



Cloud Computing Intent Language

During the 2019 Legislative Session the legislature passed the following intent language in Senate Bill 2:

“The legislature intends that prior to October 31, 2019, the Utah System of Higher Education (USHE) will develop a plan for migrating core operating systems to cloud computing with provisions for cyber security throughout the system and provide this plan to the Higher Education Appropriations Subcommittee.”

Present State

Currently all USHE institutions have moved many applications to the cloud. An estimated 60% of all USHE non-core applications are already in the cloud and offered in no other way. Southern Utah University is the only USHE institution that has moved its core systems to the cloud. All USHE schools are looking at possible plans to move core applications to the cloud where it is financially responsible and where such a move would improve operations and security.

Moving to the cloud does not necessarily improve security. The cloud is not inherently as secure as on-premises infrastructure depending on the service provider and the current security environment. In reviewing recent major global cloud security breaches like Equifax, Sony, and Uber the incidents resulted when customers failed in the fulfillment of their

responsibilities for security in the cloud. Security in cloud infrastructure lies mostly on the shoulders of the institution and not on the cloud service provider. Cloud providers are responsible for the security of the cloud but universities and colleges are responsible for security in the cloud (Figure 1).

USHE institutions utilize two core or ERP (Enterprise Resource Planning) systems suppliers which include core HR, finance and student information

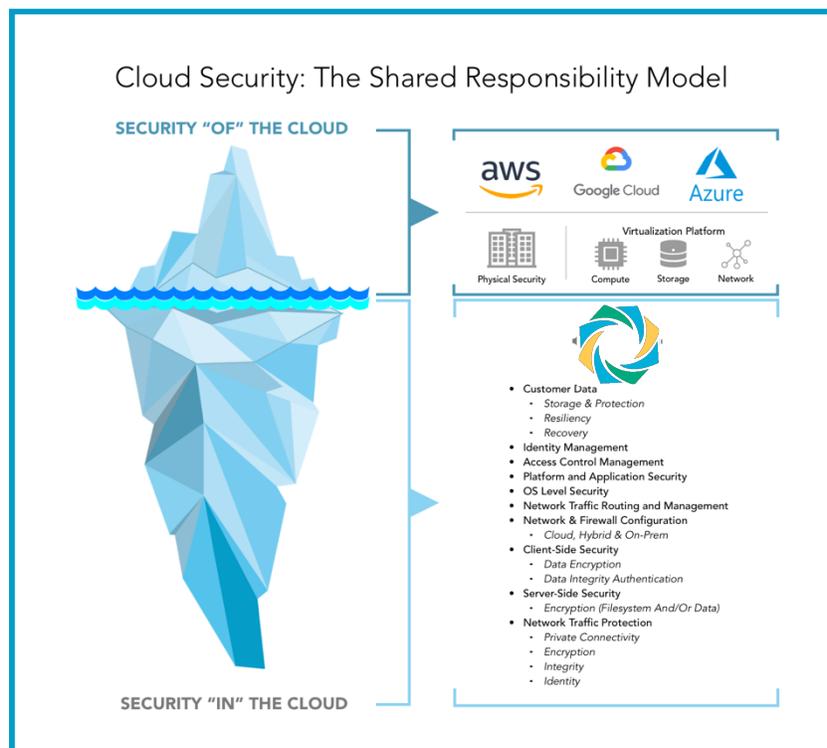


Figure 1

systems. The University of Utah ERP system is PeopleSoft. The other seven universities and colleges are on Ellucian Banner. The University of Utah signed a contract with PeopleSoft last year for an additional five years. The other schools are planning to sign a contract with Ellucian Banner for 5 additional years in the spring of 2020. Presently all ERP systems are reliable and adequate though they are becoming outdated. Over many years the processes and applications in these ERP systems have been customized to meet the unique needs of the Universities and Colleges. Independent IT analysts recommend holding course with these systems for the time being as there are no alternative products available that include a viable student information system.

