azul

Cloud Paradox:
*Today's Growth Is Tomorrow's Runaway Cost*
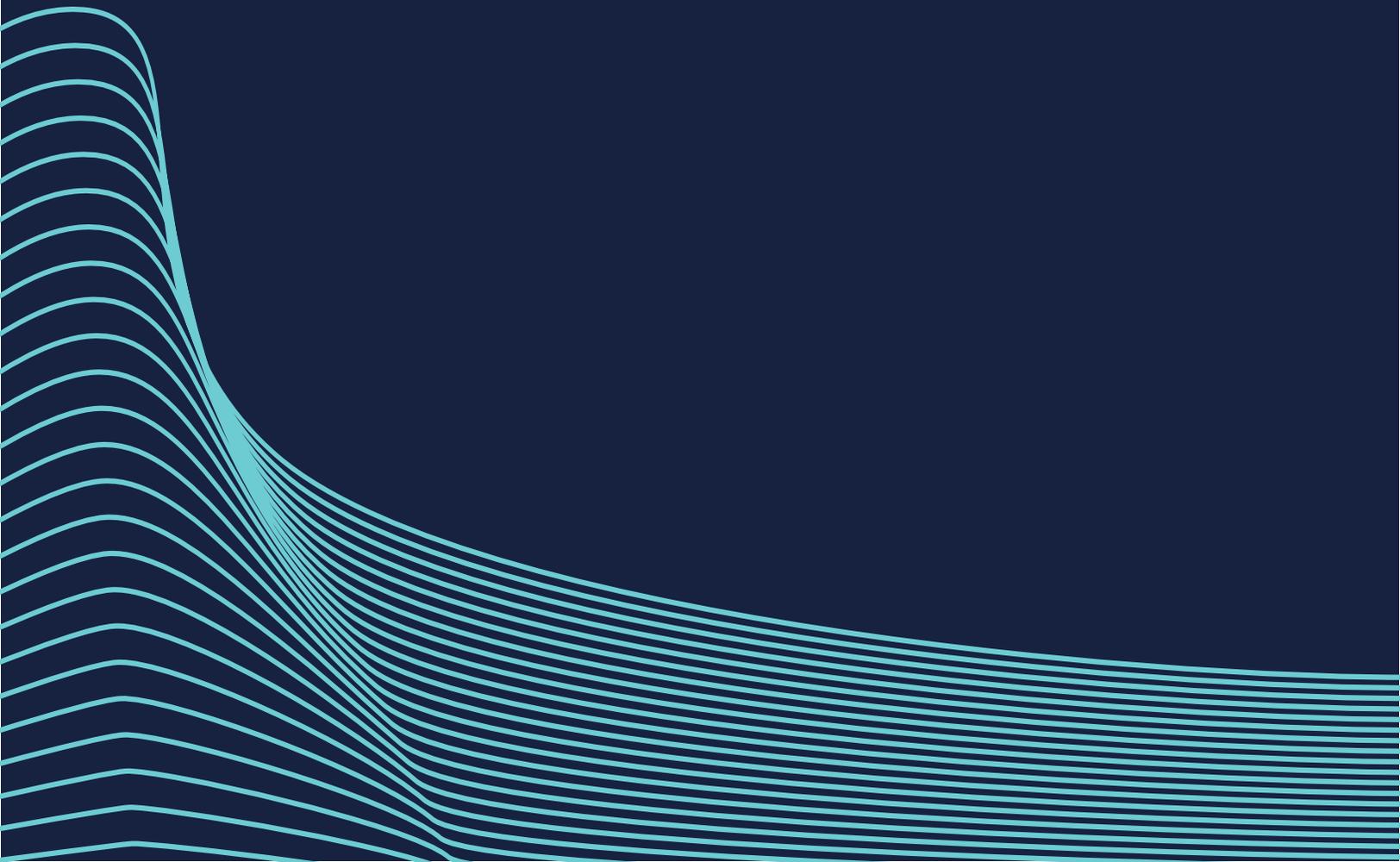
The benefits of hosting applications in the cloud are indisputable.

Infrastructure on demand gives you limitless scale and flexibility. Agility and in-house infrastructure savings provide operational and economic efficiencies. Meanwhile, the people who used to spend their time maintaining your applications are now free to innovate and build new product features.

Unfortunately, you won't be a young, high-growth company forever. It might be hard to believe while you're still high on growth, but cloud costs can spiral out of control once you start to scale. Once you fall into the trap of runaway cloud costs, it can be difficult to escape.

