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Enabling Grids for E-sciencE

ENOC status

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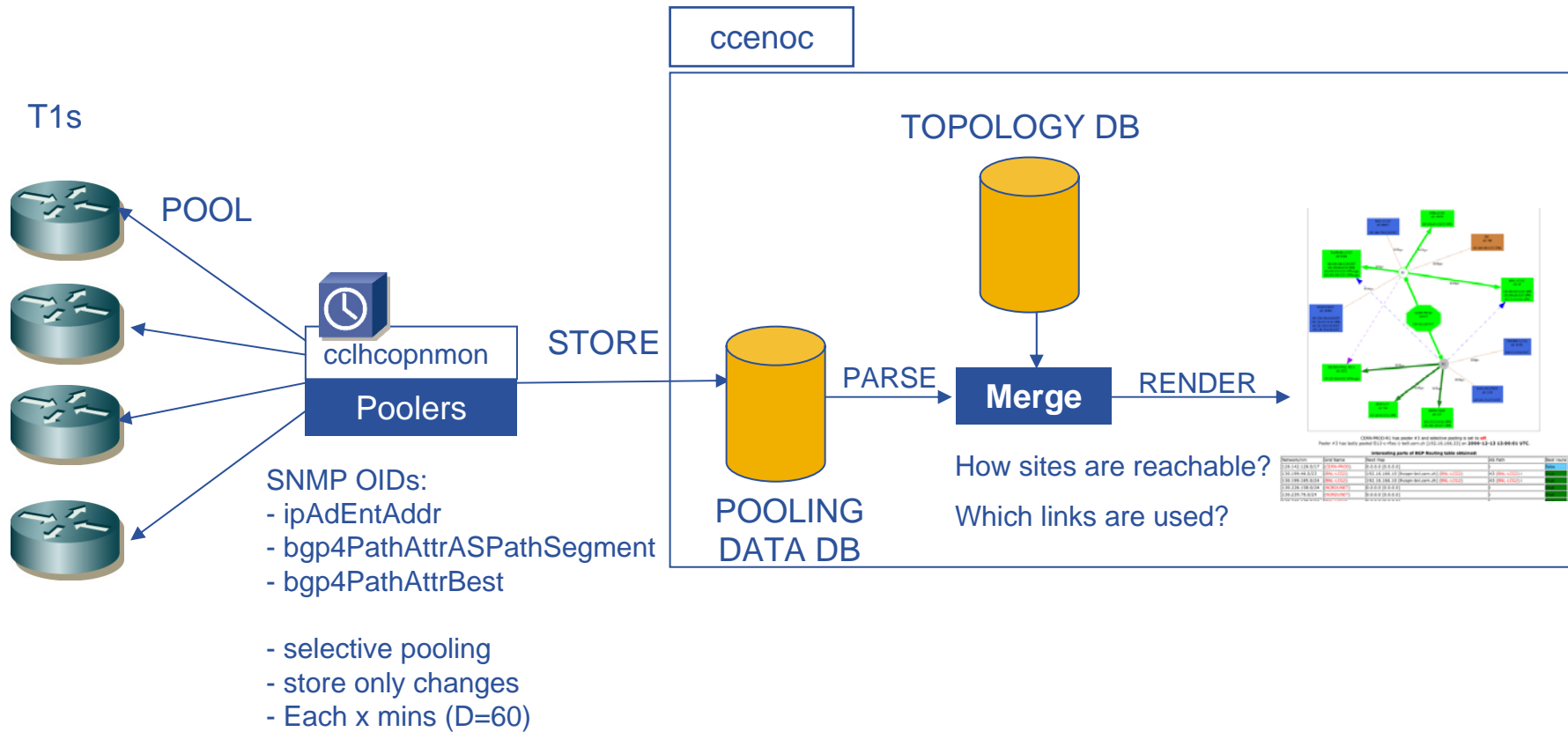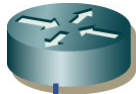
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Information Society
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- **BGP status monitoring:**
  - ASPDrawer: How it works?
  - Quick overview of the maps;
  - Next steps;

- **ENOC workplan**
  - BGP status;
  - E2ECU collaboration;
  - Monitoring/surveillance of the OPN.

