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Data Stream Application Manager (DSAM)

**Goals**
- Federation of third-party stream processing engines
- Heterogeneous nodes: different type and capabilities
  - Commercial SPEs
  - Wireless sensor nodes
- Distributed data stream processing made easy
  - Single user interface and query language

**Features**
- Unified user-interface
  - Formulate global queries in DSAM’s Abstract Query Language (AQL)
  - Other query languages: in progress
- Flexible architecture: stable core + plugins
  - Stream processing engines
  - Operators
  - Cost models
- Integrated overlay network
  - Abstract from different physical networks
  - Network types pluggable
- Mapping and partitioning of global queries
  - Translation into target languages
  - Cost-based optimization
  - Automatic instantiation of adapters

**Setting**
- Existing Deployments of SPEs require integration
- Choosing an SPE for a new deployment is difficult
- Switching to a different SPE requires relearning

**Architecture**

**Future direction**
- Decentralization
  - Make optimization decisions locally in order to relieve controller
- Semantics
  - Deal better with semantic heterogeneity
  - Allow user to accept certain deviations from optimal results for better performance
- Optimizer improvements
  - Integrate work on monitoring and rate propagation
  - Tackle the optimization problem (NP-hard)