vmware®

VMware vSphere 7 with Kubernetes

The biggest vSphere innovation since the launch of the ESXi hypervisor

Introduction
Modern App Challenges

Modern App Infrastructure
vSphere 7 with Kubernetes

Cloud Foundation Services
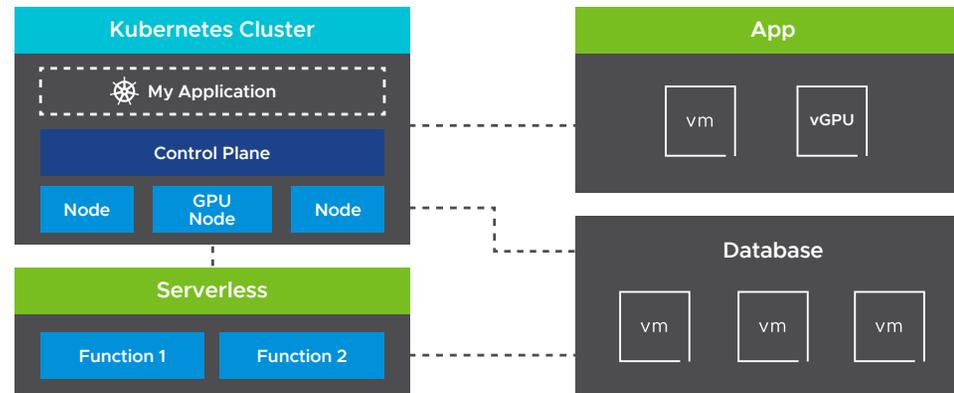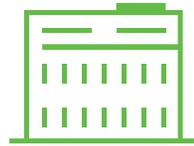Application-focused
Management

Get Started

Innovate Fearlessly Using vSphere with Kubernetes

For CIOs in enterprises today, the pressure is on to help grow revenue and maintain a competitive advantage. Line of business leaders are clamoring for the type of modern applications that deliver better user experiences and increase market share, and they want these applications in production faster than ever before. But modern applications pose their own set of challenges. More complex than traditional applications, they are often made up of multiple VMs, containers, and services and run across heterogeneous architectures.

Modern apps are like distributed systems

Kubernetes Cluster			App	
⎈ My Application			vm	vGPU
Control Plane				
Node	GPU Node	Node		
Serverless			Database	
Function 1	Function 2		vm / vm / vm	

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Challenges Introduced by Modern Applications

Traditional Data Center Infrastructure

Modern Cloud Infrastructure

	Traditional Data Center Infrastructure	Modern Cloud Infrastructure
Operating Models	• Product-oriented	• API and service-oriented
	• Waterfall release methodology designed for monolithic applications	• Continuous integration and continuous delivery (CI/CD) and agile methodologies designed for microservices architectures
Impact on Developer and Operator Teams	• Operators within IT wrestle with traditional processes and are challenged to collaborate with developers.	• Operators outside of IT leverage API-driven services and partner closely with developers. • Developers end up performing operations related to networking and lifecycle management for modern applications.
Performance and Agility	• Operators can't deliver the benefits of the cloud operating model, which drives app teams to the cloud.	• Operators are challenged to maintain consistent adherence to enterprise policies.

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VMware vSphere 7 with Kubernetes Delivers Essential Services for the Modern Hybrid Cloud

VMware solved the challenges faced by traditional apps across heterogeneous architectures with the introduction of VMware vSphere. With vSphere 7, we're delivering the essential services for the modern hybrid cloud. Available in VMware Cloud Foundation™— the VMware hyperconverged infrastructure (HCI) stack that combines compute, storage, and networking with unified management—vSphere 7 with Kubernetes powers the innovation behind VMware Cloud Foundation Services. With the new Kubernetes and RESTful API surface, developers can streamline their work and IT administrators can improve productivity using application-focused management.

