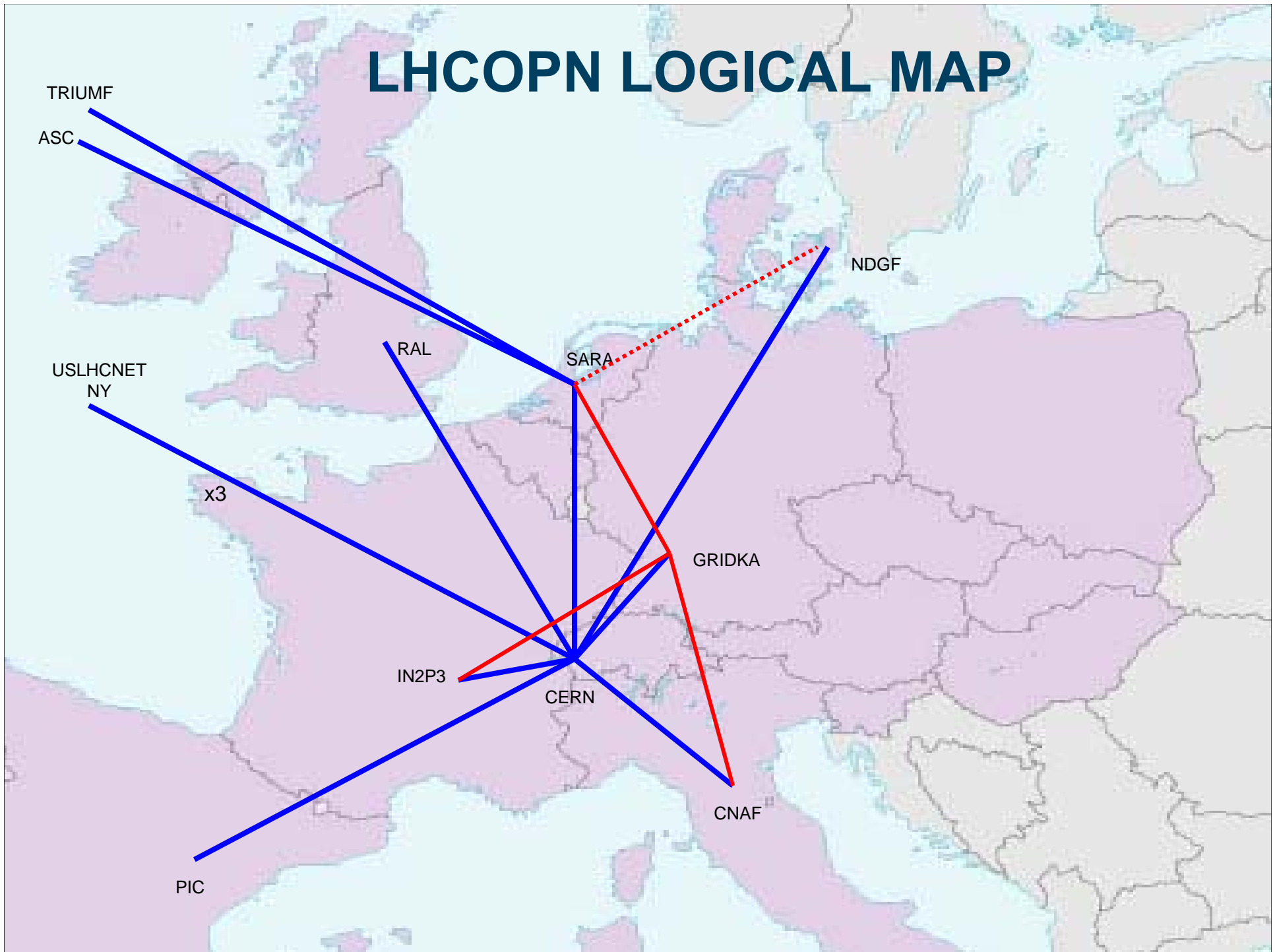# LHCOPN lambda and fibre routing
