

Streamline, Secure, and Optimize Private Cloud with VMware NSX

Simplify your private cloud architecture and network operations with VMware NSX for VMware Cloud Foundation.

[➤ Get Started](#)



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Realizing the Full Potential of Private Cloud

A private cloud is a cloud computing environment hosted on-premises or by a third-party provider reserved for a single organization. It provides the benefits of public cloud services, such as agility and scalability, but with additional advantages, such as enhanced security, compliance and customization.

That's why the market for private cloud services is forecast to grow annually by 20% a year, to reach a value of US\$32.4 billion by 2027.¹

To realize the full potential of the private cloud, companies need a solution that offers the best possible combination of control, compliance, value, security and scalability.

1. Infrastructure optimization

The backbone of a private cloud is its infrastructure. Infrastructure optimization involves deploying modern applications for reliability and performance, utilizing network virtualization for a software-defined data center, ensuring seamless scalability, and implementing comprehensive monitoring and management for efficient resource allocation and future planning.

2. Automation and orchestration

Automated provisioning involves streamlining resource deployment to reduce manual intervention and errors. Orchestration tools manage workflows and ensure seamless integration between cloud services and applications. Self-service portals empower users to provision resources on demand.

3. Value

Maximizing the return on investment (ROI) is essential for justifying the move to a private cloud; it leverages virtualization and automation to reduce operational costs, ensuring efficient resource utilization and improving cost efficiency. It is easy to achieve efficient cloud operations that allow your teams to operate at the speed of business.

Private Cloud Services Market - Growth, Trends and Forecast (2023 - 2030). www.linkedin.com. 2023



VMware Cloud Foundation

VMware Cloud Foundation is a full-stack, private cloud solution that supports digital transformation initiatives by enabling organizations to accelerate developer productivity, embracing cloud native and AI technologies to deliver applications and services to market faster.

Core components of VMware Cloud Foundation include:

- **Compute by VMware vSphere®:** Enterprise workload offering with developer-ready infrastructure
- **Storage by VMware vSAN™:** Enterprise-class storage virtualization software
- **Networking by VMware NSX®:** Full-stack network virtualization
- **Cloud management by VMware Cloud Foundation Network Operations:** A unified cloud management solution



Migrating to VMware Cloud Foundation, designed around your company's business goals and operating model yields a return on investment (ROI) in an average of just nine months. And the average ROI is as high as 171%.²

