White Paper

Broadcom Helping VMware Customers Modernize by Moving from Virtualization-Only to Full-Stack Private Cloud

Sponsored by: Broadcom

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IN THIS WHITE PAPER

VMware (which was acquired by Broadcom in 2023) has long been a leader in delivering virtualization solutions. Key virtualization offerings are VMware vSphere Foundation (VVF) for compute and storage virtualization and VMware vSphere Enterprise Plus (vSphere) for compute virtualization. The company now offers the opportunity for customers looking to move beyond simple virtualization to deliver more modern applications to upgrade to a full-stack, private cloud platform in VMware Cloud Foundation (VCF).

While both vSphere and VVF are valued solutions for compute and storage virtualization, VCF offers significantly greater value by providing its users with an automated self-service, full-stack solution for private cloud via a cloud operating model that unifies compute, storage, network, security, and management.

This white paper presents the capabilities and benefits that virtualization users gain with an upgrade to VCF.

SITUATION OVERVIEW

Benefits of moving to VCF

With every organization looking to vendors to help them on their AI and container-based application modernization journey, VCF has been delivered as a modern full-stack operating model to support these needs. In addition to serving these new and growing requirements, VCF also provides a solution to traditional problems that customers face around operational efficiency and total cost of ownership (TCO).

By delivering automation, fleet-level life-cycle management, and centralized certificate and password management, VCF helps organizations realize a significant improvement in operational efficiency. The upgrade to VCF enables operations teams through automation,

removing manual and repetitive tasks, thereby helping drive efficiency that reduces total cost of ownership. At the same time, VCF helps drive innovation by allowing developers to move more quickly by enabling self-service so that development efforts aren't held up waiting for infrastructure teams to provision resources. In addition, organizations going through a storage refresh in the face of growing digital demands will realize a benefit from the virtual SAN (vSAN) entitlements included with VCF delivering additional investment benefits.

Available to VCF users as an Advanced Service, VMware vDefend is a modern security solution for private cloud deployments. The optional Advanced Service provides distributed firewall, micro-segmentation, intrusion detection and prevention, and network detection and response. By moving to VCF and including vDefend, organizations are more readily able to prevent modern cyberthreats such as ransomware. Whether they pay a ransom or not, affected organizations are hit with an inability to transact business and a significant impact on their reputation, which can be measured in their financial results and earnings per share (EPS).

Companies that upgrade to VCF also see a significant advantage by deploying both modern container-based applications and virtual machine (VM)-based applications on the same platform. This helps reduce the number of vendors and platforms that need to be deployed and managed, delivering improved operational efficiency and TCO.

Broadcom also helps customers future proof their investment by supporting AI and generative AI needs that exist today and will impact them in the future. Broadcom with VCF has delivered a unified platform that, by virtue of integrated Private AI Services, supports all companies on their Private AI journeys.

Additional capabilities in VCF

To serve organizations with no infrastructure needs beyond virtualization, VVF includes vSphere Enterprise Plus for core compute virtualization, vCenter for virtualization management, VCF Operations for infrastructure management, and storage via vSAN with 0.25TiB per core. It also offers additional, optional services such as VMware Live Recovery (VLR), Avi for load balancing, and the ability to purchase incremental vSAN capacity.

For organizations looking to support modernization needs and growing AI requirements and overcome operational efficiency challenges that benefit from a full-stack private cloud operating model, VCF delivers compute virtualization (with vSphere Enterprise Plus), virtualization management via vCenter, and the full VCF Operations suite (see Figure 1). VCF also includes VCF Automation, which provides a full set of infrastructure and application automation capabilities for developer self-service and orchestration. VCF users can also deploy NSX network virtualization and optional security enhancements through vDefend (distributed firewalls and intrusion detection and prevention) within the VCF

