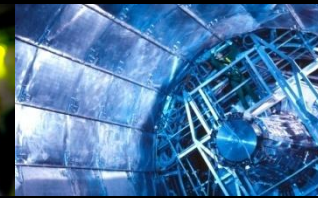
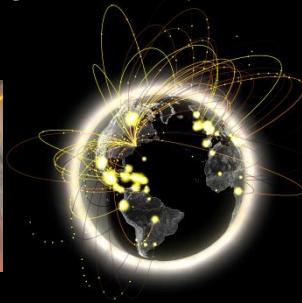


Update on LHCOPN/LHCONE meeting in Stockholm

John Shade /CERN IT-CS

GDB, May 9, 2012



Introduction

- Meeting hosted by NORDUnet at KTH (Royal Institute of Technology); over 30 people attended
- Introduction to SNIC (umbrella organisation of KTH) by Erwin Laure of EGEE fame

Overview of NDGF (Nordic Data Grid Facility) and SWEgrid (Swedish NGI)

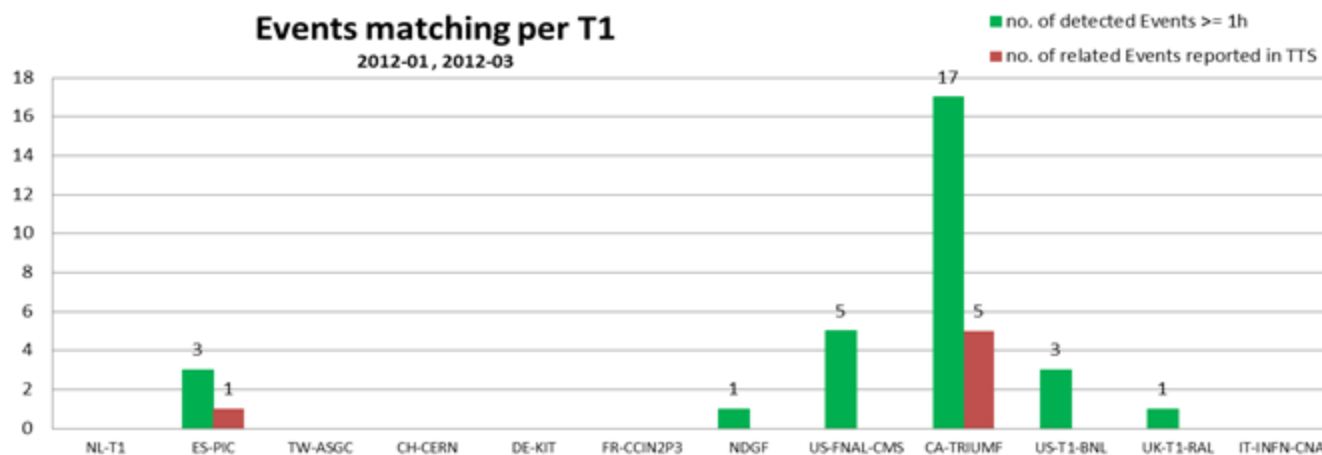
Heat-exchange project:

- Cray used to heat chemistry buildings

LHCOPN Operations Summary

BGP events

- BPG peer alarms at url:
<https://cclhcopnmon.in2p3.fr/LHCOPN/report/>



- 17 Triumf events → ISP fiber issues
- ES-PIC : Not correlated event 1957 was the yearly electrical maintenance

