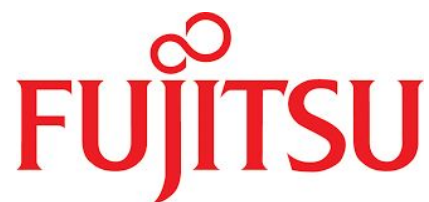# Can integrated systems help build hybrid IT?

Things you need to know when planning your hybrid future

in association with

FUJITSU

Introduction

For most organizations of any size or maturity, having a variety of IT systems and services is the default, whether by accident or design. Running only on Software-as-a-Service (SaaS) applications and the public cloud is a viable option for start-ups and smaller organizations, but even there, most will also have or want some local systems, storage, and so on.

The simple fact of the matter is that different workloads have different properties, usage patterns and resource needs. Organizations need to think carefully about why and where they place each workload, therefore, based on a wide range of factors including their complexity and business value, the need for connectivity, performance and availability, and compliance-driven requirements for the geo-location of data.

This is why we see some organizations adding hybrid (public/private) cloud services alongside their traditional on-prem IT, while others who went all-public cloud are now pulling some workloads back on-prem, after realizing the public cloud's implications for control, cost, compliance, connectivity, performance, etc.

The danger is that this can result in an inflexible, complex and confusing jumble of services. What we need instead is to add these new services and then operate the resulting infrastructure as a single coherent whole - as genuinely 'hybrid IT' (Figure 1).
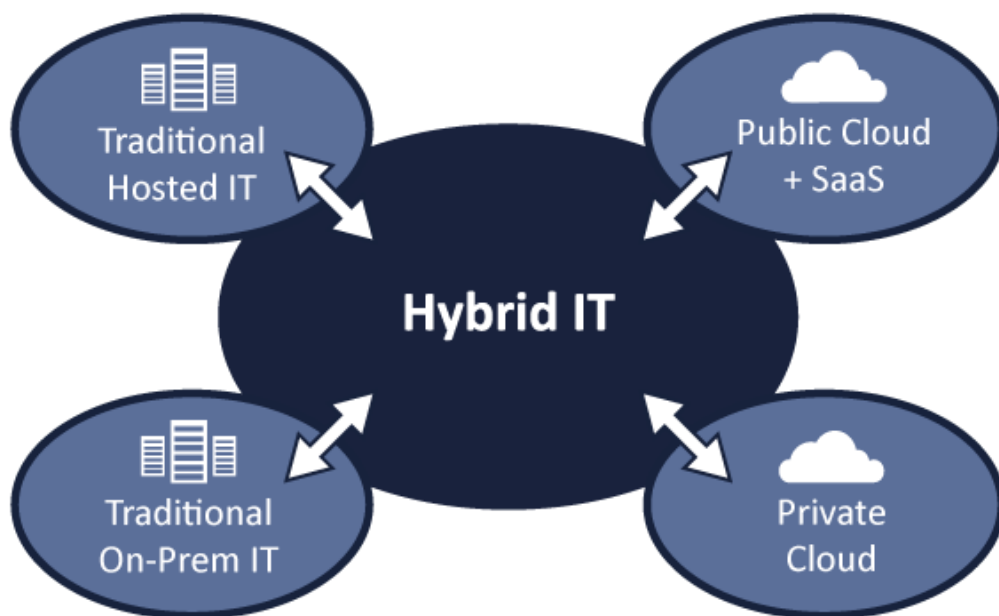
Figure 1: Many organizations use a mix of services that all need integration

Into the picture comes the integrated system, a combination of server, storage and networking that's bought, installed and operated as a unified solution. In this paper, we look at how hybrid IT and integrated systems can come together, with integrated systems offering a simple way - albeit not the only way - to implement the local end of a hybrid IT infrastructure.

What is Hybrid IT?

The concept of hybrid IT is that all of your IT resources act as a seamless whole, so you manage, operate and consume workloads the same way, no matter where they are actually placed. For example, an organization might consume services of a more generic nature from public clouds, but have others hosted in some form of private cloud, whether operated from their own data center or a co-location facility, or run for them by a service provider.

This is about IT in general though, not just cloud. Public cloud is not "better" than the traditional data center, nor is the reverse true - both have roles to play. Some workloads will suit the cloud model, whether public, private or hybrid, and others will not, for reasons of complexity, business value, security, latency, and so on.

In addition, some applications are becoming ever more dynamic as developers adapt to a world of continuous change. That means a workload's requirements may well change significantly many times during its life, with each change prompting a reassessment of its location. For example, new usage patterns could make the public cloud a more cost-effective location, or a new compliance regime could encourage a move back on-prem.

Introducing integrated systems

Hybrid IT might appear complex to implement, but it doesn't have to be. That is especially true for those establishing an on-prem cloud, either to pull workloads back from a public cloud or to support their evolution from on-prem IT to a hybrid cloud model. This is because many of the technologies and concepts that enable cloud computing also align clearly with integrated systems.

The best-known implementation of the integrated systems approach is probably HCI (hyper-converged infrastructure), but the same parallels can be seen in converged infrastructure (CI), which is the other main integrated system model.

