Cross Work Group (WG) meeting:
Resource Usage Service WG (RUS-WG)
&
Open Grid Services Architecture WG (OGSA-WG)

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Steven Newhouse
(RUS-WG co-chairs)

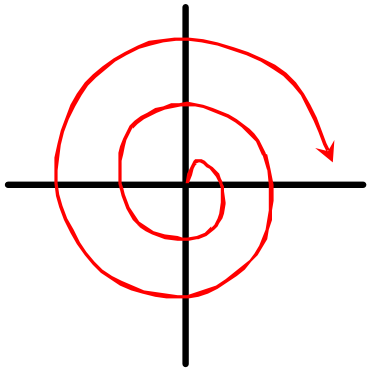
RUS-WG
Background

- Charter:
  - To define a Resource Usage Service (RUS) for deployment within an **OGSA** hosting environment that will track resource usage (accounting in the traditional UNIX sense) and will not concern itself with payment for the use of the resource.

- Goals:
  - To enable the tracking of resource usage within Grid Services deployed within an **OGSA** environment. As the 'resources' that need to be tracked (e.g. CPU, time, memory) may be vary between services and over time an extensible schema will be used to structure this information.

- History:
  - GGF5 BOF
  - GGF8 Spec version 1
  - GGF9 Spec version 3
  - GGF9 Tactical & Strategic

Current Status of RUS-WG



- Tactical
  - "what we need to do to get stuff running" (security, persistance,…)
    - UK Market for Computational Services Project (Jon MacLaren)
    - UK e-Science Grid (Steven Newhouse)
  - based on draft 3 of specification
  - key dependencies on UR-WG, OGSI V1, & GT3
  - focus on batch-oriented use cases

- Strategic
  - Work with OGSA-WG to integrate RUS into the OGSA.
  - Submitted RUS use case to OGSA-WG (2003-07-28)
  - broader use case focus (e.g. e2e, network elements)

Overview of RUS-WG input to OGSA-WG

(from OGSA-WG use case submission)

Summary

- The Resource Usage Service (RUS) will facilitate the mediation of resource usage metrics produced by applications, middleware, compute elements, network elements, and storage elements in a distributed, heterogeneous environment. It is one of the core services outlined in the Open Grid Services Architecture document.

Customers

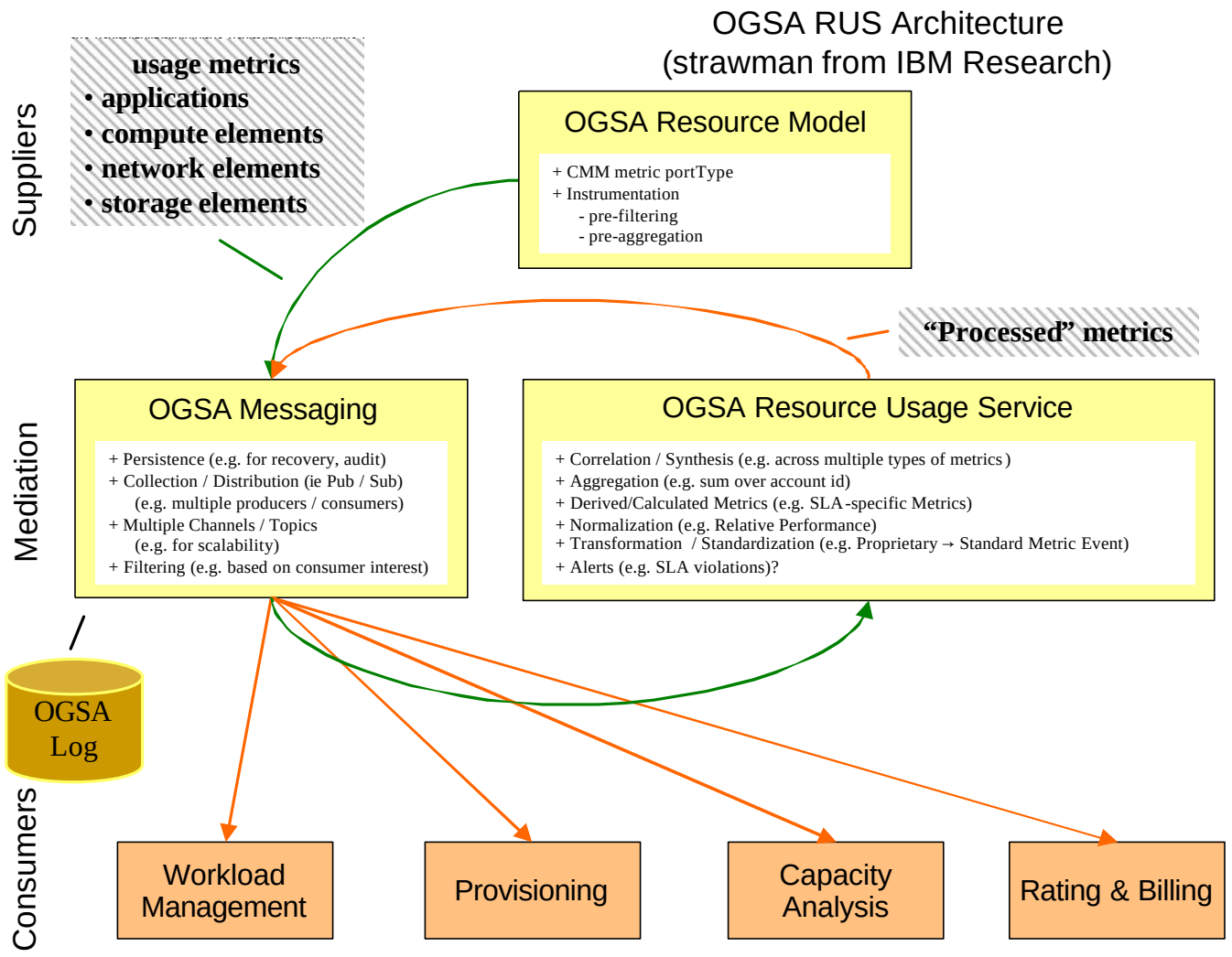
- The RUS will be exploited by customers interested in measuring resource consumption for a number of reasons, usually motivated by scenarios related to cost allocation and capacity planning. Potential customers come from both the commercial and scientific domains.

