

Sify: Enabling VMware Hybrid Cloud Solutions



May 2020

Emergence of Hybrid Cloud

The hybrid cloud has become a compelling option for organizations pursuing digital business transformation initiatives to address specific security, compliance, privacy, location and operational requirements even while continuing to benefit from the agile capabilities of hyperscale clouds such as rapid provisioning, self-service orchestration and spend management for a consistent experience. Some of the common use cases for hybrid cloud include legacy applications that continue to run on-premises data centers or hosted private clouds along with new cloud-based applications that would run on the hyperscale cloud environments and sometimes even at the edge locations.

While hybrid cloud as a strategy has been pursued for as long as cloud has been around, it is only now that it has become a viable and compelling option with the advances both in the cloud and network technologies.

Hybrid cloud is the new operating model for IT, but it also creates new challenges. Many applications will be deployed or migrated to public cloud, but not all of them, creating a need to manage a mix of VM and container-based applications deployed across data center, public cloud and edge. VMware products can deliver consistent infrastructure and operation wherever workloads are deployed.

Sify, with its “Cloud@Core” offerings broadly consisting of Data Center, Cloud, Network and Professional Services, addresses all the challenges of architecting, deploying, workload migration and management of hybrid cloud workloads.

VMware Hybrid Cloud: A dominant player

VMware has leading compute, storage and network virtualization capabilities supporting broad range of workloads and is de-facto standard for enterprise DC which can be deployed on-premise, off-premises, in private cloud, at the edge or in the public cloud.



- 70% of virtual machines in on-premise data centers
Source: Gartner: Four Trends Changing Server Virtualization Decisions
- 64% of companies plan to deploy VMware Cloud on Public Clouds
Source: Cowen and Company IT Spending Survey: Dec 2017 (N = 147)

With this comes many requirements:

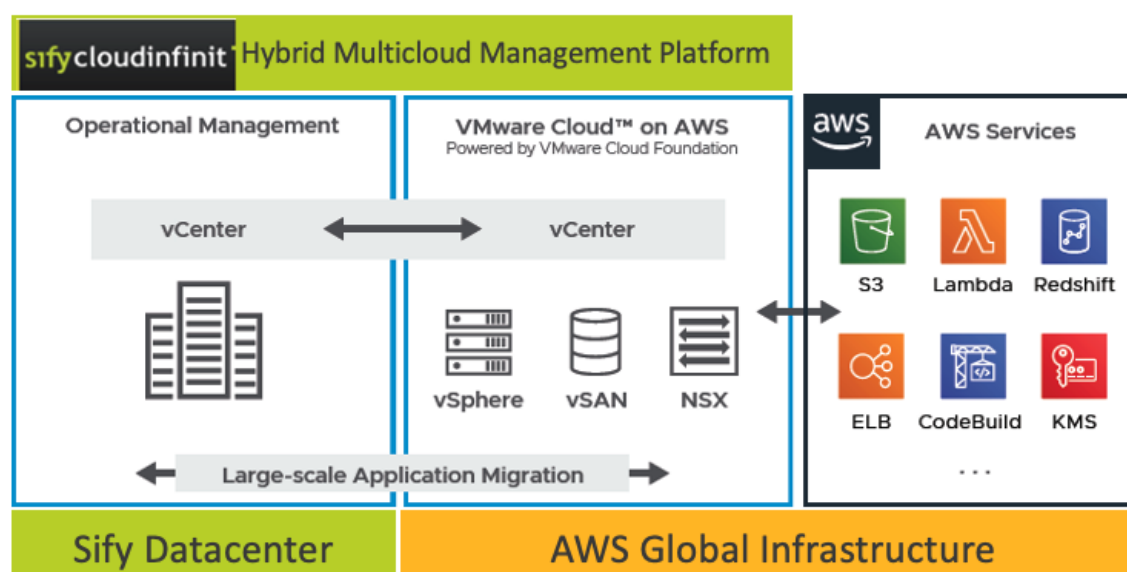
- Operate any cloud service, from any provider
- Access any service, from any source, today and in the future
- Migrate applications to the best environment for each app
- All without introducing complexity, risk or inefficiency

Application Modernization with VMware Cloud

Sify will be supporting VMware Cloud on all supported Hyperscale Cloud. Below is an example:

VMware Cloud on AWS is a unified platform to overcome challenges in modernizing existing applications with easy portability between on-premises and public cloud environments, consistent set of security policies, a seamless developer experience across the entire platform with a high bandwidth and low latency access to a wide range of cloud native services.

