

LHCOPN Meeting January 2007

Many thanks to DANTE for hosting the
meeting!!

Thanks to everyone for attending!!

Logistics

- GEANT-2
- Shared WEP Access 834CA9972E
- Need to finish at 3.30 (so people can get 18:00-19:00 flights)
 - Need to shorten lunch

Objectives

- Last meeting we identified some issues
 - Routing issues with some sites
 - How to turn the OPN into a network (backup paths)?
 - How to evolve monitoring?
 - Are sites taking the security issues seriously?
 - E2ECU and ENOC evolution.
 - What can this group do to help T2 connectivity?
- Some actions
 - Evolve the working groups
 - New monitoring activity has been started under Joe Metzger
 - Evolve the routing working group to a long term technical operations group – not done yet, still some issues.
- This meeting will give updates on progress on the Issues.
- We need to move towards an increased “production” mode of operation now.

Conclusions

- Clarity on OPN
 - Does it carry T2-* traffic – NO
 - Does it carry T1-T1 traffic – YES
 - T0-T1 traffic is well below 10G level.
 - T1's can exchange between themselves at less than best effort (T0-T1 flows have priority) If they need to.
 - This is a decision of the T1's themselves.
 - Does it include CBF links – YES
 - A lightpath is part of the OPN (circuit governed by OPN policies). This may be less than a physical lambda which carries other types of traffic. This should be documented however.
- Backup Paths
 - Can we understand the dynamics? Are we sure that we understand how (over)loading will work. (Edoardo)
 - What is missing for a complete(!) plan? (Edoardo)
 - Test Plan – test automation and functioning also at the application level. (Don+Kors+Bruno)
 - Critical due to expected support hours (limited in many cases to extended working hours)
- T1-T1 traffic to be announced. (Edoardo)
- RAL needs to move to a public AS number (Robin)
- Security/Operations Policy – are sites taking it seriously? Is there any need for an “operations” officer and what tools would he have?
 - Long term tech ops working group - evolution of the routing working group
 - ENOC could do the surveillance given the right tools.
 - Active monitoring tools? How should we organise this? (DF to organise)
 - E2e service quality – active tools
 - Traffic sampling and analysis
 - Applicable also for t2-t1 circuits?
- How to advise on T2 connectivity?
 - Instrumentation at T2's, distributed by LCG. US-Atlas will deploy NDT in the US. Has a kernel requirement.
 - Remote T2's connectivity.
- Global extension of the E2ECU beyond Europe. (Roberto)
- PR Tool – weathermap, globe, links, (Roberto)
- Need work plan for the ENOC beyond transition. (Mathieu)
- Next Meeting When? (12th Jan) Where: Cambridge (Florida Intl Uni. Miami - Spring)

OPN Status Summary

September 2006

Link	Status	Nominal E2e Capacity	Provider Changes	Expected
BNL	OPN Production	10G	Colt->Colt	1/11/06
FNAL	OPN Production	10G	GC->Qwest	1/1/07?
TRIUMF	OPN Production	2G (limited CERN-AMS)	GN2 Lambda CERN-AMS	Q4/06 (Need OME 6500 at CERN)
ASGC	OPN Production	2G (2.5G to AMS)	GN2 Lambda CERN-AMS	Q4/06 (Need OME 6500 at CERN)
NDGF	GN2 IP		GN2 lambda	Q1/07
SARA	OPN Production	10G	SurfNet->GN2	Q4/06
RAL	OPN TEST	10G		Oct 1 st 2006
FZK	OPN TEST/GN2 IP	10G		Oct 15 th 2006
CNAF	OPN Production	10G		
IN2P3	OPN Production	10G		
PIC	GN2 IP		GN2 lambda	Barcelona-CERN Mid Oct. PIC->Rediris a problem

OPN Status Summary

January 2007

Link	Status	Nominal E2e Capacity	Provider Changes	Expected
BNL	OPN Production	10G	Colt->Colt	Done
FNAL	OPN Production	10G	GC->Qwest	1/1/07?
TRIUMF	OPN Production	2G (limited CERN-AMS)	GN2 Lambda CERN-AMS	
ASGC	OPN Production	2G (2.5G to AMS)	GN2 Lambda CERN-AMS	
NDGF	GN2 IP/OPN Production	10G (Copenhagen)	GN2 Lambda	Routing Issues. GN2 IP used for now
SARA	GN2 IP/OPN Production	10G	GN2 Lambda	Routing Issues. GN2 IP used for now
RAL	OPN Production	10G		Waiting for public AS number
FZK	OPN Production	10G		
CNAF	OPN Production	10G		
IN2P3	OPN Production	10G		
PIC	GN2 IP		GN2 lambda	Q1/07