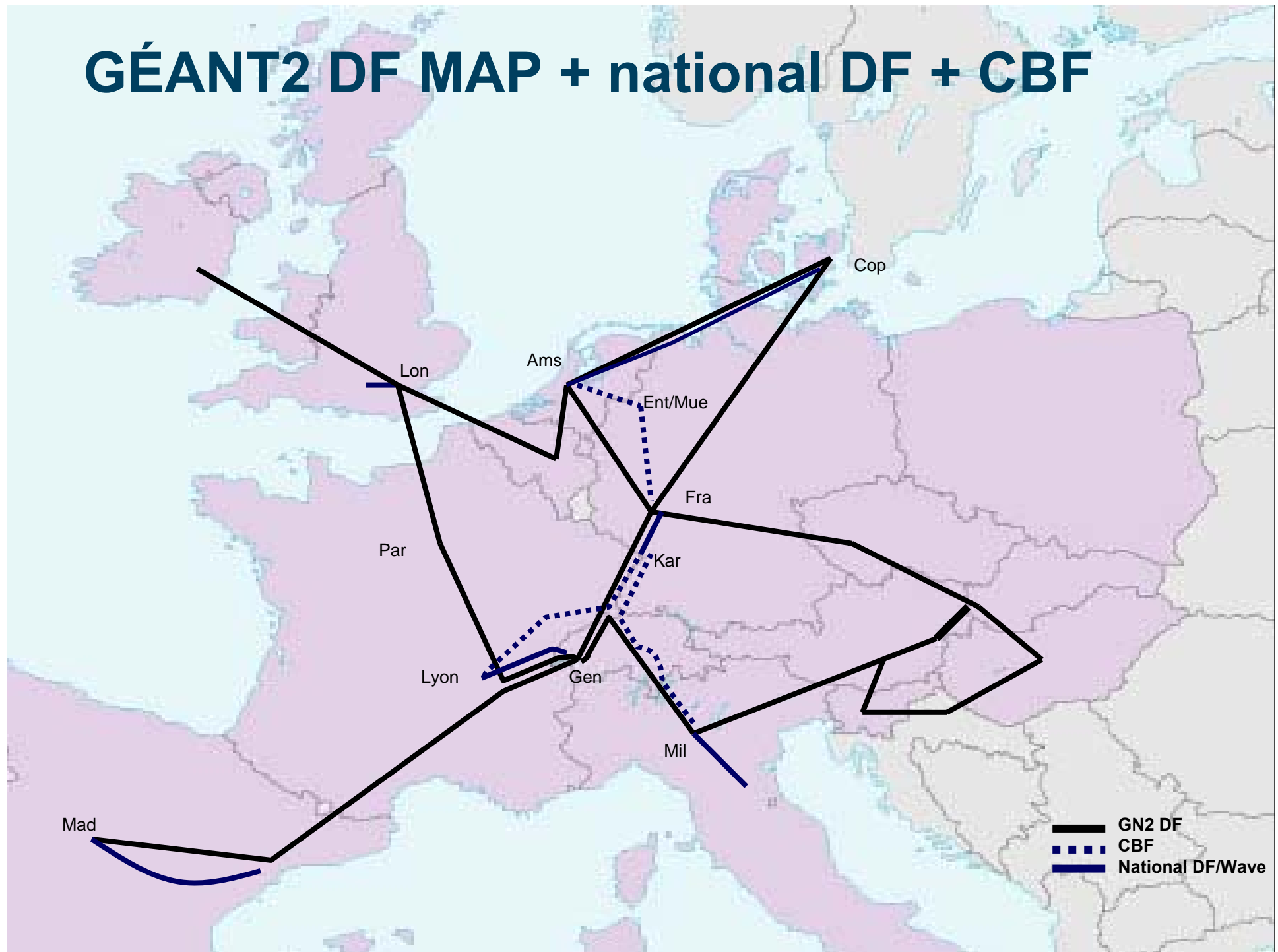
Otto Kreiter

