



Streamline Your Environment  
with **Virtualization**





# Virtualization: What is it?

Virtualization Infrastructure Solutions work to reduce your overall hardware needs while increasing your capacity at various levels. There are basically two types of virtualization in computing, Platform and Resource Virtualization.

**Platform Virtualization** is implemented on hardware resources by “host” software, creating a simulated, virtual or pseudo environment for its “guest” software. This type of virtualization acts as a resource multiplier, turning one physical resource into many logical resources. Dependent on the level of hardware simulation, there are several types of platform virtualization such as emulation, operating system level and application virtualization that can be implemented.

Several providers of platform virtualization software include VMware ESX, Microsoft Virtual Server, Xen, and Virtual Iron.

**Resource Virtualization** expanded on the basic concept of platform virtualization to now include specific system resources, such as storage volumes, name spaces, and network resources. Overall, resource virtualization combines separate physical resources into one logical resource pool. Examples of resource aggregation include SAN, RAID, volume managers and channel bonding.

In addition, there are several types of resource virtualization – partitioning, which splits a single resource such as network bandwidth or disk space into smaller components and encapsula-

tion, hiding the complexity of a resource by creating a simplified interface. Examples of resource partitioning include v-lans, VOIP and zoning of storage; and for encapsulation - disk drives, modems, routers, cache and many “smart” devices.



## Virtualization: What can it do for your business?

Virtualization enables organizations to more effectively leverage, scale and allocate their storage, network, and computing resources. The virtual infrastructure approach to IT management creates virtual services out of the physical IT infrastructure, allowing administrators to allocate these virtual resources quickly to varying business units as needs dictate. More than ever, you will have the power to truly optimize your infrastructure in real-time.

### Server Consolidation and Containment

Don't let server sprawl and platform dependencies prevent your business from achieving its goals. Take control of your IT infrastructure and help it reach its full potential by using virtual infrastructure solutions to:

- Reduce hardware and operating costs up to 50%.
- Reduce the time it takes to provision new servers as much as 70%
- Save over \$3,000 each year for every server workload virtualized.
- Increase utilization of existing hardware up to 80% from 10-15%.
- Reduce hardware requirements by a 10:1 ratio or better.

DynTek's certified and highly-trained consultants can help you assess your IT environment to identify consolidation candidates and calculate the potential savings from using virtualization.

### Software Lifecycle Automation

#### *Test and Development Optimization*

Virtual software lifecycle automation streamlines adjacent yet often disconnected processes, and closes the gaps between them. Virtualization enables you to rapidly provision test and development servers by reusing pre-configured systems, enhancing developer collaboration and standardizing development environments.

Examples of the capabilities provided by software lifecycle automation solutions include:

- Reduce duplicate provisioning by sharing software configurations between distributed development centers.
- Close the gap between software development and quality assurance with the ability to resolve defects on demand.
- Place a staged configuration into production – minimizing errors from rebuilding systems.
- Move running configurations between data centers or physical resources to recover from failures, ensuring business continuity.

### Business Continuity

Virtualization enables you to reduce the cost and complexity of business continuity by encapsulating entire systems into single files that can be replicated and restored on any target server, thus minimizing downtime. Traditional high availability solutions are often relatively complex and expensive, and typically reserved for mission critical applications. Virtual Infrastructure changes the economics of high availability and makes it accessible for the majority of software applications that have until now been left unprotected.

### Storage Virtualization

The unrelenting growth of company files, e-mail, databases, and application data drives a constant need for more storage. But with storage directly attached to servers, growth means burdensome storage management and decreased asset utilization. Storage resources remain trapped behind individual servers, impeding data availability. Consolidation in a storage area network (SAN) is an affordable way to alleviate the problem, and an easy to deploy iSCSI SAN technology brings the benefits of consolidation to all your data. With a fully redundant solution you can leverage centralized storage to gain simpler management, data sharing, and improved availability. A single pool of storage makes allocating volumes easier, and improves backup and disaster recovery.

You can grow on demand as your needs change and built-in intelligence delivers the highest levels of performance, scalability, and availability. Benefits of Storage Consolidation include:

- Increased productivity
- Maximum availability
- Increased asset utilization
- Scalability with better performance
- Simpler management and reduced administrative overhead
- Improved backup

