***Cycle Cloud***

Azure CycleCloud is an enterprise-friendly tool for orchestrating and managing High Performance Computing (HPC) environments on Azure. With CycleCloud, users can provision infrastructure for HPC systems, deploy familiar HPC schedulers, and automatically scale the infrastructure to run jobs efficiently at any scale. Through CycleCloud, users can create different types of file systems and mount them to the compute cluster nodes to support HPC workloads.

Azure CycleCloud is targeted at HPC administrators and users who want to deploy an HPC environment with a specific scheduler in mind -- commonly used schedulers such as Slurm, PBSPro, LSF, Grid Engine, and HT-Condor are supported out of the box. CycleCloud is the sister product to Azure Batch, which provides a Scheduler as a Service on Azure.

**Uses**

**-**Organizations who have operated HPC environments for a while typically accumulate years of expertise and in-house tooling around a specific scheduler, and re-architecting or deploying these environments on Azure can be daunting. CycleCloud abstracts away the basic Azure building blocks such as VMs, scalesets, network interfaces, and disks. This allows an HPC administrator to focus on the familiar: an HPC cluster comprising of nodes and a configurable scheduler of choice.

CycleCloud deploys autoscaling plugins on top of the supported schedulers, so users do not need to implement complex autoscaling functions and routines themselves, but rather interface only with scheduler-level configurations that they are familiar with.

With a rich, declarative, templating format, CycleCloud provides powerful tooling to construct complete HPC environments on Azure. Users can deploy environments that include NFS servers, parallel file systems, login hosts, license servers, and directory services -- essentially all the components needed in an HPC system -- through a single management plane.

CycleCloud integrates with Azure services such as Azure Monitor and Azure Cost Management tools.

-Azure CycleCloud is an installable web application that you can run on premise or in an Azure VM. Once installed, CycleCloud can be configured to use compute and data resources in your prepared Azure subscription. CycleCloud provides a number of official cluster templates for schedulers (PBSPro, LSF, Grid Engine, Slurm, HTCondor), and filesystems (NFS, BeeGFS). Cluster templates provided by the CycleCloud community are also available. You can use these cluster templates unmodified or you can customize them for your specific needs.

Once a cluster is created, it is automatically configured to autoscale by default to handle the computational jobs that are submitted to the scheduler. CycleCloud administrative features govern access to the CycleCloud cluster for other users in your organization.

Tooling using templates and configuration scripts enable you to build complex HPC environments quickly, and replicate these for separate teams across your organization.