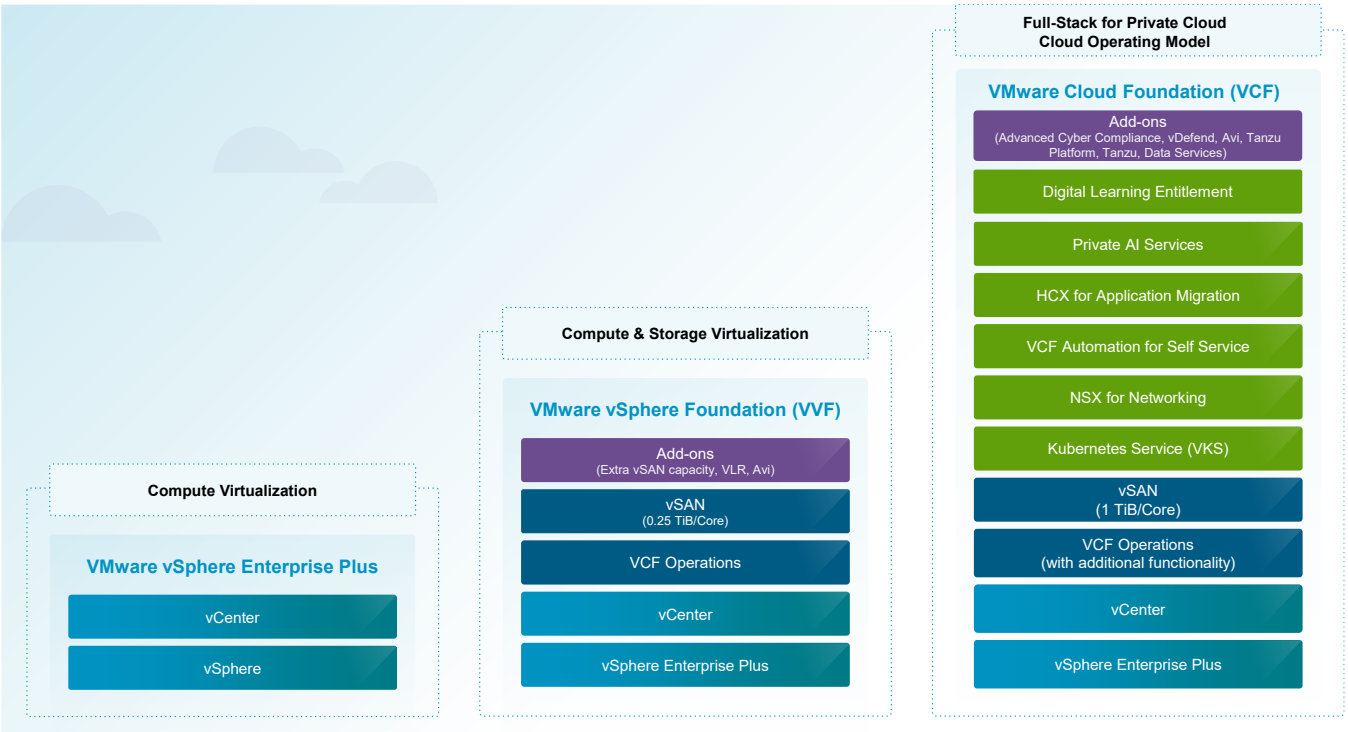
platform. In addition, they also gain vSAN storage capacity entitlements (1TiB/core) than are available in VVF.

In addition to these improved capabilities, VCF also offers additional capabilities that differentiate what organizations can achieve by upgrading to VCF. New capabilities delivered in VCF 9.0 include the following (see Figure 1):

- **Kubernetes runtime platform and services:** VCF now includes a complete vSphere Kubernetes Service (VKS) environment so that both containers and VMs can be deployed at scale on the same platform.
- **Application migration:** VMware Hybrid Cloud Extension (HCX) is included to simplify the movement of applications between different environments — for instance, moving apps from an on-premises deployment to a VCF stack deployed on a cloud provider's infrastructure.
- **Private AI Services:** Private AI capabilities including AI Model Store, Model Runtime, Agent Builder, Vector Database, and GPU Monitoring are now included (formerly an add-on), making VCF an AI-native platform.
- **Digital learning entitlements:** Digital learning is delivered through the Broadcom Learning Platform to help customers and partners build their base of knowledge and accelerate innovation.

