PRACTICAL GUIDE

HYBRID CLOUD

HOW TO BENEFIT FROM BOTH WORLDS WITH VMWARE CLOUD ON AWS

powered by AWS
vmware
The hybrid cloud is paving the way for a new, more modern, agile and innovative IT system. However, it also brings new challenges for companies, between architecture, use cases and secure interconnections: how to bring applications originally designed for a data center into the cloud? Better still: how to combine the resources of a private infrastructure and the cloud according to usage?

Strong of very advanced partnerships with AWS and VMware, LINKBYNET is able to support you step by step in this approach, combining expertise, pre-integrated tools, custom configuration and management of your new hybrid architectures.

**Discover the use cases, and the points of attention in this practical guide.**
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It is there and imposes itself every day a little more in the information systems. « He “? The hybrid cloud already adopted 6 biggest companies out of 10. And we are only at the start. The story is accelerating with the ability to smoothly shift workloads from private infrastructure to the public cloud. This is exactly the promise of VMware Cloud on AWS.

With this solution, a VM created and managed on premise can painlessly migrate to AWS and take advantage of cloud resources. Better: the management of distributed workloads on premise and in the cloud takes place without operational disruption. In other words, teams already familiar with the vSphere environment can continue to exploit it in a hybrid cloud environment.

This continuity makes it possible to advantageously combine the resources on premise and cloud:

- On the side of the premise, the private data center, designed to meet specific needs and whose resources are managed via a known and mastered platform - vSphere. A tailor-made environment that can have limitations: once its capacities have been allocated, it can be complicated and time-consuming to add material resources to evolve «on demand». To maintain a non-automated infrastructure in operational condition is time consuming.

- On the cloud side, the AWS cloud, with its 165 native services. An infrastructure whose resources, which can be activated on demand, can be considered as unlimited.

Bridging these two worlds allows businesses to take advantage of the agility and scalability of the cloud without disrupting their operational management. What to draw a soft trajectory to prepare the modernization of the information system. Of what, also, to answer many cases of uses.
HYBRID CLOUD
USE CASES

USE CASE # 1
OVERFLOWING ON THE CLOUD

This is often the first case of use that comes to mind DSI: rely on the cloud to exceed the limits of infrastructure on premise. This is the challenge of IT’s agility in the face of time or space limitations. In time, the purchase and installation of new racks may require delays that are not compatible with the expectations of the trades. Space, because available square meters tend to become scarce in data centers. For all these reasons, using a hybrid cloud solution such as VMware Cloud on AWS is a simple way for DSI to extend its capabilities without time or space constraints.

USE CASES # 2
IMPLEMENT A DISASTER RECOVERY PLAN

If you do not have multiple physical data centers, the hybrid cloud is an effective way to organize a Disaster Recovery Plan (DRP). This design is made easier with VMware Cloud on AWS: As the solution is similar to an extension of the vSphere environment to AWS, it is fully compatible with VMware Site Recovery. The replication, automation and orchestration mechanisms can therefore be extended to the cloud infrastructure.
USE CASES # 3
EXTEND GEOGRAPHIC FOOTPRINT

The digital transformation of companies is often accompanied by an international expansion of activities. In this context, having an infrastructure closer to its customers and potential partners is not a luxury but an imperative. With 21 covered regions and 64 availability zones, AWS allows you to play this card of local infrastructure. And, in a hybrid cloud environment, this extension is considered without operational disruption.

USE CASES # 4
REDUCE THE CARBON FOOTPRINT

This need has become clearer in recent months. To meet their company's environmental commitments, more and more CIOs are seeking to optimize the carbon footprint of their infrastructure. Not necessarily simple in the context of an existing datacenter ...

Operating at a different scale, AWS data centers offer advanced optimizations for energy management. A typical data center is **29% less efficient in terms of power consumption** than a cloud provider's facilities. As a result, in a hybrid cloud environment, the most demanding VMs can be advantageously switched to the cloud infrastructure. Add that, mechanically, a company provides for less workload in the cloud than it would on premise.
If information systems are modernizing, not all applications evolve at the same pace and do not follow the same path. Some are subject to real replatforming when others are simply migrated from one infrastructure to another. For a CIO, the challenge is clear: to avoid dispersion, in other words, the multiplication of environments. The interest of a motorized hybrid cloud with VMware Cloud on AWS is precisely to manage in the same environment all of these applications: those that are simply hosted on AWS, such as those that take advantage of native AWS cloud capabilities.

Explanations: Every VMware Cloud on AWS customer has an AWS account in practice. And workloads managed through VMware Cloud on AWS have direct access to AWS native services APIs (AWS Lambda, Amazon Easy Queuing Service, Amazon S3, Elastic Load Balancing ...). In this way, IT teams have the ability to either simply run an application on the AWS infrastructure, or begin to redesign it to pair with AWS services. A hybrid clouds a la carte in short.

USE CASES # 5

MIGRATE TO A CLOUD APPLICATION ARCHITECTURE IN A PROGRESSIVE WAY

To be adopted with confidence, the hybrid cloud cannot be a one-way street. VMware Cloud on AWS makes it possible to repatriate premise VMs exploited in the cloud - on the condition that the hosts on premise are well compatible with the version of VMware Cloud on AWS.

