



Why do Private Clouds Fail but Public Clouds Work?

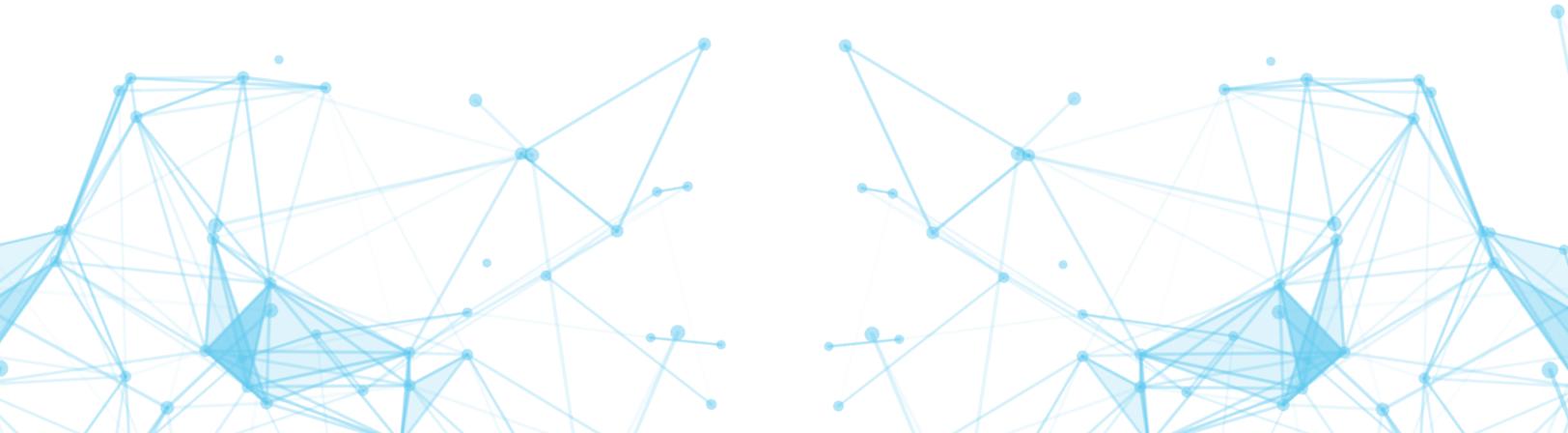


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Private cloud operations teams have struggled to replicate the agility, scale, ease-of-use, and operational model of the big three “hyperscalers” (AWS, Azure, GCE).

Compared to the relative simplicity of using a public cloud provider who takes care of cloud operations, deploying, managing, and scaling a private cloud has proven to be a very challenging proposition.

Industry statistics show that most private cloud deployments take far longer, cost much more than budgeted, and ultimately fail to scale to expectations.

It turns out that there is an architectural approach that will solve this problem. And in this paper, we are going to show you the reasons why private clouds fail and how you can apply the public cloud operational model to your own cloud initiative to dramatically improve the odds of success.

Five reasons private cloud deployments fail

People, culture, organization, and process issues do play a vital role in this challenge, but there are other equally important factors at play. Let’s review the key challenges that IT and Ops teams have to deal with when implementing and operating a private cloud:

1. Integrating disparate infrastructure is complex

IT teams in large enterprises deal with mind-boggling diversity and the complexity of their existing infrastructure footprint. They routinely have to manage multiple data centers in geographically distributed locations, heterogeneous server, storage, and networking SKU’s. New infrastructure and colocations continue to be added over time.

With this kind of diversity and complexity, it seems impossible to leverage existing infrastructure to roll out a private cloud.

2. Legacy virtualization is insufficient

Some companies use their virtualization vendor (e.g VMware) to build out their private cloud. This often requires buying different products (monitoring, networking, operations) and automation tools to create a true IaaS/PaaS for a modern DevOps experience required for cloud-native applications.

Cloud operations teams have to bear the significant costs and time for integration and testing to have a working solution in their environment.

3. Open source is constantly evolving

Open Source software has been a driving engine for cloud providers and most modern cloud-native software applications. Open Source cloud projects like Kubernetes & OpenStack are a great way to build out a private cloud, but these are not enterprise-grade products that can be instantly deployed to a production environment.

