Startup sequence

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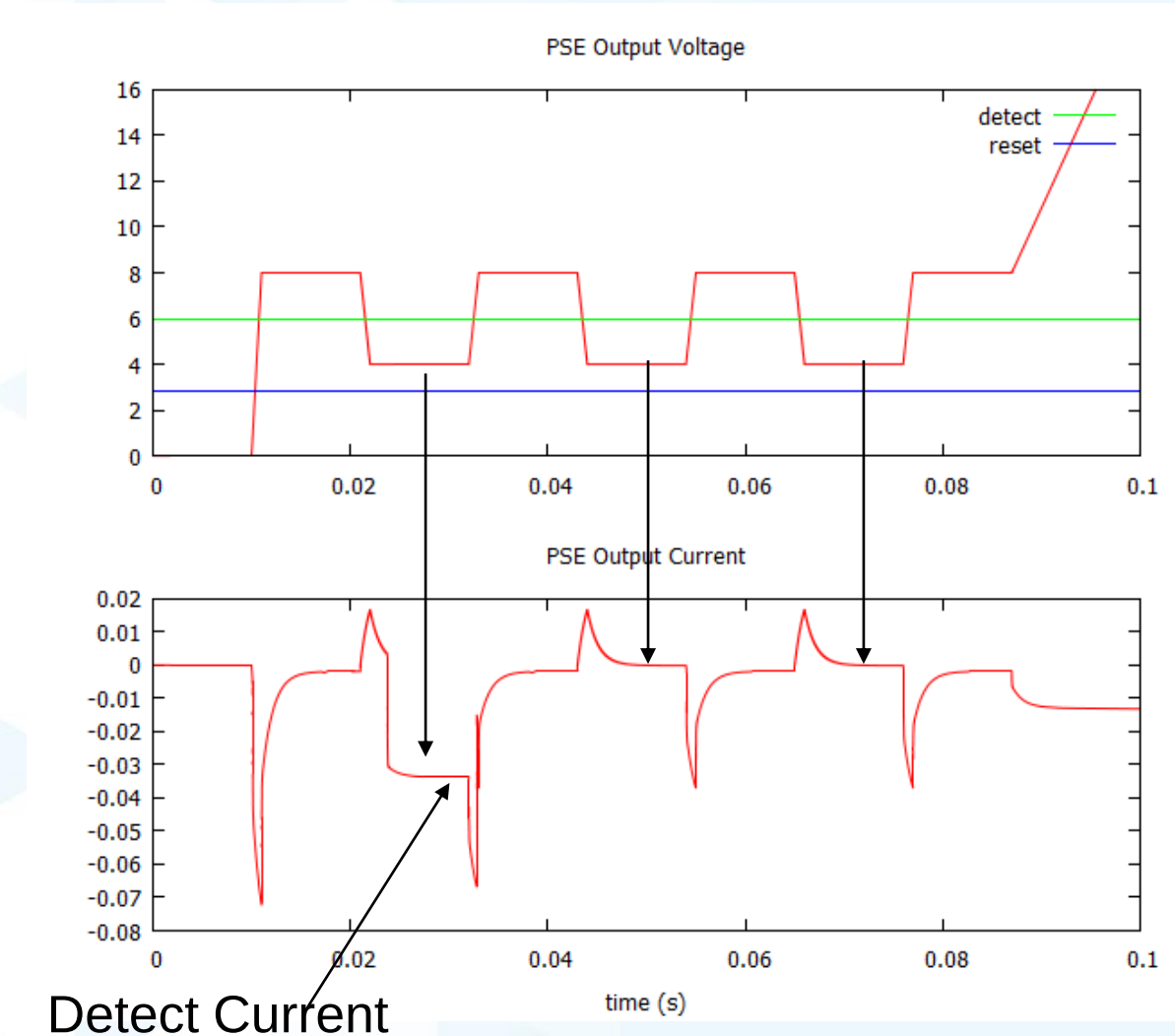
AHEAD OF WHAT'S POSSIBLE™

Detection Goals

- Simple scheme that cannot be fooled by shorts or capacitance
- Detect at least one PD is requesting power
- No classification
  - Leave classification to LLDP after power up
- Leave room for future expansion in detection using multiple detect pulses
  - Mutual id with multiple detect pulses



