Solving Hybrid Cloud for High Performance Compute

TUT1195

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Securelinx has been successfully delivering Open Source innovation and value for customers throughout Ireland & UK for over 15 years.

- Based in Dublin & founded 2002
- Highly technically skilled in Linux
- 10 full-time engineers
- Very strong industry reputation
- Key Industry Partnerships
- Enterprise customers all sectors
Securelinx & HPC

- Design and delivery of HPC systems to multiple customers
- Provide HPC Managed Services to Multiple Organisations
- 3rd Level Escalation Support
- Support Provided Includes:
  - Infrastructure Support
  - Application Support
  - Addressing Researcher’s Concerns
Solving Hybrid Cloud for HPC

- Initial Problem
- Tooling
- Scheduling
- Demo
- Roadmap
Proof of Concept
Hybrid HPC
SHC4HPC

- Infrastructure and Connectivity
- Consistent Images and Software
- Boot Time Configuration
- Batch Scheduler Integration
- Autoscale
- Output / Storage
Securelinx Hybrid Cloud for HPC
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Infrastructure

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Infrastructure

- Implementation will be specific to source and destination infrastructure.
  - Follow Best Practices
- Understand Connectivity -
  - Where are the services all resources need access to eg;
    - Authentication
    - Scheduler
    - Orchestration
    - Storage
Images

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SHC4HPC - Image Pipeline
Scheduler

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SHC4HPC - Batch integration

Job Submission

SHC4HPC

Public Cloud

Private Cloud

Traditional HPC Compute Nodes

* roadmap
Demo
Storage

- Infrastructure and Connectivity
- Consistent Images and Software
- Boot Time Configuration
- Batch Scheduler Integration
- Autoscale

Output / Storage
Storage

• Work with users so they understand that using the cloud resources means for their jobs
• Ideas:
  – Multiple Blob Storage Accounts Extend Performance
  – Directly connect users to on-prem storage
  – Build ephemeral HPC storage in the remote cloud
Summary

OS
- Linux

Clouds
- Azure
- Openstack
- Bare metal
- KVM
- Native

Batch
- SLURM

Orchestration
- Build + Scripts
Roadmap

SHC4HPC Gen 2

AWS

Altair
Roadmap

OS
- Linux

Architecture
- Open Source
- Separate Service

Clouds
- Azure
- GCP
- AWS
- Openstack
- Bare metal
- KVM
- Native

Batch
- SLURM
- PBS / Moab

Orchestration
- Build + Scripts
- SaltStack
Questions?