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T1s

POOL

cclhcopnmon

Poolers

SNMP OIDs:
- ipAdEntAddr
- bgp4PathAttrASPathSegment
- bgp4PathAttrBest

- selective pooling
- store only changes
- Each x mins (D=60)

ccenoc

STORE

TOPOLOGY DB

PARSE

POOLING
DATA DB

Merge

RENDER

How sites are reachable?

Which links are used?

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T1's router

But static data needed:
– Which networks belong to LHCOPN?
– Kind of links ? Backup or not ?

─ipAdEntAddr:
IP-MIB::ipAdEntAddr.192.70.69.33 # IpAddress: 192.70.69.33
IP-MIB::ipAdEntAddr.192.70.69.150 # IpAddress: 192.70.69.150   ←— Interface's IPs for router —→   Update topology database
IP-MIB::ipAdEntAddr.193.48.93.1 # IpAddress: 193.48.93.1

Selective pooling: pool only OPN networks present in topology db (FZK issue)

OPN networks   Next Hop   AS Path (hex) - no longer used

─**bgp4**PathAttrASPathSegment:
SNMPv2-SMI::mib-2.15.6.1.5.128.142.128.0.17.192.16.166.41 # Hex-STRING: 02 01 02 01   → 513 513
SNMPv2-SMI::mib-2.15.6.1.5.130.199.48.0.23.192.16.166.41 # Hex-STRING: 02 02 02 01 00 2B
SNMPv2-SMI::mib-2.15.6.1.5.130.199.185.0.24.192.16.166.41 # Hex-STRING: 02 02 02 01 00 2B   → 513 513 43

But is route used ? (pbr issues…)

─**bgp4**PathAttrBest:
SNMPv2-SMI::mib-2.15.6.1.13.128.142.128.0.17.192.16.166.41 # INTEGER: 2
SNMPv2-SMI::mib-2.15.6.1.13.130.199.48.0.23.192.16.166.41 # INTEGER: 2   ←—Is best ? 1: false, 2:true
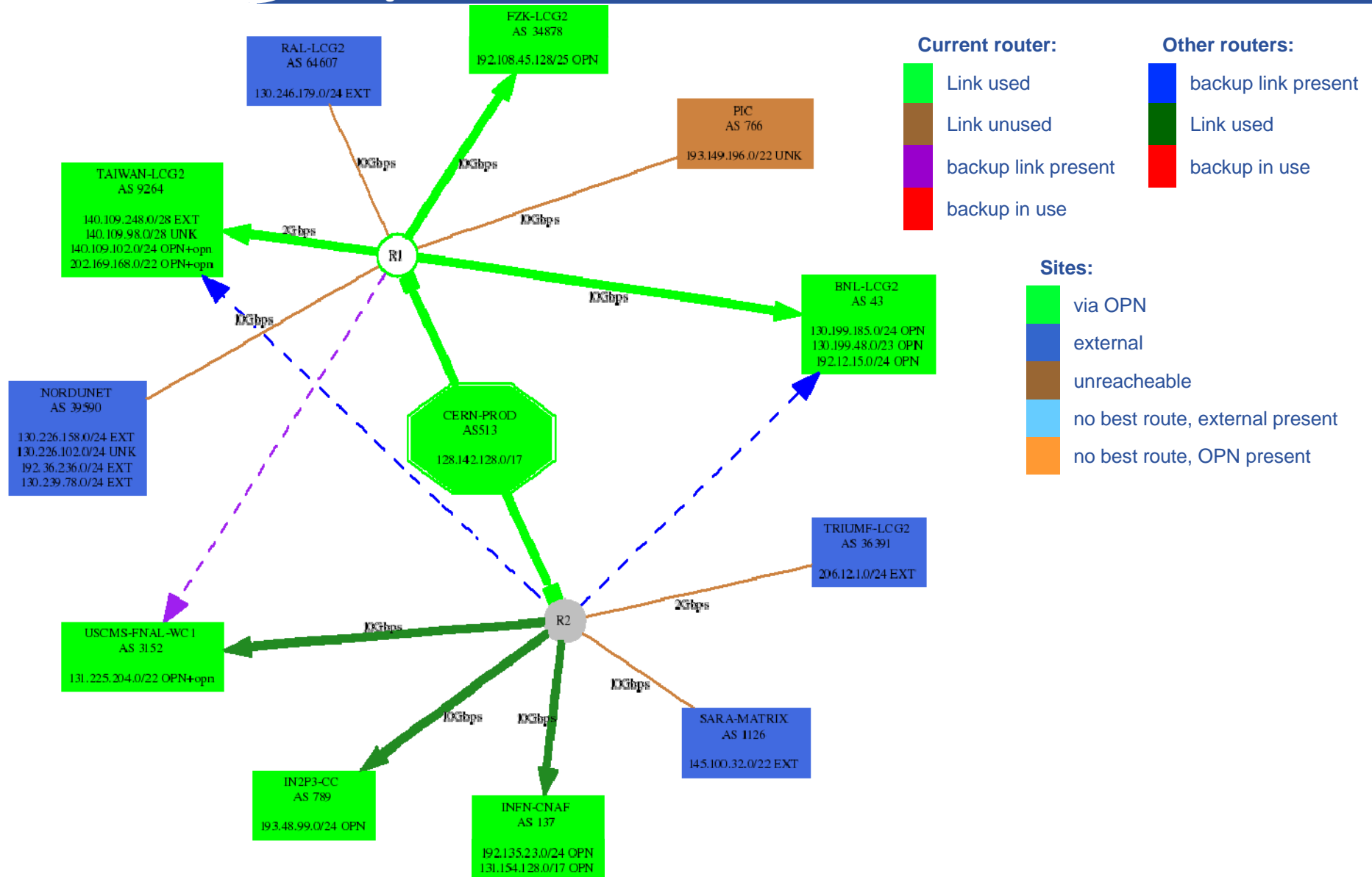SNMPv2-SMI::mib-2.15.6.1.13.130.199.185.0.24.192.16.166.41 # INTEGER: 1

