VMware EXPLORE – Staying the Course

By Jean S. Bozman

VMware's Explore conference (Aug. 29 – Sept. 1, 2022) presented the company's portfolio, which is centered on multi-cloud deployments of applications and data. Clearly, VMware has been preparing for a multi-cloud wave of adoption that it believes will broaden its reach in the multi-cloud adoption wave: including private clouds, public clouds, and hybrid clouds.

VMware's key message: No matter what stage of multi-cloud deployment is underway at a given customer site, simplification for multi-cloud deployment and multi-cloud management is key to enterprise customer adoption.

On-stage, the San Francisco in-person conference demonstrated VMware's strategy of providing a unified, consistent approach to managing computing and data across two or more clouds. Today, many of its customers are using software tools that are specific to each of the cloud service providers (CSPs) they access. By contrast, the multi-cloud solutions that VMware announced will operate across AWS (Amazon Web Services), Microsoft Azure, Google Cloud, and the IBM Cloud, with other announcements expected in 2022-2023. A new management platform, called VMware Aria, will provide a unified platform for application and data management across multiple clouds.

Security, availability, data governance, and regulatory compliance – all must be addressed in the full range of VMware multi-cloud platforms. All of these aspects of computing are key enterprise requirements for the data center. Customers will not migrate their business-critical enterprise workloads unless they are assured that these "ities" (reliability, availability, security) for enterprise applications and data are being safeguarded.

Off-stage, the company awaits the completion of Broadcom's planned acquisition of VMware. As announced in May, 2022, Broadcom expects VMware brand to be key to its enterprise software initiative. The acquisition would follow the November 2021 spin-off of VMware from Dell Technologies Inc. – and previous acquisitions of Computer Associates' enterprise software and Symantec's security software. Details about Broadcom's expectations for VMware as a growth engine will become even more clear, following the close of the planned acquisition, which is planned for Broadcom's 2023 fiscal year.

The pending Broadcom acquisition drives home the importance of VMware's vSphere and vSAN software support for a range of compute engines. This variety of compute engines – including CPUs, GPUs and DPUs – will open up new deployment scenarios for customer workloads

running on private cloud, public cloud, hybrid cloud and multi-cloud resources. That approach would align with Broadcom's long-term presence in the semiconductor industry.

Mapping the Workloads to Multi-Cloud Resources

An internal VMware survey revealed that fully 75% of its customers are already tapping two clouds, and that most of its customers are tapping three or more clouds.

This pattern of multi-cloud deployments is the result of customers reaching into different clouds for different reasons. Customers run a range of customer workloads – as for AI, high-performance computing (HPC), business analytics, database and data warehouse, support for SaaS (software-as-a-service), PaaS (platform-as-a-service), IaaS (infrastructure as-a-service) and specific applications migrating to cloud (e.g., SAP, Oracle, IBM DB2).

That's why specific enterprise workloads are being "mapped" to run on specific clouds that offer specialized cloud services. Customer preferences often determine which clouds and cloud services are chosen for which applications.

What the Future Looks Like

VMware's vSphere8 software supports CPUs from Intel and AMD; GPUs from NVIDIA and others; and DPUs from AMD, NVIDIA; it will support future DPUs to be shipped by Intel. As announced, servers from Dell and HPE will run vSphere 8's Distributed Services Engine, with Lenovo servers scheduled to be next.

Customers will gain new features/functions with vSphere 8's Tanzu Kubernetes Grid (TKG) 2.0 for built-in, developer-ready infrastructure. The TKG 2.0 software supports: improved cluster lifecycle management; enhanced resiliency with Availability Zones; federated authentication with Pinniped support, and application package management with Carvel tooling. To scale up cloud-native development and operations, the vSphere 8 software can be used with Tanzu Application Platform (TAP 1.3) and Tanzu for Kubernetes Operations (TKO) solutions.

Here is the key point for multi-processor support in the multicloud: This variety in processor types supported shows that there will be an inherent heterogeneity in hardware infrastructure. One could view this as a kind of heterogeneity in hardware infrastructure, with a wider variety of hardware resources supporting a wider range of workloads.

In the multi-cloud world, each customer workload will be optimized to run on a set of specific hardware processors (CPUs, GPUs and DPUs) – to achieve the highest performance levels for a given application or infrastructure-based service.

VMware's Software for Managing Multi-Cloud Deployments

This capability — enabled by VMware's Project Monterey in vSphere 8 — presages the movement of more enterprise applications into a new type of resource: multi-processor, multi-cloud environments. It is also looking ahead to the time when VMware will be marketing directly to cloud providers – as the *de facto* owners of hardware infrastructure – even as it continues marketing to customers in on-premises data-centers.

