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Guarantee and Penalty Clauses for Service Level Agreements

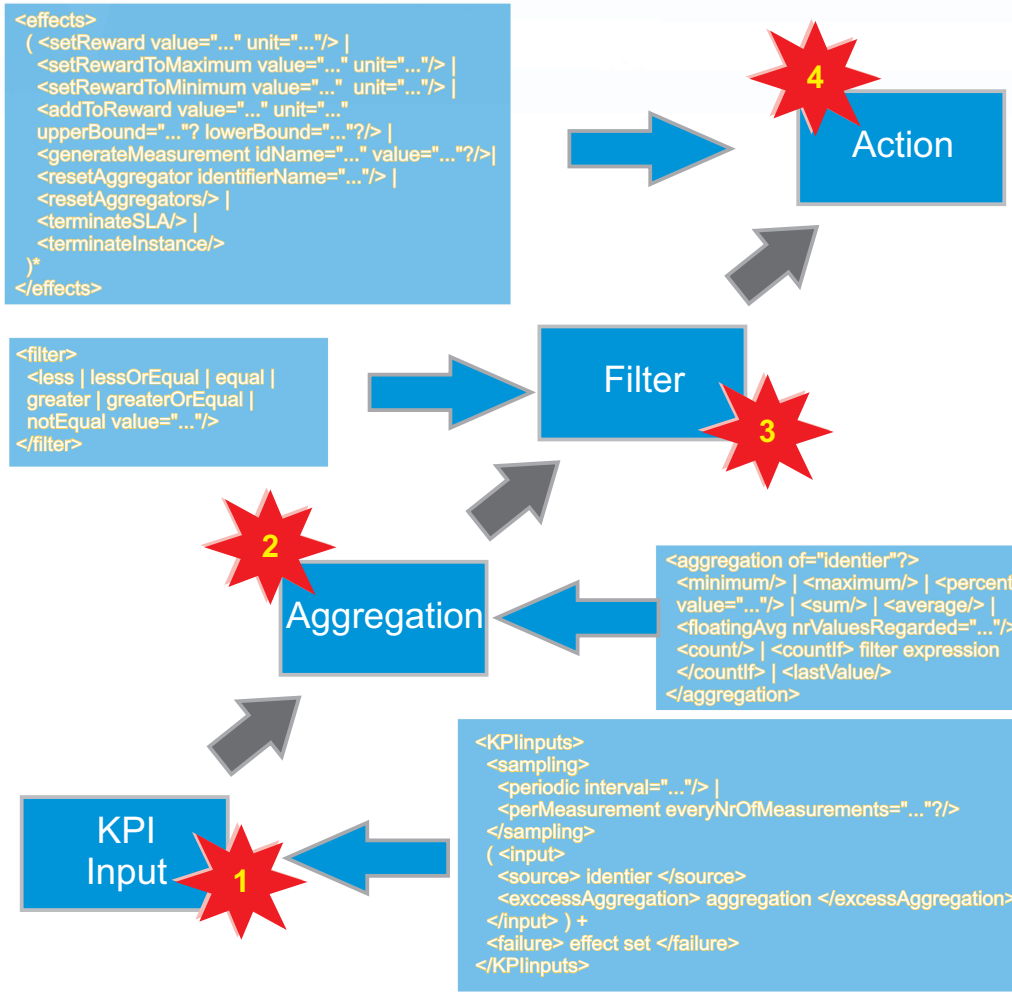
Use Cases:

- Computational jobs:
  user specified job to execute (e.g. using JSDL) plus restrictions (deadline or other parameters)
- Service jobs:
  service has to be available and respond in a timely manner to requests
- Workflow jobs:
  tasks are embedded in a network of dependencies, where each task may precede or follow several other tasks

Types of Violations:

- Attribute violations: single attribute violated at least once, all other obeyed
- Multi-attribute violations
- Chain violations: attribute violations can have chain effects that shall not be penalized additionally
- SLA violations: attribute violations can culminate in violation of the entire SLA

Blind submission of business critical jobs to the Grid?



Expression of Guarantees and Penalties in SLAs:

1 KPI Input

- Data upon that guarantees are specified, either polled periodically or received from subscriptions
- Source (e.g. sensor) has to support synchronous sampling
- All sources deliver their samples in a single message

2 Aggregation

- Aggregation (e.g. min, max, sum, percentile, avg) of all samples of time period into single scalar value

3 Filter condition

- Predicates which map output of aggregator to boolean value (e.g. <,<=,==,>=,>,...)

4 Effects

- Filter triggers one or more actions
- Effect could be alteration of rewards and penalties or violation of SLA