

# Software-Defined Compute: Virtualization, Cloud, and Container Platforms

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Virtualization has transitioned into a mainstream technology in today's datacenters and is widely used to increase hardware utilization as well as lower server operational costs in the datacenter. Virtualized infrastructures are proving to be an on-ramp and foundation for cloud computing, whether public or private. In addition, containers have emerged, sparked by Docker and Kubernetes, as a disruptive technology that often works in conjunction with VMs and cloud system software. Containers are also the technological glue that connects developers and infrastructure admins who are pursuing DevOps methodologies. IDC's *Software-Defined Compute: Virtualization, Cloud, and Container Platforms* is about not only the virtualization and containerization of the underlying server and OS resources but also API enabling the entire infrastructure into a malleable and programmable instrument needed for tomorrow's agile cloud.

## Markets and Subjects Analyzed

- Container engines and runtimes such as Docker, CRI-O, Kata containers, Firecracker, Windows Server Containers, Hyper-V Containers, LXD, runc, and containerd
- Container orchestration and infrastructure platforms such as Kubernetes, Docker Swarm, Docker Datacenter, Mesosphere DC/OS, Red Hat OpenShift, VMware PKS, Pivotal Cloud Foundry, and Google Anthos
- Container public cloud services such as AWS ECS, AWS EKS, Azure AKS, Google GKE, and VMware Cloud PKS
- Server virtualization platforms such as VMware vSphere, Microsoft Hyper-V, and various implementations of open source KVM and Xen
- Cloud system software platforms such as OpenStack, Microsoft Azure Stack, and VMware vCloud used to build IaaS private clouds
- The synergies, integration, and overlap between server virtualization, containers, and cloud system software
- Connecting on-premises virtualized, containerized, or cloud infrastructure to public clouds (hybrid cloud)

## Core Research

- Worldwide Software-Defined Compute Market Shares and Forecast
- Worldwide Virtual Machine Software Market Shares and Forecast
- Worldwide Cloud System Software Market Shares and Forecast
- Worldwide Container Infrastructure Platforms Market Shares and Forecast
- Cloud System Software Technology and Usage
- Container Infrastructure Platforms Technology and Usage
- Virtual Machine Software Technology and Usage

In addition to the insight provided in this service, IDC may conduct research on specific topics or emerging market segments via research offerings that require additional IDC funding and client investment. To learn more about the analysts and published research, please visit: [Software-Defined Compute: Virtualization, Cloud, and Container Platforms](#).

## Key Questions Answered

1. Will containers replace or supplement VMs?
2. How will containers enable portability in multicloud and hybrid cloud scenarios?
3. What container platforms are enterprises deploying to orchestrate containers?
4. How are vendors building platforms and cloud services around Kubernetes to provide value and differentiation?
5. How are native container cloud services competing with "overlay" container cloud services?
6. How are emerging technologies such as serverless, functions as a service, and service mesh impacting container infrastructure and application design?
7. How is OpenStack evolving and what impact will it have on the private cloud market?
8. How are public clouds, local clouds, and containers impacting OpenStack adoption?
9. How are hypervisors such as Hyper-V and KVM evolving and competing with VMware?
10. What is the future for virtualization as the market faces saturation and private cloud, public cloud, and containers grow?
11. What is the market size and five-year forecast for virtualization, containers, and cloud system software?
12. How do next-generation, cloud-native applications drive infrastructure software choices?

## Companies Analyzed

IDC's *Software-Defined Compute: Virtualization, Cloud, and Container Platforms* analyzes the strategies, market positions, and future directions of major vendors in the cloud, container, and virtualization software market, including:

AWS, Canonical, Cisco, Citrix, Docker, Google, Hewlett Packard Enterprise, Huawei, IBM, Inspur, Intel, Mesosphere, Microsoft, Mirantis, Oracle, Pivotal, Rackspace, Rancher Labs, Red Hat, SUSE, Virtuozzo, and VMware. In addition, it looks at open source technologies including Cloud Foundry, Docker, Istio, Knative, Kubernetes (Linux), KVM (Linux), Linux, OpenStack, and Xen (Linux).