VMware vSphere 7 with Kubernetes enables streamlined development, agile operations, and accelerated innovation for all enterprise applications.

vSphere 7 provides

- Essential services for modern apps

- Simplified lifecycle management

- Intrinsic security
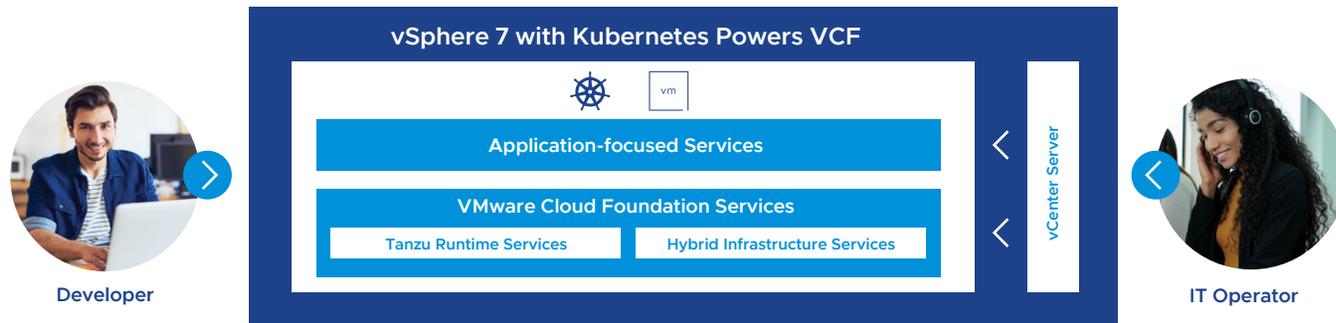
- Application acceleration

So you can take advantage of

- Enterprise resiliency

- Agility, flexibility, and productivity

- Cost savings

- Efficient resource utilization

- Simplified operations

- Application governance

- Investment protection

- Availability

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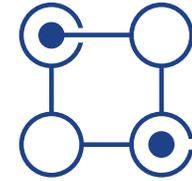Application-focused
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How vSphere 7 with Kubernetes Helps Enterprises Succeed

VMware vSphere 7 with Kubernetes, available through *VMware Cloud Foundation*, delivers VMware Cloud Foundation Services and application-focused management for streamlined development, agile operations, *and* accelerated innovation. It's a flexible environment for modern applications that are built from microservices and run across heterogenous environments.

Developer

vSphere 7 with Kubernetes Powers VCF

Application-focused Services

VMware Cloud Foundation Services

Tanzu Runtime Services   Hybrid Infrastructure Services

vCenter Server

IT Operator

With vSphere 7 with Kubernetes, VMware delivers embedded Tanzu Kubernetes Grid Service for fully compliant and conformant Kubernetes capabilities for containerized applications. This approach provides Kubernetes APIs to developers, enabling CI/CD processes across a global infrastructure including on-premises data centers, hyperscalers, and Managed Service Providers (MSP) infrastructure. It unites the data center and the cloud with an integrated cloud operating model. Now enterprises can increase the productivity of developers and operators, enabling faster time-to-innovation combined with the security, stability, and governance, and avoid cost proliferation due to multiple stacks of IT infrastructure or cloud services.

STREAMLINED DEVELOPMENT

Developers can focus on building applications instead of managing infrastructure.

