Multi-domain Monitoring across European Research Networks

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Where does the project come from?

- PERT and the need of addressing e2e problem and so provide for the network side a tool for the PERT group.

- Users and user's users are requesting more and more network statistics.

Goal

- Exchange measurement data between domains.
  - description of our environment (at the European scale, at least 5 ASes to provide an e2e service: campus-national-pan European-national-campus)
  - We know what we monitor inside a domain and what can be accessed from the outside. We don't know how people want to aggregate the result and how they want to represent.

- Start measurement between two domains which may not be under our administrative authority.

Goal

- If a new measurement type is defined, the interface and the underlying layer/components are updated.

- Foreseen uses:
  - looking glass functionality.
  - exchange of delay, loss from active monitoring (trial).
  - recursive operations across a domain and across several domains.
  - find measurement points within a domain and from other domains.

Assumptions

- Different network have different monitoring architecture/tool.

- Everybody is monitoring their own domain, not much in the inter-domain.

- Every domain wants to be able to decide what is done with its data and not rely on a central tool above several domains.

  – Who can retrieve data from my domain, who can start a test, how often.

Multi-domain Interface challenges

- Agree on a set of common measurements.
- Interface(s) definition towards the outside world
  - to the user layer or web server or script and
  - to other domains
  - used to request data and/or to request to start a measurement.
  - ship the data requested in a well-defined format
  - to get information about the domain monitoring capabilities (type of monitoring data available and MP location)
- A Monitoring Point is "something" capable of providing information about one type of monitored data.

Authentication and Authorisation

- Authenticate and authorise an user from the domain and requests and users from other domains.

- Different levels of privileges between domain users, domain NOC, other domain user and other domain NOC.

Monitoring

- What about "methodologies"? Do they have to be the same within different domains?

- Which type of aggregation can be done?

- How to concatenate measurements from different domains to provide a view across different domains?

- For active monitoring, the packets must have the well defined format to be used between different type of equipment.

    - IPPM work important (OWAMP packet format).

Monitoring

- Definition of a common set of parameters and function we would like to see implemented by monitoring tool builders.

  - e.g. packet length, IP version, etc

- Data storage within a domain

  - Data retrieval directly from a MP (potential impact on performance) or a database (how to get the most recent data availability)?

- Procedure to start a new test (e.g. AM source and destination) between different domains.

- Resource management on a MP.

MP Finder

- Based on the output of a traceroute or based on src-dest IP addresses, find out the MP on a paths (Across several domains)
- For historical information, find out the path variation.