Proposal for a discovery process

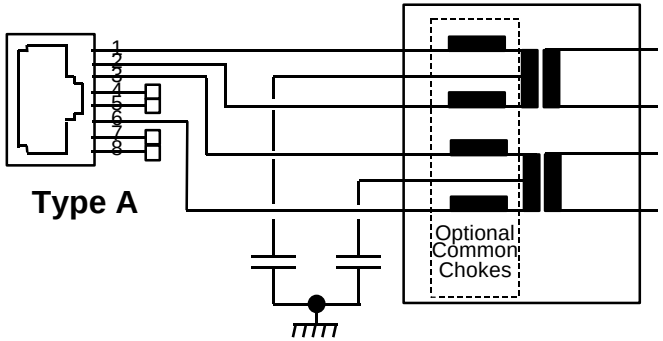
G. Vergnaud/R. Gass
ALCATEL
Enterprise Solution Division
R&D - Colombes

Basic idea

- The main goal is to try and avoid additional components and extra cost at the terminal side.
- The idea is to analyze the behavior of the terminations seen on the link with two types of voltage alternative and direct.
- Let me explain the proposal and the different termination behavior. For the purpose of this presentation power feeding is applied on the spare pairs. We will see later it still works in a phantom mode.

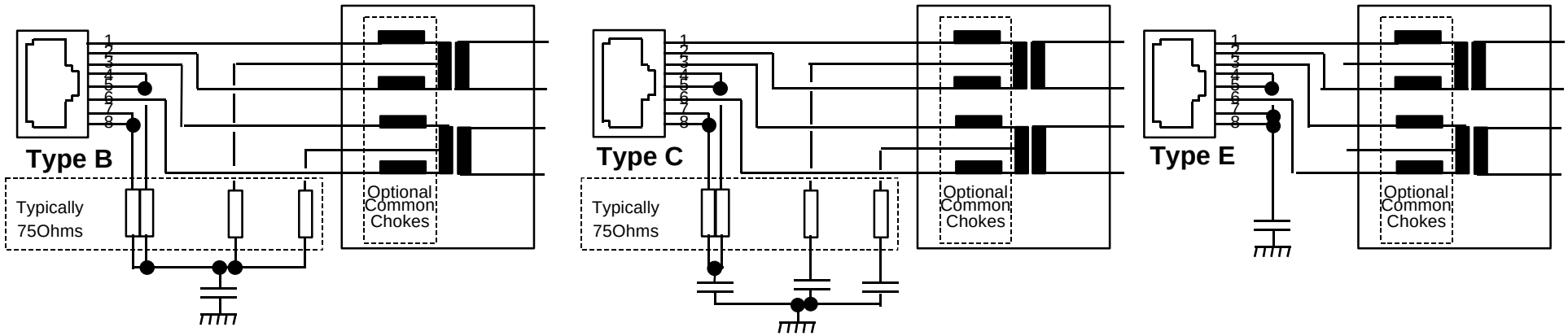
Type A termination

- This termination is :
  - an open circuit for the alternative voltage
  - as well as for direct voltage.
- And… this termination has not to be powered



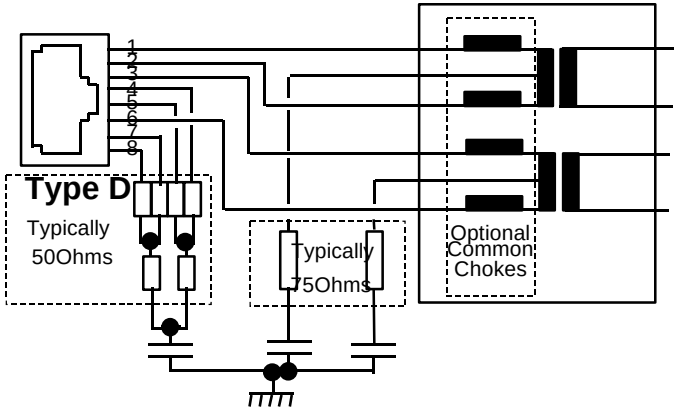
Type B, C and E termination

- These terminations are :
  - a short circuit for the alternative voltage
  - as well as for direct voltage.
- And… these terminations have not to be powered



