

MPI probes

OMB Meeting
26th February 2013



- Motivation:
 - Why do we need different / new MPI probes?
- New MPI probes description.
- New MPI probes integration process.

- **Why present MPI probes are not sufficient**
 - Completely dependent of the EGI information system.
 - If a site is publishing the MPI-START tag correctly, the resource is tested, otherwise it is not.
 - Poor testing of MPI functionality
 - No MPI Information sanity check
 - Execution of an “Hello World” MPI job in two slots
 - Only uses a single WN (in the majority of the cases)

- **MPI Sanity Check** (**eu.egi.eu.mpi.EnvSanityCheck**):
 - Checks values published by the information system (MPI tags, MPI flavours, CPU and Wall-clock values coherent with the execution of the MPI applications).
- **Simple Job** (**eu.egi.mpi.SimpleJob**):
 - Checks the ability to execute a simple parallel jobs with MPI-Start using 2 different slots.
 - The probe detects typical errors such as misconfiguration of the batch system, incorrect installation of the MPI implementation or errors in the distribution of files across nodes.
- **Complex Job** (**eu.egi.mpi.ComplexJob**):
 - Checks the execution of larger jobs and tests a broader functionality of the MPI standard.
 - Requests 4 slots with 2 instances running in different dedicated machines (JobType="Normal"; CpuNumber = 4; NodeNumber=2; SMPGranularity=2; WholeNodes=True).

- **Ex: Simple Job** (`eu.egi.mpi.SimpleJob`):
 - Target:
 - CREAM-CE tagged as eu.egi.MPI Service in GOCDB
 - Requirements:
 - Job submission requesting two slots in different machines (JobType="Normal"; CpuNumber = 2; NodeNumber=2)
 - Dependencies:
 - Executed after eu.egi.mpi.envsanitycheck, and if it exits with WARNING or OK status.
 - Frequency and Timeout: 2h

Expected behaviour: **Simple Job** (eu.egi.mpi.SimpleJob)

MPI-START not able to determine the scheduler type	WARNING
MPI-START is not able to determine if the MPI flavour under test is correctly set	WARNING
The compilation of the parallel application fails	CRITICAL
MPI-START fails to distribute the application binaries	CRITICAL
The MPI application execution failed	CRITICAL
MPI-START fails to collect the application results	CRITICAL
The application executed with less slots than requested	CRITICAL
The probe reaches a timeout and the execution is cancelled	WARNING
The probe reaches a 2nd timeout and execution is cancelled	CRITICAL
The application executed successfully	OK

- Development of new set of probes (SA3): **DONE**
- SAM nagios Testing (SA2/JRA1): **DONE**
- Delivery of SAM nagios probes to SA1: **On Going**
- Request for adding/modify MPI probe to OTAG:
 - <https://wiki.egi.eu/wiki/PROC07>
- Integration in SAM. SAM U23?

- **MPI VT wiki:**

https://wiki.egi.eu/wiki/VT_MPI_within_EGI

- **New MPI nagios details:**

https://wiki.egi.eu/wiki/VT_MPI_within_EGI:Nagios

- **MPI VT report:**

<https://documents.egi.eu/document/1260>

- **RT GOCDB new MPI service type:**

<https://rt.egi.eu/rt/Ticket/Display.html?id=3396>