Open source projects are constantly evolving. Navigating these changes is tricky.

4. Open source day-2 operations is a well-known challenge

Deploying Open Source technologies is relatively easy. There is a massive open community which provides numerous deployment tools and documentation.

Open source day-2 operations such as monitoring, security patching, troubleshooting, and ongoing upgrades in an enterprise-scale production environment is a massive challenge.

5. Cloud talent scarcity increases costs and delays

High-caliber cloud talent is hard to hire and retain for the enterprise. Attrition creates a massive risk.

The Public Cloud Approach vs Enterprise Approach

There is a yawning chasm between the public cloud operating model and how enterprises roll out their private cloud programs. Let's review three crucial differences:

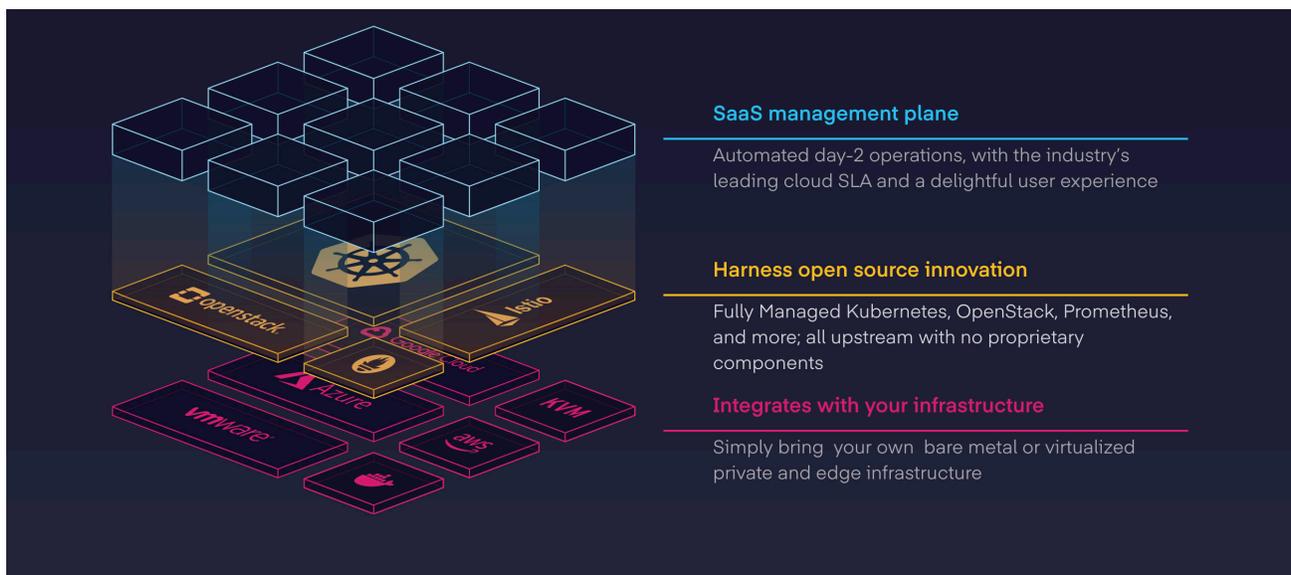
Foundational cloud principle	Public Cloud Approach	Enterprise Private Cloud Approach
Closed-loop automated operations	Public cloud vendors don't roll out regions or services by hand. They invest heavily in internal IP and automation to provision, monitor, troubleshoot and upgrade these services.	Enterprises run private clouds with a combination of people, open source tools or integrating multiple vendor tools via ad-hoc scripting.
Cloud platform engineering at scale	Public clouds engineer massively scale-able shared multi-tenanted cloud control plane. This is treated as a product and IP development effort and is accomplished by hiring 100s of highly talented software engineers who have worked at VMware, Google, Facebook, et al.	Enterprises treat private clouds as a one-off IT project and cobble together teams from various groups and consultants. Few enterprises can afford 100s of platform engineers or attract enough of them at the talent bar.
Operational reliability and high feature velocity	Public clouds get better every year in both operational reliability and new features. This can only happen beyond a tipping point of operational efficiency and scale.	Due to constraints, enterprise teams cannot evolve fast enough to keep pace with modern cloud-native stacks. They continue to build up technical debt making it a challenge to take advantage of the latest capabilities that are coming to market, leading to rapid obsolescence.

