Monitoring the reliability of MPI support on the EGEE Infrastructure

P. Korosoglou, C. Triantafyllidis, C. Kanellopoulos

EGEE09 Barcelona

www.eu-egee.org

e-infrastructure

Common MPI Issues

- **Network Filesystem errors (i.e. stale NFS)**
- **Improper MPI installation**
  - Environmental variables not defined
  - Different mpi implementation than the one used by the user to build executable(s)
- **Ssh host based authentication**
- **Erroneous data on information system**
  - Site publishes it supports MPI when no MPI installation exists

Why go forward with checks

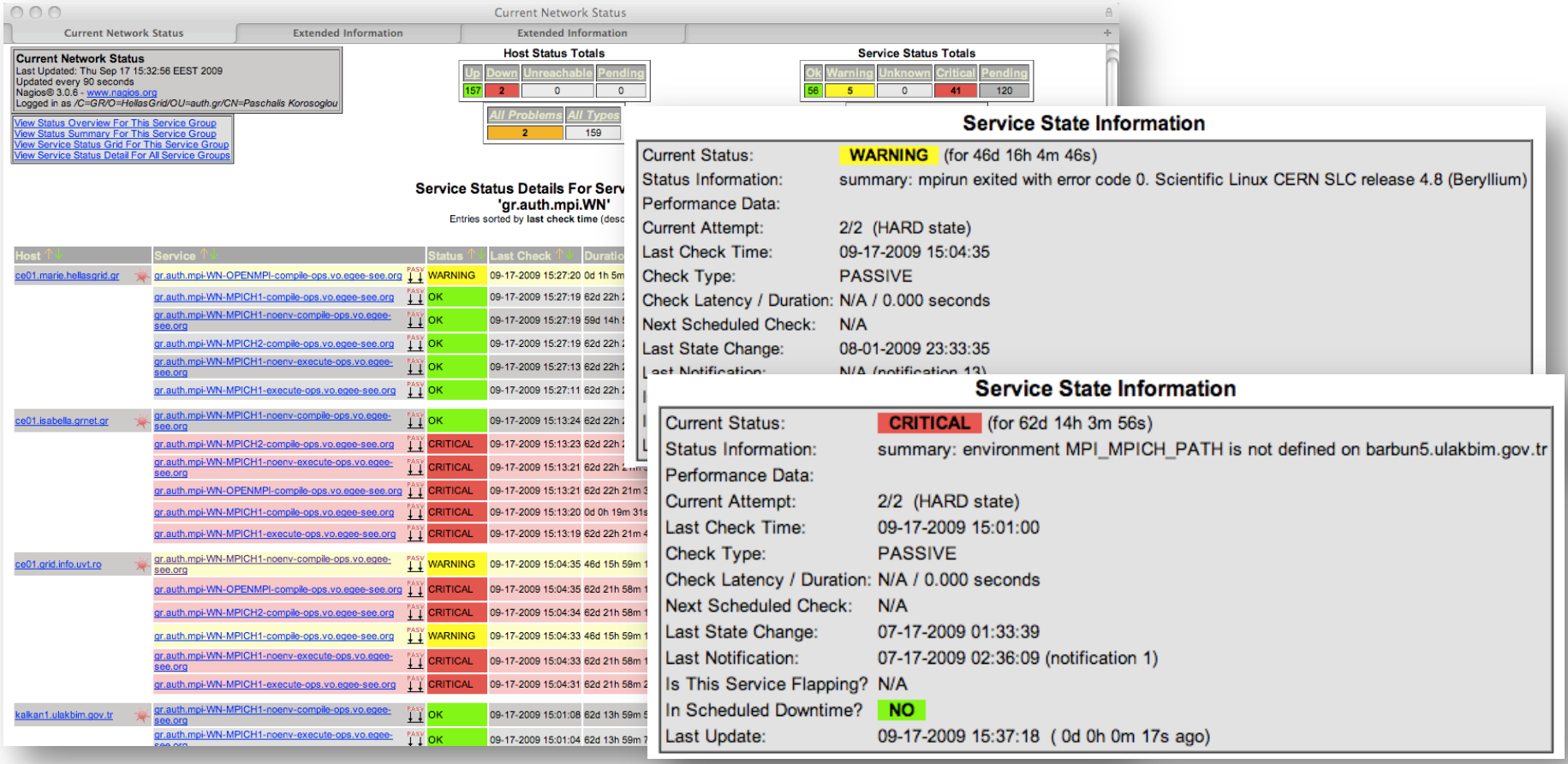
- **AUTH Helpdesk stats (June-August 2009)**
  - Received: 21 trouble tickets regarding MPI Support (SEE VO)
  - Escalated: 8 to National Ticketing System, 7 on EGEE-SEE Helpdesk
- **Decision to build mpi-probes**
  - Proactive monitoring of MPI on the Grid infrastructure
  - Reduce effort in the long run
  - Make the infrastructure more robust
- **Objectives**
  - Provide a mechanism (initially for users of the region) to exclude failing sites
  - Provide a robust alert mechanism for site administrators

MPI Probes Design

- **Design initially based on User Practices**
  - Focus on mpich-1 implementation
  - Check Site installation
- **Set of probes**
  - mpich-1
    - Directly execute pre-compiled binary with mpirun
    - Directly compile and execute MPI source code with mpiCC
    - Use MPI_MPICH_PATH to execute pre-compiled binary
    - Use MPI_MPICH_PATH to compile and execute MPI source
  - mpich-2
    - Use MPI_MPICH2_PATH to compile and execute
  - OpenMPI
    - Use MPI_OPENMPI_PATH to compile and execute

Current Status

- **Currently monitoring**
  - 37 Grid Sites in the SEE Region
    - 17 of those do not publish “MPICH” in information system



To-do list

- **Ask the information system beforehand**
  - Make sure that Grid Site under testing can provide n≥2 slots
- **Provide interface for Grid users**
  - Copy and paste “Requirements” attribute into JDL file
- **Scale number of processes per test probe**
- **Test the per-VO installations of MPI**
- **Integrate gr.auth.mpi with latest nagios.org.sam probes**

Further reading

- http://tinyurl.com/mpi-wiki
- http://tinyurl.com/mpi-nagios (ops.vo.egee-see.org)