Proposed Plan

The proposed plan is phased over 2-5 years, allowing for adjustments and improvements to be made as each school moves additional services and systems to the cloud (instead of a “fork lift” plan which is seldom used because of the amount of risk it puts on operating systems and the processes they support). The proposed offer to the legislature is for each USHE school to:

1. Move infrastructure components of their existing ERP systems to the cloud where it is financially responsible and improves operations and security. This cloud model is known as Infrastructure as a Service (IaaS) which is a service model that delivers computer infrastructure on an outsourced basis. This effectively shifts hardware, storage, servers, and data center space, including some network components to the cloud. This would eliminate the need for each institution to host ERP data in their own data center, though USHE institutions would continue to maintain sufficient on-premises data centers and infrastructure to support ongoing operations.
2. Evaluate and implement appropriate “hybrid cloud” and/or “multi-cloud” options that give institutions options to move between institutionally owned resources and the cloud, and from one cloud service provider to another. This is made possible by containerizing ERP data so it can be moved to another cloud provider if price increases become unaffordable or contract terms become unpalatable. The brief history of cloud computing has shown that once an entity joins a cloud, lays off its infrastructure staff and shuts down its data center, that it is difficult to return to on premises hosting. With vendor lock-in there can be significant increases in cloud computing contractual liabilities and expense. The hybrid, multi-cloud strategy provides a safety net for our institutions by maintaining alternative location options.

This plan anticipates that institutions remain with their current ERP suppliers for at least the next five years as there are no alternative ERP cloud suppliers with viable student information systems. We anticipate the total expense of shifting these core systems to cloud infrastructure as a service will require, at minimum, \$1.1M more per year (across the entire system).

Future

We will continue to investigate financially responsible and properly secured cloud services that meet institutional needs. This may become a future necessity if Ellucian Banner or PeopleSoft are no longer

supported or no longer meet the needs of the USHE schools. Table 1 shows current costs to the USHE System of existing ERP services as well as best estimates of the costs to move to alternative cloud-only ERP service suppliers including the first-year costs of implementation. The table does not include the costs of institutional process change or the disruption to academic operations that changes to an ERP may entail.

- The first column represents where we are today with current ERPs on premises.
- The second column represents the objective recommended and proposed to the legislature in this document and achieves a shift of core systems to the cloud with minimal institutional disruption. While costs increase, little disruption to processes or academic operations will be needed.
- The remaining four columns represent cost estimates for shifting most or all institutions to completely different suppliers of full-cloud “Software as a Service” (SaaS) solutions at today’s prices. In addition, these columns would require significant institutional change, require a 3-5 year implementation time frame, and will disrupt operations significantly. Neither are proposed or recommended as part of this plan, but are included only for cost comparison. It should also be noted that the Workday solution does not include a viable core system for student information and operations.

Current ERPs (Banner and Peoplesoft) On Premises	Current ERPs (Banner and Peoplesoft) in the Cloud (IaaS)	Oracle Cloud Only (SaaS) Annual Costs	Oracle Cloud Only 1 st Year Implementation	Workday Cloud Only (SaaS) Annual Costs	Workday Cloud Only 1 st Year Implementation
\$16,023,673	\$17,124,647	\$32,643,734	\$98,474,400	\$26,717,734	\$126,875,000

Table 1

About

The USHE Chief Information Officers (CIO) have a history of collaboration and working together. The CIOs have a plan in place that will move the System into the future sensibly and responsibly. The CIOs have a proven track record of working toward institutional alignment with concerted effort in cost savings. Most major IT software contracts are joint purchases by the USHE CIO's for a savings of \$ 3.7 million dollars (see Table 2).

FY 2019 Vendor	USHE Savings
VM Ware	\$ 1,255,223
Oracle	794,928
Kaltura	133,588
Data Cookbook	20,850
Black Board	110,842
Duo	57,821
Ellucian	1,385,032
Total	\$ 3,758,284

Table 2