At the same time, VMware announced its update for the widely used vSAN software, which allows customers to connect standalone servers (virtual or physical servers) for purposes of sharing and accessing data among the connected nodes (VMs or bare-metal servers). The latest release is known as vSAN ESA, which represents a re-architecting of the longtime virtual SAN product that connects multiple storage systems into a single, virtual storage-area network.

As a key element of VMware's strategy, the announcement of the VMware Aria management platform will present unified dashboards to track and manage applications as they traverse a distributed multi-cloud environment. VMware Aria leverages the power of a new graph-based data store, VMware Graph, that captures the resources and relationships of a multi-cloud environment. It evolved from VMware's Cross-Cloud Services software platform, as announced in 2021. Aria could be viewed as the center of VMware's multi-faceted strategy to reduce the complexity of multi-cloud monitoring and management.

Cross-Cloud Services Enabling Distributed Management

Last year, VMware introduced its VMware Cross-Cloud Services, with services for the App Platform; Cloud Management; Cloud and Edge Infrastructure; Security and Networking; and the Anywhere Workspace. This year, VMware is saying it has solutions that deliver functionality in all five areas. VMware said this multi-cloud strategy works, in a consistent way, across: private cloud, public clouds (e.g., AWS, Azure and Google, IBM Cloud, Oracle Cloud and the Alibaba Cloud); sovereign clouds (clouds specific to a given country or geography) and the Edge.

That's a tall order, but it is one that VMware has been moving toward for the last two years, according to VMware CEO Raghu Raghuram in his keynote. As of the VMworld Explore conference, delivery of this cross-cloud-services environment is already underway.

Internal projects that were once known by code-names, such as Project Monterey, have already become foundations for specific services. For example, Project Monterey development resulted in vSphere and VMware NSX running on DPUs, with the vSphere Distributed Services Engine feature that offloads and accelerates infrastructure services from CPUs to DPUs. Other Projects

will soon make a transition by moving into other VMware software products, he said, demonstrating that VMware's roadmap is producing real-world products.

Analysis: The Human Factor Is Key to Cloud Migrations

Achieving better business outcomes has long been a key tenet of business analytics and data resources; now, it's being applied to improving communications inside the customers' companies. Customers' focus on business outcomes is increasing so that future cloud projects can be reviewed, approved, and funded on the basis of achieving better business benefits. Multiple personas are needed to achieve this goal, involving IT staff, operations personnel, business unit managers and executives. All of these roles must support any planned cloud migrations – or applications and data will remain inside customers' traditional data centers.

To speed the cloud-migration process, VMware is recognizing the need for operational simplicity and consistency that will assure business managers that they are making the correct "buying" decisions for cloud software. In doing so, it's acknowledging the great variety of personas and the range of the technical skill-sets across its growing customer base. Most importantly, VMware understand that it must strengthen its partner programs, so that the company can reach out to all segments of the "customer pyramid." This will lift its extensive, global customer base, enabling customers across the technical spectrum to choose – and use – multiple cloud services solutions.

VMware is already expert at reaching out to its strong technical constituency, which has produced one of the broadest customer installed bases in the world. Communicating its multi-cloud messages across a broader range of large, medium, and small customers will mean a greater reliance on partners who can engage with the customers – on a local and regional level. That's why VMware is expanding its partner programs, supporting many kind sof partners, large and small, that can coordinate with VMware's product groups for the next waves of cloud-related innovation and development of multi-cloud solutions.

At its Explore conference, VMware made the case for its roadmap to deliver the next wave of enterprise software, post-announcements, usually within a two-year timeframe. This year's Explore conference confirmed that Project Monterey, announced two years ago, in 2020, is the foundation of vSphere 8.0.

Next will be Project Northstar, announced this year, which is slated for delivery by 2024, by supporting multi-cloud networking, security and end-to-end threat detection via a centralized cloud console and simplified SaaS (software-as-a-service) access model. It, too, appears to be on a two-year deliverable schedule.

A Global Plan for Tapping Multi-Cloud IT Resources

VMware plans to expand its partner programs to provide more resources to more customers as they migrate to a new generation of cloud-native applications running in multi-cloud environments. Multi-cloud connectivity will bring more resources (cloud, storage, and networking) to more customers – more quickly – than would have been possible in an earlier era. My view is this: While North America and EMEA are VMware's largest markets – the company can expect to see faster growth rates in Asia/Pacific, South America and Africa – much of it centering on cloud migrations and multi-cloud to tap new or remote IT resources.

VMware is already teaming with its partners to tell the VMware story of efficiency, virtualization, and software-defined systems, which is how it built its base for 20 years. Now, VMware must show all its customers how its multi-cloud solutions will build on the familiar foundations of VMware software to deliver, and manage, the next wave of cost-effective IT.