2. Total Economic Impact of VMware Cloud Foundation. <https://blogs.vmware.com/>. 2022

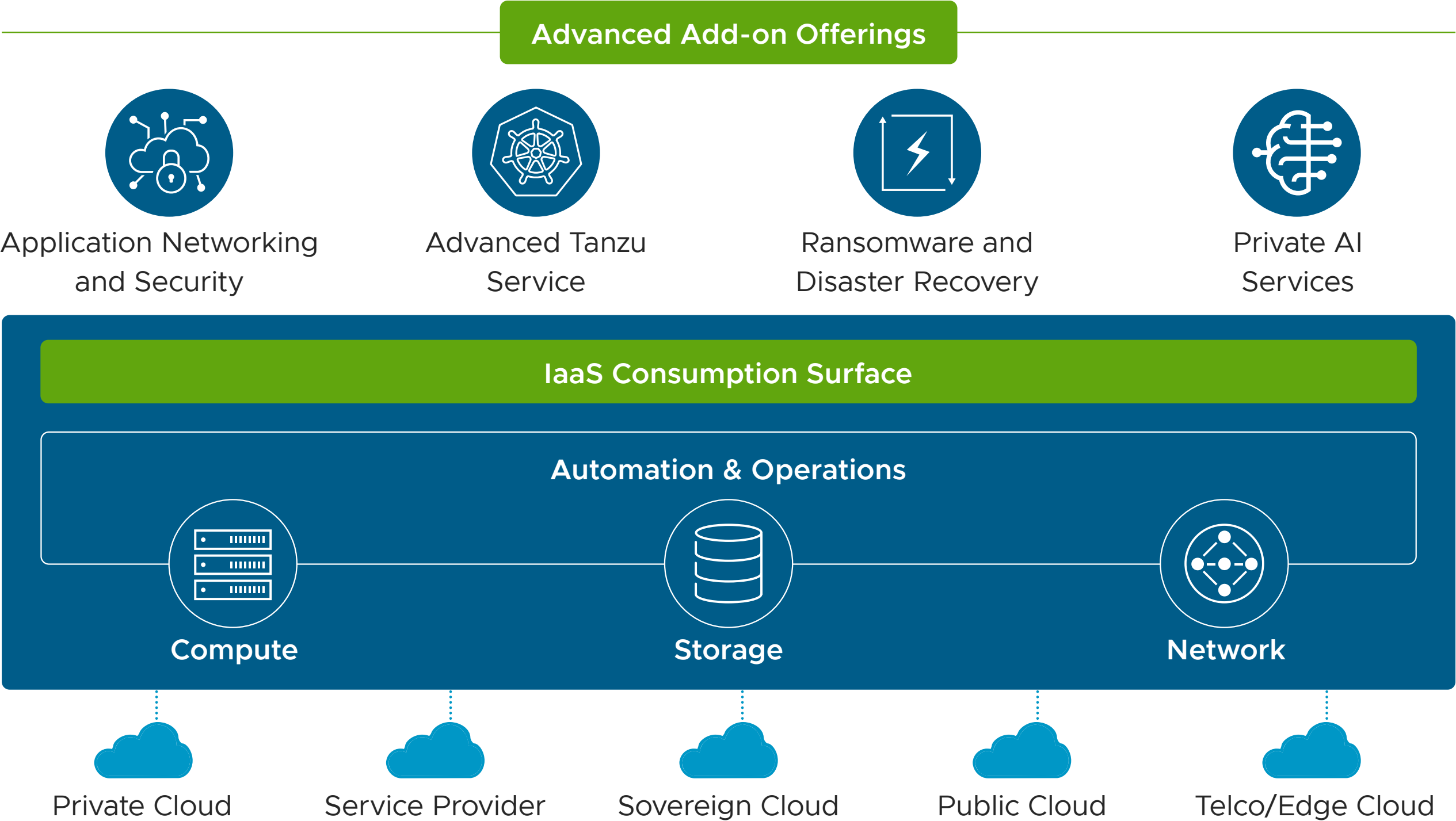


Fig 1: VMware Cloud Foundation.

In the following sections, we focus on three key pillars in VMware NSX that allow you to achieve the best possible return on investment with private cloud:

- Simplified operations and automation
- Agility and scale on demand
- Optimized CapEx and OpEx

VMware NSX Speeds Up Application Deployment

VMware NSX contains a range of network virtualization capabilities that are designed to enable and optimize private clouds. NSX Virtual Private Clouds (VPCs) enable you to deliver self-service networking and security services that can be easily consumed by cloud and application teams. IT still controls the infrastructure with the ability to implement appropriate resource isolation, availability and security across all tenants and workloads.

VPCs can be spun up on-demand in minutes with appropriate access control, along with underlying networking services including routing, DHCP, and NAT, radically simplifying the deployment of network segments and connectivity for different workload types.

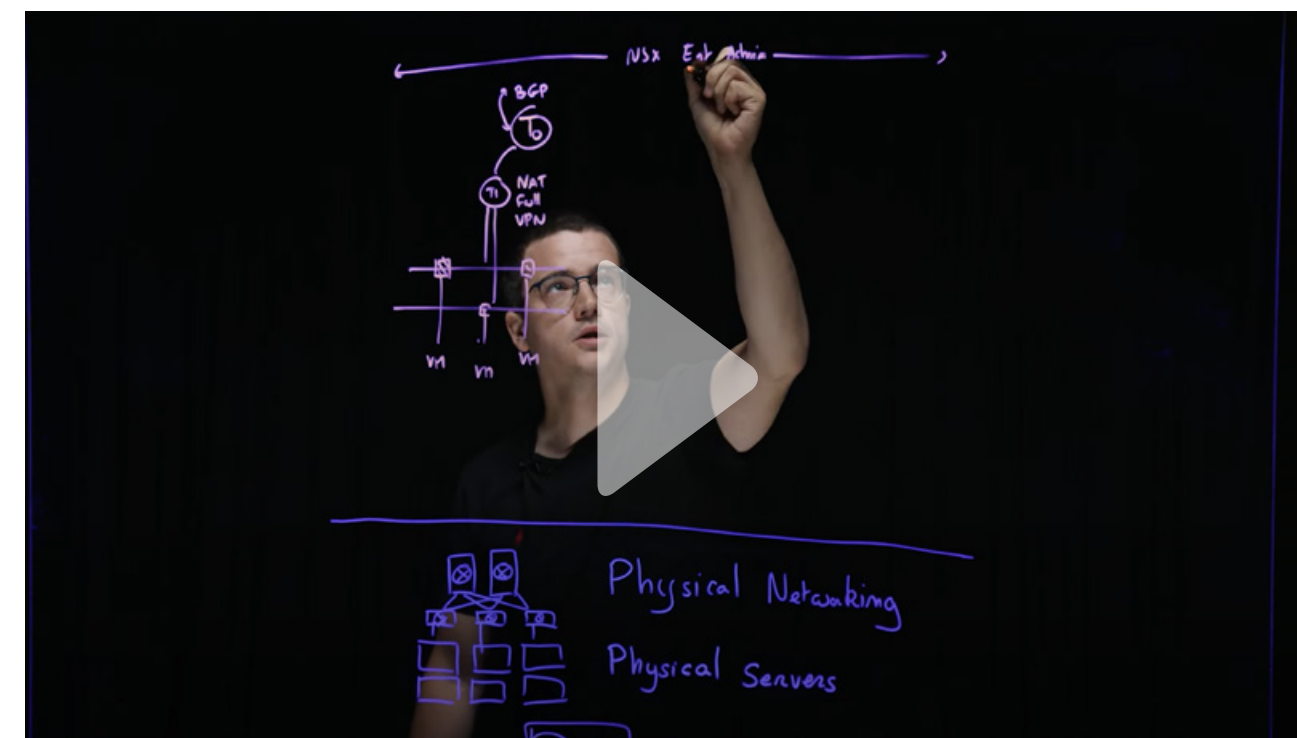
This allows you to:

