Ubiquitous Cyberinfrastructure

Input to WLCG Brainstorming

Rob Gardner • University of Chicago

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Pioneer a new phase of advanced cyberinfrastructure deployment, allowing sites to flexibly evolve and sustain both on-premise and commercial cloud-based infrastructure.

- Hosted services, such as CEs, data caches, squid, etc., could be centrally deployed onto “CI substrates” within a trusted CI zones and remotely operated, upgraded, and optimized for performance.

- Extend to shared, opportunistic university clusters and cloud resources.
Distributed Virtualized Data Centers

● Reduce IT footprint and ops burden
  ○ Centralize deployment & ops; reduce local admin cost

● Explore virtualized data center frameworks
  ○ E.g. container management over bare metal or VMs

● “Blue sky” goal
  ○ Establish a “trusted pattern” for a “CI substrate” on sites
  ○ Create distributed virtualized data center(s) overlaying the fabric substrate
Canonical SciDMZ
US ATLAS Facility central ops console:

$ dcos package install osg-squid.3.3 --sites MWT2 ALGT2 SWT2 WT2 NET2

SciDMZ with CI Substrate

Edge container hosting zone on premise

- squid
- cvmfs
- FAX cache
- CE
- GUMS
- Mesos
- node
- node
- node
- node
Key: Containerizing Services

- osg-squid-3.3-el6
- osg-ce-3.3-el6
- osg-gums-3.3-el6
- ...etc

squashed down to single container

sub-containers
Frontier-Squid Containerized

● And deployed in a hybrid cloud @ OSG Tier2: