



Enabling Grids for E-science

NPM Mediator Brainstorming

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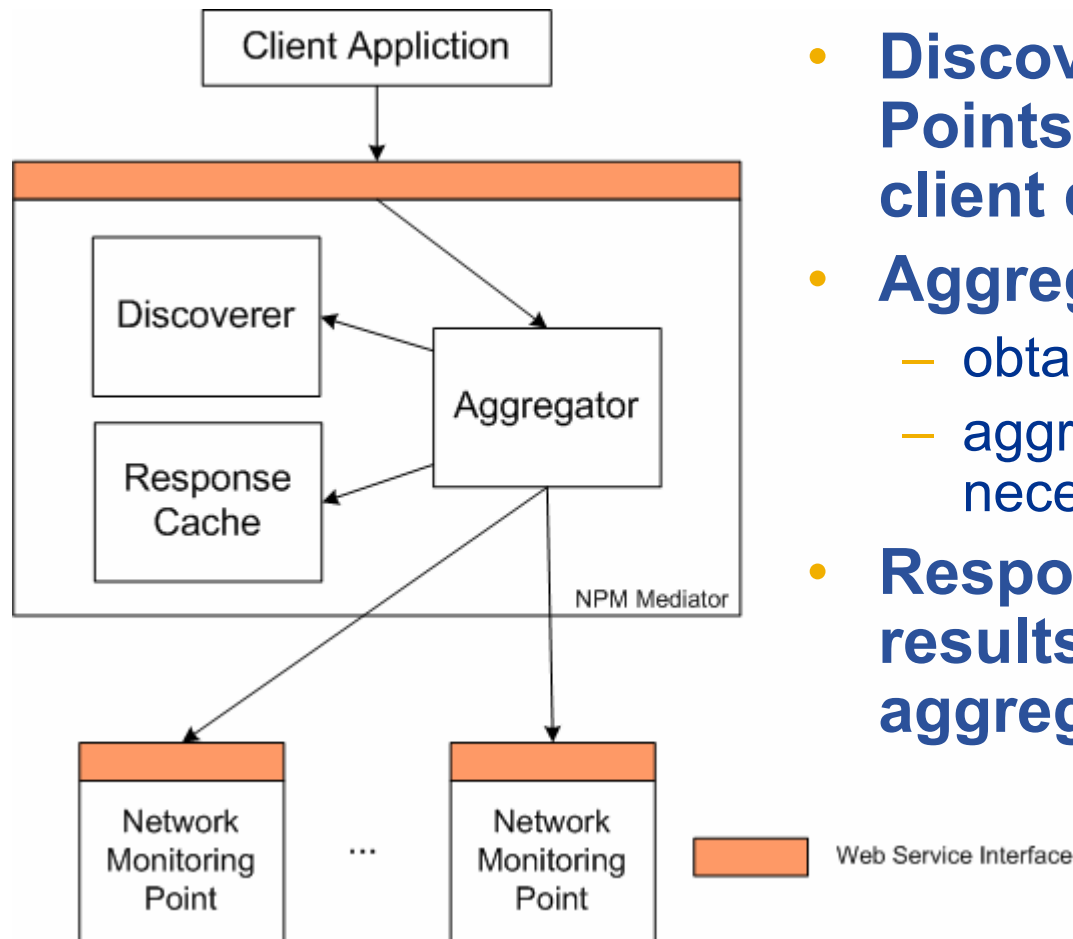
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- **Must start work on Mediator's core components a.s.a.p.**
- **This meeting to help decide**
 - components of Mediator
 - component functionality
 - what can we do for MJRA4.6?
- **Agenda**
 - what the mediator should do
 - brief re-cap of architecture defined by DJRA4.3
 - discuss each component in DJRA4.3 architecture
 - discuss other components identified
 - decide on components and their scope for MJRA4.6

- **Main requirements**
 - locate monitoring point capable of satisfying NM-WG request
 - execute request and return NM-WG result
- **Other requirements**
 - where necessary, aggregate data
 - cache results
 - may be other requirements based on Diagnostic Tool (next session)



- **Web Service interface**
- **Discoverer locates Monitoring Points (MPs) that can resolve client query**
- **Aggregator**
 - obtains query results from MP(s)
 - aggregates (in space) results (if necessary)
- **Response Cache caches results obtained by aggregator**

- **Implements Mediator interface**
 - NM-WG schema based
 - takes an NM-WG request, returns an NM-WG response
 - does it need to do anything else? (depends on DT e.g. topology request?)
- **Need NM-WG schema request/response object model**
 - easier (and so more accessible) to code against than XML documents
 - isolates code from schema version
 - possible that one object model can satisfy different schema versions (WP7, GN2:JRA1)
 - provides interface implementation agnostic model to user
 - object model wraps container stubs
 - means is possible to use other technology in future

- **Mapping of source/destination pair?**
 - need to convert source/destination pair to MP source/destination pair before discovery
 - Mediator do this?
 - if no conversion here, then where? (client)
 - how to perform conversion:
 - for CE/SE extend GLUE schema to add MP?
 - for backbone, how do we map router IPs to MP?
 - will there be non-CE/non-SE/non-backbone IPs?
 - who keeps this information up-to-date?
 - do we provide them interface to do so?
 - can the Mediator cache this information?

- **What interface should the discoverer present**
 - given an NM-WG request, return measurement point
- **What information does the discoverer need to hold?**
 - discovery based just on src/dest?
 - should it consider characteristic too? (anything more?)
- **From where should discoverer get information?**
 - hold information internally
 - makes it difficult to share information between more than one mediator
 - could make it difficult to modify information
 - hold information externally
 - can share data between mediators
 - creates a single point of failure

- **Manual or automatic creation and maintenance of discoverer information?**
- **Manual**
 - manual implies semi-static
 - small amount of information
 - does not change often
 - who keeps information up-to-date?
- **Automatic**
 - MPs register per mediator
 - need interface on mediator to allow MPs to register
 - 1st option: Mediator polls MPs
 - MPs have to implement another interface
 - discoverer data may be stale (poll interval too large)
 - may produce excess traffic on network (poll interval too small)
 - 2nd option: MPs push information (notification)
 - need to extend interface on mediator
 - MPs must implement notification mechanism

- **Do we need aggregation in space?**
 - only have algorithm for one way delay
 - aggregation in space is theoretical and algorithm is experimental
 - given this is it worth developing other algorithms?
- **Can only be manual (user provides path over which to aggregate)**
 - automatic path discovery
 - places too much burden on discoverer
 - do not know that path used will coincide with user's path
- **NM-WG v1 does not allow a hop list as subject**
 - can provide method that takes hop list and NM-WG request

- **Should speed up response from Mediator**
 - will different users duplicate requests?
 - more likely because mapping from user src/dest to MP src/dest
 - but, main variable will be measurement time periods
 - add tolerance on time period to help decide cache hit?
- **Cache contents?**
 - NM-WG request/NM-WG response
 - MP src/dest rather than user src/dest
- **Cache behaviour**
 - NM-WG responses are historical data
 - so, data does not have a “use by date”
 - implies a most recently used, space limited cache

- **Discuss other components brought up during discussion...**

- **Summary of what's been decided...**