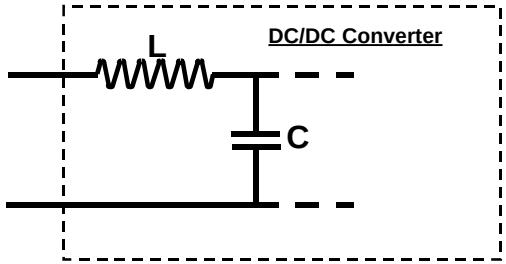
Type D termination

- This termination is :
  - A 100Ohms impedance for the alternative voltage
  - as well as for direct voltage.
- And… this termination has not to be powered



Power sink

- This termination is :
  - A short circuit for the alternative voltage
  - And a defined impedance for direct voltage, asking some hundred milliamps as current.
- And… this termination has to be powered

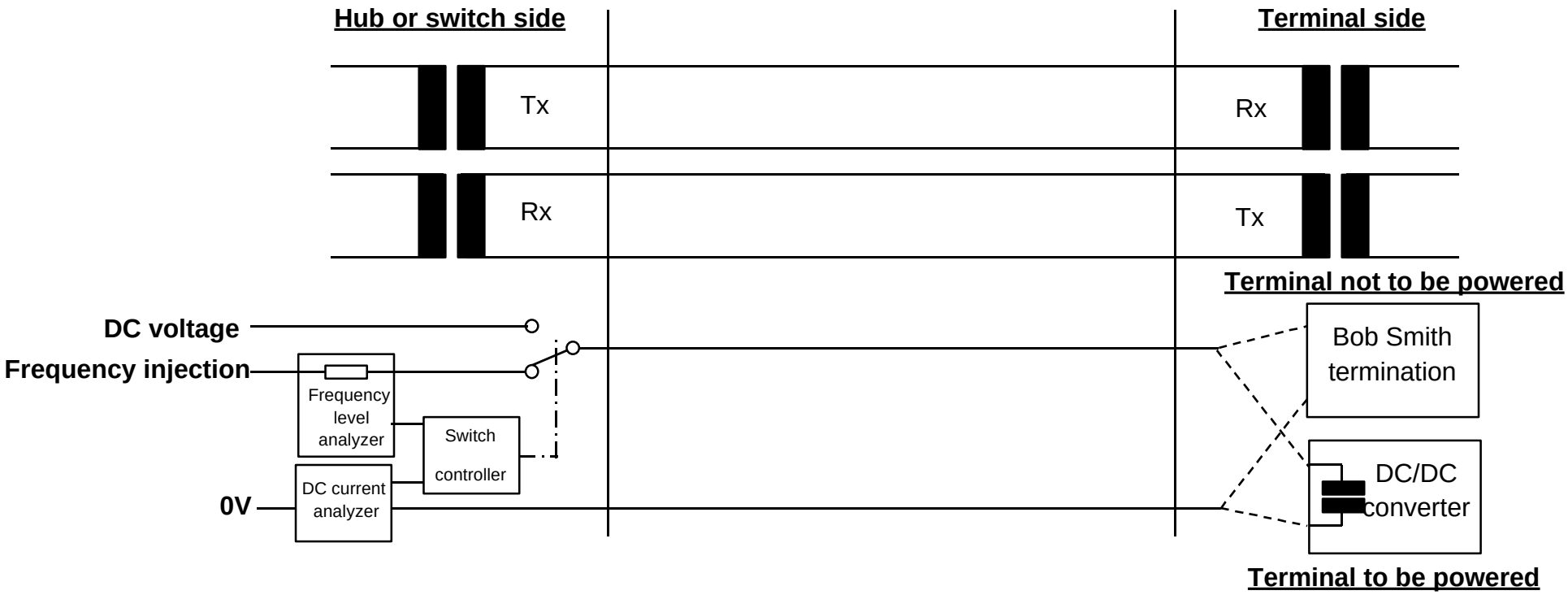


Type of voltage

- Concerning the voltage to be used, we suggest the 48V. I mean a voltage included in 42 to 56V limits.
- Defining an interface working in this voltage limits allows building up an equipment providing battery back-up.
- Assuming the resistance for one pair of the link is 40Ohms and the terminal is able to work with 30V at its input, it is possible to transmit the following power to the terminal :
  - On one pair : from 9W to 19W (following the source voltage)
  - On two pairs : from 18W to 39W (")
  - On three pairs : from 27W to 58W (")
  - On four pairs : from 36W to 78W (")
- Other advantage : this type of interface will still be able to be classified in SELV category ==> WRT safety compliance.

Solution

What we propose is as follows :



Solution (cont'd)

- This solution works one power feeding using phantom mode :