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Virtualising System Platforms

How virtualisation technologies
can deliver real benefits across
the system architecture

In association
with





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Virtualisation – improving return on investment

Businesses are demanding a better return from their investment in computing systems, whilst still delivering secure and continuous business operations.

Most companies have invested massively in information technology to support the business, creating an expensive complex and difficult environment to manage. As a consequence, these companies are now wrestling with the challenges of their investment.

Virtualisation technologies are being implemented across all layers of the system architecture. This enables the consolidation and sharing of IT resources through a single, easy to deploy management interface. Virtualised services operate at many levels – sharing servers or storage devices, supporting secure access to systems, enabling safe failover, restoring data to a trusted state.

Virtualisation offers the opportunity to:

- Simplify the management of large estates of servers and storage platforms
- Improve the utilisation of IT resources, reduce unnecessary duplication of devices and save on operational costs
- Control and manage remote offices and mobile workers who create security, management and maintenance issues
- Consolidate and centralise IT resources using high performance networks and acceleration technologies
- Reduce the number of servers, storage arrays and other system devices with a smaller footprint to deliver significant 'green' benefits such as power and cooling savings

Business is demanding improved levels of return on computing systems

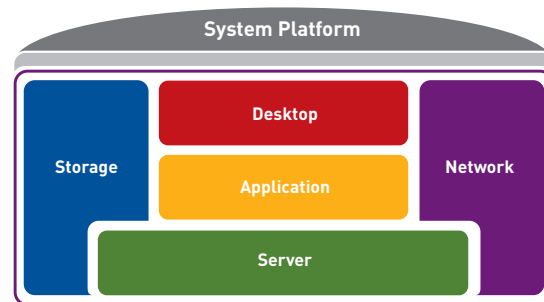
Companies are turning to virtualisation in order to reduce and centralise their IT infrastructure

Virtualisation improves the user experience and delivers savings in IT investments

Better utilisation of resources leads to a reduced system footprint and lower energy costs

Virtualisation across the system architecture

Virtualisation can be implemented at various levels of the system platform. The underlying objective is to gain better utilisation of all the system resources.



5 Levels of Virtualisation

There are 5 levels of virtualisation:

Server and application virtualisation delivers a reduction in the number of physical servers

Storage virtualisation allocates storage as it is required

Desktop virtualisation enables better management of large PC estates

Network virtualisation optimises interconnection between system resources

- 1 **Server** virtualisation enables each physical server to run multiple virtual servers based on demand and capacity. To the users, virtual servers work like a physical server so that it can run with its own operating environment and application on any designated physical server.
- 2 **Storage** virtualisation enables data on different disk arrays to be viewed as a single pool of information to be accessed by a virtualised server farm.
 - Allocating storage resources can be done on the basis of what is used up to any maximum limit set for a user or application. This delivers data services transparently whilst using the available resources very effectively.
- 3 **Desktop** virtualisation enables the deployment of standard desktop images on every PC, to deliver a consistent user experience that is easy to manage and fast to deploy. The virtual machines can be maintained centrally and accessed from a personal computer, thin PC or thin client.
- 4 **Application** virtualisation enables core business applications to be centralised in a server farm. This ensures that there is a continuous high level of service delivered from the appropriate system resources.
- 5 **Network** virtualisation optimises network bandwidth so that the interaction between servers, their storage and clients can be managed without the limitations of physical connections for each, and every device. With virtualised servers in the data centre, the management and cabling is significantly simplified.



The wider benefits of virtualisation

The successful implementation of a virtualisation solution can deliver a wide range of business benefits to an organisation, including:

- Keeping business fully operational
- Contributing to environmental policies
- Simplifying the decision process
- Saving in acquisition and operational costs

Keeping business fully operational

Losing a service, for whatever period, one minute or one day, leads to loss of business or increased costs. Corporations are looking to protect against application failures and catastrophic situations.

In a virtualised world, the application can be reassigned to another server on the same site or a remote site. Information can be accessed immediately; the network manages the re-routing, all in fractions of a second. This can be achieved in the virtual architecture without loss of transactions, keeping systems continuously operational.