VMware Cloud on AWS provides consistent operations across the cloud infrastructure with familiar and proven technologies such as VMware vCenter Server for day to day operations and VMware vRealize Log Insight to centralize log management to accelerate IT troubleshooting.



Multi-Tenancy in VMware Cloud on AWS has been a long-standing requirement and the Sify CloudInfini CMP has been delivering a multi-tenant enterprise cloud for a long time. The CloudInfini CMP has been leveraging various VMware technologies like vCloud Director, NSX and CloudHealth by VMware and will integrate the new vCloud Director capabilities as soon as they are available.

Sify VMware Hybrid Cloud Use Cases

- **Scale on Demand**

- **Scale for seasonal or cyclical capacity**

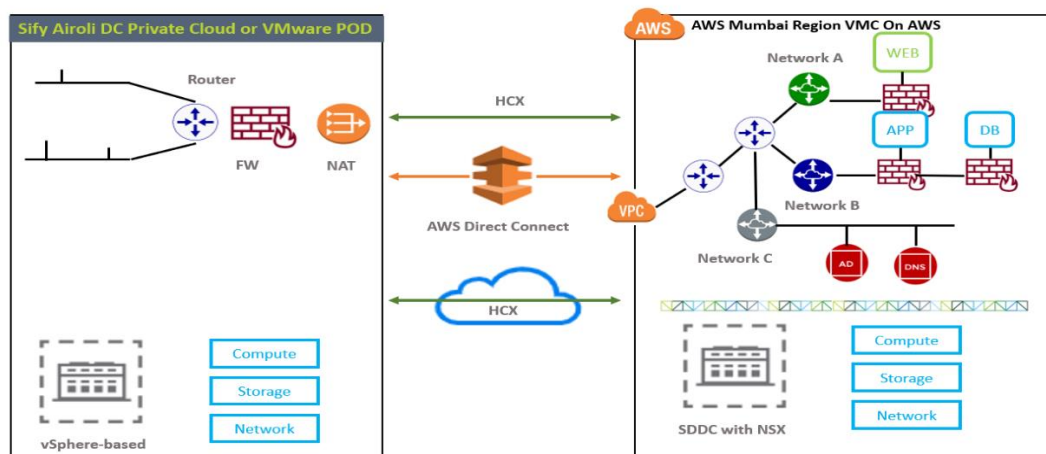
Eliminate the cost and operational commitment of maintaining excess system capacity by, tapping into the public cloud, seamlessly scaling up and down as needed.

- **Scale for regional expansion**

Extend your data center to the cloud as your enterprise expands to new geographic regions, while maintaining consistent infrastructure and meeting regulatory requirements.

- **Provide DR services in Sify VMware cloud for workloads of VMC**

Deliver business continuity, simplify disaster recovery, reduce site costs, and protect mission-critical systems and data.



