GÉANT monitoring platforms

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GÉANT monitoring platforms

• Network Tools in use
• Challenges
• Plans for evolution
• Monitoring platforms and facilities under review
Current operational Tools

- Nagios
- Junos
- OTRS
- Splunk
- InterMapper
- Infinera
- Flowmon
- perfSONAR
- RANCID

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Managing a Disaggregated Network?

Aggregation and Orchestration Layer, Service Creation

NMS

Edge Devices

Packet Core Devices

Open Line System

IP/MPLS

L2

DWDM

Generic Transponders A

Generic Transponders A

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Operational Tools - dependencies
Operational Tools Evolution Roadmap

**Alarm Dashboard**
- Development
- Transition of Minimum Viable Product
- Addition of enhanced functionality

**CMDB /inventory**
- Requirement definition and analysis
- Refining of requirement, product selection
- Transition of MVP
- Enhanced functionality

**Ticketing system**
- Requirement definition and analysis
- Go/ No-Go decision point

Q4 ‘18 Q1 ‘19 Q2 ‘19 Q3 ‘19 Q4 ‘19
Future monitoring systems under review

• SNMP Polling and graphing for enhanced performance - Observium

• Streaming telemetry

• Ethernet Operations, administration and management (OAM)
OBSERVIUM

• Replacement of cact SNMP polling
• SNMP polling with alerting features
• Increased speed
• Automatic discovery and graph creation and categorisation

• Initial review including tuning ongoing

• More info: http://www.observium.org/
Streaming Telemetry

• Event-driven - pushed to subscribers
• OpenNTI provides a complete ST listener system – in Docker containers
• Feature set increasing
• May replace SNMP whilst providing better resolution and accuracy.

Ethernet Operations, administration and management OAM

- Connectivity Fault Management (CFM) for end-to-end Ethernet services
- Link Fault Management (LFM) for point-to-point (with or without repeaters)
- SA1 have deployed CFM and LFM across the GEANT backbone for internal monitoring. Providing:
  - Measurements: one-way delay, two-way delay, packet loss, synthetic packet loss, and
  - Events: SNMP traps and syslog messages - continuity loss; link errors; remotely-initiated loopback

- CFM and LFM have been deployed across the GEANT backbone for internal monitoring.
- Plans to pilot multidomain CFM with DFN.
- “OAM Cookbook” to be produced for dissemination to the community.

Thank you

Any questions?

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<table>
<thead>
<tr>
<th>Tool Name</th>
<th>Purpose</th>
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<tbody>
<tr>
<td>Cacti graphs</td>
<td>Show data in RRD files</td>
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<tr>
<td>Cacti poller / storage</td>
<td>&quot;Spine&quot; to collect data, RRD / XML to store data (averaged over time)</td>
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<tr>
<td>Deepfield</td>
<td>Network traffic analysis</td>
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<tr>
<td>Event Dashboard (new)</td>
<td>Receiving event data, correlation and GUI</td>
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<tr>
<td>FlowMon</td>
<td>Collects netflow information from routers to support NSHaRP (Network Security Handling and Response Process)</td>
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<td>Infinera DNA</td>
<td>Configure and manage Infinera equipment and view alarms via a GUI</td>
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<tr>
<td>InterMapper</td>
<td>SNMP based IP network monitoring and graphical network mapping</td>
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<tr>
<td>Nagios XI</td>
<td>Event monitoring for IT and Multi-Domain services</td>
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<tr>
<td>Opnet / Riverbed / SteelCentral</td>
<td>Network failure scenario analysis and configuration audits</td>
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<tr>
<td>OpsDB</td>
<td>Network resource documentation</td>
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<tr>
<td>OTRS Tickets</td>
<td>Outage and PM information to share with various parties</td>
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<tr>
<td>PerfSONAR MADDASH</td>
<td>Performance monitoring dashboard tracking throughput &amp; performance across the GÉANT network</td>
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<tr>
<td>Rancid</td>
<td>Configuration archive</td>
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<tr>
<td>Splunk</td>
<td>Log management and alerts (using syslog)</td>
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