- **Automate and simplify** private cloud operations for greater efficiency
- **Enable rapid innovation** with agility and ease of deployment, and scaling on demand
- **Drive cost efficiency** by enabling flexible workload placement and network operations, reducing CapEx and OpEx

VPCs are isolated from each other and from rest of the network, speeding up application deployment without the risk of any changes impacting the operations or security for the other parts of the infrastructure.

Centralized management and tooling for day-2 operations is also much easier and more efficient using VMware NSX. Day-2 features in the platform include intuitive dashboards to monitor system performance, built-in automation for repeat operations, alerts linked to critical events and thresholds, and an advanced online diagnostics system that accelerates troubleshooting and issue resolution.

Watch the video: Introduction to NSX Virtual Private Cloud (VPC)



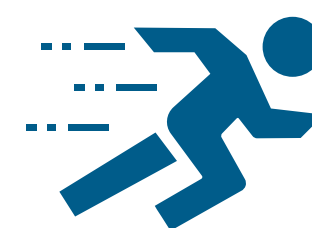
Pillar 1: Simplified operations and automation

Network Automation for Private Cloud

Another benefit of designing your private cloud network with VMware NSX is the ease of full-stack network automation.



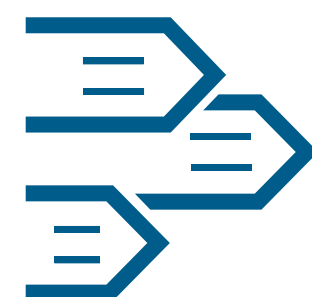
Support for VMware tools such as VMware Cloud Foundation Automation, PowerCLI, and frameworks such as Terraform and Ansible, puts flexibility into the hands of the network engineer.



Network automation empowers developers and IT teams to provision, deploy and manage apps at a speed that business demands.



Use a single, declarative API for integration with a wide range of cloud management platforms, allowing you to use their built-in automation functions.



Reduce network provisioning time from days to seconds and improve operational efficiency.

Tight integration with the VMware Cloud Foundation platform also enables VMware NSX users to achieve consistent networking across standard VMware Cloud Foundation topologies. VMware NSX delivers unified lifecycle and operations for VMware Cloud Foundation across private and hybrid clouds, enabling high availability for workloads, independence from physical networking constraints, and VPCs.

[> More on Network Automation with NSX](#)



Pillar 2: Maximizing private cloud agility and scalability

Operational agility is a key aspect of a private cloud. When a development or production environment requires more resources, there is no need to go through the lengthy process of sourcing, provisioning and configuring physical network infrastructure. You simply spin up more cloud instances.

Network virtualization enables this benefit. You can quickly and easily extend the network, adding new subnets, workloads, and other networking services.

VMware NSX extends and enhances these benefits. Its distributed architecture scales with the applications and accelerates application rollout with templated policies. Network overlays improve workload mobility and streamline data center consolidation.