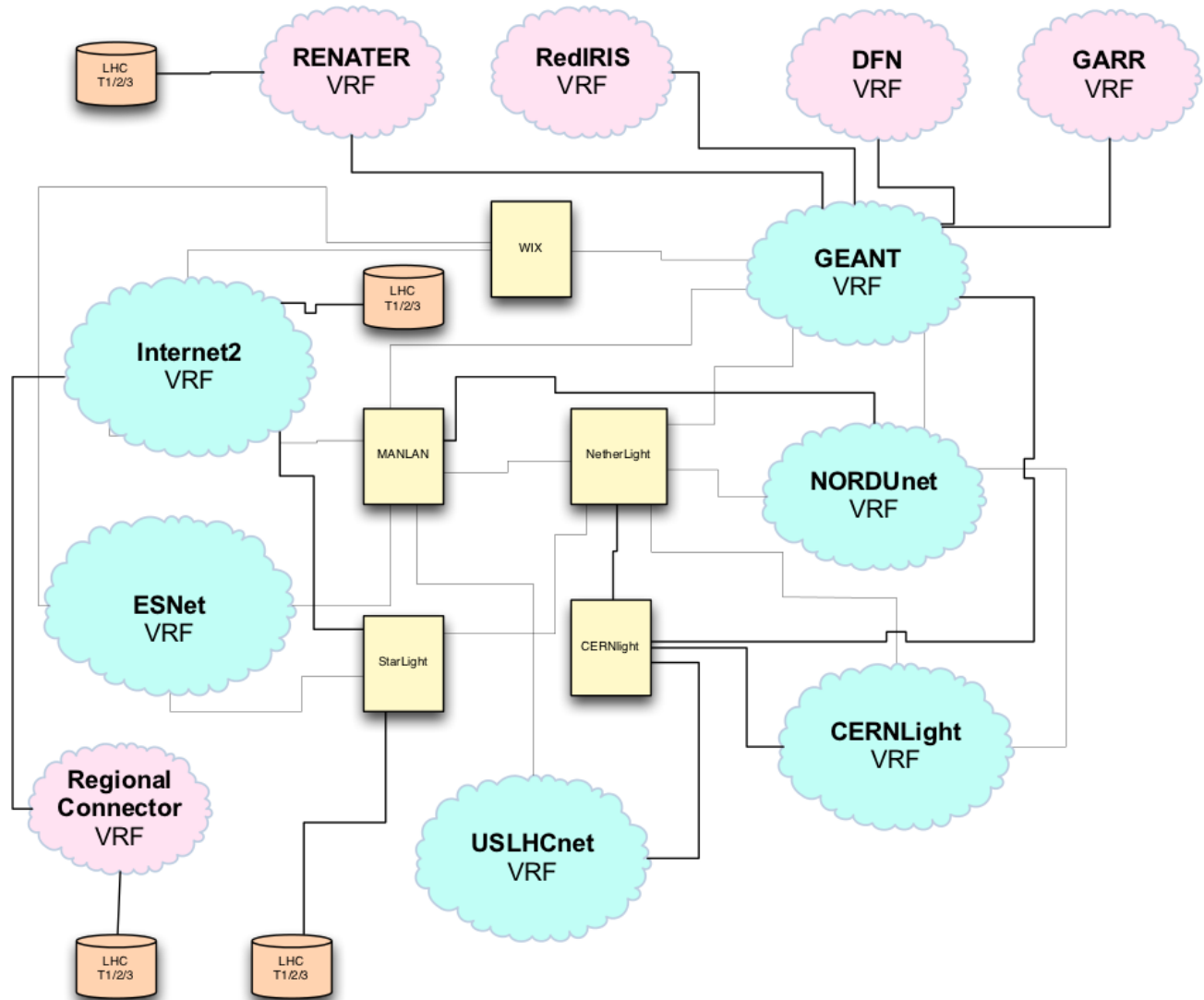
LHCOPN Monitoring Summary

- BNL dashboard has ability to monitor primitive services & generate alarms
- Most of the LHCOPN perfSONAR-PS instances are participating in Shawn McKee's effort to get baseline monitoring in place for LHCONE
- PIC have not yet tested perfSONAR-PS and perfSONAR-MDM interoperability
- J. Zurawski has offered to hold a workshop on how to use the perfSONAR toolkit for troubleshooting network problems

LHCONE

- L3VPN service is already operational
- VRFs (backbone routing domains) provided by:
 - Europe: GEANT, NORDUnet, CERNlight
 - North America: Internet2, ESnet
- Transatlantic capacity provided by GEANT and USLHCnet
- Several sites connected in Europe, not many in North America

L3VPN Map



LHCOPN/LHCONE update from Stockholm
J.Shade

07-MAY-2012

L3VPN Operations

- Twiki at CERN will be the main source of information
<https://twiki.cern.ch/twiki/bin/view/LHCONE/WebHome>
- Need to define responsibility for updating the information
- Monitoring infrastructure is starting, tests have to be defined

A site joining LHCONE should have a perfSONAR instance running

L3VPN symmetry challenge

- End-sites have to ensure traffic symmetry inside the L3VPN (i.e. traffic can only originate from prefixes that they announce)
- Requires special routing techniques (PBR, VRF) that not everyone may be able/willing to implement
- VRF Patrons will have to instruct their end-sites on how to correctly route
- A Twiki page is being prepared:

<https://twiki.cern.ch/twiki/bin/view/LHCONE/LhcOneHowToConnect>

Other Presentations

- Overview of CERN's remote hosting project & associated network architecture
- Presentation on GLORIAD (US, Russia, China)
 - 18 million addresses routed, extensions planned in Africa & India
 - Tightly linked to GLIF (Global Lambda Integrated Facility)
- Presentation on VRF (document on agenda page)
 - Multipoint VLAN created at MANLAN to allow other VRFs to interconnect
 - MIT & Harvard campuses connect to MANLAN
 - Feedback on document from experiments requested!

GEANT Update

- Status of VRFs in Europe

Implemented in GEANT, DFN, GARR, RENATER, REDiris

Connections to CERNlight and Netherlight active
BGP peerings with Internet2 and ESnet set up

- Upcoming developments

Nordunet/NDGF currently connected at Netherlight, moving to GEANT/Copenhagen

Dedicated 10G Geneva-Starlight for peerings between GEANT and {I2 & ESnet} ordered (June)

NORDUnet (the hosts)

NORDUnet

Nordic infrastructure for Research & Education

Agenda

- LHCONE P2P Service Definition (Jerry)
- Experience from Running a Production P2P Service (Bill)
- Bringing P2P Services to the Campus (Gerben)
- P2P and OpenFlow (Dale)
- Next Steps – LHCONE P2P Pilot (Lars)



L2 Point-to-Point Service

- Working on a service definition: necessary to carefully set user expectations
- Technology option: TRILL/SPB features over OpenFlow; testing will start soon
 - Replacing p2p link(s) with TRILL/SPB would give resilience, multipathing
 - TRILL/SPB features can be emulated with OpenFlow
- Objective: a standards-based, multi-platform point-to-point service (NSI)
 - Can start from AutoGOLE testbed
 - Proposal: workshop, Q3/12 timeframe

Other Presentations

- Presentation on asymmetric routing issues and possible solutions by ESnet
- Presentation of document on point-to-point service definition
- Presentation on LHCONE Diagnostic Service
- Presentations on various methods of dynamic circuit provisioning (b/w on demand, open light-path services)
- Presentation on DANTE procurement for 100G backbone (rollout starting Q2 2012)

Link to material

- All slides are available at:

<https://indico.cern.ch/conferenceDisplay.py?confId=179710>

