

DELIVER A DEVELOPER SANDBOX

Work Efficiently with vSphere Integrated Containers

Self-Service Infrastructure for Agile Development

Deploying infrastructure to support application development is often cumbersome, error-prone, and time-consuming. As developers rush to build new apps, IT teams waste time with manual configuration, provisioning, and scripting. To improve productivity, they need, at the very least, to streamline the way they roll out and manage infrastructure.

A key solution is providing developers with a sandbox so they can serve their own infrastructure needs by creating Docker container hosts on demand. Containers package applications and their dependencies into a distributable image that can run almost anywhere, streamlining the development and deployment of software. Developers like containers because they simplify application development, distribution, and testing.

Modern developers need an environment where they can build and run their apps using native container technology with minimal involvement from IT. Implementing a developer sandbox by using VMware vSphere® Integrated Containers™ provides developers with an agile self-service container environment for app development.

Expediting Development by Using Container Technology

Developers are increasingly turning to Docker containers. A recent survey by 451 Research revealed a profile of impressive implementation for an emerging ecosystem.¹ Containers can help developers adapt to changes brought about by digital transformation. The architecture of a containerized application complements agile practices and DevOps methodologies, such as continuous integration and continuous delivery.

Supporting Microservices

Developers often turn to container technology to support micro-services. A micro-services architecture breaks up the functions of an application into a set of small, discrete, decentralized, goal-oriented processes, each of which can be independently developed, tested, deployed, replaced, and scaled.

However, trying to build an application with micro-services on a laptop or desktop can hit performance and memory constraints. Even when an application does not use micro-services, a laptop might not have enough resources. Whenever developers don't have enough resources on their laptops to run a copy of their production environment, a sandbox enables developers to work on their app.

Providing a Developer Sandbox with vSphere Integrated Containers

vSphere Integrated Containers (Figure 1) creates an enterprise container infrastructure within vSphere, enabling both traditional and containerized apps to run side by side on a common infrastructure. Developers can initiate Docker container hosts within a resource pool so they can spin containers up and down on demand without having to file a ticket with IT.

KEY BENEFITS

- Improve developer productivity
- Streamline the software development pipeline
- Speed up iterative cycles
- Give developers tools that ease development and testing
- Shorten an app's time to market

BENEFITS OF CONTAINERS FOR DEVELOPERS

The business value of containers isn't limited to the business as a whole or the office of the CIO. Developers like containers because they make life easier, development more engaging, and work more productive.

- **Portability:** Containers let developers choose how and where to deploy an app.
- **Speed:** Containers expedite workflows like testing and speed up iterations.
- **CI/CD Pipeline:** Containers support continuous integration and delivery.
- **Flexibility:** Developers can code on their laptops when and where they want with the tools they like.

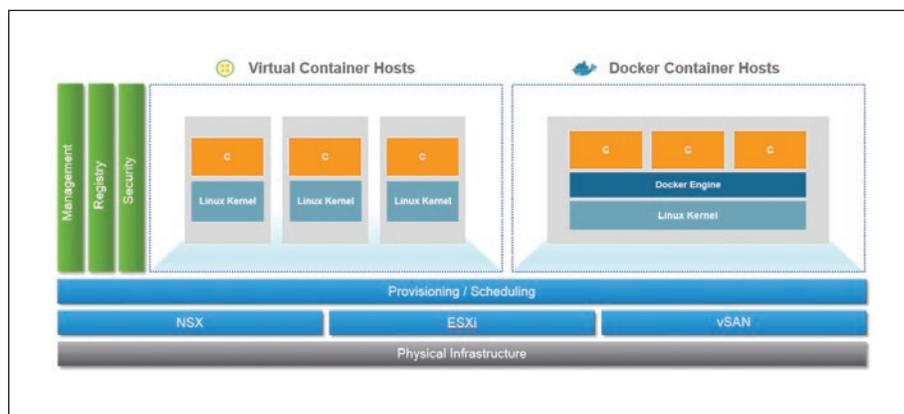


FIGURE 1. High-Level Architecture of vSphere Integrated Containers

Self-Service Provisioning

Developers can self-provision Docker container hosts. Although this ticketless environment gives developers the Docker tools they need to build modern applications or repackage existing ones in containers, IT retains governance and control over the infrastructure because vSphere Integrated Containers leaves the management of the hosts to the vSphere administrator.

vSphere administrators provision compute, networking, and storage resources and provide them to tenants as a self-service portal exposing a familiar Docker-compatible API. The virtual machines provisioned using vSphere Integrated Containers take advantage of many of the benefits of vSphere, including Distributed Resource Scheduler, clustering, VMware vSphere vMotion®, VMware vSphere High Availability (HA), distributed port groups, and shared storage.

Developers and DevOps need not worry about patching, security, isolation, tenancy, availability, clustering, or capacity planning. Those functions continue to be business as usual for the vSphere administrator. Instead, developers and DevOps receive a container endpoint as a service. The outcome is a win-win situation for both developers and administrators: The vSphere administrator gets visibility into and control over the virtual machines, while developers and DevOps can self-provision Docker container hosts and work with them by using a Docker client.

Because of the portability of the Docker image format, a developer using vSphere Integrated Containers can establish an endpoint at the end of a continuous integration pipeline, consuming images pushed to the private, secure registry that comes with vSphere Integrated Containers. There is no need to build out a separate, dedicated container infrastructure stack. The finished application can be put into production on a virtual container host powered by vSphere Integrated Containers.

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For more information, visit <http://www.vmware.com/products/vsphere/integrated-containers.html>.

Sharing Images with the Private Registry

A developer can also push a container image for an application being developed to the vSphere Integrated Containers registry, tag it, and let other developers use a Docker client to run the container on a Docker container host. At the same time, a vCenter administrator can see each Docker container host in the vSphere inventory. The developer or the administrator can use the monitoring page in the vSphere Integrated Containers management portal to view statistics and logs about containers. The management portal is integrated with identity management to securely provision containers.

Conclusion: Docker Container Hosts on Demand

Developers can exploit the capacity of a VMware® software-defined data center to develop and test a containerized application. A laptop might be too sluggish to run a containerized application, especially if it is built with microservices. With vSphere Integrated Containers, developers can quickly provision Docker container hosts and then point their Docker client to the host to work with containers. A developer sandbox powered by vSphere Integrated Containers lets developers and DevOps serve their own requirements by creating Docker container hosts on demand. The outcome accelerates the process of developing software and shortens an application's time to market.

1. "Application containers will be a \$2.7Bn market by 2020, representing a small but high-growth segment of the cloud-enabling technologies market," 451 research, Jan. 10, 2017. [https://451research.com/blog/1351-applicationcontainers-will-be-a-\\$2-7bn-market-by-2020,-representing-a-small-but-high-growth-segment-of-the-cloud-enablingtechnologies-market](https://451research.com/blog/1351-applicationcontainers-will-be-a-$2-7bn-market-by-2020,-representing-a-small-but-high-growth-segment-of-the-cloud-enablingtechnologies-market)

