

## When Failure is NOT an Option

Each week during the academic year, the Michigan High School Athletic Association (MHSAA) receives thousands of scores, statistics and results for competitions across the state. Add scheduling for about 3,000 referees, hundreds of coach and student associations, staff administration, and you have no margin for error for your network infrastructure.

Then on a Friday in May 2009, the unthinkable happened: a power backup unit failed, bringing down their servers. To get the data restored in a hurry, MHSAA turned to NuWave Technology Partners. “Our NuWave support specialist was on-site within 45 minutes to help get our systems back online,” said Jordan Cobb, assistant director of Information Systems for MHSAA. “You don’t usually expect that kind of quick action at 10 pm on a Friday.”

By the time the servers were completely restored on Saturday morning, the IT department was left with one inescapable conclusion: they needed to add server capability—cost-effectively—to ensure they would never face this problem again. When it came to their network infrastructure, failure was not an option.

Most organizations the size of MHSAA need several servers to host applications, store databases, manage mail servers, test applications, and host Web sites. To reliably maintain this technology platform, MHSAA needed eight servers for hosting and backup infrastructure. Even for a mid-sized not-for-profit organization this represented a sizable investment in server hardware, and a significant ongoing expense for power, cooling and maintenance.

MHSAA’s primary goal in upgrading their server infrastructure was to add the capacity for real-time redundant backups, thus eliminating or minimizing downtime in the event of a server crash. However, in discussion with NuWave, they soon realized they could achieve much more. With the right hardware, they could increase capacity, while reducing their environmental impact and hardware costs.

To achieve these objectives, MHSAA turned to server virtualization to make the most of their existing infrastructure. As the name implies, server virtualization allows a single, powerful server to mimic several servers; each can host a variety of operating systems (Windows Servers, Linux, etc),

Microsoft Exchange servers, SQL servers and Web hosting.

The NuWave engineering team and MHSAA’s IT managers designed a clustered-server environment that would consolidate the organization’s entire production platform into two virtualized servers deploying the following technologies:

- Microsoft Clustering on Windows Server 2008: Provided real-time backups to keep systems running with little to no downtime.
- Microsoft Hyper-V 2008: Virtualizes servers (at the kernel layer) partitioning a single physical server into multiple small computational partitions.
- Microsoft Data Protection Manager 2007: Disk-to-disk and continuous data protection for reliable tape recovery.
- PowerVault MD3000i Storage Area Network (SAN): Enables virtualization on up to 16 attached servers.

“Our IT department had the expertise to implement a virtualized server environment, but it is the type of project we might do twice a decade. NuWave does it every day and they can anticipate problems or issues,” said Cobb.

“When you have so much riding on your systems, and no room for mistakes, you turn to the experts.”

A final benefit of MHSAA’s IT strategy was its contribution to their overall disaster plan.

With Microsoft’s Data Protection Manager, they also received full tape recovery for their servers.

If the failure of a backup power unit can cause such problems, they feared the impact of a large-scale catastrophe or crisis.

“You don’t buy insurance because you plan to get in a car accident; you buy it in case you do,” said Cobb. “When so many young people depend on your data infrastructure, you have to plan accordingly.”



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### CHALLENGE

Create a server environment that maximizes system capabilities and the use of resources, reduces the environmental footprint, and ensures real-time backup.

### SOLUTION

Consolidate the server production to two virtualized servers, and redeploy the newest existing servers for redundant backup and application testing.



### BENEFITS OF VIRTUALIZATION

- High availability: Simplified clustering support using Hyper-V and Server 2008
- Server capacity: Increase utilization of server’s capacity and capabilities
- Energy consumption: Reduce energy usage and cooling demands.
- Maximize existing infrastructure: Redeploy existing servers for testing or backup.
- IT Staffing: Reduce IT administrative resources.
- Cost reduction: Minimizes future hardware purchases.

### ABOUT MHSAA

MHSAA is a private, not-for-profit corporation of over 1,600 public and private senior high schools and junior high/middle schools.

- MHSAA tournaments attract approximately 1.6 million spectators each year
- Provides services in 28 sport activities including football, basketball, track and baseball.
- Support more than 110 separate tournaments awarding championship trophies.
- More than 300,000 young men and women participate in MHSAA event each year.

### About Server Virtualization

#### Backup Server

Databases (SQL)  
Web Hosting  
Mail Servers  
Application hosting

#### Production Environment

Virtualized Server I      Virtualized Server II