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Implementing a Condor pool using a Green-IT policy

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Abstract

High Throughput Computing (HTC) systems are designed to utilise available resources on a network of idle machines in an institution or organization by cycle stealing. Condor is an excellent HTC tool that excels in cycle stealing tool that works effectively within a power saving environment.

Current Configuration of Condor Pool

- The current condor pool has around 500 cores on Lab machines in engineering with the availability to expand to over 2000+ cores.
- We plan to implement Linux virtual machines (Pool of Virtual Boxes, POVB) to run on lab machines when the labs are closed.
- Machines power off after 20 minutes from the user logging out.

Connecting to QGG Condor

- Users connect to the Bellatarix submission node using the campus key which authenticates the user using the LDAP.
- The Master node is implemented as a virtual machine which aid testing of new versions.
- The Submission node is a part of the internal submission node for the QGG. The submission node is separate from the Master node because the scheduler requires a larger amount of processing power than currently available on the virtual machine.

Conclusions

- Condor is an excellent HTC tool that provides extra computing resources for scientific calculations utilising existing idle resources, and providing a relatively inexpensive solution for research computing.
- With new intelligent management system, Condor can become more energy efficient.
- With POVB it will allow Linux specific programs to run on an already existing Windows computing infrastructure.

Further Work

- To deploy Condor across the Queensgate campus computing laboratories and in the library.
- To increase the user base, running a variety of applications from different schools, and to make a more efficient use of the computing infrastructure owned by the University.