Second best or filtered ?

• Merge with topology database to determine:

  - Which networks/sites are reachable

  - What are possible next hops → which links are used

• Draw topology map, color links, sites, etc according to their computed and static status

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- **https://ccenoc.in2p3.fr/ASPDrawer/**
  - AA based on certificates (instructions circulated on the routing ML);
  - Ask Guillaume for any comments / issues / requests.

- **What does a map show?**
  - Currently used links (preferred routes);
  - Are the backup routes announced and usable?
  - Routes outside the OPN to reach the sites.

- **Possible issues:**
  - Security issues?
  - To pool via the OPN is maybe liable to problems in case of outage.
  - How to show that 2 prefixes of a site among 3 are not reachable?
  - What is a reasonable pooling rate (currently every hour)?
  - Is an on-demand pooling useful (in case of tests for instance)?

FZK-LCG2
AS 34878
192.108.45.128/25 OPN

RAL-LCG2
AS 64607
130.246.179.0/24 EXT

PIC
AS 766
193.149.196.0/22 UNK

TAIWAN-LCG2
AS 9264
140.109.248.0/28 EXT
140.109.98.0/28 UNK
140.109.102.0/24 OPN+opn
202.169.168.0/22 OPN+opn

BNL-LCG2
AS 43
130.199.185.0/24 OPN
130.199.48.0/23 OPN
192.12.15.0/24 OPN

NORDUNET
AS 39590
130.226.158.0/24 EXT
130.226.102.0/24 UNK
192.36.236.0/24 EXT
130.239.78.0/24 EXT

CERN-PROD
AS513
128.142.128.0/17

TRIUMF-LCG2
AS 36391
206.12.1.0/24 EXT

USCMS-FNAL-WC1
AS 3152
131.225.204.0/22 OPN+opn

SARA-MATRIX
AS 1126
145.100.32.0/22 EXT

IN2P3-CC
AS 789
193.48.99.0/24 OPN

INFN-CNAF
AS 137
192.135.23.0/24 OPN
131.154.128.0/17 OPN

R1 R2

10Gbps 10Gbps 2Gbps

Current router:

Link used

Link unused

backup link present

backup in use

Other routers:

backup link present

Link used

backup in use

Sites:

via OPN

external

unreacheable

no best route, external present

no best route, OPN present

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- **Current status:**
  - Currently monitored: CERN (R1 and R2), FNAL, FZK, IN2P3;
  - Currently missing: ASGC, BNL, CNAF, NORDUGRID, PIC, RAL, SARA, TRIUMF;

  - If you find it useful, please consider to join:
    - SNMP read-only access from cclhcopnmon.in2p3.fr (193.48.99.80);
    - Community string up to you.
  - If not, please provide feedbacks how to improve it!