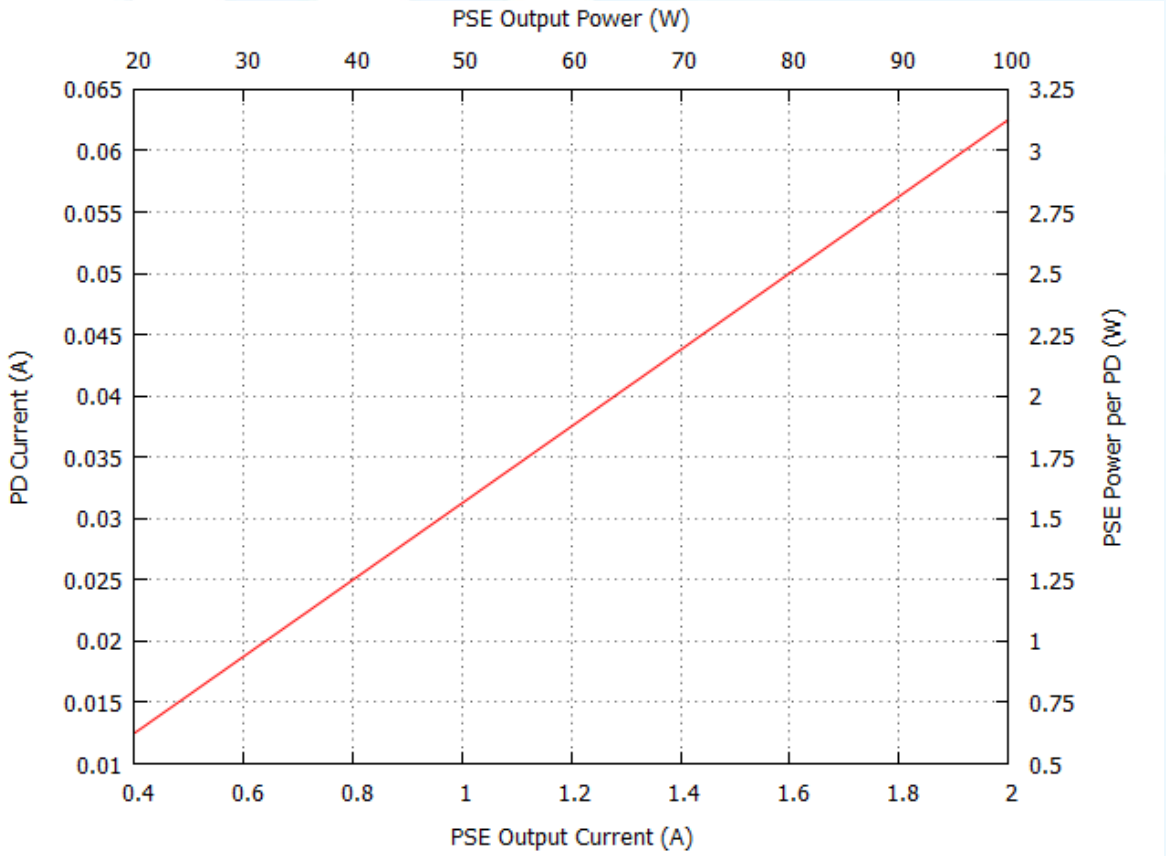
Detect Current (1mA / PD)

Inrush

- Specify system so that PSEs use the same high volume MOSFETs as PoE
- PSE Inrush current limit same as PoE (400mA – 450mA)
- PDs must share inrush current
  - 400mA / 32 = 12.5mA / PD
- PSE increases current limit after successful power up
  - Balance minimum power to start with power required for LLDP power negotiations
- Timers in PD count TBD. ms after “ON” threshold before enabling Bulk Cap
  - PDs control current limit for bulk cap inrush
- PDs Enable 3.3V supplies
- Negotiate final power levels using LLDP

Startup Power Tradeoff

- Current limit / PSE Power / PD Startup Power
- Example: PSE turn on with 20W
  - PDs come up in low power mode (600mW)
  - Negotiate power with LLDP
    - PDs turn up power after granted by LLDP
    - If not, stay in low power mode
  - Adjust PSE output power after LLDP
    - Always need reserve power for hotplugs
- Will some PDs be denied increased power while other PDs receive requested power?



32 nodes, V_{PSE} = 50V