

**CHOICES FOR IT LEADERS** 



"Where organizations do decide to deploy cloud services, the technology they choose matters tremendously. While pilot projects will tend to start small, with limited functionality, it's important to choose a technology foundation that offers room for expansion both in terms of functionality richness, and in terms of hybrid cloud interoperability for the future."

#### **GARTNER**<sup>1</sup>

#### Who Should Read This

#### This book is about transitioning to Hybrid Cloud

- » What is it?
- » Why is it valuable?
- » How it can save you time and money on IT infrastructure and increase agility over a private-only or public-only cloud strategy?

#### Who this eBook is written for:

- » Leaders who have to consider the benefits of utilizing hybrid cloud solutions to solve their IT and application challenges.
- » A CTO who needs to be concerned with how their applications deliver value for their organization.
- » A CFO wondering how to minimize costs during a transition to more utilization of public clouds.
- » Or an IT leader who is wondering what technologies can give them the benefits of some public cloud while leveraging the people, process, and technologies their team has now.

#### **Does** this apply to you? Then you should read on.

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### WHAT IS HYBRID CLOUD, AND WHY DO YOU WANT IT?

Hybrid cloud has become a much-discussed IT pattern that has seen an increasing amount of interest and discussion, but little coherent strategic implementation. Hybrid cloud is the deployment of computing resources across both public and private cloud infrastructure. Any mix of the use of private cloud, typically based on a VMware stack, and any public cloud can qualify; but successful hybrid cloud deployments consider the needs of the applications and developers—both the current state, and future development.

Applications are at the heart of the drive to hybrid cloud, because the best hybrid cloud architectures blend applications running on a private cloud environment with the tools and options of hyperscalar public clouds. IT departments are driving to make more agile resources available to their developers, and to take advantage of certain "hyperscale" public cloud advantages—in particular, the on-demand scale-out capacity of public clouds for test/dev and seasonal or burst workloads, but also new features and functionality provided by the hyperscalar cloud platforms. IT departments also often find it appealing to get out of the business of running datacenters, and also frequently want to dispense with the burden of managing multiple hardware refresh cycles, so they can focus on high-value work for the business.

The public cloud appeal causes problems for the traditional IT workload. The typical enterprise has not only their IT crown jewels—ERP systems, databases, CRM systems, and so on—but hundreds of line-of-business applications that deliver enormous value every day, but without the resources for developers to prepare them to run in the public cloud.

This creates a challenge for IT departments: how can you enable developers to utilize public cloud in areas where it makes sense, while preserving those other enterprise applications? Moreover, how do you enable these applications in the public cloud to access the other applications of the enterprise because in today's world, no application is an island.

This bifurcation between the need for stability in existing applications and agility in new applications led to a new term to describe the curation of those two halves of the IT world: **Bi-Modal IT.** 

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#### **BI-MODAL IT: THE APPLICATION-CENTRIC DRIVER FOR HYBRID CLOUD**

Gartner coined the term "bi-modal" IT to describe an application deployment strategy where IT departments maintain a more traditional IT environment for their "Type 1" applications—those that require stability over agility and thrive in the traditional high-SLA, high-uptime world of traditional enterprise IT. The "Type 2" applications are those focused on delivering agility, and leverage devops deployment models, cloud-native application development tools like NoSQL databases and horizontal scaling models.

This fits perfectly into the first phase of a hybrid cloud model—because existing Type 1 workloads and can remain in a private cloud environment—or transitioned to a hosted private cloud environment, typically VMware-based—while providing a platform to blend those private cloud applications with public cloud resources.

Any transition to a new IT paradigm inevitably involves a shift of people, processes, and technology. Developers and companies around the world are driving innovation with technology, but until all the people and processes are ready to adopt that new technology, IT leaders need solutions on how to maintain their existing applications without foreclosing on the opportunity to innovate with Type 2 applications.

Hybrid cloud is not just about the "Type 1" workloads that are still the status quo in the enterprise, however—it is also about the future, and the future begins with a new application architecture pattern: **microservices.**  THIS FITS PERFECTLY INTO THE FIRST PHASE OF A HYBRID CLOUD MODEL—BECAUSE EXISTING TYPE 1 WORKLOADS AND CAN REMAIN IN A PRIVATE CLOUD EN-VIRONMENT—OR TRANSITIONED TO A HOSTED PRIVATE CLOUD ENVIRONMENT, TYPICALLY VM-WARE-BASED—WHILE PROVIDING A PLATFORM TO BLEND THOSE PRIVATE CLOUD APPLICATIONS WITH PUBLIC CLOUD RESOURCES.



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### MICROSERVICES

Microservices is a new paradigm for deploying applications that relies on each tier of an application being its own horizontally scalable layer. The servers in each tier typically have a single job – for example, an authentication service. With microservices, since each tier is designed to scale out independently, the services become building blocks that can compose more complex services. Composability is the hallmark of cloud native applications, which are driven by application programming interfaces (APIs), even for intercommunication. Composability gives microservices the same ability to scale development efforts that object-oriented programming offered for complex applications decades ago when it became a dominant programming paradigm. Microservices are composed to be small, as atomic as possible, and lightweight, and then can be attached via APIs to build more complicated business processes.