- **Hosted or Managed Desktop Service**

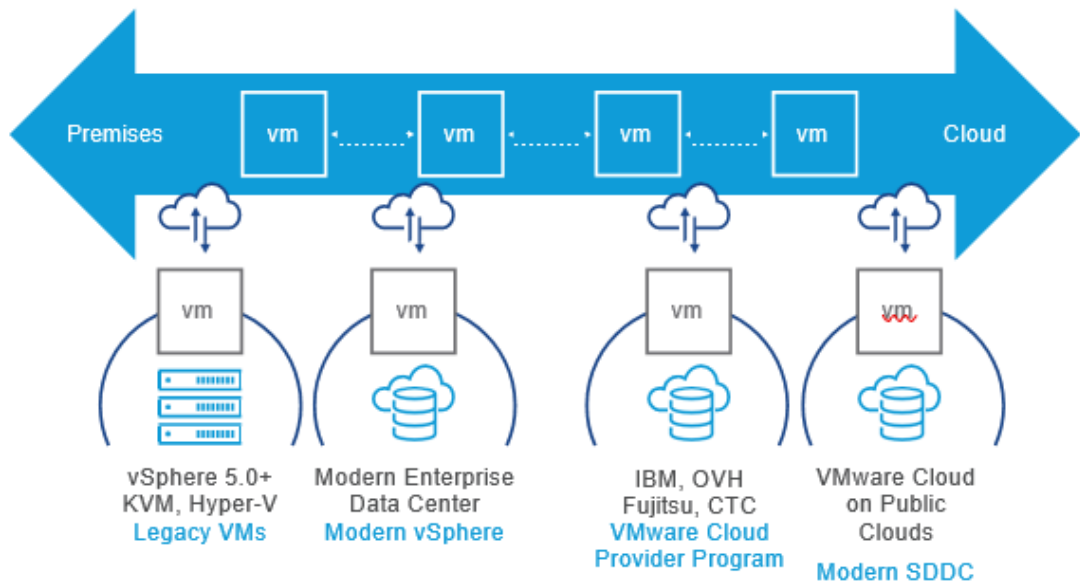
- Horizon 7 - Dedicated VDI Deployment hosted by Sify/VMC
 - Sify hosted Desktop As A Service - Private and Managed Multi-tenant Desktop as a Service Delivered and Hosted by Sify
 - Horizon Cloud on Azure - Managed Desktop as a Service Delivered On Horizon Cloud

Use Cases:



<p>General Desktop Replacement</p>  <p>Reduce Management Effort & TCO</p> <p>Central image management and for remote, branch offices and call centers</p>	<p>Disaster Recovery</p>  <p>Include Desktops in DR Plans</p> <p>Central image management and for remote, branch offices and call centers</p>	<p>Remote Offices/Field Workers</p>  <p>Centralize Desktop Management</p> <p>Central image management and for remote, branch offices and call centers</p>	<p>Seasonal and Contract Employees</p>  <p>Improve Data Security & Load Changes</p> <p>Flexibility to increase or decrease workforce based on seasonal needs - may have their own end-point devices (e.g. M&As)</p>	<p>Mobile Employees</p>  <p>Full Desktop to Any Device</p> <p>Access to desktops applications and data across locations and devices - including BYOD without data residing on endpoint</p>	<p>Special Desktop Needs</p>  <p>Flexible Configuration</p> <p>Access to desktops applications and data across locations and devices - including BYOD without data residing on endpoint</p>
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- **Seamless Migration to the Cloud**

- Deliver live and bulk migration without redesigning the application or re-architecting networks



- Migration of Business-Critical Applications to the Cloud

 <p>SAP WORKLOADS</p> <p>Migrate or expand SAP HANA to the cloud without App Refactorization.</p> <p>SAP S/4 HANA SAP BW/4 HANA SAP HANA Data Management</p>	<p>ORACLE</p> <p>ORACLE WORKLOADS</p> <p>Reduce licensing cost by size hosts to match Oracle usage</p> <p>Oracle Database Custom Applications Oracle Business Applications</p>	 <p>MICROSOFT SQL WORKLOADS</p> <p>Microsoft SQL 2008 nearing EOL – opportunity to leverage AWS Native Database services</p> <p>SQL Database Custom Applications Microsoft Sharepoint</p>
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- Migration of workloads to the VMware Cloud on AWS Cloud

Benefits:

- Fast live-migrate VMs between on-premises and the cloud
- Direct Access to AWS Services and existing AWS VPC environments
- Reduce licensing costs by sizing hosts to match software usage
- Leverage existing management tools and skillsets

- VMware Data Center Modernization

IT infrastructure transformation capitalizing on the flexibility, scalability, and performance of private and hybrid clouds.