CBF Status Summary

September 2006

Link	Status	Nominal E2e Capacity	Provider Changes	Expected
SARA - NDGF		10G		Q1/07
SARA - FZK	In Test	10G		Q1/07
FZK - CNAF	In Place	10G		
FZK - CERN		10G	DFN/Switch	To be Decided
BNL - FNAL	In Place (from GC)	10G	To ESnet	To be Decided
FZK - IN2P3	In Place	10G		Q1/07

Other Links Summary

Link	Status	Nominal E2e Capacity	Provider Changes	Expected
ManLan - Netherlight	Ordered	10G	GC	1/1/07
Netherlight - CERN	Surfnet to make request to GN2 Exec	10G	GN2	1/1/07

CBF Status Summary

January 2007

Link	Status	Nominal E2e Capacity	Provider Changes	Expected
SARA - NDGF		10G		Q1/07
SARA - FZK	In Place. Unused	10G		
FZK - CNAF	In Place. Unused	10G		
FZK - CERN		10G	DFN/Switch	To be Decided
BNL - FNAL	In Place (from GC)	10G	To ESnet	To be Decided
FZK - IN2P3	In Place	10G		Q1/07

Other Links Summary

Link	Status	Nominal E2e Capacity	Provider Changes	Expected
ManLan - Netherlight	Ordered	10G	GC	1/1/07
Netherlight - CERN	Surfnet to make request to GN2 Exec	10G	GN2	1/1/07

Words of Caution

- The LCG “Megatable” activity aims to provide a “bottom up” view of the network requirements.
- Some figures appear to be peak (T0/T1/T1) and some average (T1/T2).
- All figures probably have been generated from simple models of data movement for the “standard” data movement cases.
- The numbers are changing all the time.
- Conclusion: Whilst it gives minimalist “order of magnitude” requirements for the most basic network needs, network provisioning (which takes a long time) needs to work to a model based more on future predicted behaviour, capability and availability.

Megatable OPN Rates

	T0-T1 (MB/sec)	T1-T1 In (MB/sec)	Total In Gb/sec	T1-T1 Out (MB/sec)	Total Out Gb/sec
ASGC	91.3	158.3	2.00	128.8	1.03
BNL	287.2	274.1	4.49	218.5	1.75
CERN	1343.0	208.7	1.67	104.3	11.58
CNAF	136.2	208.0	2.75	209.4	1.68
FNAL	105.0	63.4	1.35	214.9	1.72
FZK	132.6	220.1	2.82	193.6	1.55
IN2P3	157.2	229.5	3.09	263.7	2.11
NDGF	54.4	51.9	0.85	54.2	0.43
NIKHEF	121.7	134.3	2.05	172.2	1.38
PIC	63.7	167.5	1.85	88.2	0.71
RAL	137.2	218.3	2.84	219.4	1.76
TRIUMF	48.3	50.1	0.79	47.4	0.38
ALICE US T1	8.2	10.8	0.15	3.7	0.03

Megatable GP IP Rates

	T2-T1 In (MB/sec)	Total In Gb/sec	T1-T2 Out (MB/sec)	Total Out Gb/sec
ASGC	54.8	0.44	133.0	1.06
BNL	92.4	0.74	225.7	1.81
CERN	49.4	0.40	71.4	0.57
CNAF	68.1	0.54	155.7	1.25
FNAL	30.0	0.24	248.0	1.98
FZK	85.4	0.68	191.2	1.53
IN2P3	179.0	1.43	215.8	1.73
NDGF	3.9	0.03	14.8	0.12
NIKHEF	41.0	0.33	69.9	0.56
PIC	35.6	0.28	91.6	0.73
RAL	94.9	0.76	113.1	0.90
TRIUMF	14.3	0.11	35.6	0.28
ALICE US T1	32.5	0.26	13.2	0.11