Because microservices depend heavily on network-based API calls for communication between services, the components are highly sensitive to latency between services. That typically means all the services need to be in a local or metro network area. The problem with microservices and bi-modal IT is that it is developers often prefer to deploy the microservice containers into a cloud environment, because it pairs well with the processes and technology of cloud. Microservices by their nature are designed to be resilient to the failure of individual servers. As devops engineers will say, your servers should be "cattle not pets". In a microservices environment, servers should be easily created and easily destroyed and the application architecture should be resilient against that server churn.

This poses a problem for those "Type 2" workloads, however. The "Type 1" workloads are the repositories of massive amounts of critical business data – data that is needed by the new wave of "Type 2" applications to function. This is one of the largest challenges leading to the adoption of hybrid cloud: making the old world and the new world play nicely with each other. If a microservices container in a "Type 2" application needs to access data from a legacy application, but only the microservices application is in the cloud, how can reasonable performance be achieved?

#### THE DATACENTER IS DEAD; LONG LIVE THE DATACENTER

With news of various companies like Centurylink and Verizon looking to divest their datacenter portfolios, one might be tempted to conclude that demand for colocation in third-party data centers is falling. The truth is the opposite: more enterprises are getting out of the datacenter business every year. While many IT leaders will attempt to eke the value out of their datacenter investments by consolidating or augmenting to get more space and power out of their datacenter footprint, they run up against constraints—either lack of square footage, or even more likely, lack of sufficient power—to keep adding to their enterprise datacenter workload. Once they reach those limits, IT leaders are likely to report they plan to add resources outside their traditional four walls—utilizing either colocation or cloud.

The aging datacenters of the past have a hard time keeping up with the new data centers in terms of power efficiency, reliability, and THE TRUTH IS THE OPPOSITE: More enterprises are getting out of the datacenter Business every year.



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Data gravity describes the effect that having a lot of data in one place tends to "attract" other data. Data is more useful when it is "near" other data. If an application has only microseconds of latency to access data, it can do much more with that data than if the data is dozens or hundreds of milliseconds away. This is one reason why more workloads are moving out of the enterprise datacenters: to drive cloud initiatives, the traditional enterprise applications need to move closer to the cloud—and there's no shortcut for the speed of light, so that means getting them physically closer.

The result of this is that more enterprises are migrating into "cloud-centric" datacenters (a "cloud-centric datacenter" being one with low-latency access to the major hyperscale public cloud environments). In Cisco's "State of the Cloud" report, they estimated that over 90% of traffic growth from 2014-2019 would occur in cloud-centric datacenters. This is due to both the shift of workloads out of the traditional datacenters into colocation at cloud-centric data, as well as applications moving to or being developed for the hyperscale public cloud environments.

Mere proximity via colocation doesn't fully solve the issues driving the migration out of enterprise datacenters, however. As companies begin to adopt more cloud and software-asa-service (SaaS) services, it becomes typical to pay for those on a monthly basis. The misalignment between capex for the "traditional" application environment and the opex model for cloud and SaaS services leads some CFOs to drive adoption of hosted private cloud environments. With a hosted private cloud, an enterprise gets the benefit of the familiar people, process, and tools—because many hosted private cloud offerings utilize the VMware stack so common in the enterprise datacenter—but they pay for it like public cloud resources. This also frees up a lot of time for the IT talent, because they get out of sizing, procuring, patching, refreshing, servicing and supporting the private cloud stack.

When an enterprise pairs a private cloud environment in a cloud-centric datacenter with public cloud, and has private, secure, low-latency bandwidth between those environments, they're truly starting to realize the benefits of hybrid cloud—both in cost savings, as well as improved application performance and agility.

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### **HYBRID CLOUD TO THE RESCUE**

Hybrid cloud is an answer for these challenges. It is meant to solve for both the traditional IT environment and the next-gen agile application environment, and help them thrive in harmony. In a hybrid cloud environment, IT teams enable deployment of both traditional applications—using the people, processes, and technology they already know and rely on—as well as the "Type 2" applications, using that high-speed cloud-attached networking. This is a powerful combination, allowing the "lift and shift" of the traditional application environment, so it can be proximate to the new generation of application.

Most IT departments have a VMware-based environment that runs their traditional applications. They rely on this VMware layer to allow non-disruptive maintenance via vMotion, as well as the resiliency provided by VMware's HA technology. Many leverage it for features such as snapshots or changed-block tracking in order to make backups and recovery easier. Some utilize security features to ensure the security of the guest virtual machines. Some utilize it for virtual desktop environments.

IT departments rely on their VMware skill sets to enable all this functionality. Consequently, many successful shifts to hybrid cloud look to utilize VMware-based environments that have connectivity to the public clouds.

