Visual Performance Degradation Troubleshooting with perfSONAR

TechEX 2019

Antoine Delvaux — antoine.delvaux@man.poznan.pl

New Orleans, LA, USA — December 10th 2019
Starting Point

Help network engineers work with pScheduler
Spotting a performance issue

Austria - ps02.aco.net
Belgium - perfsonar.r2.brudie.belnet.net
Croatia - psmall.st.carnet.hr
Denmark - psmall.grid.aau.dk
Estonia - perfSonar.eenet.ee

France - paris1-snd-022.perfsonar.renater.fr

Germany - psbrix.rrze.uni-erlangen.de
Germany - psmall-test.x-win.dfn.de
Greece - perfsonar-node.grnet.gr
Hungary - perfsonar.debrecen3.hbone.hu

Ireland - bob.heanet.ie
Debugging a performance issue

But need to wait another 8 hours to see next measurement...
Debugging, using pScheduler CLI

- Launch ad-hoc measurements on the CLI
  - Need to access a perfSONAR node through ssh
  - Need to know the pScheduler syntax
- Once the results are available, no easy way to compare
- And results are not automatically stored into an archive
  - Unless you’re a pScheduler wizard
  - (thanks Mark for the webinars!)
What about ...

<table>
<thead>
<tr>
<th>Country</th>
<th>Hostname</th>
</tr>
</thead>
<tbody>
<tr>
<td>Austria</td>
<td>ps02.aco.net</td>
</tr>
<tr>
<td>Belgium</td>
<td>perfsonar.r2.budie.belnet.net</td>
</tr>
<tr>
<td>Croatia</td>
<td>psmall.st.carnet.hr</td>
</tr>
<tr>
<td>Denmark</td>
<td>psmall.grid.aau.dk</td>
</tr>
<tr>
<td>Estonia</td>
<td>perfSonar.eenet.ee</td>
</tr>
<tr>
<td>France</td>
<td>paris1-snd-022.perfsonar.renater.fr</td>
</tr>
<tr>
<td>Germany</td>
<td>psbrix.rrze.uni-erlangen.de</td>
</tr>
<tr>
<td>Germany</td>
<td>psmall-test.x-win.dfn.de</td>
</tr>
<tr>
<td>Greece</td>
<td>perfSonar-node.grnet.gr</td>
</tr>
<tr>
<td>Hungary</td>
<td>perfsonar.debrecen3.hbone.hu</td>
</tr>
<tr>
<td>Ireland</td>
<td>bob.heanet.ie</td>
</tr>
</tbody>
</table>
What about this?

<table>
<thead>
<tr>
<th>Country</th>
<th>IP Address</th>
</tr>
</thead>
<tbody>
<tr>
<td>Austria</td>
<td>ps02.aco.net</td>
</tr>
<tr>
<td>Belgium</td>
<td>perfsonar.r2.brudie.belnet.net</td>
</tr>
<tr>
<td>Croatia</td>
<td>psmall.st.carnet.hr</td>
</tr>
<tr>
<td>Denmark</td>
<td>psmall.grid.aau.dk</td>
</tr>
<tr>
<td>Estonia</td>
<td>perfSonar.eenet.ee</td>
</tr>
<tr>
<td>France</td>
<td>paris1-snd-022.perfsonar.renater.fr</td>
</tr>
<tr>
<td>Germany</td>
<td>psbrix.rrze.uni-erlangen.de</td>
</tr>
<tr>
<td>Germany</td>
<td>psmall-test.x-win.dfn.de</td>
</tr>
<tr>
<td>Greece</td>
<td>perfsonar-node.grnet.gr</td>
</tr>
<tr>
<td>Hungary</td>
<td>perfsonar.debrecen3.hbone.hu</td>
</tr>
<tr>
<td>Ireland</td>
<td>bob.heanet.ie</td>
</tr>
</tbody>
</table>

Test now
Launch a new test

- From mesh specs
- Choose MP from mesh
- Change test parameters
- Store results into mesh archive
Performing the test

- Contacting pScheduler
Performing the test

● Trigger the test
Performing the test

- Waiting for results
Performing the test

- Processing the results
Displaying the results

- Same information as on the CLI:
  - Intervals
  - Summary
Plotting the results

- Histogram of all intervals
- In a dedicated window or in Grafana ... still up for discussion ... and development!
Some options to visualise results

• Powerful and easy to use JS library: D3
• JS library already in use by pS toolkit: React
• Looking for balance between:
  • most flexible solution
  • least maintenance burden
Current status & looking forward

What have we done so far?
Using Grafana

• Commonly used dashboard tool
• Great to compare metrics coming from different sources
• Can we provide a data-source plugin for Grafana?
  • Esmond data-source
  • pScheduler data-source
Grafana with Esmond data-source
Grafana with pScheduler data-source
What’s on our roadmap

• MaDDash on-demand testing and visualisation
• Grafana histogram visualisation
  • Because a single measurement is a time series of intervals
• On the fly Grafana dashboard creation
  • On-demand tests can be numerous
• Selecting MP from Lookup Service information
  • Broader use case than the MaDDash one
  • Similar in usage to the defunct psUI
Thanks!

TechEX 2019

Antoine Delvaux — PSNC/GEANT — antoine.delvaux@man.poznan.pl

New Orleans, LA, USA — December 10th 2019

© GÉANT Association on behalf of the GN4 Phase 3 project (GN4-3). The research leading to these results has received funding from the European Union’s Horizon 2020 research and innovation programme under Grant Agreement No. 850726 (GN4-3).