

Eliminate High Public Cloud Costs with Diamanti

Total Cost of Ownership Guide

EXECUTIVE SUMMARY

For the last decade, the public cloud has promised to be a highly reliable and easily scalable way to deploy applications without the hassle of managing a complex environment. Organizations have been focused on migrating applications to the public cloud to take advantage of low-cost infrastructure and operational savings, but in adopting the public cloud en masse, they are also beginning to see its limitations. While the public cloud can deliver savings for many applications, certain applications break the cloud economic model - specifically transaction-intensive applications that require high performance.

Many of these organizations recognize that a hybrid cloud provides flexibility for choosing the best infrastructure for different needs. The Diamanti platform is a hybrid-cloud ready Kubernetes solution that was architected to increase the performance, simplicity, and efficiency needed to get high value cloud-native applications to market quickly at a drastically lower total cost of ownership (TCO).

5-YEAR TOTAL COST OF OWNERSHIP

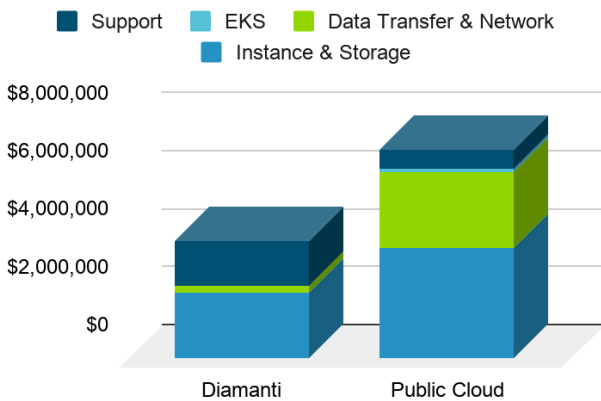


Figure 1. Sample TCO Comparison - Amazon EKS

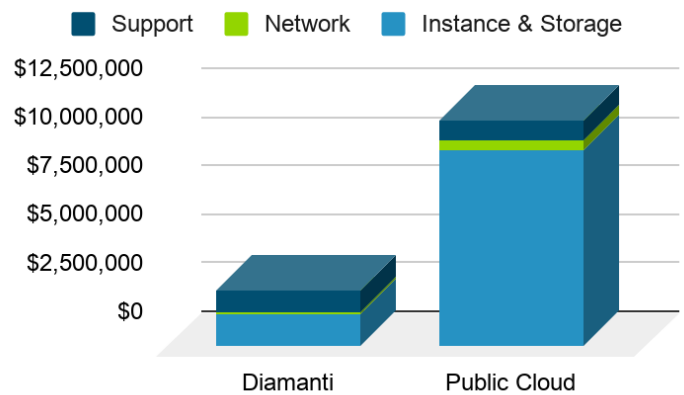


Figure 2. Sample TCO Comparison - Amazon RDS

THE PUBLIC CLOUD PLAN

On paper, the public cloud plan seems to make a lot of sense. Developers love the ease-of-use with simple setup, deployments, and more agility than their traditional infrastructure environments. CFOs salivate over the low variable costs compared to the up-front capital expenses. In the age of the public cloud, budgets can even look manageable when compared to the plans you have for the future of your environment.

But what about when your plans change? What happens when you suddenly need guaranteed I/O for an application that has reached a level of usage that you never dreamed of? What happens when you need to make significant shifts in the location of your data? In the data and performance-driven world that we live in, it is safe to guarantee that agile shifts will be needed to support unexpected opportunities presented to your business. While the public cloud can help you take advantage of these situations, having the flexibility to optimize your environment will serve better than a one-size-fits-all model.

Because of these unexpected events it is not surprising that 80% of the 400 IT decision-makers surveyed by IDC for their 2018 Cloud and AI Adoption Survey have repatriated applications or data back from public cloud environments. Without a crystal ball and unlimited budget, IT leaders have been turning to innovative solutions that deliver the performance and control needed to meet business objectives without living in constant fear of unknown public cloud costs. To evaluate these solutions, IT leaders use TCO as a measure for infrastructure investments.

TCO CONSIDERATIONS WHEN BUILDING YOUR HYBRID CLOUD:

COST OF GUARANTEED PERFORMANCE

Transactional workloads, such as databases and boot volumes need guaranteed performance. Public cloud providers require customers to pay for “Provisioned IOPS” to guarantee performance.

EXPENSIVE DATA TRANSFERS

Bringing data into the public cloud is generally free. Data transfers within and out of the public cloud are not.

DATA REPLICATION COSTS

Avoiding zone or database instance failures in order to provide high availability requires database replication. Multi-Zone Availability in the public cloud can double the cost per instance.

HOW TO REDUCE COSTS, WHILE INCREASING CONTROL & PERFORMANCE

TCO gives organizations the evaluation tool needed to understand the true upfront, ongoing, and unexpected costs related to your infrastructure, with a detailed comparison of leading public cloud options. Diamanti’s modern hyperconvergedHCI platform that is purpose-built for bare-metal containers and Kubernetes delivers a long list of features that make performance, control, and simplicity attainable with a positive impact on the bottom line. You’ll soon find that the Diamanti solution more than “looks good on paper”. Here’s how:

1

Eliminate extra costs from “Provisioned IOPS”

Guarantee performance with Diamanti’s Quality of Service Queues on NVMe storage

Storage volumes are not like your kids, you don’t have to love them all the same. It’s ok that some are more important than others. However, in the public cloud, giving those more important volumes the attention they need is expensive. Public cloud providers will gladly recommend Provisioned IOPS for organizations experiencing situations with higher IOPS than what they have accounted for.

