# System 800xA Virtualization
## Maximize your systems availability



### System 800xA and world-leading VMware vSphere ESXi technology - better together

Virtualization has been very successful in the IT-world where it has helped reduce the footprint and cost of ownership of large server farms. Today, virtualization technologies are bringing a similar value proposition to industrial automation applications by simplifying how the automation system infrastructures, i.e. servers, switches, etc…, are installed, managed and maintained.

In addition to footprint reduction, virtualized solutions can reduce life cycle costs, increase availability, provide improved disaster recovery schemes, and reduce maintenance efforts.

### What is virtualization?

Virtualization is a technology that enables running multiple MS Windows operating systems inside virtual machines on one physical computer called a 'host'. Each virtual machine is provided with a CPU, RAM, hard-disks and network adapters that are connected to virtual switches. The virtual switches provide connectivity between the virtual machines and the physical network.

### Virtualization features

– **Full support for virtualization**
  All 800xA nodes are supported for virtualization.
– **Lower lifecycle costs**
  Virtualization allows you to have independent hardware lifecycles with respect to your software lifecycles (OS).
– **Maintenace benefits**
  Hardware independence reduces problems moving to new hardware.
– **Management benefits**
  Servers are centrally controlled and monitored through the vSphere Client.
– **Upgrade benefits**
  Run and review upgraded systems offline before placing online.
– **Total cost of ownership (TCO) benefits**
  Consolidate aging hardware and reduce energy requirements.
– **Increased flexibility**
  Adding additional nodes no longer requires long time and high costs.

ABB

# World-leading enterprise virtualization technology

## System 800xA Virtualization solutions

System 800xA Servers and Operator Workplaces can be deployed as virtual machines enabling end users to realize the multiple benefits that virtualization can bring. ABB has successfully installed hundreds of virtualized systems around the world.

The technology used by ABB is VMware vSphere ESXi. This is the IT trusted production ready environment for virtualization. VMware is the market leader in virtualization and is used in most of the world's virtualized computer systems.

## Benefits of virtualized System 800xA solutions

– Reduced energy consumtion
– Independent hardware lifecycles with respect to your software lifecycles (OS)
– Reduced Mean-Time-To-Repair (MTTR) in case of host server failures
– Centralized maintenance of your virtualized automation infrastructure including servers, switches, etc...
– Easier execution of new projects by being able to decouple project tasks and milestones
– Allows implementation of faster and more reliable disaster recovery schemes

## Management and maintenance benefits

Virtualization greatly simplifies server management. Maintaining all the spare parts needed is a major task in itself. Virtualization cuts this dramatically.
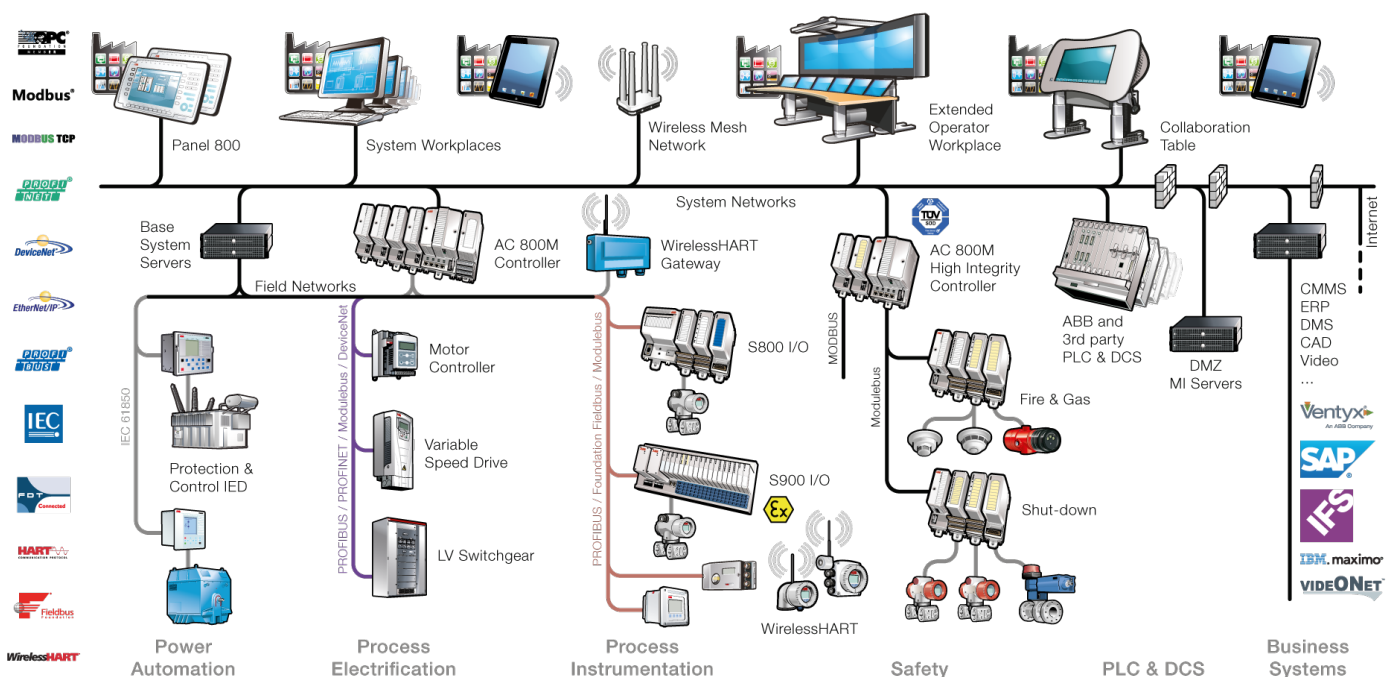
Less hardware variations and configurations result in easier manageability. Virtualization presents one standard hardware type to all of the virtualized servers. One software tool manages all relevant parts, including network devices and connections. Everything is in the same place in the computer.