DANTE, 12.01.2007
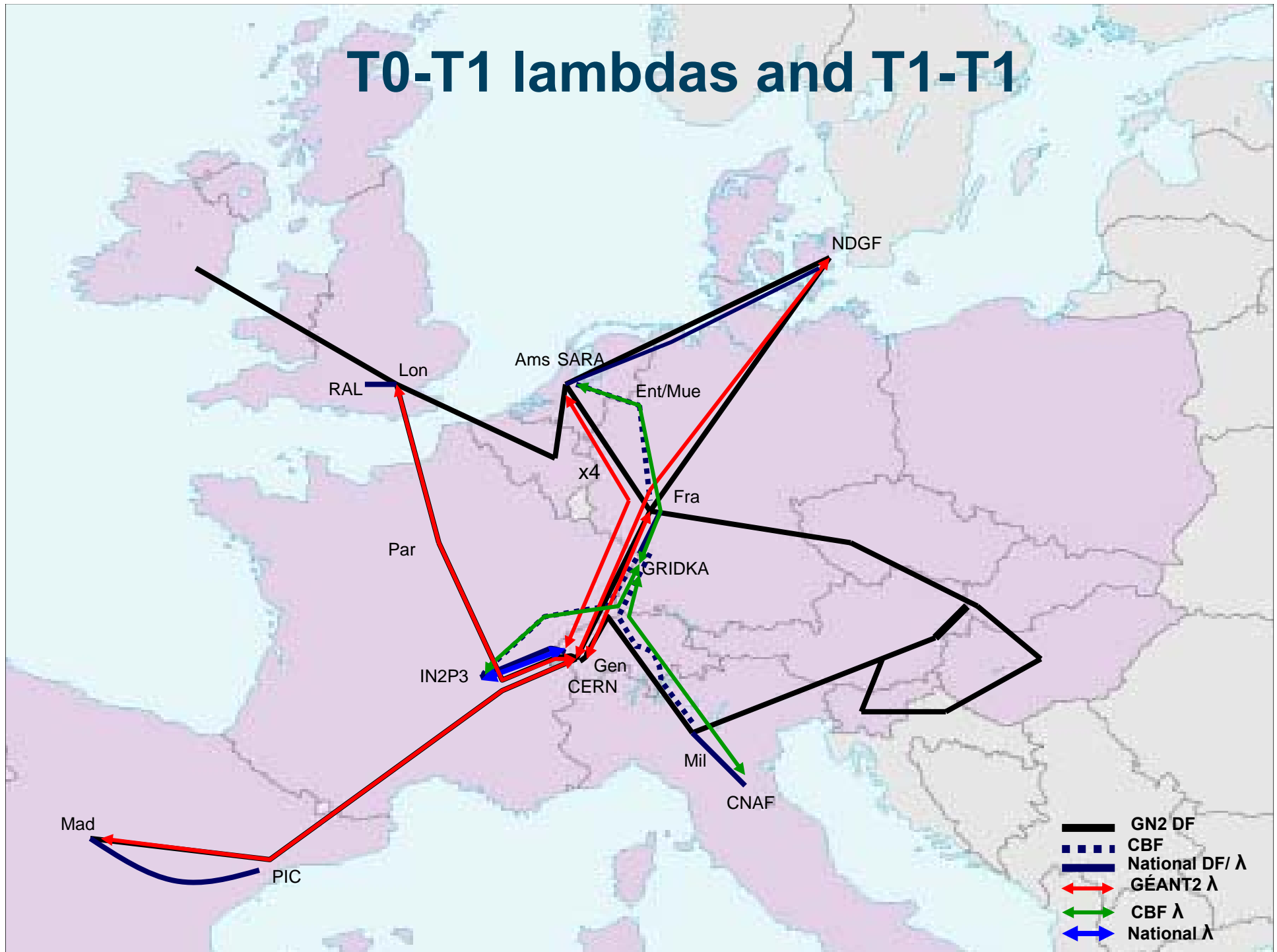
LHCOPN LOGICAL MAP

TRIUMF

ASC

NDGF

RAL

SARA

USLHCNET
NY

x3

GRIDKA

IN2P3

CERN

CNAF

PIC

GÉANT2 DF MAP + national DF + CBF

T0-T1 lambdas and T1-T1

NDGF

Ams SARA

Lon

RAL

Ent/Mue

x4

Par

Fra

GRIDKA

IN2P3

Gen
CERN

Mil

CNAF

Mad

PIC

GN2 DF

CBF

National DF/ λ

GÉANT2 λ

CBF λ

National λ

USLHCNT routing

NY-MANLAN

NY 111 8th

NY 60 Hudson

VSNL

WAL

CHI-Starlight

AC-2

Whitesands
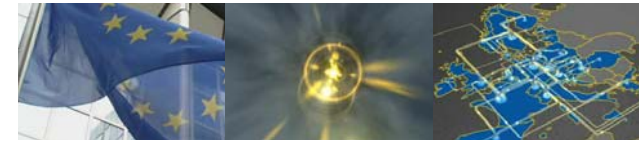
VSNL North

VSNL South

Highbridge (UK)

