SOAP on a Rope:
Global Grid Forum Network Measurements Working Group
Schemas for Web Services

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NM-WG History

- BOF: GGF3, Italy, 10/2001
- First meeting, GGF4, Toronto, 2/2002
- Charter
  - Identify and characterize network measurements useful for Grid (middleware)

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Classification and naming scheme

Measurements included:
- delay.\{roundTrip, oneWay\}.jitter\}
- bandwidth.\{capacity, available, utilized, achievable\}
- queue.\{discipline, capacity, length\}
- hoplist
- loss.\{roundTrip, oneWay\}
- availability.\{MTBF, availPattern\}
Starting point: Ontology (from *Hierarchy* doc)

- Characteristic describes Entity
- Characteristic measures Method(ology)
- Method(ology) is result of Observation
  - singleton
  - sample
  - statistical

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Target Audience for Data

- End users
- Network administrators
- Grid middleware
- Network researchers
Grid Middleware Use-Case

- Measurement framework has some network data
  - Advertises a Grid Svc (discovery step out-of-scope for the moment)
- Grid middleware requests some results from the service
- Service replies with the results
Not done yet!

- Need XML schemas to describe set of results
- Need/want XML schemas to structure the request
  - Querying archived data
  - Running tests on demand
- Request/Report schemas are born
How to ensure interop

⚠️ Canonical description of what must go on the wire: WSDL (web services description language) document:

⚠️ Core of WSDL is simply:

  <input message="NMWG-Request" />
  <output message="NMWG-Report" />

⚠️ Request/Report schemas now a focus of NM-WG work
Simple scenario, revisited

1. Get WSDL, generate stubs in language of choice (Python, Java, ..)
2. Run “server” stub on framework’s side
3. Run “client” stub on middleware side
End of slides
Modifications

Subject

Characteristic

Entity

Method(ology)

Observation

singleton  sample  statistical
Report Schema

Report

includes

Utility types

- Subject
- Result
- Params
- Tool

- Time
- Values
- Extend

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Report Schema

Metadata section (0..N)
- `<metadata identifier_i>`
- Characteristic || Subject || Methodology

Result section (0..N)
- `<metadata identifier_j>`
- ResultSet || ResultSetRef
  - Time interval (0..1)
  - Result (0..N)
  - Statistic (0..N)

“Result delivery info”
Use WS-?something?
For now: place-holder
Result “batching”

- For efficiency, results may be delivered in batches
- Each result section indicates:
  - Batch #
  - (optional) total # of batches
  - (optional) batch size [hint about # of contained atomic measurements]