Benchmarking the performance of JMS on computer clusters

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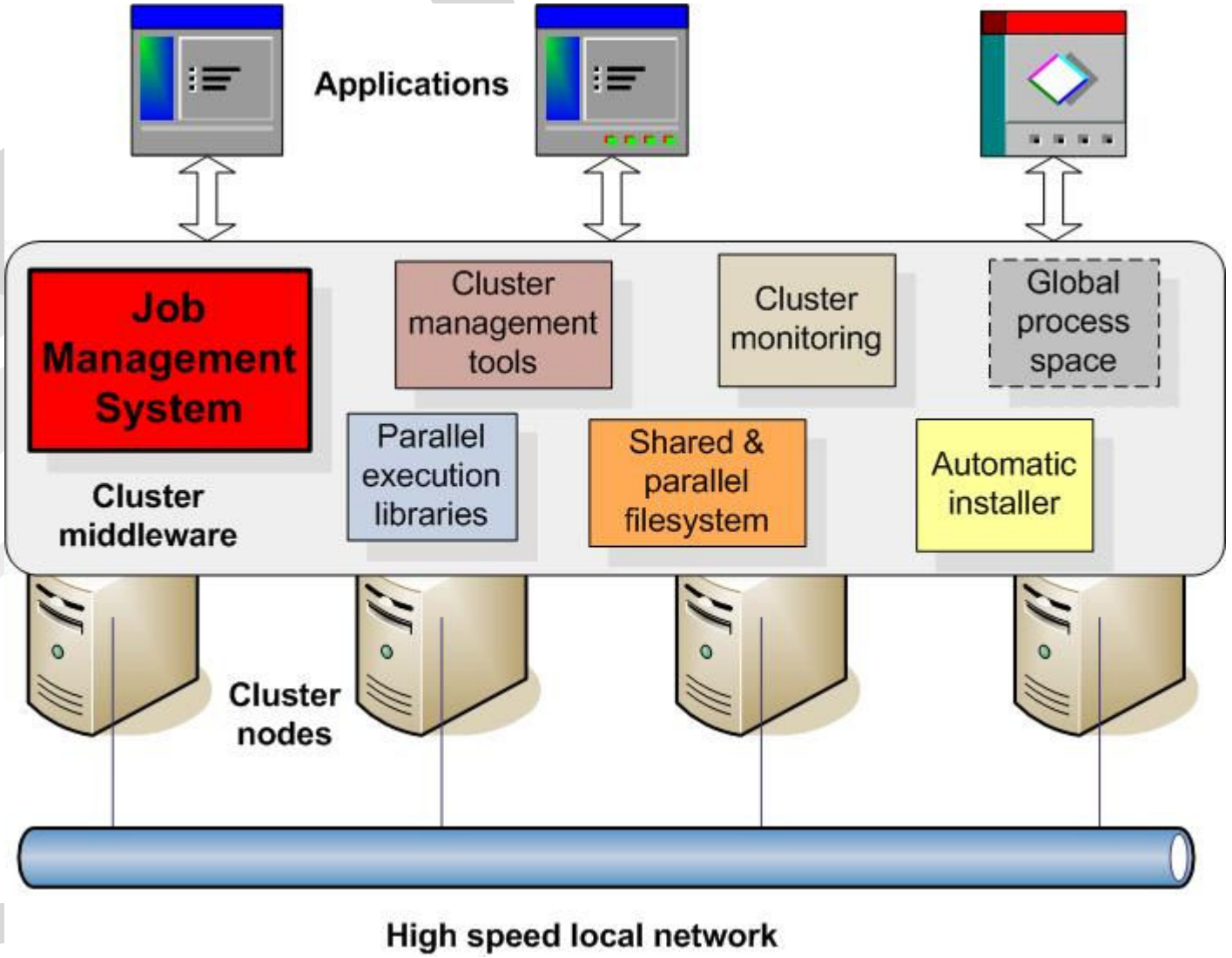
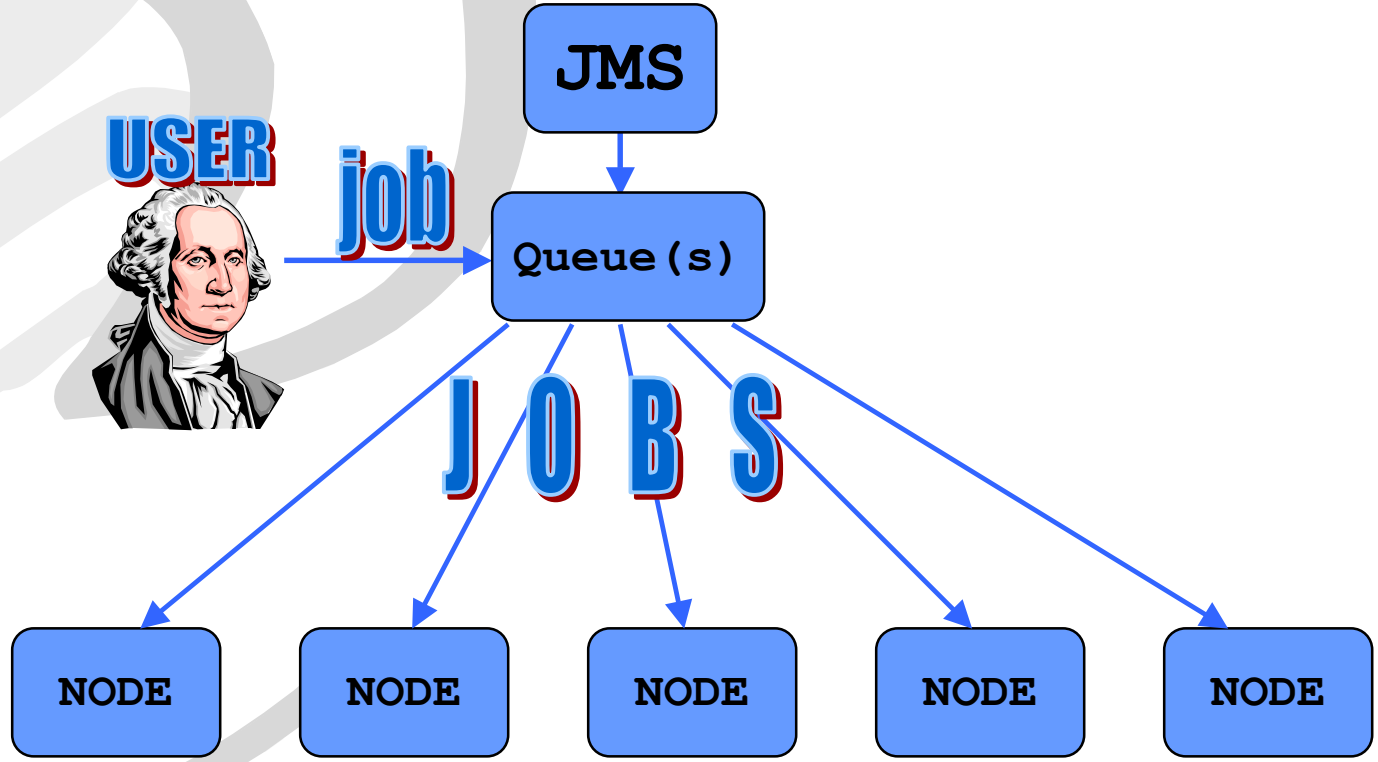
Introduction