Frankfort

Pottington

London

Atlantic Ocean

AMS-SARA

GVA-CERN

— Global Crossing
— Qwest
— Colt
— GEANT

GÉANT2
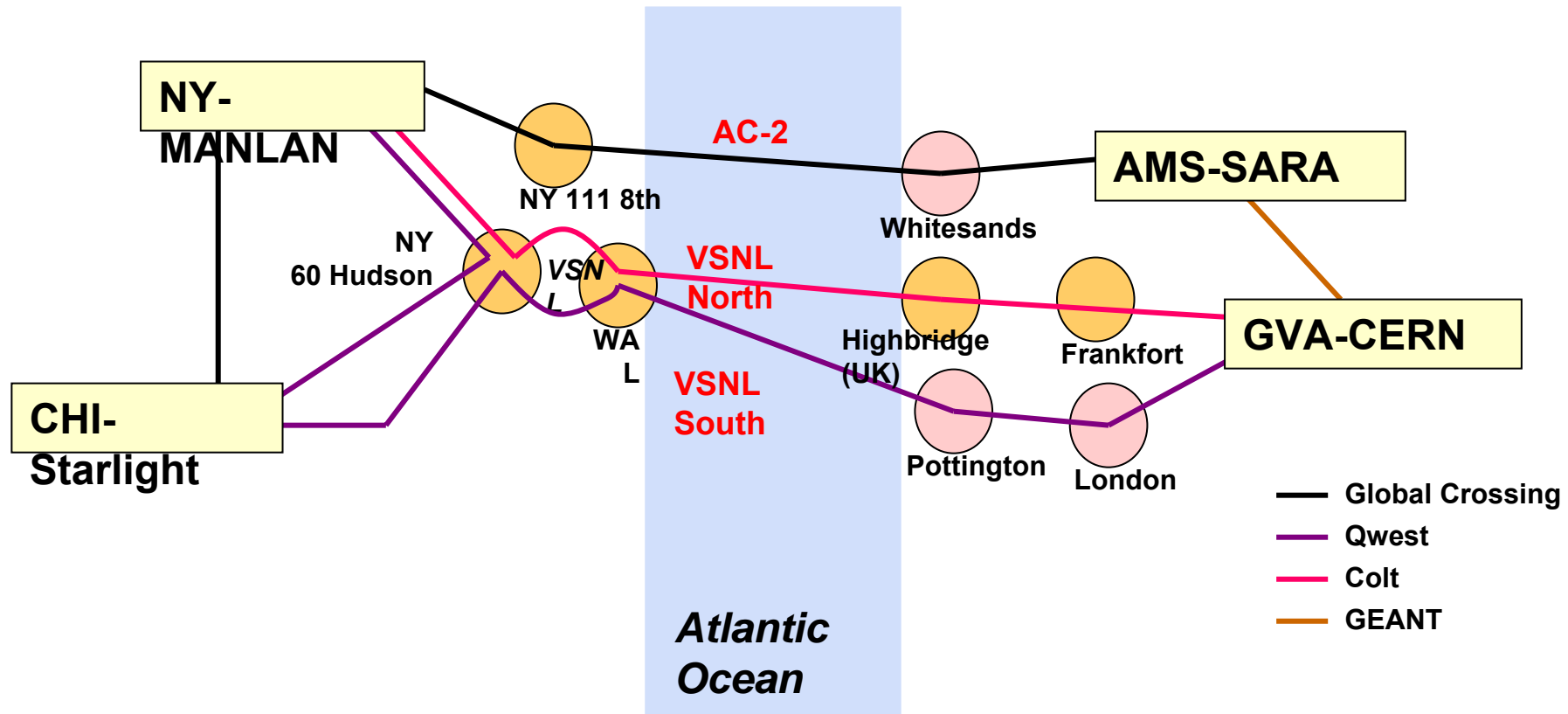
DANTE

Conclusion

T0-T1 connections:

1. GRIDKA-CERN, NDGF-CERN, SARA-CERN (x4), USLHCNET-CERN (COLT) – share the same fiber between FRA-GEN and the POP in FRA

2. GRIDKA-CERN, NDGF-CERN, SARA-CERN(x4), USLHCNET-CERN (COLT), CNAF-CERN – share the same trench/duct/hut between Basel and Geneva

3. PIC-CERN, RAL-CERN share the same trench/duct between Lyon and Geneva

Conclusion – cont.

T1/T0-T1 connection interaction:

4. CNAF-GRIDKA is suspected to share the same trench with CNAF-CERN between Zurich-Basel, and some common points between Zurich-Milan and most probably the German part of the FRA-GEN fibre

5. IN2P3-GRIDKA share the CBF and is suspected to share parts of the German part of the FRA-GEN GN2 fibre

6. SARA – GRIDKA is suspected to share the same duct/trench between FRA-KAR with the FRA-GEN GN2 DF, however the connection between FRA-KAR is protected inside DFN

Conclusion – contd.

→ If a fibre break occurs somewhere between Karlsruhe and Basel it is highly possible that SARA/ GRIDKA/ NDGF will be cut off from the LHCOPN

→ If a fibre break occurs somewhere between Basel and Geneva CNAF and SARA will be connected to GRIDKA who will rely on a T1-T1 connection to IN2P3 for backup – hence won't be able to route the traffic from CNAF/SARA according to the current routing plan ?!