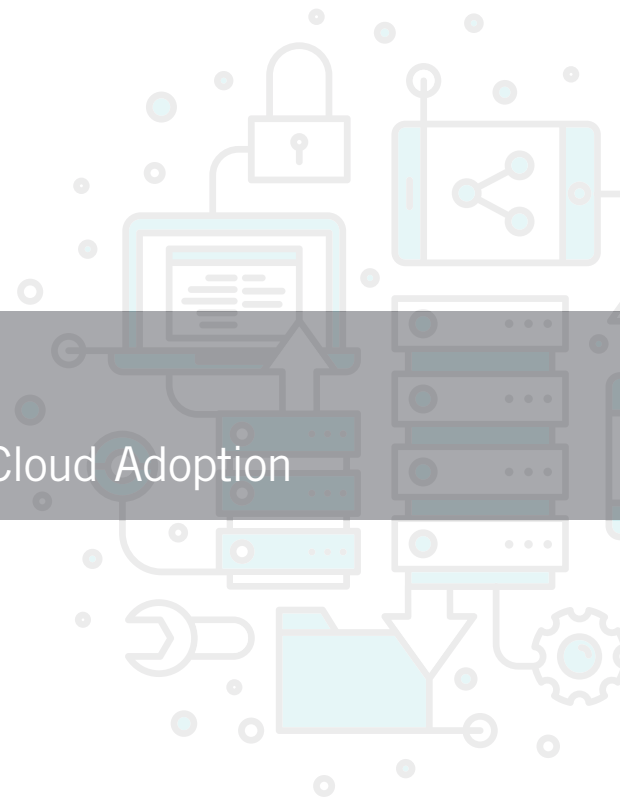**KODIAK DATA**

Bringing the Cloud Closer:
How Private Clouds Accelerate Enterprise Cloud Adoption

KODIAK DATA

Introduction

Across the business landscape, organizations are racing to the cloud with its promise of shared economics, centralized scale and collaborative ease. Meanwhile, big data use is exploding and altering the digital landscape of how we do business; the International Data Corporation (IDC) estimates worldwide revenues for big data and business analytics (BDA) will reach $150.8 billion in 2017, an increase of 12.4% over 2016[1]. It's not a question of "if" an enterprise should adopt the cloud, but "how soon" and "how extensively." Enterprises today simply cannot be competitive without adopting and executing an aggressive cloud-computing strategy.

Clouds are categorized as public, private and hybrid clouds based on their deployment ownership. Hybrid clouds, which are deployed simultaneously on-premises and off-premises, are useful for enterprises that need both deployment options. According to an industry survey, Hybrid cloud adoption grew 3X in the last year, increasing from 19% to 57% of organizations surveyed[2].

The low-hanging opportunities for cloud adoption have already been utilized. For the next stage, the most important and pressing questions are:

- How do we move the remaining data-heavy processing workloads to cloud?

- How can private clouds work with public clouds for total cloud adoption?

- How do you bring the cloud closer to users?

- How do we simplify data movement in and out of clouds?

- What are the future trends of the cloud that will impact my business?

Fortunately, this Kodiak Data paper tackles these challenges by providing best practice evaluation considerations when selecting a private cloud solution, as well as strategic and actionable insights on the rapidly evolving cloud landscape. Our goal is to illuminate a path on how private clouds accelerate total cloud adoption for enterprises.

The Need for Workload and Data Privacy in Public Clouds

Today, more and more enterprises are prepared to move their private data and 24/7 mission critical data to the cloud. By definition, these private workloads are dedicated to users and must meet administrative, regulatory and business-specific requirements. Public clouds, however, were designed by choice for outsourced, "bursty" apps and cold data; they work well for those needs, but fall short of the specific requirements of private workloads. Currently, private workloads run on-premises or in co-location centers on dedicated hardware and under enterprise control.

The Need for Clusters to be "Always On"

And how about big data clusters that need to operate constantly?

The pay-as-you-go model for public clouds is not at all suitable for big data. Software in your big data workload clusters interact constantly with each other; hence, they need to be "always on" instead of based on a stop-and-go approach.

Private Clouds at First Mile and at Edge Accelerates Adoption

Simply defined, a private cloud delivers similar advantages to the public cloud, including scalability and self-service, while offering users the choice of being in complete control of where the cloud is deployed.

Consider the representative workloads for an enterprise (Figure 1):

• User-facing Applications

• Big Data

• Development/Testing/Facilities

• Cold Data Repository

In relation to these enterprise workloads, enterprises experience stress-points on performance and privacy-oriented work. Currently, enterprises face the challenge of transferring and running these workloads in public clouds. In fact, they are met with soaring costs and complexity.

USER FACING APPS	BIG DATA / ANALYTICS
• K8S • NAS • Object-store cloud	• Data lakes (Hadoop +…) • Analytics (SQL and NoSQL) • Machine learning • Oracle data warehouse
DEV / TEST / FACILITIES OPERATIONS	**COLD DATA REPOSITORY**

• Container cloud
  for Dev/Test/Prod
• Container cloud
  for back office
	• Object-stores
	• S3
	• Ceph

Figure 1. Four Areas of Enterprise Workloads

Key Evaluations for Private Clouds

Private clouds are widely recognized as the next step in enterprise cloud strategy. However, the majority of solutions are simply re-packaged public cloud stacks that do not meet the specific demands of private cloud requirements. This makes the evaluation of private cloud technology a very important step. Kodiak Data has compiled the top best practices when selecting a private cloud solution provider. As the marketplace expands with various cloud providers, these insights will help you critically examine the options before selecting a solution for your specific needs.