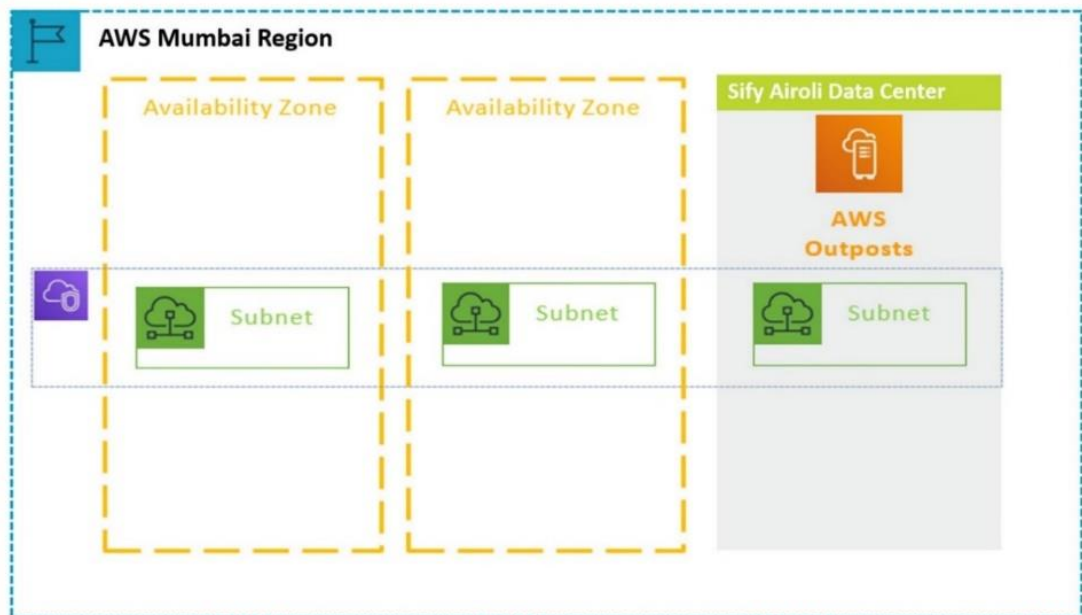
Benefits:

- Leverage existing investments for use in new cloud environments while eliminating extra infrastructure silos
- Support future evolution with a consistent software stack on-prem that can expand into the public cloud and edge
- Run traditional and cloud-native applications on infrastructure that delivers a consistent operating model
- VMware Tanzu Kubernetes grid for container management across hybrid/multi-cloud deployments to bring in key capabilities like automated multi-cluster operations and simplified installation
- Eliminate the risk of rip-and-replace by leveraging the same management tools and consistent operating model throughout modernization
- Reduce TCO with automated performance management, optimized capacity utilization, proactive planning and reduced mean time to resolution (MTTR)

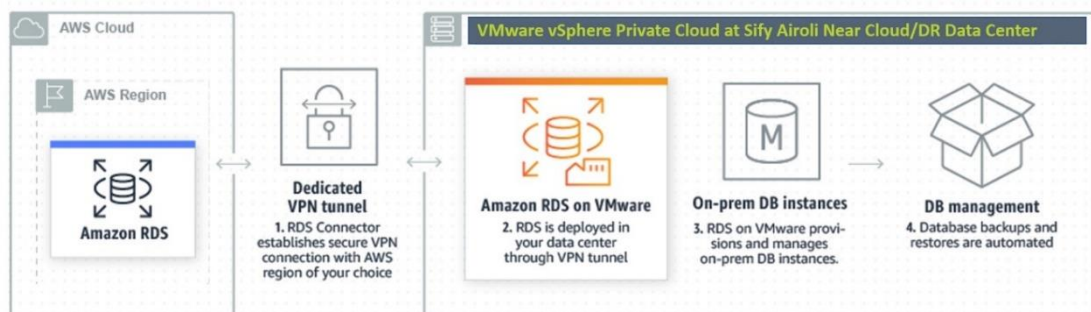
- **AWS Outpost** deployed at **Sify Airoli Near Cloud Data Center**