Diamanti’s innovative block storage architecture provides containerized applications with easily consumable persistent volumes delivered by high-performance low-latency NVMe flash extended across the cluster via 10G ethernet. On each Diamanti node, the appliance’s dedicated storage controller dynamically assigns SR-IOV VF interfaces to applications as they are spun up, presenting each virtualized volume as a native NVMe block device.

The impact of this storage architecture on your TCO can be significant. Diamanti’s NVMe storage can guarantee that your most important workloads have the IOPS they need, when they need them, without paying extra for Provisioned IOPS. Just because you love some of your storage volumes more than others, doesn’t mean they should cost more.

2

Avoid unexpected network costs

Move data where you want, when you want, with Diamanti’s Container Networking Interface.

Chances are, if you have to move data around within, or even out of the public cloud, you may feel like you’re driving on a system of toll roads. But this network of tolls encompassed every street you drive down instead of just major freeway systems. At first glance, the charges from leading public cloud providers look small. But you don’t need a financial planner to help you understand that many small fees on a consistent basis can turn into a large bill in the blink of an eye.

The Diamanti platform seamlessly integrates with existing data center networks and makes dedicated Layer 2 interfaces available to all containers, which greatly simplifies the transition to containers. Diamanti’s network architecture features separate management and data planes. Application traffic on the Diamanti node’s 10G SR-IOV-based data plane is completely isolated from the host network and other container networks at the hardware level and is never forwarded through the host network namespace.

Not only is the nature of network to container relationships simplified with Diamanti, it doesn’t take the entire finance team working with your network architects to figure out what data transfers will cost month to month. In addition to avoiding those unpleasant and surprising costs, your network team may just find a significant reduction in the time and complexity involved with deployment into production environments.

3

Replicate freely

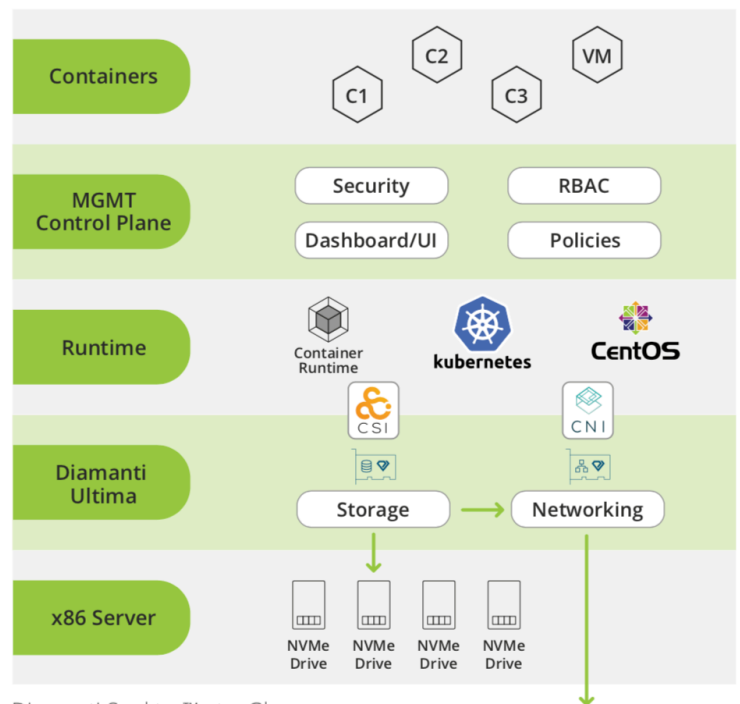
Database Replication with Diamanti’s Integrated Storage Ultima Card.

If the cost savings of Provisioned IOPS and data transfers alone aren’t enough to convince you that it’s time to move critical applications and

data back from the public cloud, the headaches associated with running Kubernetes on public cloud block-level storage surely will. This is an area of the public cloud plan that once again can look tenable on paper. But customers quickly realize the large amounts of complex engineering, expensive Provisioned IOPS and data transfers needed to deliver high availability easily pushes IT teams and budgets over the edge. The list of deficiencies that we've heard is too long to discuss - weak snapshot capabilities, attachment problems, inability to span availability zones - all causing loss of data, which companies tend to not appreciate.

When public cloud providers have customers who need to increase availability (because their needs are not being met), they often recommend paying for a duplicate, read-only database instance. This database replication is handled by the database engine - meaning you need double the CPU and double the memory, which effectively doubles the instance cost. Just in case you missed that, it effectively doubles the instance cost.

Diamanti's distributed block storage supports snapshots, synchronous and asynchronous replication, space-efficient read-write clones, thin dynamic provisioning, compression, and more. These functions allow you to precisely control where your application runs and how I/O moves, all while exceeding performance levels of duplicated public cloud databases.



Diamanti Spektra™ at a Glance

IT ALL ADDS UP: SEE FOR YOURSELF

Sign up for Diamanti's TCO assessment

The best way to see how Diamanti reduces the total cost of ownership and find the right configuration for your business is to run the numbers yourself. Visit <https://diamanti.com/reduce-your-aws-bills/> or [contact a Diamanti representative](#) to see how Diamanti's platform can give you guaranteed performance with low and predictable costs.



Diamanti delivers purpose-built infrastructure for modern applications, enabling transformational application performance from on-premises to hybrid cloud with Kubernetes out-of-the-box.

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