NORTEL NETWORKS

DTE Powering System

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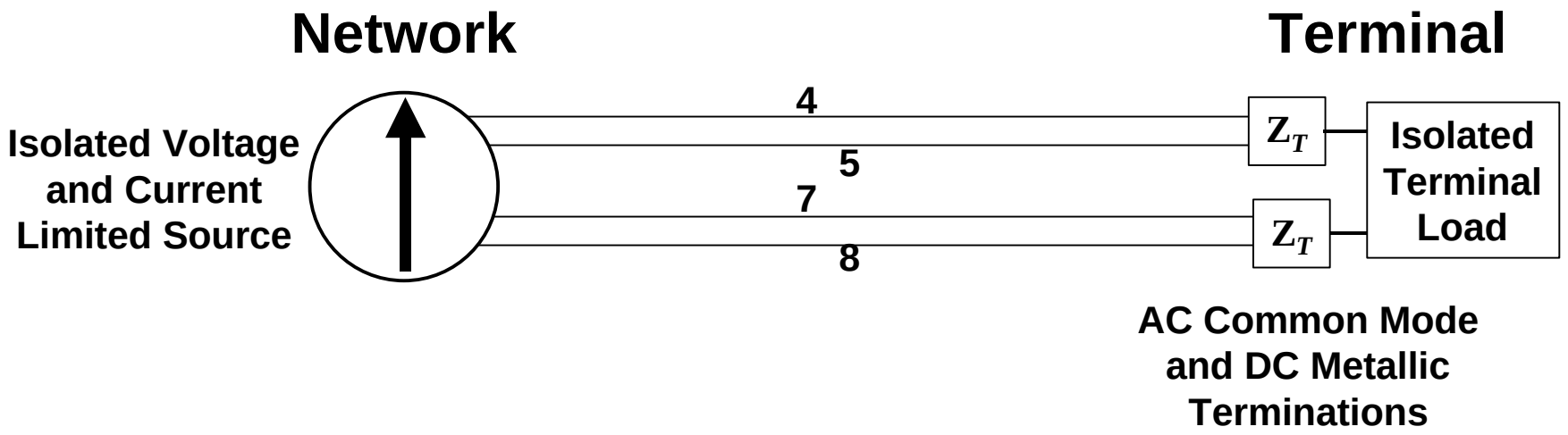
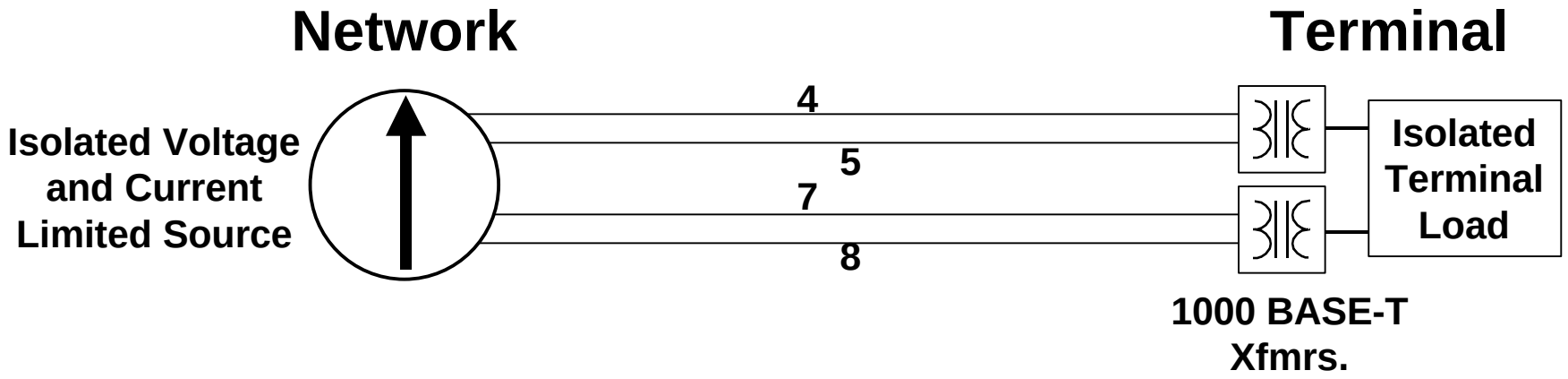
Network Edge Technology

