pS Traceroute LS

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Agenda

• Problem statement and Idea
• Metrics to build on
• Possible solution
• Data sources
• DB model proposal
• High level implementation plan
• Risks and Discussion!
Main idea: Topologically relevant LS

- Collect traceroute data from multiple sources
  - Partners
  - Projects
  - Community
  - Even external sources.. like RIPE Atlas in the future
- Provide a service, which presents the most relevant pS nodes along a requested path or even a single IP address
- Dynamically updated
  - Always up to date while we collect traceroute data
  - short lived records + benefits
Key elements

• (nearly|all)? pS nodes are running traceroute measurements
  • For PMP nodes
    • 5 different traces
    • about 5 IP addresses per trace
    • 25 IP addresses we have pS topology information for
  • More than 2,000 MP around the world
  • More than 50,000 IP addresses for which we can collect pS topology information
• results collected at pS MA
  • central MA
  • distributed MA (pS Toolkit)
• The collected information is current!
  • Search engines vs web directories of the 1990’s
Metrics we can build on

- TTL distance
- RTT distance
- ASN, Organisation
- Timestamp
- Test URI (opt)

...and derivatives from above: range queries
How it could look like

# hops to common point:: RTT ms
pS node IP SRC
5:30 ps1
2:15 ps2
8: ps7
3:10 ps5
4:8 ps6
1:3 ps10
3:10 ps5
pS node IP DST
# hops to common point:: RTT ms
2:2 ps01
5:100 ps3
Data sources options

- Direct collection of results from pS nodes
  - As simple as adding a pScheduler archiver config
- Querying of central pS MA
  - When people advertise those MA and grant us access
- Triggering and querying of RIPE Atlas
  - perhaps even based on a cooperation
  - still IMO only based on registered pS nodes
Path matching

- Match sections between queried and collected path
- Requires collection and processing of full traceroute paths (simple on data collection)
- Can provide a limited insight for the connectivity
  - IF pS performance measurements are collected
- Does not fit well with external data sources: RIPE Atlas
- IMO can be covered 70-80% by an improved data preservation model
DB model proposal

- preserve pairs of pS node IP and router IP
- calculate for each pS node the TTL and RTT data
  - at best preserve the direction with positives and negatives
- preserve the rest of the info ASN, domain
- At best preserve URI of measurement
- LINK
- Review the graphic again
High Level Implementation Plan

• Have a deployment of the ELK stack
  • follow the examples from Andy and others
• configure 2 test pS instances with traceroute tests towards:
  • each other
  • external pS nodes
  • external non pS servers
• prepare a conversion
• prepare a query based on full traceroute data
• work on the results output format for API
• work on GUI - loong term
Engagement

- Use the opportunity to promote perfSONAR framework by inviting community to participate
  - Projects
  - Community
- Credits for the use?... when we grow
Summary and discussion

• technology: ELK
• Data collection process: parsed and/or injected
• Risks: “restricted” nodes in DB/results - mitigated, other?
• Extension with RIPE Atlas
• pS Traceroute LS +/- in pS LS
• GUI vs API only
• DB model
• A name for this service?
• more