Key Private Cloud Solutions Evaluation Criteria

1. Performance
The first and foremost promise of a private cloud is predictable and enhanced performance.

Questions to ask the cloud provider:

• SLA – Can you meet your application SLA with the private cloud solution?

• Scale – Does the private cloud solution scale as your needs grow?

• Portability – Does the the private cloud provide data portability with public clouds?

In terms of big data analytic projects, you want to consider a cloud provider that has faster performance levels while handling your big data cloud needs. Choose a solution that can handle high-performance access. Furthermore, big data needs in the cloud require processing loads that are incessant. Therefore, you want a private cloud provider who not only can handle the load, but also can promote agility and speed. Some private cloud providers may

be slow with their innovation and static with their technology. Look for a private cloud provider that values continued improvement to the performance.

2. Deployment & Adoptability

For a private cloud to be embraced by your organization, and potentially by your partners and vendors, it must be accessible and simple to use. Deployment should be a quick process and without obstacles.

Questions to ask the cloud provider:

• POC and evaluation – How easy it is to evaluate?

• Deployment – How long and how much personnel does it take to deploy?

• Operation – How simple is it to maintain in terms of people, money and tools?

If the private cloud you select is not adopted, it will be a wasted investment of time and money. A successful private cloud vendor knows that the onboarding experience is critical to the long-term success of the solution. Unfortunately, there are some private clouds that offer no support in deployment, stranding organizations to configure the new solution on their own. Consider selecting a vendor who will help tailor the solution to your specific deployment needs. Overall, simplicity is critical for deployment of new technology, as well as adoptability.

3. Expertise

It's imperative the provider you choose actually understands your pain points and is able to solve your company's specific problems.

Questions to ask the cloud provider:

• Is serviceability included in the solution or is it an additional price?

• What happens if the solution crashes?

• What are the steps to recover and migrate?

• What type of support does the provider have, if any?

As mentioned earlier, not all private clouds are the same – and that goes for the level of serviceability. There are some providers who are overconfident with their solution and, once sold to the customer, will not provide any additional services and advice. Consider a private cloud provider that has the expertise, experience and ongoing support you need.

4. Predictability of Cost

Some public cloud providers tout "pay-per-use," but are obscure about what exactly they are charging to users. Therefore, some organizations selecting these solutions get hit with surprise hidden fees and costs – often for services they were unaware were being billed. Most private clouds however charge a flat-rate.

Questions to ask the cloud provider:

• What is the predictability of the cost?

• Will I be hit with hidden charges?

• Is there a migration cost?

Some cloud providers are not specific with their pricing. An analogy would be going to a restaurant, and being handed a menu that gives a price range for the entrees and not a specific price. The vendor must disclose (with full transparency) all the policies for pricing and how charges are determined and accumulated. Before selecting the solution, be sure to discuss with the vendor if they have any set policies for monitoring accrued pricing at any time.

5. Scalability & Flexibility

Technology should not be static, but push forward with new ideas and solutions. Likewise, the private cloud solution you select must scale as your needs change. You may have some current pressing needs but in time they may evolve into something completely different.

Questions to ask the cloud provider:

• How will the private cloud solution incorporate new hardware technology?

• As my company grows will the provider be able to handle the growth?

• What options can the private cloud solution provide to reduce turnaround time for new capacity?

In terms of flexibility, select a private cloud provider that has the options of infrastructure and service available on-premise or hosted with hybrid connectivity to public clouds. You don't want to be locked into a cloud where there is no scalability in features and innovation. It's imperative you consider a private cloud provider that values constant innovation to their technology and is committed to not only helping customers and partners, but advancing the entire industry.

Kodiak Data Offers Enterprise-Wide Cloud Choices

As discussed, public clouds are excellent for what they are built for, but private workloads have different (and evolving) needs. It's not about private clouds vs public clouds; it's about total cloud adoption for organizations.

Kodiak Data is a private and edge cloud solution provider. Unlike other vendors that repackage public cloud solutions for private use, Kodiak Data's rich intellectual property and technology were designed to be 'private cloud'-first. Our private and hybrid clouds were designed from the ground up for big data needs, delivering faster performance, augmented flexibility and scalability, and cost savings. By running data-heavy and private workloads closer to you or under your privacy domain, we provide you with complete control over where your cloud is deployed. And we allow you to extend your deployment to the public cloud. Overall, Kodiak Data delivers industry-leading experience, expertise and service provider pedigree to offer a seamless solution for enterprise users to achieve total cloud adoption.

Learn more at www.kodiakdata.com

[1] International Data Corporate "Worldwide Semiannual Big Data and Analytics Spending Guide", 2017
https://www.idc.com/getdoc.jsp?containerId=prUS42371417
[2] McAfee "Building Trust in a Cloud Sky" https://www.mcafee.com/us/solutions/lp/cloud-security-report.html