(WIP for availability of this service at AWS Mumbai region)

- Brings AWS to Customer Data Center
- Same AWS designed infrastructure as in AWS data centers managed, monitored and operated by them
- Single pane of management in the cloud providing the same APIs and tools as in AWS Regions
- Available in 2 variants *Native AWS* supporting AWS APIs, services, and features as in the AWS cloud and *VMware Cloud on AWS* supporting VMware APIs and services to leverage existing skills, automation, and governance policies



- Amazon RDS on VMware deployed at **Sify Airoli Near Cloud Data Center** - (WIP for availability of this service at AWS Mumbai region)
Deploy managed databases in on-premises VMware environments using the same Amazon RDS technology used in the cloud



Benefits of Sify VMware Hybrid Cloud Solutions

Address all the challenges for enabling VMware hybrid cloud by providing Cloud Adjacent Data Center Services, low latency, high bandwidth and secure connections to Public Cloud for predictable performance and costs, hybrid cloud management and Professional Services.

- **Sify Data Center Services:**

- Workloads can be decoupled and deployed between AWS and Oracle Mumbai Data Center Region Public Cloud and Near Cloud/DR DC at Airoli

- Customer requirement to have data residency in Private Cloud or dedicated hosted environment can be deployed Near Cloud DC at Airoli
 - Can support deployment across Public Cloud and Near and Far DR DC with Sify DC presence across all major cities
 - High Availability, Data protection and Fast failover for database across hybrid deployment
 - Any application using database running from AWS and Oracle Cloud can be deployed at Near Cloud Data Center at Airoli
 - **Hosting Services**
 - Colocation, Hybrid and Multi-Cloud
 - **Cloud Adoption Strategy as a Service**
 - **Assessment** of current state for infrastructure, application dependencies and cost
 - Target state architecture with hosted private and hybrid multi-cloud solutions
 - **Resiliency Services**
 - Managed Backup and Disaster Recovery Services
- **Sify DC and Cloud Interconnect (Sify GlobalCloudConnect and Metro-X-Connect):**
 - Predictable, secure, high performance and low latency end-to-end connections < 1ms

Sify GlobalCloudConnect



GlobalCloudConnect equips an enterprise to connect its on-prem Datacenters with public cloud workloads over a secure and deterministic network



Enterprise grade performance networks provided leveraging the country's one of the largest MPLS backbones and high-performance datacenter networks



One-stop solution to access all kinds of Cloud. GlobalCloudConnect brings cloud closer to enterprises, thereby providing better network performances coupled with better cost economies

Service Features:

India



Other Regions



- Layer3/Layer2 connections
- Cloud - Cloud Networking
- End to End Availability: 99.5% and above
- Hybrid Setups
- Traffic Engineering

Sify Metro-X-Connect Interconnect

Sify Metro-X-Connect Interconnect between AWS and Oracle Mumbai Data Center Region Public Clouds and Sify Airoli Private Cloud Data Center enables customers to establish direct connectivity between their private infrastructure and AWS/Oracle Cloud environments and fully realize the benefits of VMware hybrid cloud – providing opportunity to extend existing on-premise VMware infrastructure and investments without rearchitecting applications or retooling operations – in a reliable, low-latency and secure experience. The result is flexibility, modernization, lower latency, higher throughput, network-level security protection and reduced costs –all in a highly cost-effective scalable solution. This is also ideal for data privacy, regulatory compliance and data sovereignty scenarios.