What is a JMS???

- JMS is in charge of distributing jobs on a computer cluster
- Takes care of queuing, scheduling and resource managing
- JMS part is to optimize the utilization of cluster resources

How does JMS work???



Motivation

- Optimization of the cluster performance
- Selection of a JMS based on a problems cluster solves
- Applicability in future work

How to measure the performance of JMS???

Main feature of JMS is the throughput that a certain JMS provides to the cluster. There are two ways of conducting throughput measurements:

- Measuring with a **constant load**
- Measuring with a **constant time window**

Measuring throughput with a constant load

Advantages:

- Time can be measured with high precision
- Repeatability
- Pattern can be defined

Disadvantages:

- Time of tests can change
- Hard to make a representative pattern

Details of measuring

- Three cluster distributions tested:

  Condor, Torque and SGE
- NAS Parallel Benchmarks, a set of parallel and serial benchmarks was chosen for submitting on the cluster
- Tests where repeated several times (varies)
- Hyper threading
- Hyper threading **retested**

Results

- Each JMS showed the best properties when handling jobs it was intended to manage
- Condor -**Serial jobs**
- Torque - **parallel** - homogeneous (same sizes)
- SGE - **parallel** - combination (varying size)

Conclusions

- Future - Grid benchmarking
- Applicability of the measurement results on the work with a Grid RMS

Thank you for you're attention!!!

Questions???