According to a recent cloud optimization study by Andreessen Horowitz, 50 of the top public software companies using cloud infrastructure are losing an estimated combined $100 billion of market value due to the impact of cloud on margins. Widen the scope to all public software companies using cloud infrastructure, and the market cap impact is more than $500 billion.

Growth in the Cloud

Worldwide Enterprise Spending on Cloud and Data Centers

Source: Gartner, Synergy Research Group, Intricately
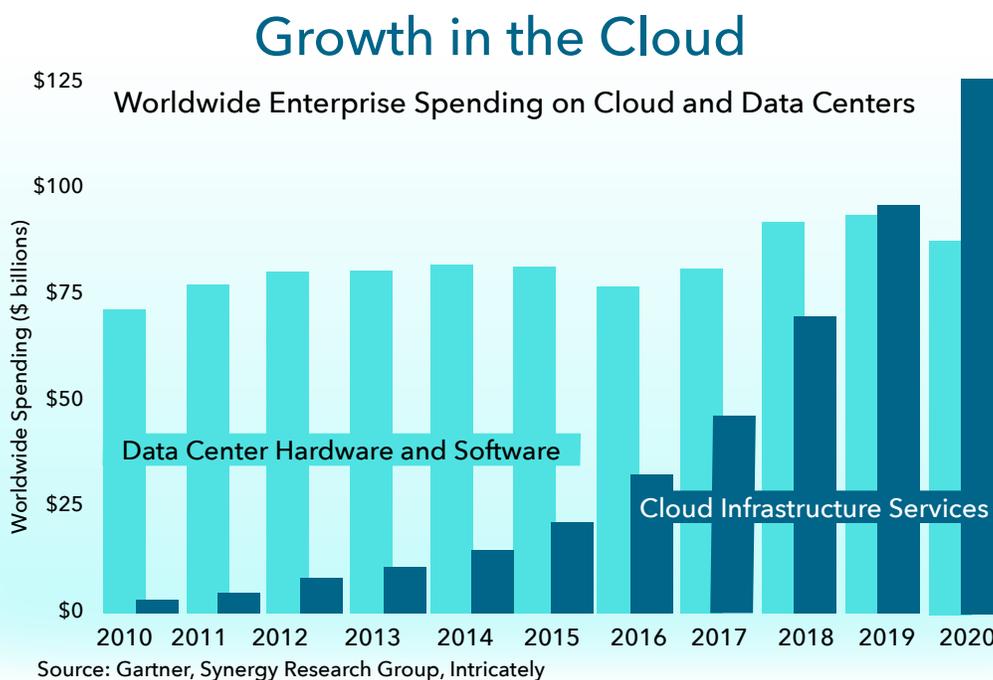
The Andreessen Horowitz report adds that every dollar of gross profit saved increases market caps on average by 24-25 times. Not only does uncontrolled cloud spend impact your market cap, it leaves less money to invest in revenue-generating activities like new feature development, innovation, and expansion. In direct opposition to high-growth conditions, developers will spend too much time managing cloud costs and not enough time coding new products.

Do you have a cloud cost optimization plan?
You'll need one to avoid falling into the Cloud Paradox.

> "Organizations with little or no cloud cost optimization plans rush into cloud technology investments. They end up overspending on cloud services by up to 70% without deriving the expected value from it."
>
> *Gartner Finance Group, 2021*

How Does the Cloud Paradox Happen?

The high-growth years of a young company are like a happy childhood.

While still spry and exuberant, you migrate some of your applications to the cloud. The cloud delivers agility and scalability a growing company needs at a level that would be impossible to achieve with owned infrastructure. Thrilled with the boundless resources available in the cloud, you go all in on cloud migration.

The years ahead are more like teenage angst.

Cloud Adaption Journey

Expectations

Is this cloud thing real?