There are three significant challenges to this shift, however:

- » Many organizations do not have the experience, technology, or scale for simple or cost-effective connectivity into the public cloud from their private cloud environment
- » Managing hardware, colocation, network gear, and so on means IT departments are stuck handling the world of capital budgets, hardware procurement cycles, and so on—but also have to deal with the billing, budgeting, and performance challenges of public clouds
- » Many hosted private cloud environments force a shift on an IT team toward a managed services platform, even if they have the expertise to manage the environment, because hosted private cloud providers are often loathe to "co-manage" gear and provide true administrative access—which also interferes with their desire to sell additional managed services

The end result is that many IT departments don't like either option: managing a hardware platform and datacenter space is time-consuming, costly, and doesn't fit with the agility and economics of cloud adoption; but they also aren't keen on throwing away the people, process, and technology they rely on for their "Type 1" traditional workloads.

### HYBRID CLOUD IS MEANT TO SOLVE FOR BOTH THE TRADITIONAL IT ENVIRONMENT AND THE NEXT-GEN AGILE APPLICATION ENVIRONMENT, AND HELP THEM THRIVE IN HARMONY.

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## **FACTION**<sup>™</sup>

#### **DO YOU GET A CLOUD FOR YOUR APPLICATIONS, OR FIT YOUR APPLICATIONS TO THE CLOUD?**

Rewriting applications to fit the public cloud is always an option—and many businesses are porting applications to the cloud, from tiny backoffice apps to the crown jewels of their enterprise, to run well on the public cloud. That said, that's an expensive and time-consuming proposition.

One issue architects have frustrations with is the inflexibility of public cloud instance sizing. The "T-shirt sizes" of public cloud instances often fail to meet the need for instances that need to be just a bit larger than a given instance, resulting in significant over-provisioning. It can also be more difficult for administrators to properly size for workloads because the lack of hypervisor tool integration. Because many public clouds do not provide any SLA at all unless applications are running simultaneously in two availability zones, applications must be architected to be spread across zones as well as somewhat oversized. This can be an operational shift for IT departments with significant VMware experience who have architected right-sized hardware that utilizes technologies like VMware HA for resiliency.

Between the typical lack of administrative control in the hosted private cloud environments, to the weakness of the public cloud in dealing with traditional enterprise applications, what is the IT team to do?

### FACTION CLOUD: HYBRID OUT OF THE BOX

We at Faction didn't like these options, so we've seamlessly integrated our managed private cloud offering with our Faction Internetwork eXchange (FIX). Now, every private cloud we deploy comes hybrid-ready. We offer simple, turnkey connectivity to hundreds of networks—including all the major hyperscale public clouds, such as AWS, Azure, Softlayer, and Google.

Because our FIX connectivity is added to our "Zero-Reconfiguration" private cloud environments, it means we've created a simple path to migrate into a hybrid-ready private cloud. The existing VMware footprint can move using the same networks, tools, and software already being used, and then the Faction team can seamlessly add public cloud connectivity. Our network flexibility means migrating out of an in-house private cloud into a Faction-powered private cloud requires zero network reconfiguration; and then we can immediately connect the external networks across our high-speed fiber network, as well.



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#### **BRINGING PUBLIC CLOUD INNOVATION** TO PRIVATE CLOUD

One reason public clouds have gained appeal is the innovation. In particular, public cloud scale has proven particularly adept at attracting sprawling and growing unstructured data. Trillions of objects have now landed in public cloud object stores, and the hyperscale public cloud providers have differentiated that by having both a standard object store and a "cold storage" object store with greatly reduced costs.

Faction has driven that innovation in the private cloud space, by providing those differentiated storage offerings, allowing ten-

ants to land data on the storage platform that makes the most sense for the data—whether that's super high-performance SSD, or extremely cost-effective near-cold object storage. By providing a private cloud alternative to public cloud storage options, Faction has empowered a new era of private cloud application flexibility. By adding enterprise SLAs and expert support, we've made those innovations that much more accessible.

At Faction, we see our job as giving the companies that rely on our private cloud the cloud they want, not the cloud we want.

### **POWER TO THE PEOPLE**

That's why we offer full administrative access to vCenter in our VMware cloud environments. Just because an IT team wants to stop managing hardware and start running their business, we don't think they should be forced to change tools and processes.

Our cloud is simple, fast, and secure. But the deep access and broad customization in our environment leads to infinite variety for our customers. From backup and disaster recovery, to tier 1 applications on high-performance disk, to virtual desktops, to cold storage, our cloud has the building blocks for any workload. AT FACTION, WE SEE OUR JOB AS GIVING THE COMPANIES THAT RELY ON OUR PRIVATE CLOUD THE CLOUD THEY WANT, NOT THE CLOUD WE WANT.

# **CONTACT US TODAY**

IF YOU'RE FACED WITH FIGURING OUT HOW TO HANDLE THE TRANSITION TO HYBRID CLOUD, OR SIMPLY WANT THE MOST FLEXIBLY PRIVATE CLOUD OFFERING AVAILABLE, WE CAN HELP!

