

## **UIS MultiCloud** <sup>[1]</sup>

- [MultiCloud Phase Overview](#)
- [SAN Replacement](#)
- [Network Remediation](#)
- [AWS Foundations](#)
- [Multicloud Database](#)

### **MultiCloud Phase Overview**

UIS' MultiCloud initiative will offer a simply available concept improving on the delivery and reliability of CU's enterprise services in a secure manner that is highly available. Over the course of several years the MultiCloud platform will be built to deliver resilient services over multiple processing sites aimed to withstand disruption to the customer experience.

### **MultiCloud will be broken down into three phases:**

#### **Phase 1 (2019-2020)\***

Phase 1 will concentrate on establishing the baseline capabilities necessary to support the MultiCloud initiative. To support that goal, this phase will focus on many of the foundation technologies necessary to operate selected technical services across multiple sites in tandem, reducing service disruption during maintenance windows by promoting maintenance activities within the UIS private cloud.

This phase will also be used to establish the baseline Infrastructure as a Service (IAS) capabilities necessary for any cloud implementation such as self-service provisioning/de-provisioning and automation methodologies used to improve UIS develops agility and lower implementation time on future projects.

#### **Phase 2 (2020-2021)\***

Phase 2 will be used to iterate on and improve IAS integration, with the addition of load balancer, firewall, and public IP address integrations used to automate the remaining manual steps needed for full end-to-end automation in the UIS private cloud. This will further enhance the agility of UIS and lowering the time upgrades to existing services and the roll-out of new services.

This phase will also be used to begin the baseline integrations with public cloud providers at an IAS level to initialize the hybrid cloud portion of the platform and begin to introduce design

considerations necessary for hybrid application operational success.

The necessity to stress operational reliability and high availability concepts within new and existing service offerings as they are initiated or upgraded will constitute a major cultural shift in our thinking as an organization. The additional performance considerations of transaction latency and bandwidth requirements will also be new to most of our staff. The phased method of this initiative will allow UIS to gradually shift to this new approach.

One design goal of UIS MultiCloud is that the UIS private cloud infrastructure will provide a safer and less disruptive environment to begin to include these considerations and transition to that more technically complex development environment.

### **Phase 3 (2021- )\***

Phase 3 will be used to continue to iterate the now fully operational UIS MultiCloud platform, incorporating services that operate fully in public cloud provider space or hybrid services. Technically, this integration will be simple to accomplish as the platform matures. Organizationally and culturally we'll need the time to develop and understand the business and develops processes used to this end.

*\*note: this timeframe is subject to change*

The SAN Replacement project was a foundational component for UIS' MultiCloud strategy. Its part of phase one of MultiCloud.

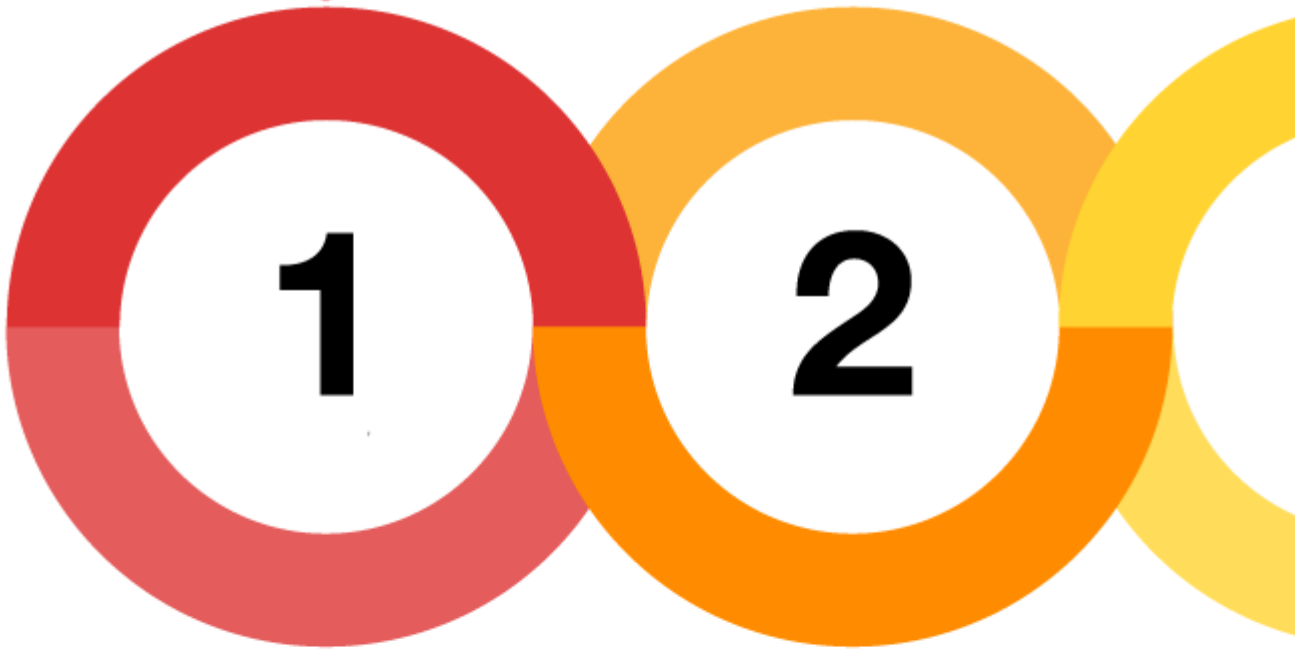
The SAN Replacement Project replaced, expanded and improved the UIS digital storage environments at the 1800 Grant Street, Colorado e-Fort and Hosting.com facilities. The resulting expanded storage allows UIS to grow, add services and facilitate a move toward the cloud.

The project benefits UIS services and customers by supporting the projected future storage, performance and availability requirements that will enable future improvements, such as reducing service disruption during maintenance windows, improving on business continuity and disaster recovery capabilities, as well as facilitating hybrid and public cloud environments.

SAN Replacement was broken down into five phases:

# SAN RE

● **Phase 1:**  
Planning



**Phase 2:**  
Non-Production  
Environment

This initiative:

- Increased UIS processing site bandwidth to campus customers and Internet services.
- Increased 1800 Grant connectivity bandwidth to campus customers and the Internet.
- Replaced charge-back MOE connectivity cost from UCD with 10Gb/s private BGP peering on new circuit.
- Allowed private peering with UCB/UCCS at 10Gb/s in future at two locations (BGP fail-over).
- Allowed bandwidth increase between UIS and our ISP Front Range GigaPop (FRGP) immediately to 1 Gb/s, with easy expansion to 10Gb/s in increments as required in future.
- Removed MOE circuit costs from Hosting.com contract.
- Allowed Internet2 (I2) route balancing to maximize bandwidth efficiency.

This project will build the foundation of cloud infrastructure - specifically on AWS - in which future production and non-production workloads can successfully operate in a secure, reliable, and performant manner. The adoption of cloud infrastructure is identified within the UIS MultiCloud Phase 1 and 2 goals as well as supports UIS strategic goals aligned to overarching University initiatives.

The MultiCloud Database project involves acquiring technology resources to configure additional database clusters, which will replicate data and provide failover capabilities in the event of major site disruptions.

This project also will reduce downtime during select maintenance activities.

**Groups audience:**

University Information Services

**Sub Title:**

UIS MultiCloud is a multi-phased approach to create a more effective delivery and reliability model for UIS sourced applications and services.

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**Source URL:** <https://www.cu.edu/uis/uis-multicloud>

**Links**

[1] <https://www.cu.edu/uis/uis-multicloud>