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VMware and Intel Special Edition

Modernizing the Infrastructure

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Learn to:

- Find out what it means to modernize the infrastructure
- Understand the challenges the digital economy is putting on the IT infrastructure
- Choose your modernization path — an integrated stack or individual components

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With digital business transformation accelerating across every industry, practically every modern business initiative has become an IT project, and IT is now more strategic than ever before to the success of the business. Businesses must bring innovative products and services to market faster than their competitors which, in turn, means that IT must rapidly and continuously deliver applications and services that drive productivity and efficiency.

The problem is that many IT environments are unable to deliver the level of responsiveness that businesses demand. That's because traditional IT infrastructure is often laden with purpose-built hardware and fragmented management tools, resulting in complex deployment and operational processes that ultimately slow the delivery of IT applications and services. Managing disparate and siloed infrastructure is also resource-intensive, forcing IT staff to waste valuable time and effort fighting fires and performing manual, repetitive tasks, rather than using their knowledge and expertise to contribute to more strategic business initiatives.

A recent IDC report found that in many enterprises, IT professionals spend 70 percent of their time dealing with operational issues rather than focusing on more strategic projects.

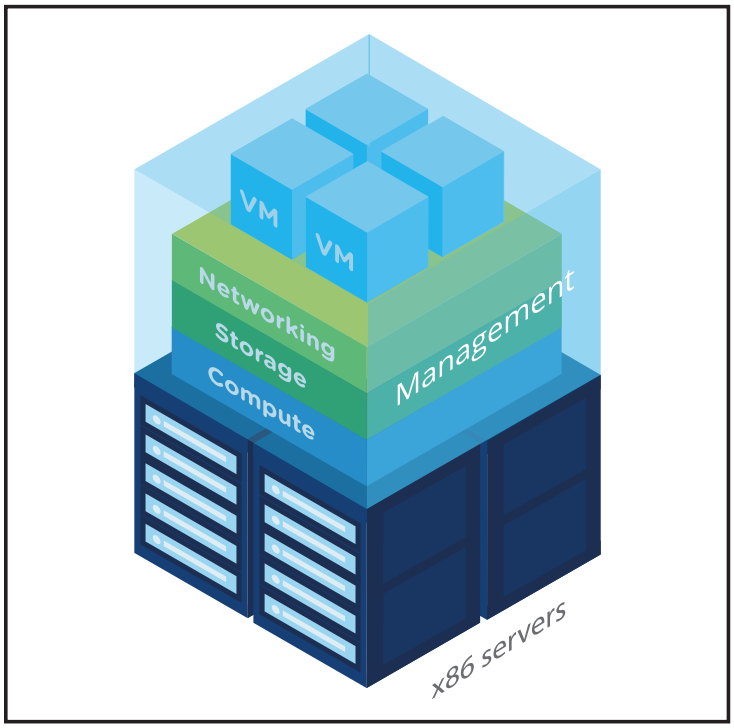
IT must partner with business stakeholders to innovate, get products and services to market faster, and consistently deliver an engaging and superior customer experience. IT can position themselves to deliver the speed and innovation that are essential for businesses in the digital economy by modernizing their infrastructure. In this paper, you'll learn how.

What is Modern Infrastructure?

Enterprises need a modern infrastructure that abstracts traditional infrastructure silos, offering a cohesive platform that can respond to the dynamic needs of the business, support both legacy and new applications, and be extended to the cloud. Shifting to a modern, software-defined data center (SDDC) is the ultimate end goal for many organizations, enabling them to:

- **Achieve greater agility and responsiveness**
- **Reduce total cost of ownership (TCO)**
- **Future-proof infrastructure investments**

Hyper-converged infrastructure (HCI) is the easiest path to an SDDC. HCI integrates compute, storage, and networking onto industry-standard x86 servers with direct-attached storage (DAS) and common management tools, enabling a building-block approach to SDDC with scale-out capabilities and automated management and orchestration
(see the figure below).



A hyper-converged infrastructure (HCI) enables a building block approach to a modern infrastructure with virtualized compute, storage, and networking on x86 servers with common management.

With HCI, all key data center functions run as software on the hypervisor in a tightly integrated software layer.

IDC projects that hyper-converged systems will grow 64 percent between 2015 and 2019.

Three waves of innovation have enabled modern infrastructure:

- **Compute virtualization** (the first wave) enables consolidation and better utilization of the underlying infrastructure while simplifying management, increasing agility and minimizing downtime. Compute virtualization reduces the provisioning of compute resources from weeks or days to minutes, and abstracts the management and operations of formerly siloed server hardware pools into a common management and operations platform. Compute virtualization can provide a universal platform supporting all types of applications and workloads, as well as include built-in security and intelligent operations management and automation capabilities.

- **Storage virtualization** (the second wave) reduces storage hardware costs and delivers a dynamic, agile, and automated approach to storage that aligns to business and application needs. By extending virtualization beyond compute to storage, static purpose-built storage hardware can be replaced with a dynamic, agile, and automated storage solution aligned to business and application needs.

- **Network virtualization** (the third wave) transforms the network operational model by abstracting it from the underlying physical hardware and attaching network and security services directly to the workload, bringing flexibility and automation to the network layer to support a more agile, scalable, secure, and cost-effective modern infrastructure.

While you can implement a modern infrastructure with an all-in-one HCI solution, it doesn't have to happen all at once. Depending on your business needs and budget constraints, you can virtualize compute and storage first, then virtualize networking later.