FIGURE 1

VVF and VCF components



Source: Broadcom, December 2025

In addition to the advantages delivered in the core capabilities of VCF 9.0, its users also benefit from access to a greater number of optional additional capabilities than are provided in VVF. In addition to the additional services that VVF offers, VCF, via its Advanced Services offering, provides access to Advanced Cyber Compliance, vDefend, Avi, Tanzu Platform, and Tanzu Data Services. VCF also offers organizations the flexibility and freedom to deploy the platform anyway they want, including customer managed on premises or at the edge or partner managed on a cloud provider's infrastructure. Regardless of where the platform is implemented, the licensing is the same (and portable) as is the user experience.

The benefits of VCF

The improved capabilities and freedoms delivered in VCF manifest themselves in user benefits across multiple areas including security, operational efficiency, storage economics, platform unification, and cloud portability that are enabled by VCF's modern cloud operating model.

A key element of the advantage that users gain with VCF is a self-service cloud consumption experience. VCF Automation abstracts resources across a user's entire

environment and, from a single consumption interface, enables self-service to infrastructure and development teams to automate the provisioning of VMs and containers taking into account organizational governance, policies, and management rules. The full-stack VCF deployment is unified and automated to deliver infrastructure as a service (IaaS) regardless of whether it is self managed or provider managed or deployed on-premises, at a service provider, at the edge, or in a public cloud. Of key value in the age of AI, it includes provisioning of GPU-enabled machines for machine learning retrieval-augmented generation (RAG) workloads for Private AI applications. The self-service model of VCF enables data scientists and developers to move with greater speed and innovate faster.

In *IDC's PaaS Decision-Maker and Business Value Survey, 2025: PaaS and Application Platform Trends and Usage* (IDC #US53291925, April 2025), security was rated very highly in terms of importance as both a business enabler and a technology enabler. Security was identified as a top 3 business criteria when selecting a PaaS or application platform by 58% of respondents. Demonstrating that security is not just a technical issue or a business issue — but is instead very important to both cohorts — it was identified by 49.8% of respondents as a top 3 technical capability.

VCF includes a security operations dashboard to deliver centralized, "single pane of glass" visibility to more easily spot vulnerabilities, prioritize patches, and verify remediations across all VCF deployments. Virtual private cloud (VPC) isolation is enabled through NSX so that users can segment infrastructure and create logically separate, secure, and self-contained multitenant environments. Taking it a step further, users of VCF further strengthen their security postures against modern attacks by employing vDefend as an optional VCF Advanced Service. With vDefend, organizations help prevent malware and data exfiltration and also gain VPC-aware micro-segmentation, prevent lateral movement of threats, take advantage of distributed firewall and intrusion prevention, and utilize network detection and response.

In support of delivering a secure full-stack private cloud, VCF also facilitates the creation of sovereign clouds, providing organizations with control and privacy for their infrastructure and data. While VVF provided a great entry point with compute and storage virtualization, VCF delivers the rest of the private cloud stack to make sovereign cloud a simpler endeavor.

VCF Operations provides automated fleet-level management and life-cycle management at scale. IT professionals can more efficiently perform tasks such as certificate and password management across an organization's global private cloud estate. Likewise, in automating life-cycle management, IT professionals can more easily perform patching and upgrades across the full stack both saving time and improving security posture as well as preventing downtime. In addition, Broadcom provides a unified dashboard to provide visibility across all of a user's VCF implementation including infrastructure, applications, and database. In doing so, VCF users have the tools to detect drift, anomalies, and performance issues

before they escalate, as well as troubleshoot and identify root cause when they do. In simplifying operational tasks, IT professionals are freed up for more strategic activities with less fear of operational failure and greater security.

With expectations that storage needs will continue to expand (has anyone ever said "we'll need less storage next year"), VCF includes 1.0TiB of bundled virtual SAN, which enables proactive storage deployment rather than the need to reactively add capacity. VCF 9.0 innovations such as global storage de-duplication and compression provide significant storage capacity efficiencies resulting in dramatic cost savings.

