Integrating Power over Ethernet and Power over Dataline support to the Linux kernel
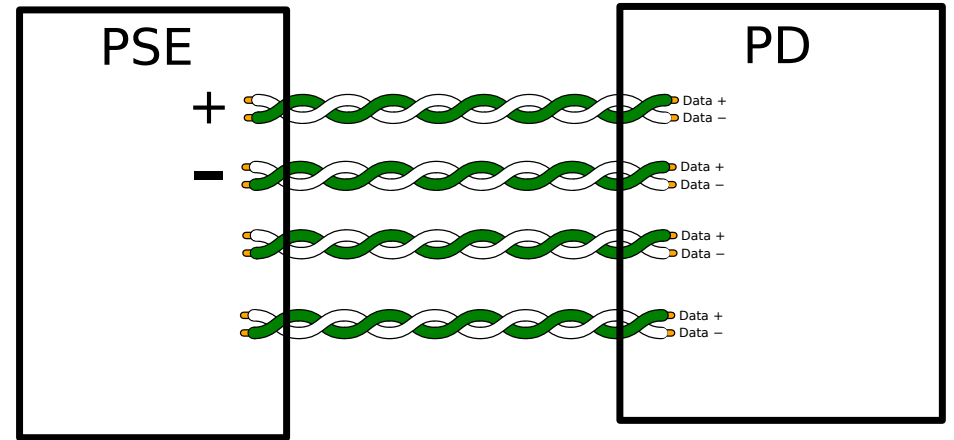
Oleksij Rempel – ore@pengutronix.de
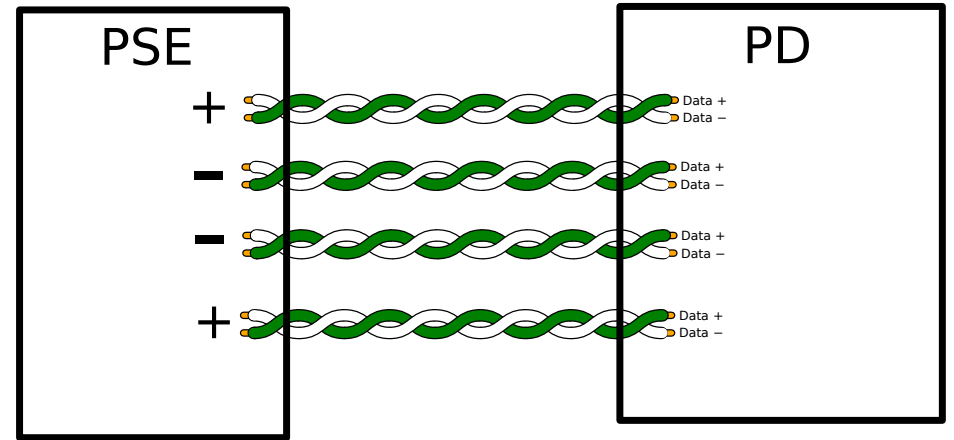
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What is Power over Ethernet?

- PSE – power source equipment

- PD – powered device

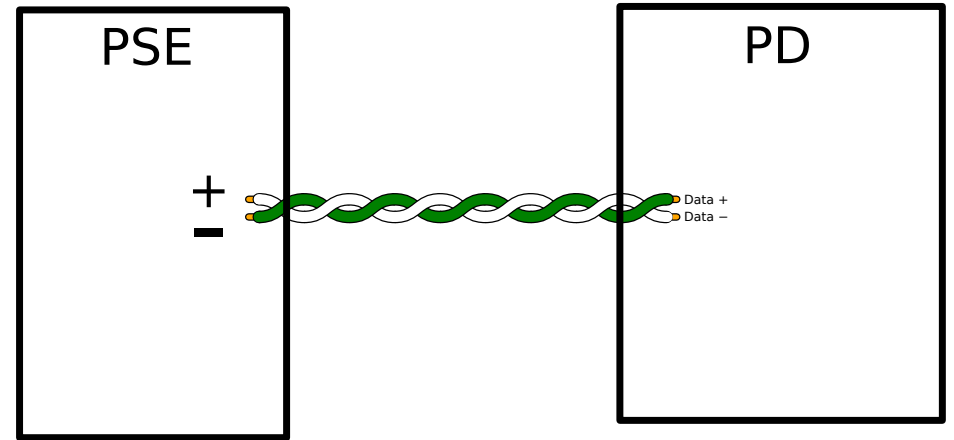- Power delivered over two pairs. One pair +, other pair -

What is PoE4?

- Same as PoE but more power

- For power delivery are used all 4 pairs

What is PoDL?

- Power over Data Line

- Same as PoE, except power is delivered over one twisted pair

- PoDL needs different filter implementation compared to PoE* variants

PSE

PD

+

−

Data +
Data −

Detection

- Optional

- PSE provides a constant current on the line and measures the voltage drop if PD is connected

Classification

- Optional functionality

- PoE and PoDL have different way for classification.

- PoDL is using SCCP – simple, digital, one-wire communication serial classification protocol.

- PoE uses a constant voltage from the PSE and a current sink on the PD to signal the power class

Current kernel implementation

- Provides per network port ethtool interface

- Currently we can:

    - control admin state of PSE per port independent of link admin state

    - Read admin state and status of PSE

WIP ethtool implementation

- $ ip l

- ...

- 5: t1l1@eth0: <BROADCAST,MULTICAST> ..

- ...

- $ ethtool --show-pse t1l1

- PSE attributs for t1l1:

- PoDL PSE Admin State: disabled

- PoDL PSE Power Detection Status: disabled

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- $ ethtool --set-pse t1l1 podl-pse-admin-control enable

- $ ethtool --show-pse t1l1

- PSE attributs for t1l1:

- PoDL PSE Admin State: enabled

- PoDL PSE Power Detection Status: delivering power

Thank you!

Questions?