- **Next steps:**
  - Behaviour in case of outage (will the polling still work?): to be checked during the backup tests.
  - Historic of changes (evolution of the maps);
  - Alarms when something changes?

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- **BGP status monitoring:**
  - Prototype OK: now need the comprehensive set of the OPN BGP peers;
  - Next steps: behaviour in case of outage, historical maps, alarms.
- **E2ECU:**
  - Planned end of the transition phase: beginning of January (see update on the E2ECU);
  - The E2ECU is now almost OK (pilot service) → integrated in the set of "standard" NREN NOCs (with particular procedures);
  - Need to sort out details on procedures and validation;
  - The whole picture needs to be drawn:
    - Problems with regards to GGUS tickets; what about maintenance not announced by the E2ECU?
    - Will work together with Dante to sketch the whole picture.

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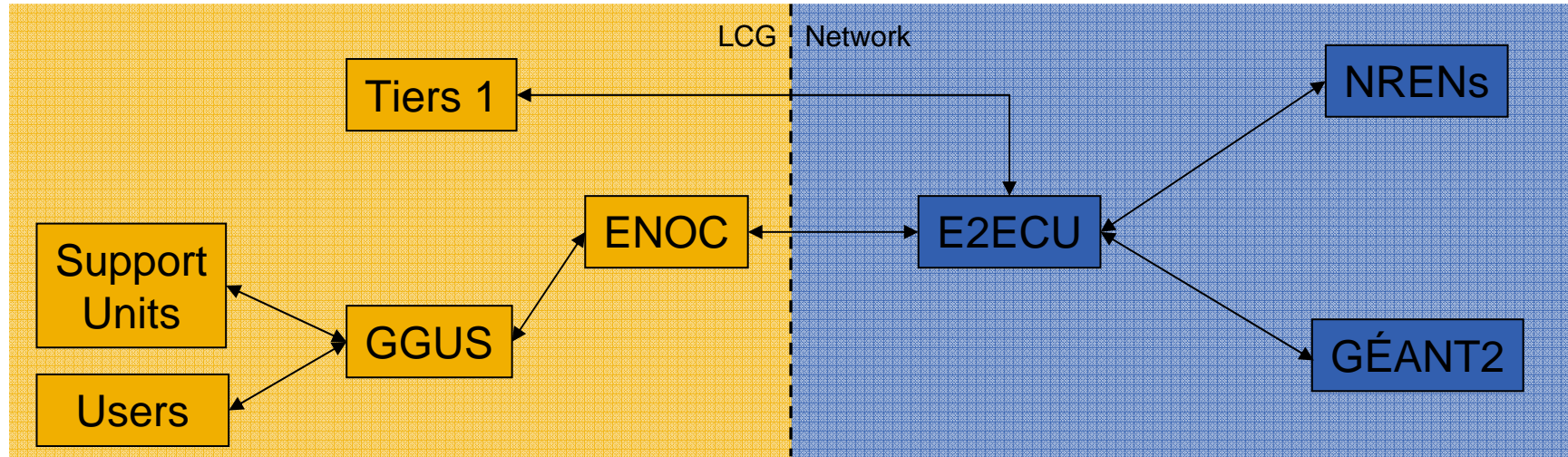
- **This is the current picture as we understand it (only for L2!):**
  - Needs to be detailed to cover all the different cases of operational notices (coming from T1s, from US, others…);
  - Does the T1s need the GGUS reference?
- **Needs to detail the procedures in case of layer 3 incidents!**
- **Procedures finalization is the next step:**
  - Deadline: end of January.

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- **Monitoring/surveillance of the OPN:**
  - ENOC OK to do the monitoring/surveillance of the OPN;
  - Waiting for the monitoring WG:
    - What is to be deployed?
    - Needs to merge the requirements of the various groups (security, routing, operations, ENOC) to derive the monitoring requirements.

Questions?