VMWARE CLOUD-NATIVE ENTERPRISE INFRASTRUCTURE
Build and Run Traditional and Modern Apps with vSphere Integrated Containers

Digital transformation is changing the way enterprises are running business today. Speed to market is paramount, and being able to develop and deliver next-generation apps quickly and more frequently has become key to creating value and competitive differentiation across industries. As a result, businesses are exploring cloud-native solutions that leverage containers to package and run their applications to accelerate software delivery from development to production.

Container technologies have been used for many years. However, with recent tooling that provides orchestration, scheduling, and massive scalability, containers have gained new interest from enterprises. Combined with DevOps practices, containers are leveraged as part of continuous integration/continuous deployment (CI/CD) to deliver applications faster, much like web-scale companies. Although application developers are starting to adopt containers and DevOps, taking applications to production often entails a broader set of conditions that involve IT administrators. They have to validate several requirements—such as enterprise-grade networking and storage, monitoring and logging, backup and disaster recovery, availability, and compliance—to make these apps production ready.

vSphere Integrated Containers

VMware vSphere® Integrated Containers™ is a comprehensive container solution built on vSphere, VMware's industry-leading virtualization platform. It enables customers to run both modern and traditional workloads in production on their existing Software-Defined Data Center (SDDC) infrastructure with enterprise-grade networking, storage, security, performance, and visibility.

vSphere Integrated Containers offers the quickest and easiest way for vSphere customers to start using containers today without additional capital or labor investment. Its tight integration with the entire VMware SDDC environment, as well as its support of leading container technologies such as Docker, makes it the best solution for a seamless transition to container adoption. vSphere Integrated Containers enables enterprises to leverage the benefits of containers today for enhanced developer productivity, business agility, and fast time to market.

vSphere Integrated Containers is available to all vSphere 6.0 and later Enterprise Plus Edition™ customers and vSphere with Operations Management™ Enterprise Plus customers. There is no additional license subscription required, and support is included for customers with active vSphere support and subscription (SnS).

vSphere Integrated Containers Deployment Models

vSphere Integrated Containers supports two ways to deploy and run containers. Its deep integration with your existing VMware SDDC environment provides the best of both worlds for your developers and IT staff.
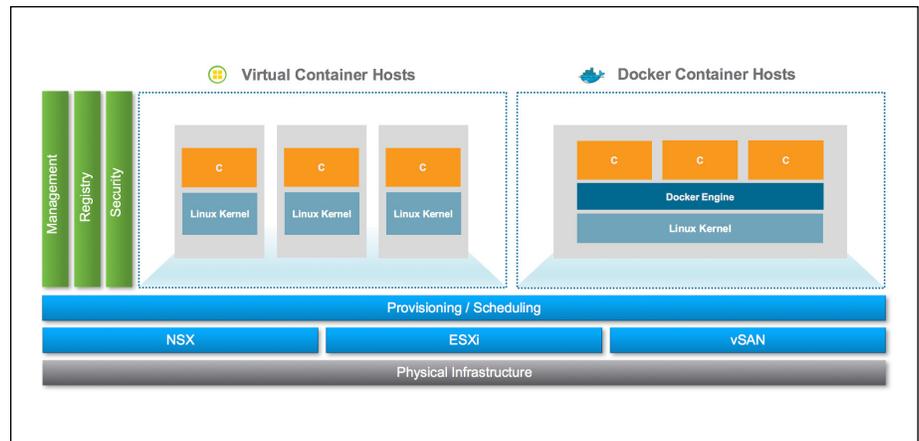

Figure 1. vSphere Integrated Containers 1.2

Virtual Container Hosts

vSphere Integrated Containers leverages the native constructs of vSphere for provisioning container-based applications. IT administrators can deliver a production-ready container solution to their developers and app teams without having to build out a separate, specialized container infrastructure stack. By deploying each container image as a vSphere virtual machine (VM), vSphere Integrated Containers allows these workloads to leverage critical vSphere application availability and performance features—vSphere High Availability, vSphere vMotion®, and vSphere Distributed Resource Scheduler™. vSphere Integrated Containers provides these features while still presenting a Docker API to developers of container-based applications.