USE CASES # 6

KEEP THE POSSIBILITY OF REVERSIBILITY
HOW VMWARE CLOUD ON AWS ENSURES SEAMLESS HYBRID CLOUD

A COMPLETE SDDC ON AWS

VMware Cloud on AWS provides AWS with a complete SDDC (Software Defined Data Center) powered by VMware software. The solution is based on the VMware Cloud Foundation and integrates the entire VMware software portfolio: vSphere (for virtualization), vSAN (for storage) or NSX (for the network). The set runs on a flexible bare metal infrastructure of Amazon EC2 type.

This usage of the VMware environment is made possible by the AWS Nitro system. This set of hardware components includes a hypervisor that manages CPU and memory allocation. Objective: to reduce the burden of software hyper vision to ensure performance close to bare hardware for most VMs.

A FLUID HYBRID CLOUD

The value of a hybrid cloud environment depends on its ability to make applications «mobile» between resources on premise and cloud. This is the vocation of VMware Hybrid Cloud Extension (HCX), a SaaS service without extra cost that complements VMware Cloud on AWS. Big advantage of HCX: it allows to migrate workloads in the cloud without compelling to reinstall the source infrastructure or to reconfigure. To achieve this, HCX supports WAN optimization and traffic engineering or VPN automation.

Mass migration is also on the menu. It is provided by vMotion (integrated with HCX) which also allows hot migration of virtual machines from a host to a host in VMware Cloud on AWS. And this without service interruption of the application.
AN UNIFIED ENVIRONMENT

In addition to the software already mentioned, VMware Cloud on AWS also includes Hybrid Linked Mode (HLM) technology which unify cloud and on premise views in order to simplify the global infrastructure management whatever the environment. It also helps setting up a single Sign On (SSO) authentication using the company active directory.

SECURE COMMUNICATION BETWEEN CLOUD INFRASTRUCTURE AND ON PREMISE

How to secure communication between the existing infrastructure and the AWS cloud? This is the legitimate question asked by many companies. If the VPN, which is supported by HCX automation, is the first answer, it is possible to go further with AWS Direct Connect: a dedicated network connection between an existing data center and AWS. This private connectivity helps reduce network costs, increases throughput, and is valuable in hot and mass migration scenarios.

AN ELASTIC ENVIRONMENT

One of the benefits of the hybrid cloud is to resize the infrastructure on demand. This is the role of Elastic DRS (eDRS). This feature relies on vSphere to analyze the load executed within the SDDC and enable VMware Cloud on AWS if needed without manual intervention. Based on previously defined thresholds, eDRS generates recommendations (approximately every 5 minutes) and deals with increasing the capacity of a cluster. Adding a host takes 10 to 15 minutes.

HYBRID CLOUD WITH NO HARDWARE FOOTPRINT ON THE EXISTING DATACENTER

Key point: VMware Cloud on AWS does not require the installation of dedicated appliances or appliances in the existing datacenter to hybridize resources with AWS.
If a hybrid cloud engine powered by VMware Cloud on AWS offers great flexibility on a daily basis, getting the most out of it requires combining vSphere and AWS expertise. LINKBYNET, which has historically mastered the VMware environment and has been an AWS partner since 2012, brings this dual competence. Here are 5 essential topics that require this double mastery.

**EVALUATE ELIGIBLE WORKLOADS**

Technically, AWS can accommodate all types of workloads. However, to optimize the use of resources on the premise side as cloud side, an inventory of workloads and their specificities will not be too much. An opportunity to identify the VMs most likely to be cramped on existing infrastructure or applications that would benefit from using native AWS services. Preparing for the hybrid cloud migration is a good time to categorize workloads and mark the path to SI modernization.
THINKING «FINOPS»

While cost reduction may not be a primary motivator for migrating to the hybrid cloud, it’s important to stay on top of the budget. Not so simple at first sight ...

Opting for the hybrid cloud means moving, at least in part, from a CAPEX model (capital expenditure) to an OPEX model (operating expenses). Not to mention that this new logic must be reconciled with the ability to rebalance the costs of infrastructures activated on demand. In a hybrid environment, this topic becomes a separate discipline called «FinOps», which combines engineering and contract management. Objective: to design the hybrid cloud to optimize costs, facilitate their reading and invoicing.

REVIEW THE «COLLATERAL»

Monitoring, backup, archiving ... On all these so-called collateral topics, tooling on premise is usually kept in the context of a hybrid environment - which is also largely facilitated by VMware on AWS. But, again, not taking the time to question this tool during such a transition is to miss a great opportunity ... Without prejudging the conclusions, it seems relevant to evaluate the new alternatives brought by the hybrid cloud - via direct access to AWS native services.
**ORCHESTRATING SECURITY**

VMware on AWS offers many levers for securing a hybrid cloud environment, from HCX-automated VPN to AWS Direct Connect and inactive data encryption via vSAN. But this is only a brief excerpt from the available features ... Exploiting the tools made available requires a global look at the sensitivity of applications and data as well as the target architecture of the hybrid cloud.

**GUARANTEE PERFORMANCE FROM THE POINT OF VIEW OF THE END USER**

A hybrid cloud managed with VMware Cloud on AWS provides many mechanisms to self-regulate the day-to-day running of resources. Still, controlling performance across a hybrid cloud is not easy. An infrastructure on premise and a cloud like AWS do not share the same SLAs. And these SLAs say nothing about the guaranteed performance for the end user ... Only an outsourcer like LINKBYNET, who cultivates the experience and expertise required (from vSphere to AWS) can take the responsibility to commit to such an overall performance.
6 out of 10 companies have already taken the step of the hybrid cloud.

Source: 451 Research.

And you are interested in combining the resources of a private infrastructure and the cloud?