

# Placing the Workload of an Entire Enterprise on Fewer Servers Requires Elevated System Resiliency

By Bill Hammond

Server consolidation will be a top priority for many IT departments in the coming year. In a recent research study conducted by Gartner Group, 61% of the companies polled were already paring their server count, and 28% were planning to do so in the near future.

The backstory on consolidation is interesting. Life often smacks of irony and the renewed interest in centralization is certainly ironic. Starting with IBMs 1400 series machines in 1960, mainstream

computing topologies were centralized. When Datapoint launched the minicomputer it dubbed ARC (Attached Resource Computer) in 1977, a significant new computing paradigm emerged. On paper, this new decentralized computing model allowed organizations to continue to extract value from early investments in hardware and software by enabling them to simply add needed resources to their existing network of systems. Compared to scrapping a reasonably good mainframe or minicomputer whenever capacity restrictions called for such action, incremental and relatively inexpensive enhancements can be made in the form of memory and disk.

Over time, server decentralization has mutated into server sprawl. Under utilized computer hardware litters the floor of the enterprise like mercury from a broken thermometer, and large numbers of technicians are needed to maintain all of these systems. Erosion to profit also comes from unused and under used software licenses. And, going one step further in the opposite direction of simplicity, rogue departments have been known to take it upon themselves to select and implement their own software and only later call on IT to sort out the problems. These factors and others have pushed the argument in favor of centralization past the tipping point.

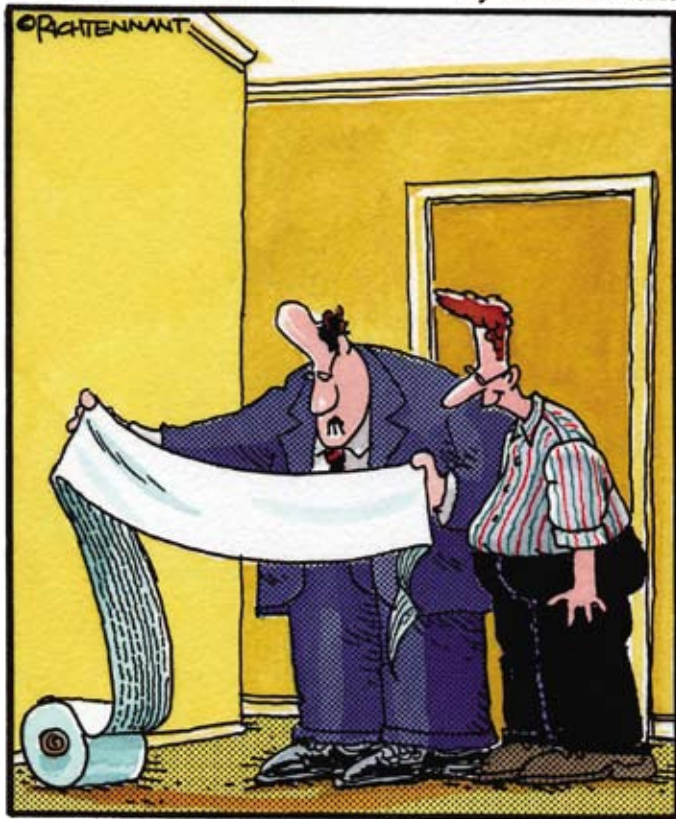
Organizations are now striving to become lean and green, and derive maximum value from their investments in technology, manpower, and energy. Reducing server counts by consolidating user workloads onto fewer systems is swiftly becoming a top-down driven priority for many organizations.

Virtualization is a key component to the consolidation movement and the System i has been poised to handle virtualization for years. Logical partitions (LPARS) were introduced to the System i landscape ten years ago—well in advance of the present partitioning movement. LPARS support fully dynamic logical partitioning (virtualization) and the ability to divide a single processor into multiple partitions, making possible the existence of multiple images of i5/OS, Linux, and AIX to exist on one System i server. New BladeCenter options extend support even further to Windows XP and Vista. The upside is a fully integrated application environment.

Transitioning to a centralized environment that supports virtual machines is a big undertaking and requires that systems be unavailable for several hours in best case situations, or several days in more complicated ones.

## The 5th Wave

By Rich Tennant



"Slackware does a lot of great things, I'm just not sure running a word processing program sideways without line breaks on butcher's paper is one of them."

## A Single Point of Failure

When the whole of your business runs on one or two systems, a hardware, software, or network failure that results in downtime has a much greater impact on the enterprise. In distributed topologies, a single failed system out of several is certainly going to hurt, but it will only impact the segment of the business it serves.

To enjoy the benefits of server consolidation and minimize the shock of planned and unplanned downtime organizations can deploy a high availability solution to protect hard and soft assets. Versus tape backups, vaulting, and hot site backups, recovery is almost immediate in instances where high availability is deployed, a consideration that is very important in situations where 24/7 access is necessary, or when web-based market-facing access is supported. Sometimes you can use one of your decommissioned servers and the data center it resides in as your HA backup server and disaster recovery site.

A high availability configuration also allows a consolidated computing environment to be established without interrupting business by switching system users from the primary production system to the backup. Application availability is maintained throughout the reengineering process, for the exception of an interval of roughly 20 to 40 minutes which can be scheduled over a weekend or holiday. Even more value can be derived from the HA tool because it can be used in the consolidation process as the data transfer agent, replicating data from multiple distributed servers back to the consolidation point. In contrast, tapes that are traditionally used to perform this critical step can fail during the restore process because of normal wear, accidental damage, or environmental issues.

## Seeking Balance

Finally, workload management is a key facet to maintaining acceptable response times in a consolidated computing environment. When the work of eight servers is performed by one or two, for example, acceptable response times can be tough to deliver. And if the server is accessible to large groups of users over the Web, demand can be unpredictable.

Automatic load balancing features are available in some high availability solutions. While load balancing is not very complicated in instances where users have read only access, read/write servers are trickier because of contention issues. High availability tools can be well suited to accommodate positive synchronization between primary and backup servers and bypass these problems.

A robust high availability solution will require some additional investment, but the benefits of using HA in conjunction with consolidation/virtualization can be easily justified by the value of providing a simplified transition path, and markedly shorter recovery times.

Vaughn Dragland



With a capacity of up to 80 logical partitions, 256 GB of memory, and 30.6 TB of disk — the IBM Power 550 is a server consolidation workhorse.

**Bill Hammond** directs Vision Solutions' product marketing efforts for information availability software solutions. Hammond joined Vision Solutions in 2003 with over 15 years of experience in product marketing, product management and product development roles in the technology industry.

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