CCR Research Cloud

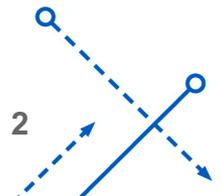July 30th 2019
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What is LakeEffect ?

- Private Cloud hosted at CCR

- Infrastructure as a service "IaaS"

- Virtual Compute, Networking, Storage

- Users purchase Allocations for Cloud resources.

## What is LakeEffect ?

- Not VMware

- Similar in function to Amazon EC2

  - Instances (VMs)
  - Elastic Block Storage (EBS)
  - Elastic Load Balancers (ELB)
  - Elastic IP Addresses
  - Object Storage (S3)
  - Virtual Networks (VPC)
  - Security Groups / Key Pairs
  - Web based management portal
  - Full Command Line Interface
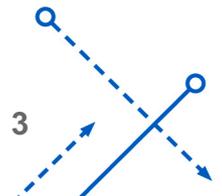
Why we created LakeEffect:

- Enable research computing beyond traditional HPC

- Users were requesting services that were not suited for Linux Clusters.

  - Not all users need to run large scale calculations

  - Users need things like Databases, Research Portals, Dev/Test Environments.
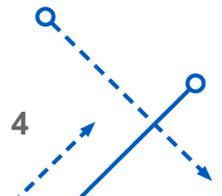
Benefits:

- Data stays within UB.

- Users have full control over their Virtual Infrastructure.

- Ability to easily add capacity.

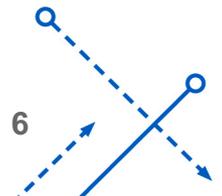- Less expensive then Public Cloud.
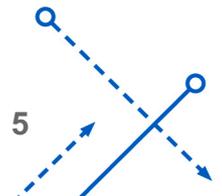
Design:

- LakeEffect is built on OpenStack open source cloud software.
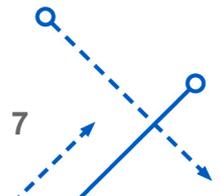
- Ceph Backend Storage
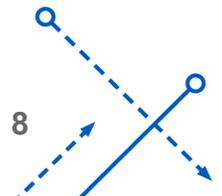
- Commercially Supported by RedHat

Design:

- LakeEffect is built with redundancy and fault tolerance.

  - Networking/Storage/Power/High Availability

- Not Designed for Mission Critical applications.
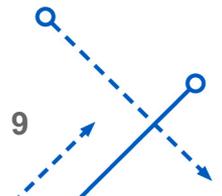
  - Cannot Guarantee 24x7x365

Roadmap:

- Support for GPUs

- Support for Dedicated project resources.

- Fast I/O Instance Types

- Looking at Windows Support.

Getting Started:

- 30 Day Exploratory Accounts.

- Allocations are purchased based on CPU time.

- https://ubccr.freshdesk.com/support/solutions/articles/13000008100-step-by-step-guide-to-lake-effect

- https://lakeeffect.ccr.buffalo.edu

Thank You

Demo