Software-defined Networks

Power Multicloud DevOps and Digital Business

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Modern Enterprise Networks Are All About Applications and Business Outcomes

IDC predicts that cloud, DevOps, and intelligent automation will radically transform network operations. As a result:

70% of IT departments will RETHINK NetOps roles and staffing by 2022.

Enterprises are advancing toward autonomous, self-driving networks that:

- Have simple, declarative management
- Are comprehensively automated
- Provide timely insights from pervasive, real-time visibility
- Detect, troubleshoot, and remediate network performance and security incidents

DevOps and Digital Innovation Are Accelerating Multicloud Usage

Developers and business decision makers drive cloud decisions.

- **62%** Leverage cloud-specific capabilities
- **55%** Business & development team preferences
- **55%** Optimized cloud spend

93% of large enterprises have adopted multicloud architectures that include a mix of on-premises and public cloud platforms.

n = 200 U.S.-based enterprise I&O decision makers using multiple infrastructure clouds
Containers and Kubernetes provide open standards for consistent DevOps deployment, scaling, migration, and management across multiple clouds and on-premises infrastructure platforms.

The Power of Containers and Kubernetes

- **67%** Today
  - Percentage of enterprises that have already adopted DevOps methods and tools to promote Agile development and faster innovation.

- **74%** Today
  - Percentage of organizations that are implementing, piloting, or actively using microservices.

- **80%** by 2024
  - Percentage of all new applications developed using a programming language that will be deployed in containers.

Many Apps Will Be Developed in the Public Cloud but Deployed in On-Premises Platforms

68% of developers noted that >40% of apps developed in the public cloud are not deployed in the public cloud in production.

What percent of applications built on the public cloud for test and development purposes are ultimately NOT deployed in a public cloud in production (meaning they are deployed on-premises or in a hosted environment)?

- 0-40% of deployments: 32%
- 41%-70% of deployments: 44%
- 71%-100% of deployments: 25%

Private cloud is the most common production-grade location of choice for apps that were originally developed in the public cloud.

Approximately what percent of applications developed and tested on public clouds are ultimately deployed in production elsewhere? Specify where.

- On-premises private cloud: 32%
- Hosted private cloud: 25%
- On-premises non-cloud: 24%
- Hosted non-cloud: 19%

Source: IDC, PaaSView and the Developer, June 2019
n = 2,051-2,500
Containers Create Additional Multicloud Compliance and Networking Challenges

- Traditional IT operations skills, workflows, and tools are built for domain-specific operations and slow rates of change.

- Rapidly scaling infrastructure demands can drive unpredictable costs in a consumption-based world.

Cloud-native apps that **provide modern end-user consumer style experience** online must often integrate with existing systems of record, data stores, and workflows.

**Impact of Containers on Multicloud Management**

- Security/compliance: 64%
- Workload placement/cost decisions: 61%
- Demand for migration to cloud: 60%

Source: IDC Multicloud Management Survey, 2019: Special Study, April 2019
n = 200 U.S.-based enterprise I&O decision makers using multiple infrastructure clouds
Modernization of Existing Stateful Workloads with Persistent Data Requirements Raises New Challenges

- Network traffic patterns become less predictable and more distributed.
- Storage capacity requirements vary widely and need to scale quickly.
- Consistent application experience depends on reliable data access and infrastructure availability.
- Managing data mobility, cost, and performance is critical to success.

Source: IDC's Enterprise Infrastructure Market Pulse: 2Q19 Market View Insights into Deployments of Containers, #US45326519, June 2019, n= 413
Edge Computing Will Extend the Enterprise Network Footprint by 2023

By 2021, over 90% of enterprises worldwide will rely on a mix of on-premises/dedicated private clouds, several public clouds, and legacy platforms to meet their infrastructure needs.

By 2023, over 50% of new enterprise IT infrastructure deployed will be at the edge rather than corporate datacenters, up from less than 10% in 2019.

Most Pressing Multicloud Management Priorities Require Automation and Analytics

- Leveraging staff with automation and analytics.
- Ensuring consistent management and security available via on-premises and cloud/SaaS options.
- Unifying policies and controls across all datacenter, edge, and cloud platforms.
- Scaling investment in people and tools to match rapid evolution of clouds and containers.

Source: IDC Multicloud Management Survey, 2019: Special Study, April 2019
n = 200 U.S.-based enterprise I&O decision makers using multiple infrastructure clouds

55% Optimizing IT staff & processes
52% Ensuring availability of adequate staff, talent, & skills
51% Having consistent security & compliance
51% Optimizing cloud spend

Source: IDC InfoBrief, sponsored by Google Cloud and Cisco
Cloud Operations and Net Operations Converge

- **Address increasing scale**
  of network configuration and deployment complexity

- **Accommodate shifts**
  in network traffic topologies and patterns due to microservices and containers

- **Enable policy-driven**
  software-defined network programmability and load balancing

**Top multicloud management selection criteria:**

- **54%**
  Ability to create more standardized IT environments

- **49%**
  Increasing process automation and IT staff productivity

- **49%**
  Strength of the vendor’s ecosystem

- **46%**
  Consistency of multicloud visibility and operations

IDC Multicloud Management Survey, 2019: Special Study, April 2019
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Consistent Automation Required Across Apps, Clouds, Datacenters, Networks, and Edge

> Kubernetes provides an open platform for application portability and policy control across diverse infrastructure options.

> Consistent Kubernetes APIs enable programmable configuration, migration, and optimization across clouds and on-premises resources.

Diagram showing the integration of applications, microservices, containers, Kubernetes, compute, network, storage, public cloud, on-premises, and edge.
Software-defined Networks Are Critical for Multicloud Digital Agility

By 2023, more than 60% of large enterprises will adopt multicloud software-defined networks (SDN) for operational simplicity and consistent network and security policies across hybrid IT environments.

SDNs overcome limits to business agility as app and infrastructure demands scale:

- Automated provisioning
- Programmatic management
- Integration with cloud orchestration

Message from the sponsor

Cisco and Google Cloud differentiation

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Cisco ACI, SD-WAN and Stealthwatch Cloud*

Turnkey Operations
Pre-integrated systems, quick deployment, Cisco Intersight SaaS management

Integrated & Validated
GKE on Enterprise Datacenters
Enterprise hyperconvergence and Kubernetes storage with Cisco HyperFlex

GCP Marketplace, KubeFlow/Al Hub reference architectures, Cisco-supported bundles

Application Performance Management
AppDynamics helps ensure a consistent application experience across multicloud environments

* Future releases
Message from the sponsor

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We bring the cloud to you

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