YOUR INFRASTRUCTURE, YOUR WORLD

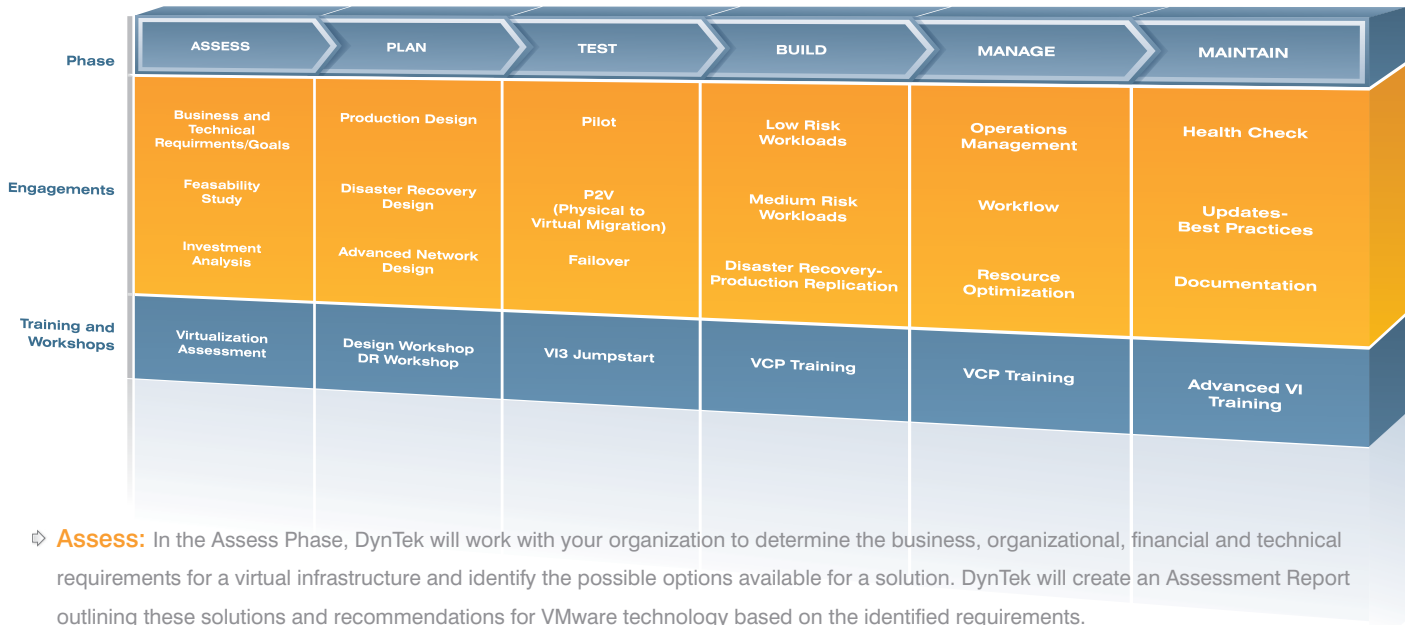
Simplified

# Virtualization: What can DynTek offer?

## DynTek Professional Services

DynTek provides complete end to end services for all your virtual infrastructure project needs. Our talented, highly-accredited and certified consultants consist of industry leading experts who have focused on the development of outstanding virtual infrastructure solutions and services. We provide training workshops, assessments, design, testing, implementations, backups, replication, disaster recovery, full scale migrations, support and maintenance of a virtual infrastructure environment. Our mission is to provide unparalleled service and solutions at a reasonable cost so that our clients can quickly capitalize on all the benefits of virtualization.

Here are the steps toward delivering you the most complete virtualization solution for your business:



- ⇒ **Assess:** In the Assess Phase, DynTek will work with your organization to determine the business, organizational, financial and technical requirements for a virtual infrastructure and identify the possible options available for a solution. DynTek will create an Assessment Report outlining these solutions and recommendations for VMware technology based on the identified requirements.
- ⇒ **Plan:** In the Plan Phase, DynTek's technical consultants will create a Project Implementation Plan and Architecture Blueprint – including project roles and responsibilities, key deadlines and milestones, success criteria, constraints and contingencies - for the successful build-out of the chosen virtual infrastructure solution.
- ⇒ **Test:** In the Test Phase, DynTek will build a pilot environment and test workload migration, v-motion, high availability, distributed resource scheduling, disaster recovery, replication, fail-over and backups. Also, we will test management components, provisioning, and maintenance functionality.
- ⇒ **Build:** In the Build Phase, DynTek will install and configure the virtual infrastructure according to the plan and blueprints identified. We will successfully test the implementation build using the criteria identified in the plan phase. As a result, a working virtual infrastructure built to plan will be delivered with an exception report to note any differences between the plan and actual implementation, configuration notes.
- ⇒ **Manage:** In the Manage Phase, DynTek will provide ongoing management of the virtual infrastructure. We will review and provide training on the provisioning of new virtual machines into the environment by support and help desk employees. We will proactively provide monitoring and optimization of existing and new virtual workloads. In addition, the DynTek team will develop and document policies and guidelines around best practices, workflow and operations, procurement procedures for new hosts and test and development lab management.
- ⇒ **Maintain:** In the Maintain Phase, DynTek will provide post implementation support and documentation for ongoing optimization and updates of your virtual infrastructure and operational procedures.
- ⇒ **Training and Workshops:** DynTek provides a broad range of training and workshops within each phase of a virtual infrastructure project. Each program is tailored to your organization's needs and timing.



### Virtualization Delivered

DynTek has partnered with industry leading partners in the virtualization space including VMware, Microsoft, HP, EMC, Vizioncore, Platespin, EqualLogic, Citrix and Softricity in an effort to provide our clients a holistic solution capable of solving many of today's toughest IT challenges.

Don't just take our word for it – here is what one of our clients has to say:

“ The DynTek team was a great source of practical knowledge and expertise in the areas of virtualization, security and general networking. They openly shared 'dos and don'ts' and brought the real-life experience we needed to fast track our project. Their technical, account management and support teams exceeded our expectations throughout each phase of the project. Most importantly, DynTek was truly vested in our success.

Mark DiPofi - Network Administrator  
Cohoes City School

## Business Benefits

- Significant server consolidation
- Real disaster recovery capabilities
- Streamlined test and development labs
- Agile provisioning processes
- More efficient server lifecycle management
- Better system redundancy
- Easier management of their IT environments

## Customers have reported that their IT groups have achieved the following results

- 60-80% utilization rates for x86 servers up from today's 5-15%
- New applications provisioned in tens of seconds, not days
- Change request response times measured in minutes
- Zero-downtime hardware maintenance without waiting for maintenance windows

## The DynTek Difference

- Certified and highly trained consulting team with real-world experience
- Extensive experience in virtual infrastructure software and hardware solutions
- Strong relationships with industry-leading manufacturers including VMware, Microsoft, HP and Citrix
- Outstanding customer service & support





DynTek is a leading provider of professional technology services to government, education and commercial customers in the largest IT markets nationwide. We provide a broad range of solutions that address the critical business needs of organizations today, such as IT security, voice and data convergence, enterprise access and technology management. Headquartered in Irvine, California, DynTek has over 200 employees throughout the United States and Canada.

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