10BASE-T voltage changes – about time**
- **0BASE-T – makes a lot of sense to their markets**
- **EEE does require different thinking**
  - **Have previously focused only on utilization and maximum performance**
  - **How it works in standby has not received much thought**