

STRATUS FTSERVER® AND WONDERWARE

Low Cost of Ownership in Manufacturing Environments with Simplified Virtualization



Virtualization has become standard practice in organizations of all types and

sizes around the world due to the advantages it offers, such as agility, efficiency, and scalability compared to traditional physical infrastructures. In manufacturing environments, however, additional considerations must be made when virtualizing real-time manufacturing systems. Issues such as system performance, expected lifecycle, network and bandwidth considerations, long-term cost of ownership, supportability, availability and reliability become critical to these applications.

Manufacturing Operations are highly dependent on these industrial automation systems to be able to reliably produce product and ensure quality. Operations are also typically responsible for using, maintaining, and managing these environments. These applications, besides generating huge volumes of true real-time data, need to be very responsive to react to users and machinery accordingly. As a result, manufacturing systems:

- Need to be highly available, reliable and easily maintained
- Cannot have unexpected/unplanned downtime
- Cannot be managed with the same policies, procedures and techniques as business systems
- Cannot be hosted in a corporate data center

Simplicity vs. Complexity

SAN Based Cluster

- Highly complex
- Expensive
- Specialized IT resources
- Downtime and failover must be tolerated

Stratus ftServer®

- Simple to run and maintain
- Supportable by any technical resource
- Perfect to protect VMware and Hyper-V environments
- Fault-tolerant out-of-the-box

Because these systems must run locally at each plant, the solutions must be simple enough to be managed with existing plant resources. Typically local resources do not have deep knowledge about virtualized environments built on complex SAN-based clusters. A solution that is easy to use and maintain has become a necessity for plant information systems.

Virtualization is game changing technology, but once you virtualize multiple critical plant floor applications onto a single server, any hardware issues you have will take down every application on that server. Hyper V and VMWare typically leverage clustering (SAN based) technology to establish a High Availability (HA) environment to protect against these types of catastrophic failures. However, clustering does come with significant issues.

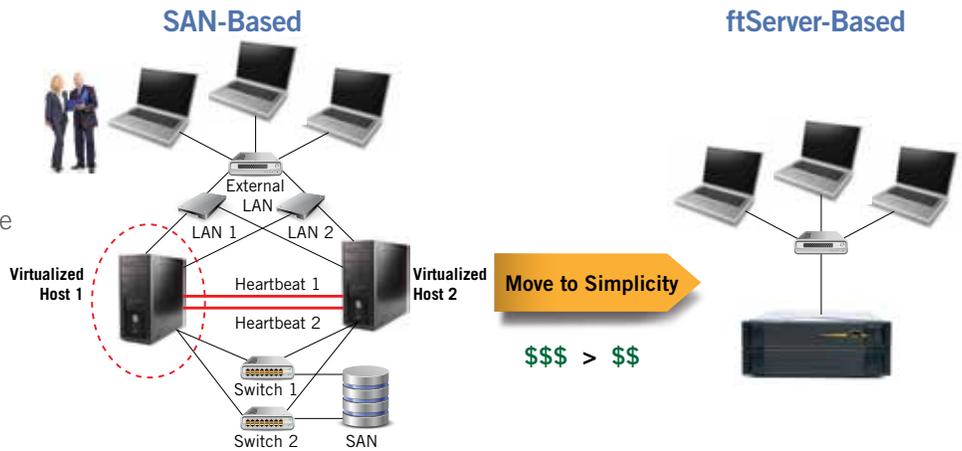


For an **Always-On** World

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SAN-Based Clustered Environments:

- Are expensive, highly complex, and difficult to maintain
- May not be suitable for management by typical plant personnel and require specialized IT resources
- Don't offer complete availability and outage protection



	Stratus ftServer	Microsoft Hyper-V Cluster	VMware HA Cluster
Availability Philosophy	Failure Prevention	Quick Reaction and Recovery	Quick Reaction and Recovery
Zero Failure Detection Time after Outage	Yes	No	No
Zero In-Flight Data Loss after Outage	Yes	No	No
Zero Application Restart Time after Outage	Yes	No	No
Zero Impact of Transient Errors	Yes	No	No
Virtualization Delivery Platform	Purpose-built server	Off-the-shelf servers	Off-the-shelf servers
Potential Points of Hardware Failure	None	Numerous	Numerous
Configuration Requirements	Single Footprint	Multiple Components	Multiple Components
Number of Servers Required	1	2	2
Connection to Shared External Storage	Not Required	Required	Required
OS/Virtualization Licenses Required	Single	Duplicate	Duplicate
Support Philosophy	Automated problem identification & resolution	Remote diagnostics + on-site service personnel	Remote diagnostics + on-site service personnel
Problem Resolution	Stratus owned	May require input from multiple vendors	May require input from multiple vendors
Impact on Customer Operations	None – utilizes on-line customer replaceable units	Potentially time consuming and intrusive	Potentially time consuming and intrusive
Overnight Parts Replacement	Yes	Varies	Varies
System Management Effort	Single Environment	2X Environment	2X Environment
Management Skills Required	Familiarity with Server, OS, and Virtualization Layer	Familiarity with Server, OS, and Virtualization Layer + Storage & Connectivity options (if implemented)	Familiarity with Server, OS, and Virtualization Layer + Storage & Connectivity options (if implemented) + ancillary VMware products

Stratus ftServers provide the ultimate availability protection for VMWare and Hyper-V environments, and can be managed and maintained with basic technical resources found at any plant. No other solution offers as simple and effective a strategy as Stratus.

You cannot protect your software with a single Dell or HP server and some redundant power supplies. Any hardware issue will disrupt your applications and production. Clusters are expensive, complex, and extremely difficult to manage from plant to plant. Only Stratus offers a complete, simple, out-of-the-box solution for fault tolerance that any technical resource can easily manage.

About Stratus

Stratus keeps all your Manufacturing applications up and running 24/7/365, enabling you to meet your production, revenue and quality goals. We offer a range of flexible high availability solutions that are easy to deploy and manage, and backed by a support structure with a 30-year track record of success. Most important, we've partnered with leading industrial application companies — including Wonderware and others — to ensure you get an always-on solution tailored to your specific business needs. Together, we have thousands of implementations in major industrial sectors such as pharmaceuticals, power and energy, water management, food and beverage, oil and gas, chemicals, consumer goods, automotive, and more. To learn more, visit stratus.com or contact Wonderware North at 877-900-4996.