These two models differ in their configuration, but the differences are largely irrelevant in the hybrid IT world, where the expectation is that the key resources of compute, storage and networking will be abstracted, and quite possibly software-defined too. Seen through this window, integrated systems become a way of reducing complexity by shifting the focus to where it ideally belongs - the software layer.

With integrated systems, the major decisions and caveats also become software-based. For instance, which hybrid software stack or stacks will you standardize on, such as Microsoft, Nutanix, VMware or an open-source option? If you rely on specific management tools, which hybrid infrastructures and integrated systems can they connect to and support?

It is useful to recognize here that you are building hybrid IT for **your needs**. Of course it needs a degree of future-proofing - including support for cloud-native architectures, for instance, if you are not already using them. But the important thing is to focus on

building the standardized and smoothly-interoperable environment that your organization needs, and not trying to enable or support everything under the sun.

Hybrid opportunities and challenges

A hybrid IT infrastructure uses abstraction and software-definition to integrate services delivered via public and private clouds with on-prem and private hosted resources, whether virtual or physical. This technology is still evolving, but the ultimate vision is improved service delivery. For example, if your on-prem resources become over-stretched, the automated and unattended movement of workloads could permit tier 2 services to seamlessly move onto the public cloud or a hosted platform, allowing on-prem integrated systems to be focused on tier 1 applications.

Self-service catalogs

Another way hybrid IT can help improve service delivery is by making it easier to implement user self-service technologies via an enterprise service catalog. The unified view it provides into a set of normally disparate applications can form the foundation for the catalog, giving users a simple and easily understood way to subscribe to the software and services they need (read our paper 'Simplifying Multi-Cloud Service Delivery [here](#)).

Charging models and licensing

Today's users and customers are often familiar with pay-as-you-use charging models, and hybrid IT's abstracted and commonized view of services and applications brings the opportunity to make that type of charging model available across the hybrid infrastructure too. Again, a self-service catalog could form part of such a project.

However, software licensing must be handled carefully when moving to a hybrid IT model, to avoid adding significant extra licensing complexity and cost. It is likely that the organization will already have a mixture of software suppliers and contracts that must be brought together. Which of the licenses can be re-used in a hybrid environment? Which can be traded-in or exchanged? How can services be moved towards a pay-as-you-use model, where appropriate? Access to specific expertise in software licensing and contract negotiations, perhaps via your IT supplier, could be highly beneficial here.

Bidirectional disaster recovery

The ability to move workloads can also easily extend to replicating them if required, meaning that hybrid IT can be used to create a virtual second data center or disaster recovery (DR) infrastructure on-demand, most commonly in a public cloud or hosted location. Setting this up can be a complex job, but can be made easier if your IT services supplier has the skills to assist.

Hybrid IT is also about interoperability between platforms, though. For example, just as cloud is increasingly popular as a backup destination for some on-prem applications, you may also want to make a local backup of your data from a SaaS or public cloud

application, or backup from one data center to another. By bringing location independence and enabling anything to run anywhere, hybrid IT can permit hybrid backup strategies to be implemented without major expenditure of resources and time.

Data governance

A move to hybrid IT in general, and the addition of cloud DR in particular, will also require you to reassess your data governance and regulatory compliance framework. Again, this is a task that may require specific expertise that your organization lacks.

In summary

We often hear that "everything is going to the cloud," but it's not true. First, people who say that kind of thing tend to assume that 'cloud' and 'public cloud' are synonymous, but they aren't - both are delivery models, but the latter is a specific implementation of the former. And second, there may well be a need for other IT delivery models, because not every application is suitable for or requires cloud-type deployments.

What is true is that organizations have a mixture of workloads and a choice of where to place them. Some will be cloud-native, virtualized or containerized, and others may be monolithic. Some may need to stay on-prem for reasons of security, privacy, latency and so on, while others can be hosted remotely, perhaps to cut costs or improve external access.

Building the ideal hybrid IT infrastructure capable of accommodating all that, while also providing flexibility, scalability and reliability, is a complex matter. Not every organization will possess all of the relevant infrastructure skills. For example, public cloud users who want to move some workloads back on-prem will need additional skills, as will users of traditional IT plus some public cloud services who now want to bridge the two. For these users, integrated systems can remove much of the infrastructure challenge by providing the missing parts of the jigsaw in packaged form.

Layers of complexity

Anyone looking at taking the integrated systems route to hybrid IT will also need to choose their IT supplier carefully. Integrated systems can provide a drop-in answer to many of the hardware and software questions, but that does not instantly build hybrid IT. As we have highlighted above, there are many other questions to be answered, some of them requiring very specific expertise.

It is therefore worth seeking out a partner who can work with you to co-create the ideal hybrid infrastructure for your needs starting from where you are today. That's an adaptive infrastructure, where you can position and reposition a workload on-prem or in a cloud as its requirements shift or your desires change. If that partner can also supply all the various placement options and expertise, so much the better, because it should mean they will have no reason to prioritize one direction over another.

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