Rebuilding the systems can be a simple or a challenging task, depending on the application of these new technologies. Options that can be considered are:

- Rebuilding applications in another virtual server environment or on a single server. The ability to transition between physical and virtual environments is important to deliver services continuously, especially when the unexpected has occurred.
- If users lose their personal computers or need to access their systems from new or guest terminals, desktop virtualisation can build and verify the users' access rights. Once the system has automatically assessed the situation, the user will be given full or partial rights to access the system and transact their necessary activities.
- The tools are available to build a completely new virtual data centre when the new system components are switched on. This capability makes operations and management of virtual systems easy to implement.

Service levels can be maintained with no loss of data

With virtualised servers, the application can be reassigned to another server, the data can be accessed immediately

Virtualisation can rebuild systems automatically in a physical or virtual environment if there has been a system failure



Contributing to environmental policies

Consolidating system resources with virtualisation leads to lower power and cooling costs, contributing to environmental savings

All organisations have to demonstrate their awareness and contribution to 'green' issues. Use of power, disposal of electronic and other goods, emissions into the atmosphere all come into play. Power and cooling costs, across the lifecycle of servers and storage, are equivalent to the purchase price of the equipment. With increasing energy costs, the costs of power and cooling are expected to rise over the next 5 years.

Consolidating system resources by introducing virtualisation will make a significant contribution to the environmental credentials of running systems, in the data centre and within offices. The reduction in servers and disk arrays leads to a decrease in power and cooling needs and costs.

The investment in virtualisation will enable IT to demonstrate that the evolving system infrastructure is making a contribution to reducing the organisation's carbon footprint.

Simplifying the decision process

- **Simplify decisions**
- **Simplify management**
- **Manage mobile users**
- **Deliver trusted IT services**

Consolidating the system architecture to its most necessary components will inevitably deliver simplification. System management is reinforced, with the virtualised architecture automating the management tasks to deliver a resilient system architecture with assured service levels.

Managing the growth of mobile users, in a secure environment, is a real benefit of virtualisation. Keeping the users' personalities and control over their stored data reinforces the need for information governance.

This all contributes to focusing business decisions on improving return on investment and operational practices to delivering a flexible and responsive IT infrastructure.



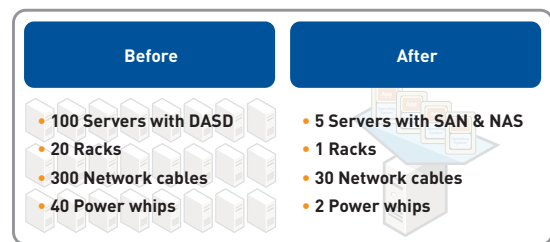
Saving in acquisition and operational costs

There is an inevitable investment in virtualisation. The impact of the solutions is such that the reduction in physical servers and disk arrays, the simplification of the cabling and the centralised management of desktops can demonstrate an attractive return on investment.

Virtualise and consolidate system resources to save money and deliver improved ROI

This return on investment can be measured in the:

- Acquisition of fewer new resources requiring a smaller footprint, delivering more cost effective power and cooling requirements
- Lower operational costs, with simplified and automated management policies
- Reduction in software licences
- Better utilisation of server, storage and network resources
- Continuous availability of the system, improving staff productivity and minimising risk to the business



Example of Server, Storage and Network Consolidation

The next steps

Implementing virtualisation is a journey. Addressing the consolidation and management issues at every level of the system architecture will be completed step by step. At every stage, the resources will be better utilised, the service levels will be maintained, flexibility will be built in with a simple management interface and there will be a reduction in complexity.

Realising the benefits to be delivered needs an understanding of the requirements and partnership with a supplier that can set out a clear route forward. Working with ITPS will enable you to:

- Prioritise the opportunities that can be addressed
- Identify the best virtualisation solutions with which to embark on the journey to virtualise the system architecture

5 levels of virtualisation:

- Desktop
- Application
- Server
- Storage
- Network



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About ITPS

ITPS deliver a cost effective range of IT solutions and support services to over 300 business customers.

Our services include: Virtualisation, System Analysis, Network Design, Development and Implementation, Green IT, Hosting, Data Security, Managed Services and Outsourcing, Telephony and Disaster Recovery and Business Continuity.

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