VCF enables users to deploy virtual machines, containers, and AI applications within the same platform, delivering both business and technical benefits. VCF customers are able to reduce the number of vendors (and their platforms) that they deploy across the organization, providing a significant TCO reduction as well as simplifying the commercial effort required to support the business. DevOps and platform teams are able to deploy and manage all applications from a unified platform with consistent workflows providing a significant reduction in the effort required to manage applications and CI/CD pipelines.

Driving efficiency in IT as well as reducing decision risk, VCF offers cloud portability as an outcome of it being a single offering that can be used to deliver private cloud both on premises and in cloud provider infrastructure. This is especially important as organizations continue to evolve their thinking about where workloads and applications can be best deployed. In *IDC's PaaS Decision-Maker and Business Value Survey, 2025: Cloud Usage and Considerations* (IDC #US53291825, April 2025), respondents indicated that while public cloud adoption is continuing to grow rapidly, cloud repatriation is a significant theme as companies continue to optimize workload placement. More than 75% of respondents indicated that they had repatriated workloads and applications over the past 12 months. Regardless of where it is deployed, a consistent VCF stack is deployed, delivering the same user experience and requiring the same operational skills. The result is that the same expertise is required no matter where workloads are deployed, reducing the expense and complexity of training staff on multiple technology stacks. Beyond training, user experience, and operational skills, the workloads themselves can be deployed to support the needs of the business. Workloads are no longer trapped in the environment in which they were initially deployed but can be moved without re-platforming or migration. In fact, Broadcom offers license portability so that workloads and the licenses deployed to support them can be shifted, ensuring organizations are only paying once rather than funding duplicative licenses.

CHALLENGES/OPPORTUNITIES

A potential concern that customers considering an upgrade to VCF may have is around cost. Customers may see an increase in their annual Broadcom investment with the move to

VCF if they look only at a pure license cost. However, two significant areas must be taken into account when performing a business case evaluation of the upgrade — incremental value and improved operational efficiency.

In terms of incremental value, VCF users gain access to significant value drivers, which help increase ROI:

- **Storage:** Users receive entitlement to 1TiB of vSAN storage. In addition to removing the need for users to invest in storage, organizations using vSAN generally see a significant improvement (42% according to a recent Business Value study by IDC) compared with legacy storage.
- **Unified platform:** VCF users are able to deploy both VM- and container-based applications on the same platform, removing the need to license multiple platforms. This potentially reduces not only license costs but also the overhead of managing multiple vendors.
- **Private AI Services:** These services provide a range of capabilities aimed at easing the deployment of Private AI applications on the platform.
- **Advanced networking:** NSX is included on VCF delivering network virtualization and security in the platform.
- **Application migration:** HCX for application migration simplifies the movement of applications between different environments.

In addition to incremental value users receive, there are also improvements to operational efficiency. These savings are seen across a reduction in infrastructure costs and efficiencies across infrastructure and security operations teams. By making developer and IT teams more productive via fleet management, automation, and self-service, Broadcom helps improve operational efficiencies for organizations that upgrade to VCF. Likewise, by streamlining security operations efforts while reducing the threat of ransomware, VCF users are able to reduce opex load.

Ultimately, while VCF may appear to require an incremental investment, for many organizations, the return on that investment is much greater than alternatives.

CONCLUSION

With the delivery of a self-service, full-stack private cloud operating model found in VCF, Broadcom is helping its customers support their modernizing application needs while helping them more efficiently operate.

VCF enables organizations to overcome a range of challenges, laying the groundwork to future proof investments for the age of AI. Every organization is considering their evolution from being a "software company" to being an "AI company." Some organizations are

implementing AI now, while others are investigating it with the knowledge that they will have to implement it in the future. VCF delivers a unified platform, Private AI Services, and a portfolio of Advanced Services. With VCF, Broadcom delivers a platform that not only supports its customers' growing needs for operational efficiency and a means of overcoming critical business issues but also one that can support all companies on their Private AI journeys.

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