Cloud PaaS

Hadoop **Iterative MapReduce HDFS** Hbase

Swift Object Store

laaS

VINE

Nimbus Eucalyptus

OpenStack

GridaaS

SAGA Globus

HPCaaS Genesis Unicore

> MPI **OpenMP CUDA**

TestbedaaS

Provisioning: *RAIN*, *CloudMesh* VMs: Phantom, CloudMesh

Infrastructure: Inca, Ganglia

Experiments: Pegasus, Precip,

Cloudmesh

Accounting: FG, XSEDE