Web Services Agreement-based Resource Negotiation in UNICORE

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Early experiences with WS-Agreement

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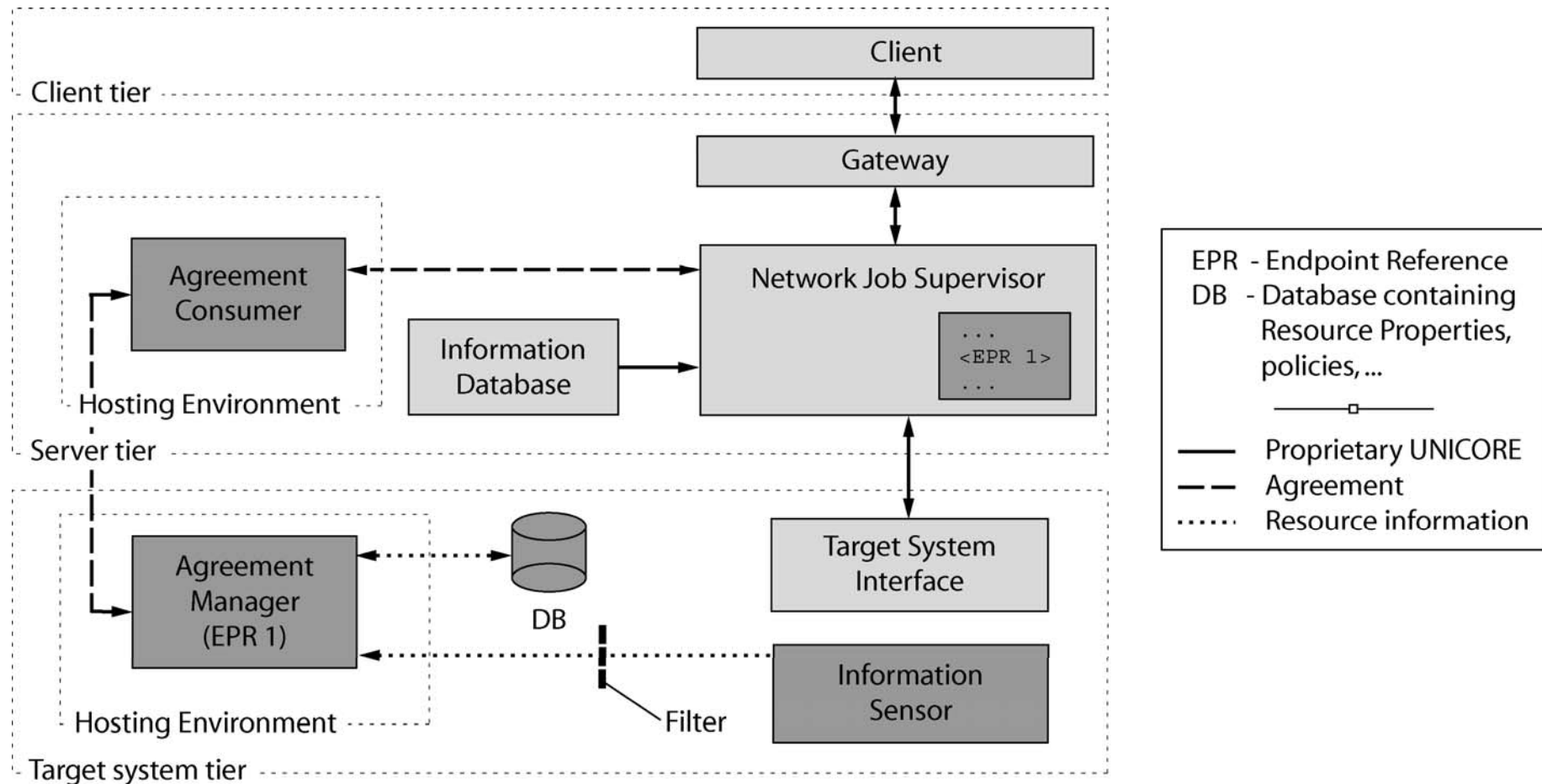**in der Helmholtz-Gemeinschaft**

Use case motivation

UNICORE's resource management framework should provide the following:

- ➢ Dynamic Information
  - ➢ End-users must operate on up-to-date resource information
- ➢ Quality of Service (QoS) guarantees
  - ➢ End-users and service providers require QoS -> SLAs
- ➢ Autonomous resources
  - ➢ Service providers demand autonomous control of resources
- ➢ Economic Models
  - ➢ Requirements/constraints beyond resource specific -> cost, ...

⇨ WS-Agreement-based prototype

UNICORE architecture & extensions

Implementation

➢ Based on draft version 20 of WS-Agreement

⇨ Adaptation to final recommendation planned

➢ ETTK as hosting environment

⇨ Licensing issues, to be replaced by Unicore/GS one

➢ Policy language proprietary

⇨ System-wide solution needed

Evaluation & conclusions

➢ WS-Agreement used to add dynamic, SLA-based resource management capabilities to UNICORE

➢ Prototype foundation for higher-level resource management functions like

   ➢ meta-/co-scheduling
   ➢ advance reservation

➢ Currently two-step negotiation (template – offer), but multi-step negotiation needed for scheduling

⇨ Negotiation protocol needed

Information sources

➢ **Philipp Wieder**
ph.wieder@fz-juelich.de

➢ **Paper**
Morris Riedel, Volker Sander, Jiulong Shan, Philipp Wieder,
"Web Services Agreement-based Resource Negotiation in
UNICORE". SRMPDS '05, June 27 – 30, 2005, Las Vegas.

➢ **Diploma Thesis**
Morris Riedel, "Prospects and Realization of Flexible Offers in
a Grid Environment".