Inflated Expectations
Rapid Workload Migration
Ad Hoc Strategy

Spiraling Cloud Bills
Margin Pressure
Opportunity Cost

Value Optimized
Freed Developer Resources
Funds for Innovation Initiatives

Laggards | Growing Adoption | Cloud Paradox | Value-Optimized Cloud
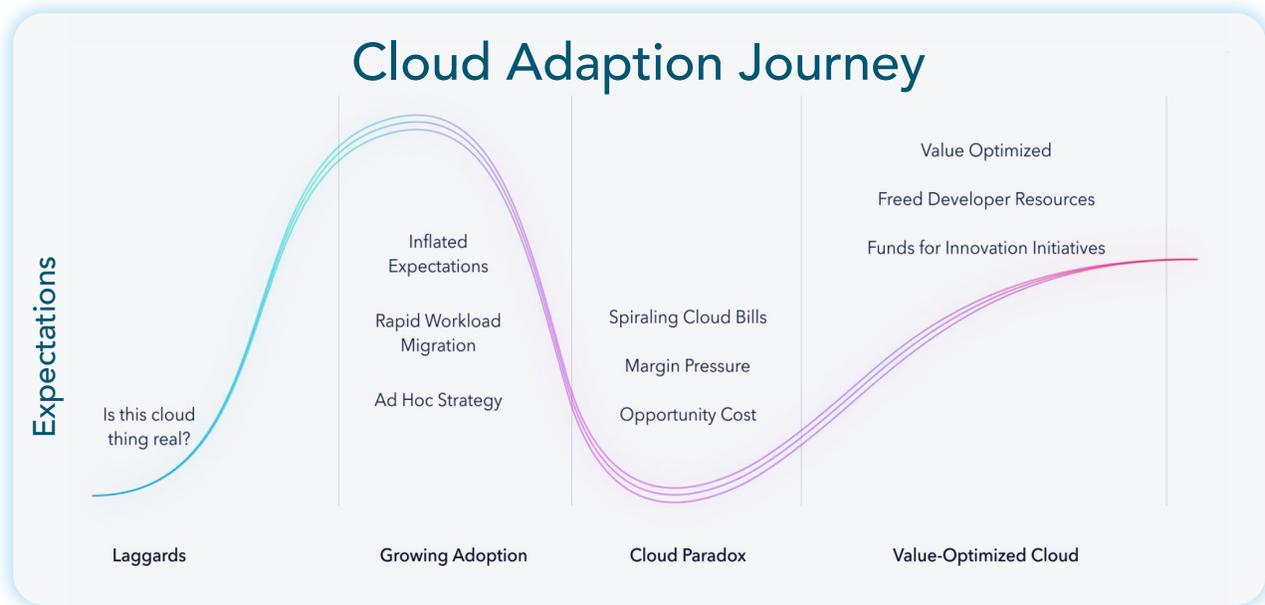
You might not see it now, but meteoric growth slows as your priorities shift to scaling for long-term success. Feature production is still critical to success, but its importance gives way to infrastructure growth. And that's often when someone notices that cloud bills have risen – a lot – and no one in the company has a plan for reversing course to bring costs under control. Still not convinced? Gartner notes in their 2021 report, "Realize Cost Savings After Migrating to the Cloud," that organizations with little or no cloud cost optimization plans overspend on cloud services by up to 70% without seeing the value.

Repatriation Is a Big Step

According to Andreessen Horowitz, repatriating cloud resources back to on-premise hardware results in infrastructure cost savings of 50-70% versus cloud costs. Also, running your own data centers can cost less than 10% of what you spend running in the cloud. And cloud hosting companies are not walking a razor's edge. For instance, AWS operates at a 30% margin even with discounts for use commitments, so repatriations savings could be even larger. Given all that, shouldn't companies just get off the cloud?

Hardly.

For starters, repatriation is expensive and complex. In addition, the cloud offers agility, flexibility, and scale that private servers cannot match, which is particularly important for companies in high-growth mode. You went to the cloud for good reasons, and those reasons are still valid. As long as you're growing, you can absorb most of the cloud cost, and the benefits of the cloud are worth some extra spending. And let's not forget, infrastructure savings is only one metric. For many companies – especially growth companies – performance comes first.

24X
Amount market cap increases for every dollar of gross profit saved

AndreessenHorowit, 2021

Of course, repatriation is only one cloud spend optimization strategy, and it can be used in conjunction with others. Even though you're not repatriating today, you should still be preparing to optimize cloud spend in the future.

Start Preparing to Optimize Cloud Costs Now

There are multiple strategies and tactics for optimizing cloud spend. They range from stopping waste to better tracking of resources to gaining more efficiency. None of them should reduce your performance. Here are a few of the cloud spend optimization strategies below:

Make cloud spend a KPI: Andreessen Horowitz recommends making infrastructure cost a key performance indicator for the business to make it a first-class metric. Companies have been looking at cloud cost metrics alongside core performance and reliability metrics earlier in the lifecycle of their business. At the same time, surprise cloud bills are making developers savvier, applying more rigor to their team's approach to cloud spend.