AGILE OPERATIONS

IT administrators benefit from application-level control for applying policies, as well as quota and role-based access for developers.
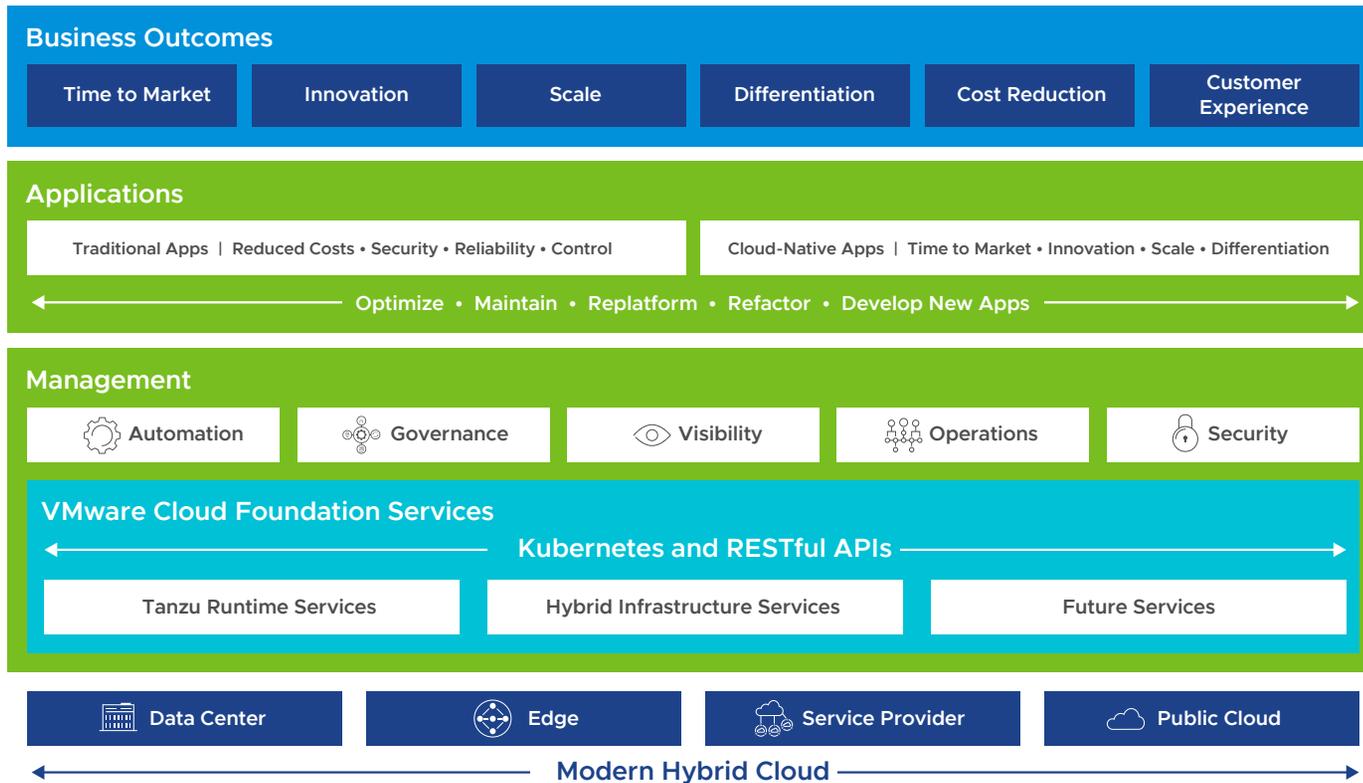

ACCELERATED INNOVATION

Run modern applications composed of VMs, containers, and Kubernetes clusters on a unified platform.

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VMware Cloud Foundation Services

Powered by innovations in vSphere 7, VMware Cloud Foundation Services is a new, integrated Kubernetes and RESTful API surface that enables you to drive API access to all core services.

Business Outcomes

Time to Market	Innovation	Scale	Differentiation	Cost Reduction	Customer Experience

Applications

Traditional Apps	Reduced Costs • Security • Reliability • Control	Cloud-Native Apps	Time to Market • Innovation • Scale • Differentiation

