



Optical links for VELO upgrade.

LHCb electronics upgrade meeting.

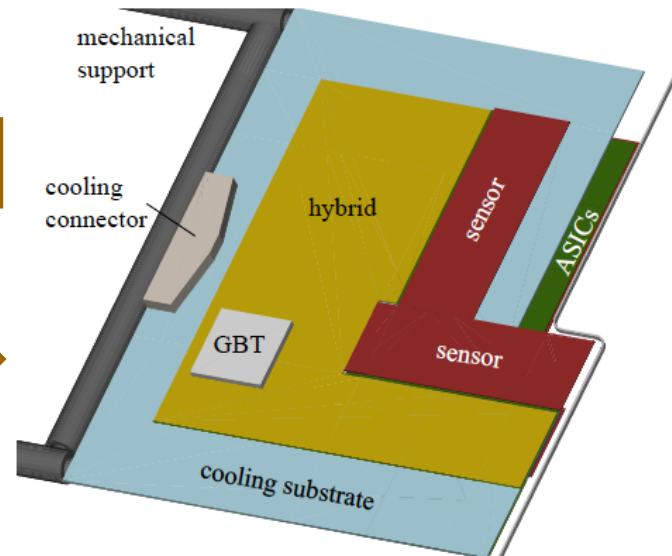
J. Buytaert.
9 April 2015



Data 20 optical links

TFC/ECS: 6 optical links

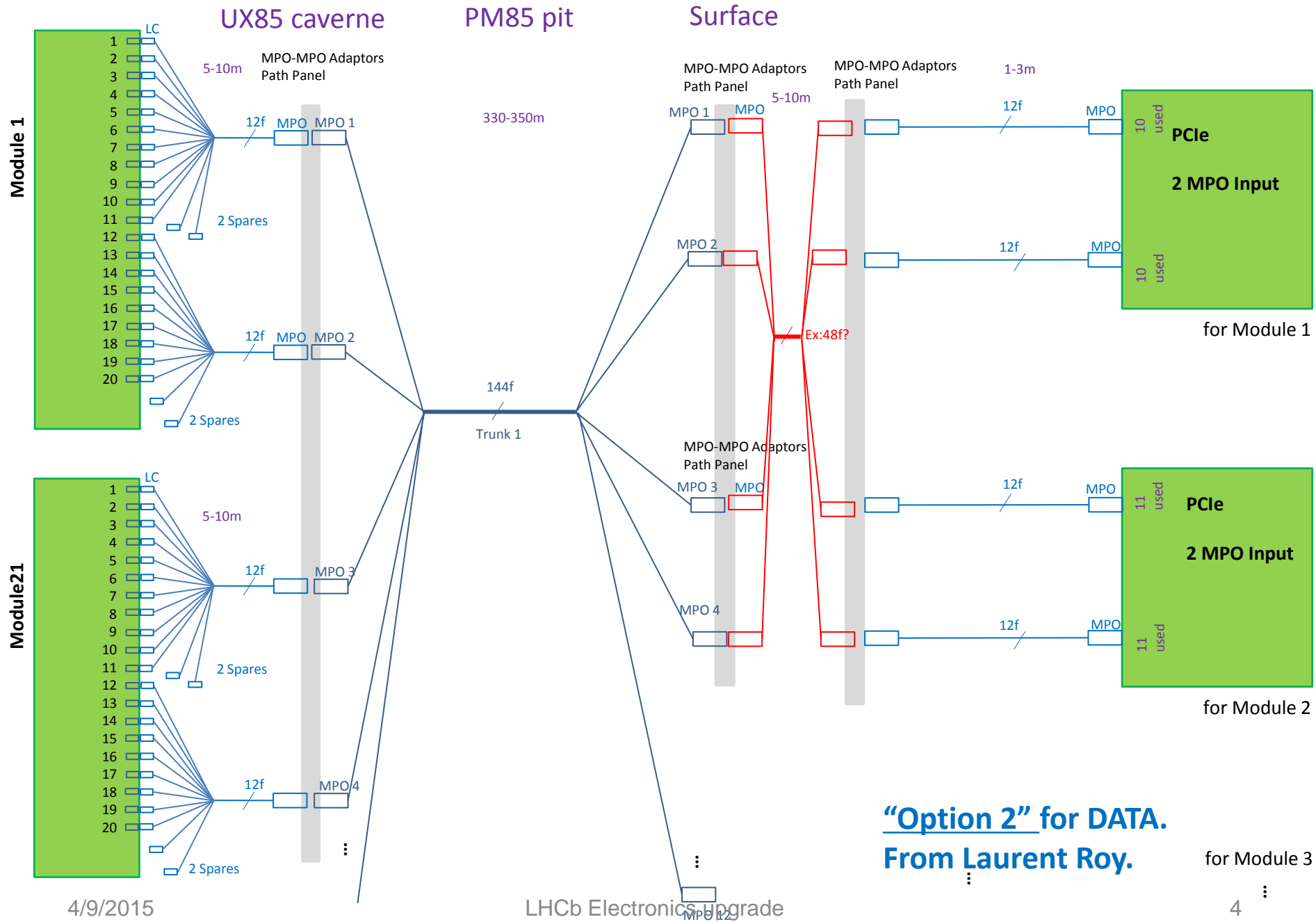
52 modules



- Total number of optical links for data :1040
 - Use of GWT instead of GBT protocol:
 - Link speed = 5.12 Gbps
 - Word length = 128 bit
 - Fixed header (8 bit) , fixed length (120bit) data format
- Total number of links for TFC/ECS : 312

Data Optical cabling.