As a result of this, most enterprises need to make significant changes to their operating models, but they are woefully unprepared for the complexity and scale of the transformation. Gartner's predicts, in their latest report *"Rethink Your Internal Private Cloud" Refreshed 7 January 2020*, that:

"By 2022, 75% of internal private cloud infrastructure initiatives that attempt to build full-function capabilities will be abandoned, up from less than 10% in 2018."

An Architectural Breakthrough: Platform9 SaaS Management Plane

Operating private clouds at scale requires a new architectural approach. Platform9 has developed a SaaS management plane that provides the same closed loop operational automation model and platform engineering that public clouds use, but one that can be used with your own infrastructure.



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Public cloud operational model with SaaS Management Plane

The Platform9 centralized SaaS solution provides a master arbiter/management plane to implement robust SLAs and automated cloud operational services including deployment, HA, monitoring, upgrades, alert management, backup/recovery to simplify operations and remove manual processes, substantially speeding time to market and lowering cost envelopes.

- Faster time to market allows the customer to operationalize clouds in days, not months
- Developers can deploy applications into a private cloud environment in 5 minutes using the Platform9 self-service model
- Private clouds can be delivered with little added staffing. Furthermore, less time is spent on low-level infrastructure tasks and special skills

Integrate with any x86 infrastructure

Platform9 supports diverse infrastructure flexibility; preserving legacy investments

- Platform9 leverages existing or 3rd party infrastructure, avoiding investment in new network equipment and making 3rd party solutions an integral part of the network going forward.

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Unified platform for VMs, containers, and Bare Metal

Platform9 management plane manages VM's, Bare Metal, and containers in one unified platform

- Platform9 leverages open source frameworks such as OpenStack and Kubernetes to orchestrate VM's, containers, and bare-metal in one unified solution.

Centralized single pane-of-glass visibility and security across data centers

The central model effectively provides management of private clouds across data centers; from a single SaaS portal/ pane of glass. It also conquers scalability challenges by dividing sites into regions, providing global view and control of all regions:

- SaaS management provides shared visibility and control across all infrastructure
- Zero touch operations fully automate edge infrastructure and applications
- Platform9 provides the security of infrastructure, encrypting communications to the control plane, as well as securing data at rest and in transit.
- End to end security ensures system integrity no matter how dispersed

Freedom in Cloud Computing

Platform9 was founded with a mission to enable freedom in cloud computing. Platform9 enables five freedoms in deploying, managing, and scaling private cloud environments:

The Five Platform9 Customer Freedoms

Platform 9 provides 5 key benefits, or freedoms, in deploying and operating cloud computing:

- 1. Freedom to integrate existing infrastructure.**
- 2. Freedom to deploy any kind of workload- Containers, VMs, or Bare Metal**
- 3. Freedom from vendor lockin by leveraging upstream open source projects**
- 4. Freedom to deploy at any location-on premise, cloud or edge**
- 5. Freedom from the operational complexity of scaling edge clouds**

The benefits provided by Platform9's centralized SaaS management plane directly allow the enterprise customer to realize the promise of the private clouds in the most cost effective, manageable and scalable way

The result? Enterprises such as S&P Global, Kingfisher Retail Plc, Cadence Design, Juniper and Autodesk who are using Platform9 have seen unprecedented speed and success rates with private or edge cloud deployments operationalizing clouds in weeks as opposed to years, delivering clouds with little additional staffing needs, all while leveraging existing or other 3rd party infrastructure investments.



Freedom in Cloud Computing

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About Platform9: Platform9 enables freedom in cloud computing for enterprises that need the ability to run private, edge or hybrid clouds. Our SaaS-managed cloud platform makes it easy to operate and scale clouds based on open-source standards such as Kubernetes and OpenStack; while supporting any infrastructure running on-premises or at the edge. Enterprises such as S&P Global, Kingfisher Retail, Cadence Design, Juniper Networks and Autodesk are using Platform9 to easily manage large scale private and edge clouds. The company is headquartered in Mountain View, CA and is backed by Redpoint Ventures, Menlo Ventures, Canvas Ventures, NGP Capital, Mubadala Capital and HPE Pathfinder.