Gain visibility into cloud resources: Without good monitoring, enterprises don't even really know how much (or if) they're using various resources. With good visibility into resource use, you can make informed decisions to eliminate unused resources, consolidate little-used resources, or pause idle processes. Cloud hosting companies often charge based on the amount of data that you're holding, whether you're using it or not. Moving data into lower-cost storage is one way to get your costs in line.

Tag cloud resources for cost management and cloud governance: If you've ever seen that an instance was running but didn't know what it was or why it was running, this might be a good time to consider tagging resources. How could a large enterprise with hundreds of thousands of instances in the cloud keep track of everything without proper tagging? if they're not well architected with metadata and hierarchy, it's very difficult to really understand even who's using what, why, resource lifecycles, and more. Retrofitting instances with proper tagging is a grind, but it's worth the work to prevent waste later.

Seek reserved and spot instances: Cloud vendors will typically give you a discount if you commit to a certain number of units over 1-3 years. You can also try to secure spot instances. Spot instances are non-guaranteed; but if they're available, they'll be less expensive than traditional instances. Find the right balance between reserved instances and spot instances, and you can minimize compute costs associated with deployments.

Migrate to the cloud with your options open: There's no one way to migrate to the cloud, and it's a long, complicated process. In fact, even if you've done it, you're probably still doing it. Some strategies include rehosting, refactoring, and re-architecting. However you choose to migrate, based on your particular situation, document your steps, tag your resources, and investigate a multi-cloud strategy with multiple cloud providers. Moving to the cloud carefully will make it easier to negotiate with multiple cloud vendors or optimize when your cloud strategy changes.

Incentivize the right behaviors: Institute a culture of awareness and knowledge about cloud cost. The operational side of the house, including the CFO, must be cognizant of responsible behavior. You probably knew that. But even the development side, developers and architects, should be aware of the tradeoffs between using a service and building something new.

If the Cloud Paradox is a choice between performance and cloud cost optimization, it is a false choice because you can't save your way to prosperity.

The Cloud Paradox: a False Dichotomy

You don't have to choose between performance and cost. Prioritize performance, and cloud cost optimization follows. How? A high-performance Java Virtual Machine uses cloud resources more efficiently, enabling you to reduce cloud instances while still enjoying the agility, flexibility, and scalability of the cloud.

Improve
Solve
Eliminate

Azul provides the world's best Java platform. Let's see why it's the right choice for running Java in the cloud.

Improve performance and reduce cloud costs: With Cloud Native Compiler and Azul Platform Prime, Java applications run faster by compiling byte code in the cloud. We've taken the Falcon Cloud Native JIT Compiler and moved it from the container to a cloud service, where it takes the burden off the application's infrastructure. Serve the same load with smaller, fewer instances with compilation as a service. While others scramble to offset mushrooming infrastructure spend, you can deliver greater agility and optimize costs.

Solve Java's so-called "warm-up" problem: Deliver peak performance at critical times like market open or during unexpected spikes in demand. Azul ReadyNow! Technology slashes "warm-up" times and is designed for Java developers and operations teams to extend the power and capabilities of Azul Platform Prime.

Eliminate application latency: Perform garbage collection without pausing your applications to reclaim available heap memory by the JVM. Azul's C4 Garbage Collector is the only Java garbage collector available that not only practically eliminates application pauses but also does it at scale (high throughput with huge heap sizes).

Optimize
Reduce
Efficient • Retain

Optimize cloud spend: When you use a high-performance JVM for better performance, you also run Java applications more efficiently. Improved efficiency uses fewer resources to perform the same or even more work, saving you money no matter which other cloud cost optimization strategies you employ.

Reduce cloud compute instances: Get more transactions from the same hardware and accelerate Java application performance, even as loads increase. For example, tests proved that Azul Platform Prime can create more throughput in Kafka with fewer nodes. Do the math.

Use compute instances more efficiently: Serve the same load with smaller instances so each instance runs as efficiently as possible, with room to scale up and down as necessary. Save on infrastructure and be ready for anything.

Retain customers: Keep your customers happy to prevent attrition, lost revenue, and reputation damage.

Don't just take our word for it. Visit our Downloads page and try Azul for free. Azul Platform Core delivers the world's best supported builds of OpenJDK, with world-class support and security. Azul Platform Prime provides blazing-fast performance with cloud-native Java components and delivers incredible value.

Try Azul for free today!

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