Features and capabilities of VMware NSX that support private cloud agility and scalability include:

- **Fully distributed network stack:** Integrated, full-stack networking and security for VM and container-based applications, delivering granular policy on a per-workload basis by the application teams while allowing the admin to maintain isolation
- **Intuitive self-service:** NSX VPCs allows self-service consumption and scaling of networking and security services
- **Consistent Multi-site policy:** NSX network virtualization delivers consistent network policy and management across heterogeneous sites to streamline multi-site operations

By simplifying private cloud, you make it easier for your company — and individual stakeholders and teams within your company — to adopt a cloud operating model. Better still, the combination of flexibility, scalability and self-service makes it easier for stakeholders to achieve their goals and see a return on investment, faster. This helps promote adoption and buy in.





Fast, easy policy rollout and consistent security

One of the difficulties that often complicates the rapid scaling of cloud resources, is the need to ensure security and compliance. VMware NSX solves this, by enabling you to easily roll out consistent networking and security policies across your cloud network, even as you rapidly extend it.

NSX Federation enables administrators to configure a unified set of security policies for multiple VMware NSX domains, saving time and ensuring consistency. It also provides centralized policy configuration and enforcement across multiple locations from a single pane of glass, simplifying network-wide policy management and disaster recovery architecture.

With VMware Cloud Foundation add-on services such as VMware® vDefend™ Firewall with Advanced Threat Prevention (ATP), you can protect workloads while eliminating the complexity and expense of multiple, bolted-on security solutions. This simplifies operations and makes it easier to optimize and scale your private cloud as your business needs require.

Watch the video: Introduction to NSX Federation



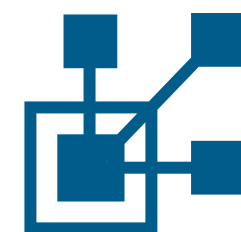
Optimizing Cloud Infrastructure and Operational Costs

Successful adoption of private cloud depends on the ability to control costs and deliver return on investment. VMware NSX plays a key part in making this possible, delivering cost efficiency by optimizing infrastructure and operations.

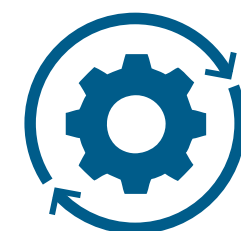
NSX slashes both capital and operational expenditure by optimizing compute density, automating manual tasks and boosting operational efficiency, and intelligently allocating resources while minimizing errors in network configuration.

By making the best possible use of IT's time, and cutting the time to deployment, this also helps reduce expenditure.

Features and capabilities of VMware NSX that support cost control include:



Optimize use of compute: the NSX network overlay allows you to distribute workloads in a way that gets the biggest possible compute density and costs.



Higher developer productivity: With NSX, developers and DevOps teams can access self-service capabilities to create, modify, or tear down networks as needed without waiting for manual IT intervention. This autonomy accelerates the development process and fosters agility and innovation.



Simplified administration: Declarative APIs, centralized dashboards, and simplified troubleshooting make administration faster, less labor intensive, and more cost effective.

IDC: Leading organizations run VMware NSX to achieve 70 percent infrastructure and direct cost savings.

According to a recent report by IDC, organizations using VMware NSX are able to speed up network provisioning by 54 percent, which is a key factor in speeding up development processes and scaling business operations to meet customer demand.³

IDC further found that VMware customers reduced the frequency of unplanned outages by an average of 58 percent, with 43 percent less impact on employee productivity, worth an average of \$1.02 million per organization per year.³

With VMware NSX, customer organizations were able to improve utilization, which allowed them to retire some legacy resources. It also helped customer organizations to avoid capital expenditures for multiple categories of networking hardware.

3. The Business Value of Networking and Lateral Security for VMware Cloud Foundation. www.vmware.com. 2024

Next Steps

Broadcom's VMware software manages cloud complexity so customers can modernize infrastructure, accelerate app development, and protect workloads, wherever these reside.

Our flagship cloud solutions provide the security and performance of private cloud combined with the scale and agility of public cloud. Modern app, edge infrastructure, and private AI products extend these capabilities, while security and disaster recovery help ensure that customers' operations continue uninterrupted.

From the data center to the cloud and apps to the edge, we help enterprises around the globe become more innovative, connected, resilient and secure.

[Contact VMware by Broadcom today](#)



About VMware by Broadcom

VMware by Broadcom delivers software that unifies and streamlines hybrid cloud environments for the world's most complex organizations. By combining enterprise-grade scale and agility with security and performance, we empower our customers to modernize, optimize and protect their apps and businesses everywhere.

Capable of deployment in the software-defined data center, cloud environments, and the enterprise edge, our comprehensive software portfolio makes global enterprises more innovative, connected, resilient and secure.