Docker Container Hosts

vSphere Integrated Containers also supports running native Docker container hosts on vSphere. It allows developers to self-provision Docker container hosts for use as a development sandbox or a swarm cluster. Now you can treat a Docker host ephemerally as a container. This feature offers a ticketless environment for developers to use the Docker tools they love, while IT retains governance and control over the infrastructure.

vSphere Integrated Containers Management and Security Features

Unified Container Management Portal and Registry

Cloud administrators and developers can manage and provision container-based applications through the vSphere Integrated Containers management portal. Because the product is integrated with VMware identity access management, customers can provide local and LDAP-based authentication and authorization to their teams, and project-level content trust and notary services for container images in their private registries. Manual and automated container image vulnerability scanning is also included to avoid running images with known vulnerabilities in your data center.

Enterprise-Grade Security Capabilities

Container security is a key barrier to adopting containers in enterprise organizations today because of the increased attack surface. With vSphere Integrated Containers, customers can address many security risks by leveraging enhanced enterprise-grade security capabilities such as

• VM isolation – vSphere provides hardware layer abstraction. Every container is fully isolated from the host and from other containers.

• Authentication and authorization – vSphere Integrated Containers supports strong identity and access management with LDAP and Active Directory services.

• Role-based access control (RBAC) – vSphere Integrated Containers enables administrators to control access at the project level, ensuring granular security across teams. In this new release, RBAC is integrated into the container management portal for ease of use.

• Enterprise private container registry – vSphere Integrated Containers offers an enterprise private container registry with advanced security features such as identity management, LDAP integration, RBAC, trusted content/notary, and vulnerability scanning to ensure the highest security for container images.

vSphere Integrated Containers Use Cases

A comprehensive container infrastructure solution, vSphere Integrated Containers supports two primary enterprise container use cases. Both use cases are common across enterprises whether they are just starting or advancing through their cloud-native journey.

Application Repackaging

Some organizations prefer to take monolithic applications that traditionally run in VMs and repackage them in containers without refactoring the app. This approach expedites development workflow, simplifies application deployment, and makes app maintenance such as upgrading and patching much easier. vSphere Integrated Containers provides a way to run these containerized workloads in production on vSphere by deploying container images as VMs alongside existing VM workloads. You can now manage these container workloads using existing tooling of your vSphere environment to achieve production-grade availability, security, and visibility.

Developer Sandbox

Developers need an environment in which they can build, test, and run their applications using native container tools with minimal involvement from IT. vSphere Integrated Containers offers on-demand, native Docker container hosts, so developers can use their familiar Docker tools to test and run applications without going through a lengthy IT process. This greatly enhances developer speed and agility, and shortens time to market.

vSphere Integrated Containers Benefits

Run Container Workloads in Production Today on a Unified Platform

vSphere Integrated Containers offers multiple ways to run containers in your existing SDDC environment, alongside your noncontainer workloads. The product's unified container management portal significantly simplifies the deployment and management of container workloads, eliminating the need to create additional IT silos in your organization. Enterprises can use their existing SDDC tooling and staff to deploy and manage container workloads in production, and leverage the underlying networking and storage to provide enterprise-grade performance, security, and visibility for modern workloads.

Enable the Highest Degree of Security for Container Workloads

Enterprises can leverage their existing SDDC environment to offer the highest degree of enterprise security for container workloads. Security features such as VM isolation, RBAC, microsegmentation, integration with AD/LDAP, and a private registry with content trust and vulnerability scanning ensure that modern workloads run securely in production.

Gain Unprecedented Speed and Competitive Advantage by Improving Developer Agility and Productivity

With vSphere Integrated Containers, developers can enjoy on-demand access to container tools and services, such as Docker, that they need for building and running modern applications. Businesses can now develop applications faster and accelerate product roadmaps, thus more rapidly delivering innovative software solutions to market.

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