

Starfire Server Virtualization Essentials: Six Points to VMware Success



This Essentials document is a short-list primer which illustrates six key points for developing a solid solution when implementing or updating a virtualization deployment.

The top six points to consider for successful virtualization are:

1) Storage Allocation and Management

- Correct disk types and configurations
- Centralized storage including booting from SAN
- Storage network designs
- Storage monitoring and reporting

2) Workload Capacity and Performance Planning

- Pooling of system resources
- Better utilization of system resources
- Monitoring and tracking resource consumption/utilization

3) System Architecture and Design

- Proper system sizing and configurations
- Desktop considerations and designs
- Proper segmentation and prioritization of production/test/development landscape resources
- Enabling vendor independence

4) Backup and Restore including Disaster Recovery

- Integration of virtual machine container and in-VM backups
- Configuration for BC and DR considerations
- Testing and validation processes and procedures

5) Operational Processes and Procedures

- Proper operational guidelines
- Effective mentoring and reporting

6) Security

- Operating system patch management
- Vulnerability management
- Access control

Professional choices – the advantage of using expert input to get it right.

1) Storage Allocation and Management

A critical mistake is incorrect estimation and allocation of storage needs for virtualization. Common problems are not correctly allocating disk space, exceeding storage resources, and capacity and throughput problems caused by not identifying and addressing bottlenecks before deployment.

Example key questions:

- What storage measurements are required to size and design the virtualized environment?
- What are the anticipated transaction rates and storage consumption rates of the virtualized systems?
- How does booting from SAN enhance business continuity and reduce the systems/environment costs?

Consequences of getting it wrong:

- Negative effects on business continuity and disaster recovery
- Outstripping available storage capacities
- Potential need for redeployment, redesign, or re-implementation of VMware

2) Workload Capacity and Performance Planning

How workloads are allocated has a direct impact on application availability. Not every server or application is a good candidate for virtualization. It is important to measure the operational characteristics of servers to determine virtualization requirements.

Through virtualization, the pooling of system resources and better utilization of existing resources can greatly reduce costs. VMware can also monitor and track resource usage allowing IT managers the ability to pinpoint inefficiencies and measure the impact of corrective action.

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Example key questions:

- What are the current service loads? (CPU, network, memory, disk, storage, etc.)
- What changes are coming in the application portfolio?
- What are the service load spike conditions and frequencies?
- What services are growing in needs?
- What are the availability needs for the current services?
- What are the maintenance windows for the current services?

Consequences of getting it wrong:

- Under-utilization – purchasing too many servers by overestimating requirements
- Over-utilization - deploying too few servers for virtualization requirements and impacting services performance
- Deployment failure or significant cost increases and project delays for deployment success

3) System Architecture and Design

The impact of implementing the correct virtualization architectural design is far reaching. This ranges from overall budget outcomes through to system component decisions for the required IT infrastructure. Assessing the business needs and mapping these to an IT systems architecture lays the path for sound infrastructure decisions.

Example key questions:

- What configuration is required for the server systems?
- What kind of server architecture as virtualization solutions allows for a vendor independent choice of hardware?
- Are multiple physical sites required?
- Storage systems selection and configuration
- Network design for production and system services

Consequences of getting it wrong:

- Overspending
- Multiple redundant, overlapping systems
- Insufficient resources
- Expensive patching and enhancements to keep a short sighted architecture viable

4) Backup and Restore including Disaster Recovery

The process of virtualizing servers can have a profound impact on backup and restore systems as well as disaster recovery processes. Virtualization opens up a range of alternatives and past approaches may no longer be adequate after VMware is implemented. Backup systems must be correctly integrated into the new virtualized environment. Disaster recovery also can be significantly enhanced if correctly geared to the virtualized environment.

Example key questions:

- Can the backup and restore processes and services be improved?
- Are core business continuity and disaster recovery requirements being delivered?
- Is the organization achieving it's compliance obligations – especially SOX, HIPPA, and other requirements?
- Are the IT systems conforming to corporate policy and meeting required service levels?

Consequences of getting it wrong:

- Significant increase in backup and off-site volumes
- Inability to meet backup window constraints
- Ineffective and incomplete backup coverage for virtual machine environment
- Extremely long recovery times for storage disruptions or server outages

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5) Operational Processes and Procedures

Once a VMware initiative is deployed, VMware provides tools to enable central monitoring of systems for optimal performance. The ability to effectively monitor a range of processes internally can pin point areas that require attention.

Significant benefits can be achieved by fine tuning IT environments to reduce costs. Mentoring and skills transfer can be a viable process to help IT staff to take advantage of operational efficiencies VMware provides by instituting access to key documentation on operational procedures and best practices.

Example key questions:

- What is the procedure for provisioning a system?
- What is the process for adding a system for backups?
- What are the test procedures to validate a backup?
- What are the valid operational characteristics of a server?
- What is the validation process for assigning or reassigning storage assets?

Consequences of getting it wrong:

- Incorrect action can effect/destroy dozens of servers
- High cost of adding new team members
- Under serving the user community
- Variances in the production environment for the same features/functions due to inconsistent processes

6) Security

Security issues that effect normal servers effect virtual machines in the same way. An unaddressed vulnerability can be multiplied in an environment where there are many virtual machines/guests running as well as the security of the virtual machine host systems. For organizations that have not adequately addressed a host of security issues, virtualization can replicate a vulnerability on a much broader scale. This can have a catastrophic effect if this is not managed and monitored properly.

Example key questions:

- Are the VMware hosts current on patches?
- Are there procedures and a calendar of events to review and validate the security state?
- Are the virtual machine guests under consistent patch management?
- Are security event escalation procedures defined?

Consequences of getting it wrong:

- Aged, unmanaged systems out of support and exposed to know risks
- Ineffective security event responses
- Data theft or destruction
- System availability problems

Professional choices – the advantage of using expert input to get it right.

Virtualization involves much more than simply pressing the install button. This Essential offers valuable insights into the impact server virtualization deployment decisions can have on the stability of business processes and technical performance in your organization. The key to success is to use the right expertise at the right time to get the best results.