GÉANT Operations automation on perfSONAR

Ivan Garnizov · GÉANT / NOC pS systems engineer & perfSONAR Development Team
ivan.garnizov@fau.de

perfSONAR is developed by a partnership of

ESnet GÉANT INDIANA UNIVERSITY INTERNET2 RNP UNIVERSITY OF MICHIGAN

GÉANT Operations OC team

- GN OC team, led by Tony Barber
  - Network management and incidents
    - Support perfSONAR
  - Security incidents
  - First line support team
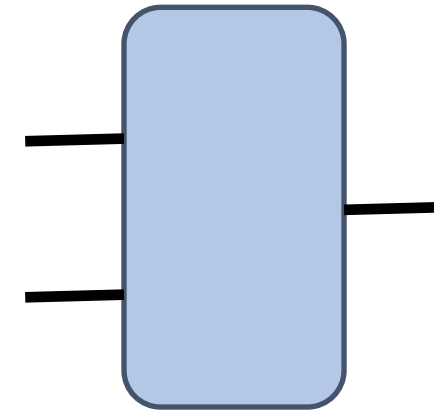- Single point of contact: *(support@oc.geant.net)*

GN Backbone and pS deployment PoPs

- GÉANT backbone
- R&E available servers
- LHC VRF available servers

pS server hardware deployment

- Servers are 10Gb/s capable

- Interfaces

    - Physical

    - VLAN

- Assignments

    - Management: psmp-gn-***mgmt***-par-fr.geant.org

    - Latency: psmp-gn-***owd***-par-fr.geant.org

    - Throughput: psmp-gn-***bw***-par-fr.geant.org

perfSONAR configuration management

- Puppet based automation
  - cooperation between OC, DevOps, IT, Network Implementations
  - modules based collaboration with Git backend
  - applies T/U/P model for code
  - management separation and sharing with DevOps
  - Overlappings
- Template management in 2 stage
  - Inheritance and overruling

Main areas

- Software versioning
- OS specific customizations
- Firewall
- pScheduler
- pSconfig
- Lookup service

Software versioning

- Repository snapshots
- Deployment version control for rebuilds and new servers

```
'perfsonar_focal':    os_release    => '20.04',
    repo_name     => 'perfsonar',
    snapshot_purge => ['04.09.2023'],
    snapshot_names => ['5.0.6', '5.0.8'],
    deb_line      => 'deb http://downloads.perfsonar.net/debian perfsonar-release main';
```

perf_role::perfsonar::psrepo: '5.0.8'

OS specific customization

- VLAN, IP, Hostname

- Source routing

- Disk partitioning LVM

- System optimizations
  - Network card
  - TCP stack

FW configuration

- Based on service descriptions

- Interface assignments to service descriptions

- Strict FW Ingress and Egress management

  - Egress (source port & destination port)

- Issue

  - pScheduler schedule

pScheduler Limits

- Limits configuration
  - Identifier (which other)
  - Limits
    - automatic rules for generic interface assignments
  - Applications
  - Priorities

pSconfig management

- Management of multiple pS mesh sources
  - Inheritance
  - (De)activation of measurement archive

- Default measurement archive
  - pScheduler task param
  - Inheritance
  - (De)activation of measurement archive

Lookup service configuration

- All fields managed

- Specific interface registrations:
  - http://35.223.142.206:8090/lookup/host/4211b758-2671-4dae-a7f9-5b4e61bfd265

Questions?

ivan.garnizov@fau.de