- Needed : 1040 links.
- Installed : 9 'trunk cables', i.e. $9 \times 144 = 1296$.
 - Straight forward partitioning:
 - 2 x MPO (=24 fibres) per module.
 - 2 x MPO (=24 fibres) per Tell40.
 - 4 fibres spares .
- Spares: 17%.



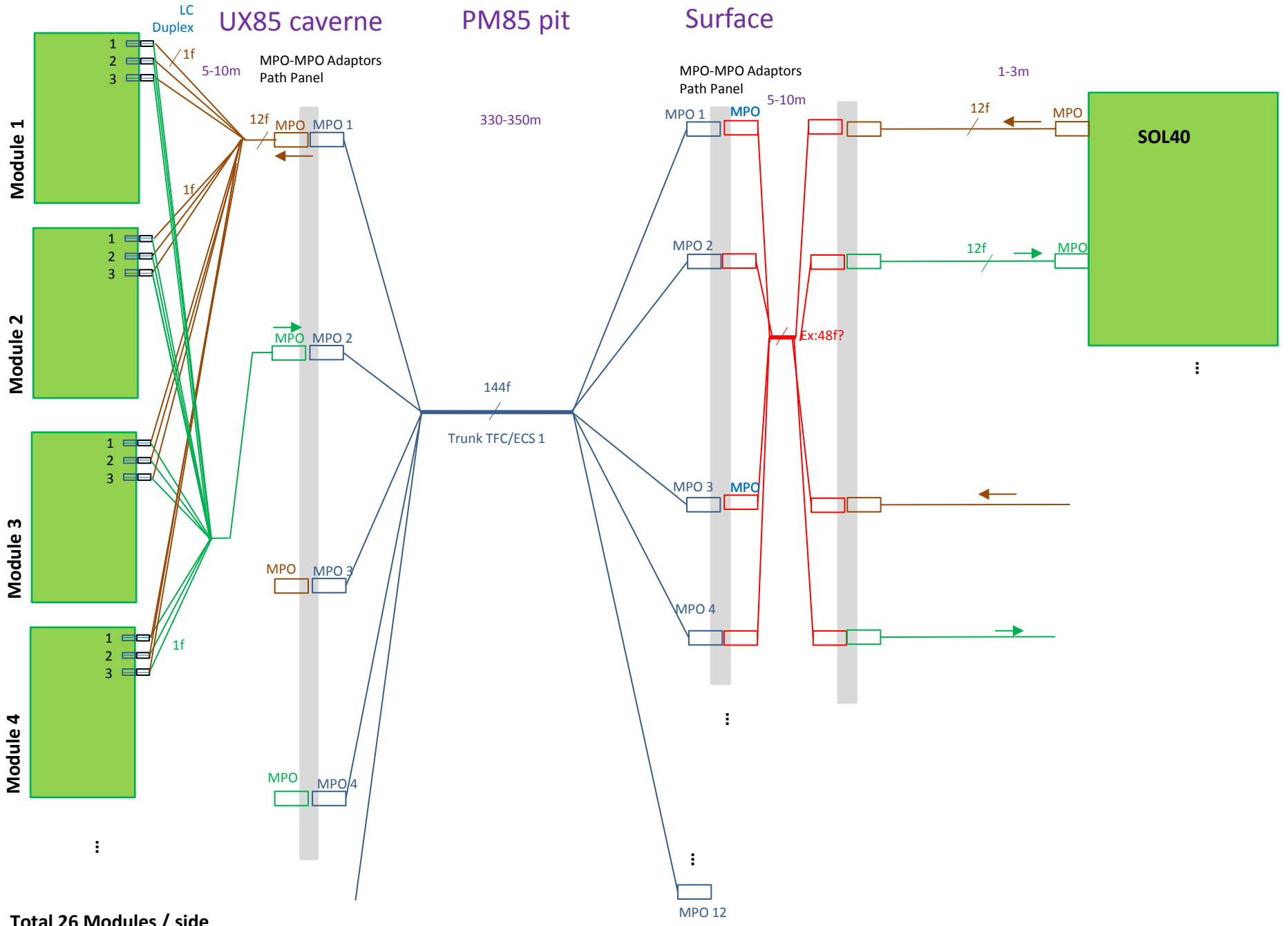
**“Option 2” for DATA.
From Laurent Roy.**

TFC/ECS Optical cabling.

■ ECS & TFC.

- Standard GBT serial format @ 4.8Gbps. Bidirectional.
- 3 bidirectional GBT links per module:
 - 1 for each of 2 hybrids
 - 1 for local OPB control & monitoring
- Full VELO:
 - Needed: $3 \times 2 \times 52 = 312$ links
 - Installed: 3 trunk cables. (432 links):
 - 2 cables for VELO only: $2 \times 144 = 288$ links.
 - 1 cable : VELO uses only 24 links out of 144:
 - Remaining 120 links can be used by nearby sub-detector (RICH or UT?).

for TFC



Total 26 Modules / side