Primary reasons for idle pair power feed



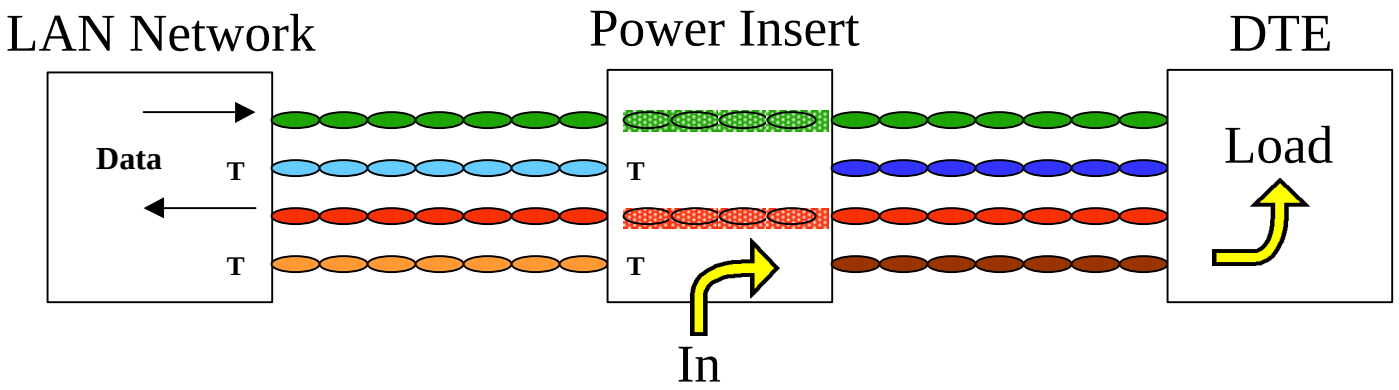
- **Major simplification for mid-span insertion!**
- **Doesn't touch the existing data transmission system.**
- **Reduces damage to data system from mis-connects.**

Further support for idle pair power feed



- **Eliminates all impact to 10/100 BASE-T signal magnetics.**
- **Enables moving the discovery mechanism from the signaling pairs to the idle pairs.**
- **Practicable for mid-span insertion.**
- **Supports the 1000 BASE-T terminal powering requirement.**

Mid-span power insertion



- **Power feed is across Blue/Brown pairs.**
- **Power insertion requires no changes to data transmission circuitry Green/Red pairs.**
- **Location of Power Insert (Hub, Closet Punch-Down, Terminal Outlet) is irrelevant.**
- **Power Insert can operate un-managed stand alone.**

Discovery Mechanism Requirements

- **“Lives in the mouths of babes!” (Safety and Liability)**
- **No damage to other RJ-45 devices.**
- **Positively identify “Power Hungry”™ devices.**
- **Practicable for mid-span insertion.**
- **Detection must be on same leads as the power feed.**

Glossary for DTE power validation

- **Discovery or Detection:**

  That there are no faults on the loop, and a Power Hungry device is connected.

- **Identify:**

  Confirm that the terminal device is a valid Power Hungry one.

- **Authenticate:**

  Determine that the device is allowed to be supplied with ongoing power via the loop.

Discovery by the power source

- **Provides positive status detection of:**
  - ➔ **Wiring faults;**
  - ➔ **Ground faults and leakage;**
  - ➔ **Connection of a valid “Power Hungry” terminal device.**
- **Rapid detection and protection from foreign system interconnects.**
- **Ensures safety for users and physical property.**