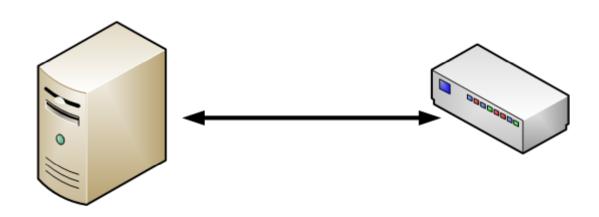# neighborPropDelayThresh Defaults

Dave Olsen

Overview

- **Currently default values for neighborPropDelayThresh are not specified**

- **The market needs standard defaults in order to maintain plug and play compatibility**

- **neighborPropDelay is used to measure the wire delay between link partners**

- **If neighborPropDelay > neighborPropDelayThresh then it is assumed that a buffered repeater is in the path and asCapable is set to False**
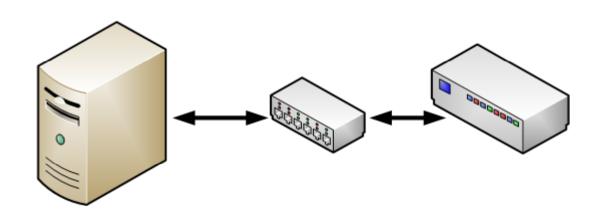
neighborPropDelay

- **Structured wiring limit 100 meters of CAT 5 cable**

- **Unstructured wiring limit 130 meters of Cat 5 cable**

- **1 / (299,792,458 meters/second * 2/3) = 5.003ns/meter**

- **130 meter = 650.4ns wire delay**

Fast Ethernet Buffered Repeater

- **Minimum delay on a buffered repeater 8 bytes of preamble + 64 byte packet = 5493ns**

- **Minimum delay on a cut through repeater is 8 bytes of preamble + 6 bytes of DA**

- **Minimum time for a cut through repeater = 1068ns**
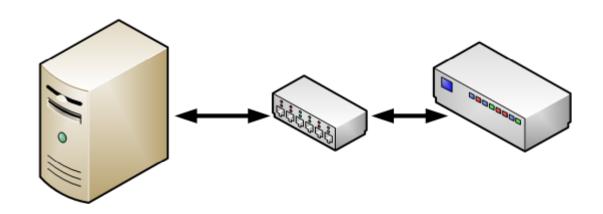
Gigabit Ethernet Buffered Repeater

- **Minimum delay on a buffered repeater 8 bytes of preamble + 64 byte packet = 549ns**

- **Minimum delay on a cut through repeater is 8 bytes of preamble + 6 bytes of DA**

- **Minimum time for a cut through repeater = 107ns**

- **We may not be able to detect a Gig Buffered Repeater**

802.3 Cat 5 neighborPropDelayThresh

- **neighborPropDelayThresh > 618.8ns to accommodate 130m length**

- **neighborPropDelayThresh < 5493ns to detect a buffered repeater**

- **neighborPropDelayThresh < 1068ns to detect a cut through repeater**

Fiber

- **Multi-mode Fiber Length**

  – 2 km meters at 100 Mbit/s

  – 550 meters at 1 Gbit/s

  – 300 meters at 10 Gbit/s

- **Single-mode Fiber Length**

  – 10 km at 1,310 nm wavelength

  – ~ 70 km at 1,550 nm wavelength

- **1 / (299,792,458 meters/second * 2/3) = 5.003ns/meter**

- **neighborPropDelayThresh > 10 microsecond for multi-mode fiber**

- **neighborPropDelayThresh > 50 microsecond for single-mode fiber**

Recommended Defaults

- **802.1AS measurements are not exact and some overhead needs to be added to the defaults**

- **802.3 over Cat 5**

- **802.3 over Fiber**

References

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- http://en.wikipedia.org/wiki/Wave_propagation_speed

- http://en.wikipedia.org/wiki/Multi-mode_optical_fiber

- http://en.wikipedia.org/wiki/Gigabit_Ethernet