Scenarios

- The RUS is intended to support a wide variety of usage scenarios including those based on: cost allocation (i.e., chargeback); capacity and trend analysis; fraud and intrusion detection; dynamic provisioning; service level agreement compliance; pricing of web services; and workload management.

Next Steps for RUS-WG input to OGSA-WG

- kickoff RUS discussion w/ detailed strawman w/
  - architecture
  - service / resource factoring
  - configuration / policy
  - expression of resource usage metrics


OGSA RUS Architecture
(strawman from IBM Research)
Suppliers
usage metrics
• applications
• compute elements
• network elements
• storage elements
OGSA Resource Model
+ CMM metric portType
+ Instrumentation
- pre-filtering
- pre-aggregation
"Processed" metrics
Mediation
OGSA Messaging
+ Persistence (e.g. for recovery, audit)
+ Collection / Distribution (ie Pub / Sub)
(e.g. multiple producers / consumers)
+ Multiple Channels / Topics
(e.g. for scalability)
+ Filtering (e.g. based on consumer interest)
OGSA Resource Usage Service
+ Correlation / Synthesis (e.g. across multiple types of metrics)
+ Aggregation (e.g. sum over account id)
+ Derived/Calculated Metrics (e.g. SLA-specific Metrics)
+ Normalization (e.g. Relative Performance)
+ Transformation / Standardization (e.g. Proprietary → Standard Metric Event)
+ Alerts (e.g. SLA violations)?
OGSA Log
Consumers
Workload Management
Provisioning
Capacity Analysis
Rating & Billing

Relationships / Dependencies for RUS-WG

(from OGSA-WG use case submission)

OGSA Metering
- RUS-WG / Mediation of Metrics
  - Semantics of delivery (see “Messaging Fabric”)
  - Policy (Rules) for Aggregation, Normalization, …

OGSA Common Management Model (CMM-WG)
- Semantics for access to Resource Usage Metrics
  - + metric schema (see “Standard Schema for Metrics”)
- Semantics / policies for pre-filtering and pre-aggregation

OGSA Events
- Extensions for metrics (build on UR-WG work)
- Metric events are processed by OGSA Metering

OGSA Messaging
- Support for multiple Channels / Topics
- Semantics for: Push & Pull
- Policies for: Filtering, QoS, etc
- Support for OGSA Events

OGSA Logging
- Semantics and policy for Logging
- Support for OGSA Events

OGSA Security (OGSA-SEC-WG)
- Resource usage data should be secure