The Digital Economy Creates IT Infrastructure Challenges

Fundamental IT challenges make it difficult to deploy and manage the infrastructure needed to meet dynamic business needs in the digital economy. These challenges include:

- **Operational complexity**
  - Heterogeneous environments, siloed infrastructure, and fragmented management software slow down agility and response times
  - Overprovisioning and guesswork are inefficient tools to deliver enterprise service-level agreements (SLAs)
  - IT staff are stuck working on day-to-day operations issues and repetitive tasks, rather than driving strategic projects
- **Budget and investment constraints**
  - IT budgets are largely static – or even shrinking – and traditional infrastructure is expensive to purchase, costly to maintain, and difficult to scale
  - Vendor lock-in prevents flexibility to meet the growth and scaling needs of the business
  - Ongoing costs to move and run applications in public clouds are difficult to forecast; after a cloud migration, moving applications back on-premises (if necessary) can be challenging and even more costly
- **Pressure to support the latest applications, hardware, and cloud technologies**
  - Slow IT response times drive the move to the public cloud and give rise to unsanctioned and risky "shadow IT" applications and services
  - Security and compliance becomes more challenging as applications are moved from on-premises to public clouds
  - Many infrastructure platforms are good for either traditional applications OR cloud-native developed applications; most platforms require completely new hardware and software investments for cloud-native applications

How Do You Start the Journey to Modernize Your Infrastructure?

"Two roads diverged in a wood, and I– I took the one that best fit my organization's unique needs and goals."

Although the road from a traditional infrastructure to a modern infrastructure can be a bit complex and, uh… rocky, we've mapped out two paths that allow you to extend the life of your prior investments, leverage your existing IT knowledge and skills, and minimize business disruption along the way:

- **An integrated cloud infrastructure platform** combines compute, storage, and network virtualization with built-in lifecycle automation and management. Day 0 to day 2 operations become more streamlined – from installation and configuration to infrastructure provisioning and patching. Such a platform provides a globally consistent software-defined infrastructure platform that sits below the most common application platforms, PaaS, and container solutions, enabling operational consistency no matter where your applications are running.

- **A build-it-yourself approach** to modern infrastructure begins with adopting the latest in compute virtualization, to ensure that the core platform supports all types of applications and workloads securely. From there, organizations can continue with an evolutionary approach to modernizing infrastructure, at a pace that suits their unique business requirements. The next step is to extend compute virtualization with storage and network virtualization, ultimately leading to a complete modern software-defined infrastructure.

As your organization refreshes aging hardware, you can shift to a hyper-converged infrastructure with natively integrated compute, storage, and networking with built-in management.

No matter which path you choose to modernize your infrastructure, intelligent operations management capabilities:

- **Accelerate informed decision making** with effective planning across infrastructure and applications for private and public cloud environments

- **Improve performance and uptime** with proactive performance monitoring, troubleshooting, and capacity management

- **Maximize utilization** with deep operational and business insights, including costs and workload placement

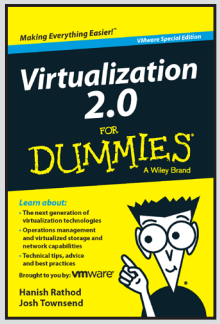
For businesses to remain competitive, IT needs a modern infrastructure that leverages the power and efficiency of virtualization across all components of the data center – compute, storage, and networking – with common management across all three. A modern infrastructure enables businesses to achieve:

- **Greater agility**
  - Deliver IT services and meet SLA requirements efficiently, reliably, and on demand
  - Simplify operations and lifecycle management of infrastructure across private and public clouds
  - Converge processes, teams, and tools to streamline operations and accelerate responsiveness

- **Best TCO/value**
  - Reduce acquisition costs, as well as ongoing scaling and maintenance costs, by shifting to simplified hardware architectures and better server economics
  - Leverage existing IT skillsets and tools while getting the most out of existing hardware and software infrastructure investments
  - Minimize disruption by seamlessly integrating with existing third-party services, solutions, and vendors of choice
- **Future-proof infrastructure investments**
  - Run and manage all types of applications and workloads across private and public clouds, while effectively managing availability, security, and the performance of IT services across multi-cloud infrastructures
  - Deploy solutions today for next-generation applications and hardware advancements

VMware and Intel enable IT organizations to realize a digital transformation and deliver IT infrastructure and application services with the speed and agility to support business innovation and growth while optimizing TCO and improving resource utilization. VMware's software-defined HCI architecture and Intel® technology integrate compute, network, and storage virtualization technologies and enable businesses to modernize their infrastructure, automate IT, and run modern applications.

Download the following guides from VMware and Intel to help you start the journey to modernizing your infrastructure today.



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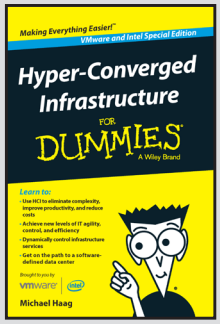
Virtualization 2.0 For Dummies



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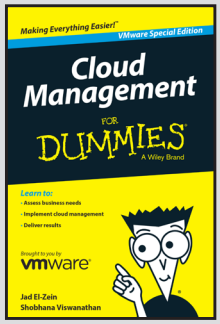
Hyper-Converged Infrastructure For Dummies



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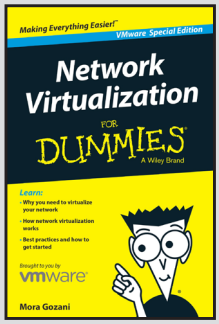
Cloud Management For Dummies



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Network Virtualization For Dummies