RNP Experience with perfSONAR

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2nd European perfSONAR User Workshop
About RNP

27 Points of Presence

50 Communitary Networks

800 Connected Organizations
• Higher education and research institutions
• Research funding agencies
• Museums and cultural institutions
• Innovative companies
• Health facilities with teaching and research
• Innovation-promoting environments (technology parks and hubs)
Timeline

- 2002: Monitoring WG at RNP Coordinated by Jose Suruagy
- 2006: RNP join collaboration
- 2007: RNP hosted a perfSONAR meeting at Salvador.
- 2008: Launched MonIPE release 1.0
- 2013: Launched MonIPE release 2.0
- 2014: RNP leaves convergence initiative collaboration
- 2016:
  - MonIPE was rewritten to align with perfSONAR
  - Launched MonIPE 3.0 - based on perfSONAR
- 2018: Expansion of the Perssonar team at RNP
- 2019: RNP joined as a lead institution
Motivations for joining perfSONAR

• Share development and maintenance costs
  • We believe in this model for global services
  • We want to participate in this experience

• RNP adopted perfSONAR to enable important operations processes
  • Circuit approval at 27 PoPs
  • Calculation of network availability and performance indicators

• Being part of perfSONAR is strategic to RNP
MonIPE Service

Goal
• Provide a network measurement solution to aid performance diagnostics, troubleshooting and validation to RNP and its user community

Description
• MonIPE adopts perfSONAR components with a specialized web portal to provide specific features with focus on demands from RNP’s target audiences

Target audience
• Network engineers and network researchers:
  • RNP/PoP network operators
  • RNP clients (universities and research centers); and
  • Other communities (projects like Science DMZ, PADEX, and other NRENs)
MonIPE Deployment

1 Central Node

27 Measurement Points
MonIPE Architecture

Central Components
- Circuit Validation
- Central Management
  - MaDDash
  - Esmond
  - PWA

Distributed MPs
- Tools (Rx/Tx)
- Testpoint
- NDT Server
- MLAB
Services: Measurement Meshes

RNP Backbone: MonIPE - Desempenho entre PoPs Dashboard

Source
monipe-ba-atriaco.rnp.br
200.128.2.21
Host info

Destination
monipe-me-atriaco.rnp.br
200.129.240.164
Host info

Report range
Thu, 02 Jul 2020 17:25:03 GMT to
Sat, 01 Aug 2020 17:25:03 GMT

No problems found in grid
Services: Speedtest (powered by NDT)

Resultado
Download: 39.0 Mbps
Upload: 4.1 Mbps
RTT: 45.91 ms
Jitter: 12.23 ms
Retransmissões: 0.04%
IP: 201.82.32.88
Services: Circuit Validation Test
### Circuit Validation Report

**REDE NACIONAL DE ENSINO E PESQUISA**
**RELATÓRIO DE HOMOLOGAÇÃO DE ENLACES**
*Data: 22-09-2016*

#### INFORMAÇÕES DA HOMOLOGAÇÃO

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<thead>
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<th>Data</th>
<th>22/09/2016 11:15:00</th>
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<td>Instituição</td>
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<td>Tiquefe ativação</td>
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<td>Tipo Circuito</td>
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#### RESUMO DA HOMOLOGAÇÃO POR VLAN

<table>
<thead>
<tr>
<th>VLAN</th>
<th>Teste</th>
<th>Limite Perda</th>
<th>Limite Atraso</th>
<th>Limite Banda</th>
<th>Resultado</th>
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<tbody>
<tr>
<td>500</td>
<td>CPE.100Mbps</td>
<td>0.01%</td>
<td>10ms</td>
<td>95%</td>
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#### RESUMO DA HOMOLOGAÇÃO POR TESTE

<table>
<thead>
<tr>
<th>VLAN</th>
<th>Medição</th>
<th>Protocolo</th>
<th>Dur. (Seg.)</th>
<th>Banda (Mbps)</th>
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<tbody>
<tr>
<td>500</td>
<td>1</td>
<td>tcp</td>
<td>300</td>
<td>Nominal 100, Alcançada 5967, Atraso 0.653ms, Perda -</td>
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<tr>
<td>500</td>
<td>2</td>
<td>udp</td>
<td>300</td>
<td>Nominal 98, Alcançada 98.8, Atraso 0.272ms, Perda 0.003%</td>
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RNP Contributions

• Containerized perfSONAR deployment
  • New Testpoint container for better maintenance and automation

• Throughput test variation to support Circuit Validation tests
  • Loopback: Runs both client and server tools on the same host

• Early adoption / contribution to new archiver and front-end options
  • Elasticsearch, Logstash, Kibana, Grafana
RNP Team Structure

• Steering
  • Iara Machado (RD&I Director)

• Lead
  • Marcos Schwarz (R&D Manager in Cyberinfrastructure)

• Development
  • Daniel Neto (Developer at RNP)
  • Fernanda Barros/Luan Guimarães (Undergrads at Federal University of Bahia)

• Operations
  • Daniel Marques (Analysts at RNP)
Thanks!
For more information, please visit our web site:
https://www.perfsonar.net