CCR Research Cloud

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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 than 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://lakeeffect.ccr.buffalo.edu](https://lakeeffect.ccr.buffalo.edu)
Thank You
Demo