Sify Metro-X-Connect integrates Airoli and Rabale Data Centers seamlessly into one virtual campus

Low Latency

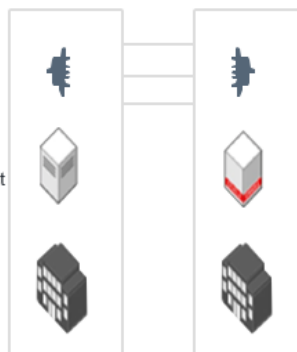
Guaranteed less than 100 microseconds of one-way latency

Access to Network Resources at both Campuses

Cross connect level prices to connect network resources such as Telco's, Internet Exchanges, AWS Direct Connect and Oracle FastConnect across sites

High Reliability

Designed for mission-critical applications at 99.99% availability. Built using 3 fiber paths, including one high resilience OPGW section. Powered by Ciena WaveServer AI technology



Pre-built Metro Cross Connect infrastructure built between the two Sify Data Centers in Navi Mumbai - Airoli and Rabale

10G ethernet connections provided on a highly reliable network at cross connect prices

Extend network resources across both data centers, such as access services to AMS-IX, AWS Direct Connect and Oracle FastConnect

Fast and guaranteed two weeks turn up time for any service

- **Sify Professional Services:** Implementation, Migration, Security Services and Managed Services, end-to-end solution across hybrid multi-cloud architecture
 - **Migration and Implementation Services**
 - VMware workloads including business critical SAP, Oracle Apps (EBS) and Microsoft workloads green field implementations, migration or upgrade
 - Enterprise applications on hybrid cloud
 - Technology Platform Upgrade (DB/SOA)
 - Infrastructure migration to hybrid cloud
 - **Managed Services:** Provide consistent Operations Management to increase efficiency, reduce operational overhead and risk across end-to-end hybrid multi-cloud architectures including
 - Application Managed Services
 - Infrastructure Managed Services
 - Engineered Systems
 - Hybrid cloud deployments
 - **Security Transformation Services for hybrid multi-cloud Architecture**
 - Identity and Access Management
 - (Zero Trust/Privileged Access Management/Cloud Access Security)
 - Managed Detection and Response Services

Sify VMware Partnership

Sify is the first service provider to sign-up with VMware for VSPP program in India to provide on-demand cloud services to enterprises, both large and emerging, covering Public, Private and Hybrid cloud services.

Further, Sify has set another benchmark by becoming India's 1st VMware vCloud powered service provider. This reflects the consistency and maturity of the relationship between Sify and VMware.

Sify is VMware Cloud Verified Partner delivering the following:



Validated Services

Sify CloudInfiniit (www.cloudinfiniit.com) - Enterprise grade cloud services

Cloud Services

- Cloud Consulting Services
- Cloud Migration Services
- Disaster Recovery
- Hosted Private Cloud
- Infrastructure as a Service (Dedicated)
- Infrastructure as a Service
- Managed Backup
- Managed Security Services
- Operations Management
- SAP Hosting
- Storage as a Service

Compliance and Certifications

- ISO 20000
- ISO 27001
- ISO 9001
- PCI-DSS
- SSAE 16 Type II

Technologies

- VMware Site Recovery Manager
- VMware vCenter Operations Management Suite
- VMware vCloud Director
- VMware vShield Product Family
- VMware vSphere

Vertical Markets

- Financial Services
- Government
- Healthcare
- Manufacturing
- Telecommunications

CLOUD@CORE

ALIGNED TO OUR CUSTOMERS' CLOUD TRANSFORMATION PURSUIT



CLOUD ENABLING

- Cloud DC
- Hyper reach/Hyper scale transport
Oracle FastConnect | ExpressRoute | DirectConnect | Partner Interconnect
- Software Defined Network services
- Cloud build
Private | Hyperconverged | Enterprise
- Security services for cloud
- Migration and Implementation services



CLOUD INSPIRED

- Sify CloudInfinitt
 - Enterprise Multi-Tenant
 - Dedicated
 - Hosted SAP/S4HANA
 - Azure Stack as a Service
- Edge Connect Services
- SD-WAN
- Collaboration services on Cloud



CLOUD PURE

- AWS
- Azure
- Oracle
- Multi Cloud Management platform & services



CLOUD ENHANCED

- Modern Applications
- Kubernetes-as-a-Service
- AI/ML
- Forum DIGITAL
- HCM Digital(i-Test)
- Learning Management
- Internet-of-Things (IOT)
- Industry Solution-as-a-Service