

STP Enhancements

Essentials: performance, stability, security

Agenda

- NetRiders Registration is due by Wed Feb 22
 - <http://www.academynetriders.com/index.php>
- Take up any questions from previous days
- Continue with Ch 4 – STP, including Enhancements

Assigned Readings and Lab work

- Next reading will be: FLG Ch 5 p. 203-240; due by next Fri(?)
- Read FLG Ch 4 p. 179-202; due by *today!* (Fri 10am)
- Lab 5: Cisco **v6 Lab 3.3** (on course site) and Cisco **v7 Lab 4-2**
- Pre-lab & post-lab as per the regular schedule

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STP: Many Options

- **802.1D = CSTP**: TCN BPDU (upstream towards root) until confirmed by TC Ack flag (downstream), followed by TC flag (downstream) to flush MAC table; convergence about 1 min (std timers)
- *Best* BPDU is saved; subsequent BPDUs may be *Inferior* or *Superior*
- **UplinkFast**: for terminal, access layer switches; monitor & move immediately to alternate root port if existing root port fails; 1 sec switchover
- **BackboneFast**: for intermediate switch nodes; RLQ-REQ + RLQ-ACK / RLQ-NAK ; must be configured universally; saves MaxAge time
- **802.1w = RSTP**: TC flag only (no TCN BPDU or TCAck flag); *Proposal* and *Acknowledgement* flags for decisions on PtoP links; converges in secs
- **802.1s = MST**: IST or CIST plus other instances (15); converges in secs
- **Portfast**: intended for access ports or terminal nodes in the tree; instant “up”; no TCN for up/down; go to **Blocking** if BPDU received (see below)
- **BPDU Guard**: think “security guard”; if BPDU received on portfast, go to **errdisable** state until released by timer or admin
- **BPDU Filtering**: if configured on individual port: totally stop/ignore BPDUs; configured globally: if ever BPDU seen, lose Portfast operating status
- **Loop Guard**: protecting faults from unidirectional links (Tx =y, Rx = n); if no BPDUs received, go to *loop-inconsistent*; compliment of above features?
- **Root Guard**: protection against hackers & accidents (stupidity?); applied to access & downstream ports; outright rejection of superior BPDUs
- **UDLD**: pure L2 protocol for link “up” detection; global config applies only to opto; specific interface config for all media
- **Flex Links**: pure L2; **ONLY IF** humans have cabled & configured properly; replaces & disables STP; **50ms** response time! Config in pairs as “**backup**”