← Optimize • Maintain • Replatform • Refactor • Develop New Apps →

Management

⚙ Automation	⚛ Governance	👁 Visibility	⬡ Operations	🔒 Security

VMware Cloud Foundation Services

← Kubernetes and RESTful APIs →

Tanzu Runtime Services	Hybrid Infrastructure Services	Future Services

🏢 Data Center	⊕ Edge	☁ Service Provider	☁ Public Cloud

← **Modern Hybrid Cloud** →

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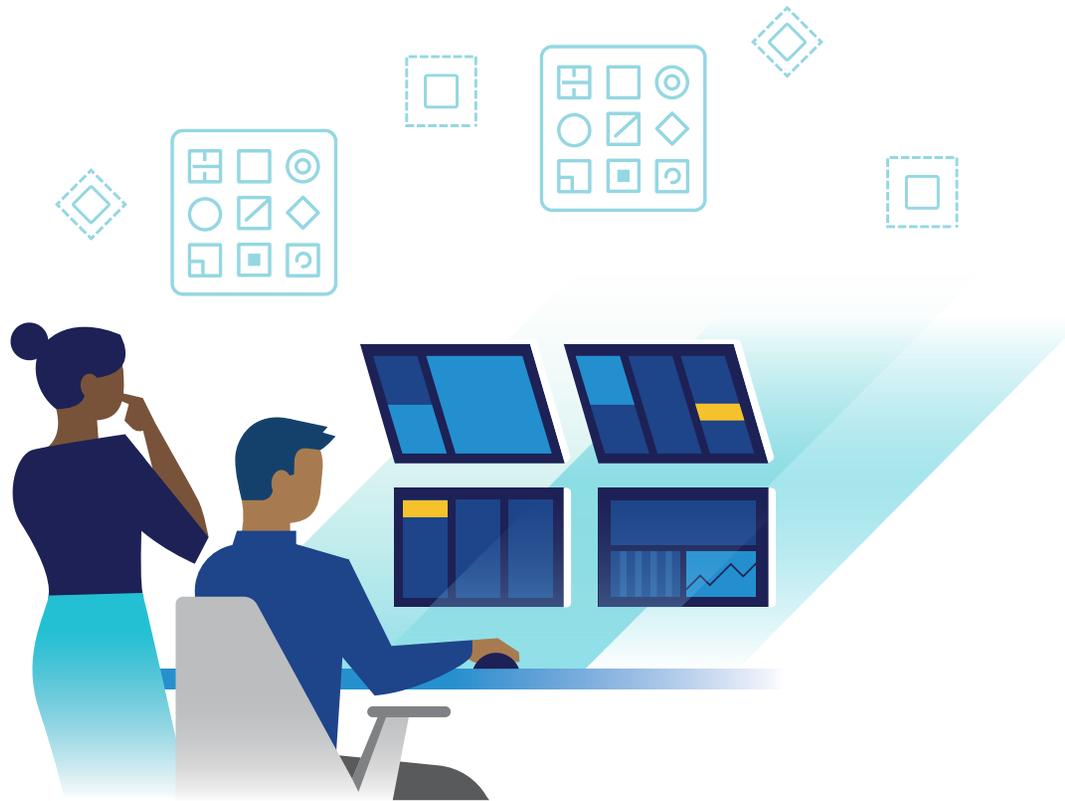Application-focused
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Get Started

VMware Cloud Foundation Services consists of two families of services: Tanzu Runtime Services and Hybrid Infrastructure Services.

- **Tanzu Runtime Services** deliver core Kubernetes development services, including an up-to-date distribution of Tanzu Kubernetes Grid.

- **Hybrid Infrastructure Services** include full Kubernetes and RESTful API access that spans creating and manipulating virtual machines, containers, storage, networking, and other core capabilities.

Tanzu Kubernetes Grid Service

Manage consistent, compliant and conformant Kubernetes clusters.

vSphere Pod Service

Run containers directly on the hypervisor for improved security, performance, and manageability.

Registry Service

Store, manage and secure Docker and OCI images.

Storage Service

Manage persistent disks for use with containers, Kubernetes clusters, and virtual machines.

Network Service

Manage virtual routers, load balancers, and firewall rules.

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Application-Focused Management

Available only in vSphere with Kubernetes (through VMware Cloud Foundation), application-focused management enables VI admins to organize multiple objects into a logical group and then apply policies to the entire group. For example, an administrator can apply security policies and storage limits to a group of virtual machines and Kubernetes clusters that represent an application, rather than to all of the VMs and clusters individually.

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Learn More About VMware vSphere 7 with Kubernetes

Modern applications are often complex combinations of many different technologies—traditional in-house applications, databases, modern applications in containers, and potentially even modern applications in functions. Managing these applications across that heterogeneity is a complex task for both developers and operators.

VMware vSphere 7 with Kubernetes, available through VMware Cloud Foundation, delivers VMware Cloud Foundation Services and application-focused management for streamlined development, agile operations, and accelerated innovation.

For more information, check out VMware vSphere 7 online at *www.vmware.com/products/vsphere.html*, or test-drive vSphere with no installation required with a VMware Hands-on Lab at *www.vmware.com/try-vmware/try-hands-on-labs.html*.

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