You can easily add additional servers and migrate to new hardware without reinstalling.
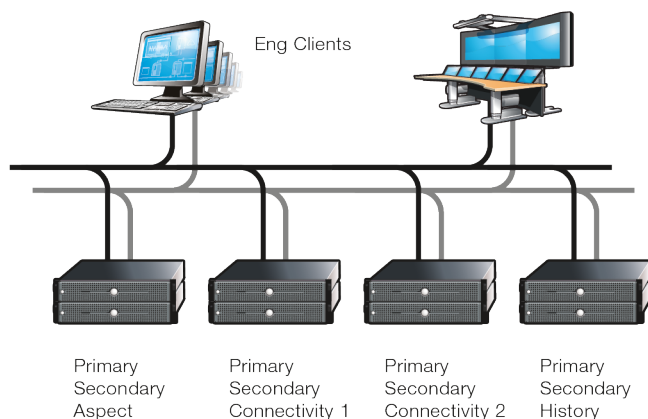
This simplified server administration gives a far better overview and control of the computing environment. Issues that could affect production can be identified quicker and remedied faster.

With virtualization, the IT and Production departments can utilize the same type of computing environment and benefit from shared skills and resources. This makes more harmonized use of in-house computing skills.

**System 800xA configuration**

**Before, 8 physical servers**

Eng Clients

Primary
Secondary
Aspect

Primary
Secondary
Connectivity 1

Primary
Secondary
Connectivity 2

Primary
Secondary
History

**Virtualization with 2 servers**

Primary
ESX Server

Secondary
ESX Server

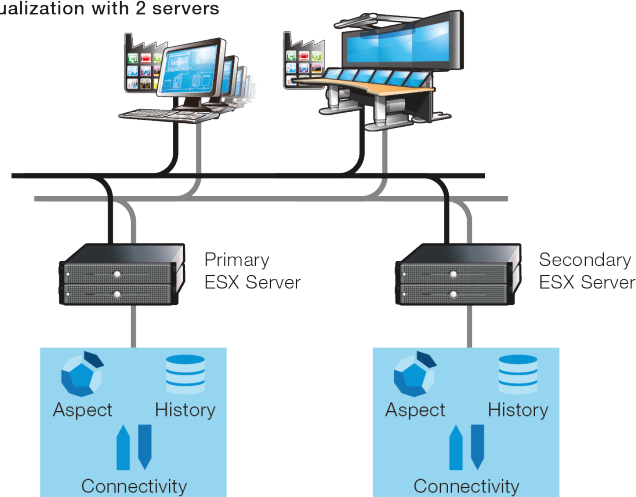Aspect   History

Connectivity

Aspect   History

Connectivity

**Illustration of a virtualization use case.**

You can enjoy all of these management benefits with the same high-level performance as before. Moreover, virtualization makes it easier to introduce new server technologies, thus providing a further boost to system performance.

System security is also handled in the conventional way, but once again virtualization offers improvement opportunities.

For example, VMware vSphere ESXi provides additional security permission controls that reduce the potential interference of the virtual machines.

### Smoother installation and upgrades
The simplicity and flexibility of a virtualized computer system brings further benefits when installing and configuring new software. Upgrade is facilitated. The complete upgraded system can be set-up, tested and started in parallel with the running version, which reduces upgrade costs and shortens production downtime.

With virtualization in place, System 800xA can take advantage of new features and improvements easier than before.

Virtual machines also make it easy to copy a server for training. Training on a copy of the production system improves safety and helps raise competence levels. It is also an excellent way of verifying that you have a complete back-up of the running system should the need arise.

### Recovery made easy
Failure of a server is never welcomed but with virtualization, this is no longer a major issue. In a hardware set up the hardware type has to be the same or similar, while in a virtualized set up the hardware type is independent of the virtual machines and the 800xA software. If not, you could face a very costly, step-by-step installation to start it up again.

With the hardware independence that virtualization provides system recovery may be achieved with faster response time, the virtual machine backups can be started on an available ESXi server, or automatically restarted when implemented in a high availability virtual environment.

A virtualized server environment makes maintaining your system much easier.

# Contact us

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