

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

Virtualization is a mainstream technology in today's datacenters and clouds, originally deployed for server consolidation. Today, virtualization is the foundation for cloud computing and customers are reformulating their virtualization strategies around private, hybrid, and multicloud architectures. In addition, containers powered by Kubernetes have emerged as the current standard for a modern application platform that can be deployed on premises, in a public cloud, and on the edge, often in conjunction with virtual machines (VMs) and cloud system software. Containers have developed into the technological glue that connects developers and operations 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, automated, 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, LXD, runc, and containerd
- Container orchestration and infrastructure platforms such as Kubernetes, Swarm, Nomad, Rancher, Red Hat OpenShift, VMware Tanzu, and Google Anthos
- Public cloud container services such as AWS ECS, AWS EKS, Azure AKS, and Google GKE
- Emerging WebAssembly (Wasm) runtimes, orchestration, and infrastructure
- Emerging container deployment types such as serverless
- 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 and VMware Cloud Foundation used to build IaaS private and public 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 Software Market Shares and Forecast
- Cloud System Software Technology and Usage
- Container Infrastructure Software 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. How will the rise in AI workloads impact container deployments?
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 third-party cloud services and on-premises container software?
6. How are emerging technologies such as serverless and functions impacting container infrastructure and application design?
7. How is OpenStack evolving, and what impact will it have on the private cloud market?
8. How will WebAssembly infrastructure evolve and impact the container and virtualization markets?
9. How are hypervisors such as Hyper-V and KVM evolving and competing with VMware?
10. How will the Broadcom acquisition of VMware impact the virtualization software market?
11. 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, Google, Hewlett Packard Enterprise, Huawei, IBM, Inspur, Intel, Microsoft, Mirantis, Nutanix, Oracle, Red Hat, SUSE, and VMware. It also looks at open source technologies, including Cloud Foundry, Docker, Istio, Kata Containers, KNative, Kubernetes, KVM, Linux, OpenStack, and WebAssembly.