CalCloud Infrastructure as a Service (IaaS) Highlights (Nov, 2015):

CalCloud IaaS is a private cloud for the public sector in California, built and managed through a public-private partnership between California's Department of Technology and IBM and hosted inside California's consolidated data centers in Northern California. CalCloud IaaS became operational in July 2014 and has garnered considerable attention from countries around the world; from as far away as the Philippines, New Zealand and Australia to the United Kingdom and Canada as well as from several states within the U.S. But what is it about CalCloud IaaS that makes it unique?

Creative Business Model

CalCloud IaaS is funded through a model that means no capital expenditures for California beyond the physical space allocated to CalCloud IaaS in the state's data centers. Capital expenditures for the software and IT equipment were paid by IBM. Operational expenditures for managing CalCloud IaaS and its service levels are paid for and handled by IBM while operational expenditures pertaining to cooling, electricity, real estate and physical security are paid for and handled by California's Department of Technology. The State bills clients based on their monthly usage.

This funding model addresses a significant challenge that appears to be common to governments around the world, how to find capital expenditures to build private clouds. It affords the clients an ability to pay for only what they need. And it streamlines procurement for the client by leveraging existing government-to-government contractual relationships like Interagency Agreements.

Robust Security

Another unique feature of CalCloud IaaS is its security model. A number of public government clouds from IBM, Amazon and Microsoft that are able to meet international and government regulations to varying degrees. These include FEDRAMP, NIST 800-53, ISO 27001, IRS 1075 (federal tax data), HIPAA, PCI and Criminal Justice Information Systems (CJIS). CalCloud IaaS is the only government cloud that is able to meet the combination of all these regulations while also complying with the California State Administrative Manual. In addition, California Department of Technology and IBM collaborated on a rigorous set of security controls referred to as the CalCloud Information Security Controls which reflect special considerations and the joint experiences and perspectives of the Department of Technology and IBM in how to manage secure cloud computing. Further, CalCloud IaaS guarantees that stored data will never leave California.

Open Architecture

A third unique feature is the way CalCloud IaaS is engineered. Openness, flexibility and the idea that CalCloud IaaS must be able to evolve into an open ecosystem of vendors and services form the basis for its design. The Department of Technology wanted to ensure that CalCloud IaaS would not be limited to IBM-only hardware or services. Instead CalCloud IaaS uses a layered design that allows hardware from other vendors and services from external service providers to be integrated into CalCloud IaaS, at the discretion of the State. We have found this concept resonates with governments around the world. In its current form, CalCloud contains technology from a broad range of California companies such as Intel,

Cisco, NetApp, VMware, Fortinet and Brocade as well as from technology companies such as RedHat, Microsoft, IBM, and AT&T. It can be extended to incorporate technology and services from other companies as it evolves.

While most public clouds offer Windows and Linux operating systems, CalCloud IaaS is the only government cloud that also offers support for the AIX (UNIX) operating environment that is California's de facto standard for UNIX environments.

Self Service Provisioning

Finally, CalCloud IaaS provides for client 'self-service'. A user-friendly portal enables users to provision servers, storage, and disaster recovery in a cost efficient manner. It is, for example, possible to provision disaster resilient infrastructure at the press of a button in CalCloud IaaS. It is possible to provision operating systems that are fully managed by the cloud. It is possible to provision infrastructure that is highly secure and compliant with a multitude of government security regulations that are often times difficult to interpret and implement by smaller departments.

Lessons learned

Since CalCloud's inception in July 2014, we have adapted to meet market demands - a testament to the versatility and sustainability of the partnership and the solution itself. In a market of rapidly declining cloud prices, CalCloud IaaS was initiated with too high of a price point versus public offerings. The State, working with IBM, revamped the rate structure and now CalCloud IaaS is highly competitive with these other services and enjoys the security and flexibility that the State wants to provide for its users.

We also learned that is important to give client system administrators adequate control over the infrastructure and that time and effort should be devoted to train them in the inner workings of CalCloud IaaS. Initially, it was thought that a fully managed service would be most attractive to clients but time has taught us that it is equally important to provide clients with the option of an unmanaged and lower cost, service. Finally, users wanted an option to provision storage without the requirement for a server inside CalCloud, giving them an easy way to start with cloud while evaluating application migration decisions.

CalCloud IaaS is a breakthrough, first of a kind, public private partnership to establish a private Cloud for all agencies, departments and municipalities in the largest State in the Country. While having initial startup challenges, usage is now growing, the model is stable and we look forward to the savings and flexibility it will provide for years to come.