



EUROPEAN MIDDLEWARE INITIATIVE

# EMI CPU Accounting Usage Record

Andrea Guarise  
INFN

- EMI encompasses four accounting middleware sensors. Each of them with their own strengths and weakness. Each of them with their own Usage Record format.
- This undermine the possibility for those middleware to efficiently interoperate.

## OBJECTIVES

- Define a common compute accounting Usage Record
  - Major constraints:
    - Start from OGF UR V1.0.
    - Consider already existing Use Cases (such as those coming from EGI).
    - Use the OGF UR extension framework just for local (to an NGI or a specific accounting implementation) use.
    - Identify a set of extension to the existing standard as a proposal to OGF.

- We divided the work in the following steps:
  - Existing records survey OK
  - Semantic definitions:
    - Base properties OK
    - Differentiated properties ~OK
  - Syntactic aspects:
    - Base Properties ~50%
    - Differentiated Properties ~50%
  - XSD schema definition

- Survey result
  - The survey of the existing records implemented by current EMI accounting middleware show that three of them (DGAS, ARC, UNICORE) are already capable to produce and consume OGF UR V1.0 Usage Records.
  - That is they produce valid XML documents as defined by OGF UR V1.0 standard.
  - This sounds good, but...

- Survey result
- ... unfortunately this doesn't assure interoperability.
- The problem is that OGF UR is syntactically explicit but semantically unclear.
- Each middleware had different interpretation over the meaning of the OGF UR fields, often in incompatible ways.

- The new record format - Progress
  - Thus we decided to focus on the semantic well before entering into syntactical aspects.
  - OGF UR has a distinct separation between the *base* properties and the *differentiated* properties of an Usage Record:
    - Base properties: Critical information describing a job, the user submitting it and the resource executing it.
    - Differentiated Properties: Fine grained information on the recorded usage metrics.

- The new record format – Progress (2)
- We initially focused on semantic of both base and differentiated properties:
  - We could stick to OGF UR V1.0 except for some cases where we needed to define new properties:
    - VirtualOrganization/ProjectName/Group
    - SiteName
  - In many other case we needed to tightly restrict the semantic of the existing properties to ensure proper interoperability



- The new record format – Progress (3)
- Semantic of the record is mainly clear and defined.
- Syntactical aspects are being investigated, but it is just a matter of properly defining correct fields attributes and their needed cardinality.
- XSD schema needs to be produced.

- The new record format – Progress (4)
- Record aggregation is mainly an open issue given the fact OGF record do not enters into the topic.
- Our proposal is to stick to what APEL is already doing in their SSM activity, just defining a proper XML based document instead of the plain text key/value pair that has been used so far.

- Details on the EMI compute usage record can be found at:

<https://twiki.cern.ch/twiki/bin/view/EMI/ComputeAccounting>



**Thank you!**

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