

Cloud Session

- Check where we are, and where we go from here
 - Identify matters that require clarification
- This time round: restricted to clouds
 - Mostly commercial/public
 - Not covered this time: HPC, volunteer computing, other opportunistic resources

Agenda

- Domenico Giordano: CERN experience with public clouds
- Dirk Hufnagel: Commercial clouds at US Tier-1s
- Randy Sobie: Tier-2 cloud computing
- Discussion

Proposed Procedure

- After each presentation, questions and comments for clarification purposes only
- Topics deserving broader discussion to be brought to discussion part
- I suggest not to discuss benchmarking – has been discussed ad nauseam in a number of GDBs etc.

Discussion

Storage

- What kind of storage is needed?
 - Managed storage – DPM?
 - Can object storage (e.g. S3-like) be used?
- How much storage is needed for a given compute capacity?
- For which workflows?
- Balance between storage and networking?

Storage (cont'd)

- Implementation of storage “caches” in the cloud: what is the expected hit-ratio of the caches? Can it be improved with job match-making that is cache-aware?
- Max size of an individual file, and average file size
- Required throughput & latency (MB or GB/s vs access to first MB or GB)

Networking: Public Addresses

- With HTCondor and CCB VMs behind a NAT 1:1, workloads of all experiments can run successfully
- Can we release the requirement that all WNs must have a public IPv4 address?
 - Will help reduce cost when procuring large compute capacity

Virtual worker nodes

- RAM/core ratio: is 2 GB/core still enough?
 - Within cloud procurements this constraint can be easily released... but at a cost
- Are there workloads that would significantly benefit of SSD-like “local” VM storage?

Small (Tier-2) Sites

- How about configuring site resources as an (Openstack) private cloud and having resource usage controlled remotely?

Economics

- Is it desirable, and does it make sense, to embark on an organised effort for cost comparison of on-premise and cloud resources?