



CASE STUDY | Barren County Schools Storage Virtualization Software

Overview

Barren County Schools, a school system in Glasgow, Kentucky that comprises a high school, a middle school and seven elementary schools, among other entities, has deployed DataCore's SANmelody storage virtualization solution to serve as the cornerstone of its entire virtual infrastructure. DataCore SANmelody works in tandem with Xiotech and VMware vSphere 4 in this total enterprise virtualization deployment.

"The biggest benefit for us was realizing a virtualized data infrastructure," stated Steve Gumm, IT director, Barren County Schools. "Because we adopted storage virtualization, we now have a front-end piece whereby we can deploy any hardware behind it that we want. We can bring in an additional SAN if we want – whatever vendor we choose – and still use the DataCore product. We can just fold those SANs into our infrastructure and it would be seamless to the end user. Beyond this – with DataCore we were able to repurpose old equipment."

Uptime, Flexibility and Seamless Maintenance Win the Day for DataCore Software; SANmelody Now Supports Entire Virtual Infrastructure for Barren County Schools.

The Drive to Embrace Server Virtualization Leads to an Appreciation for Storage Virtualization for the Same Reasons

Barren County Schools' interest in DataCore started with a simple, short-term need. The IT department for the county school system thought it needed more "one-off servers" – according to Steve Gumm, IT director, Barren County Schools. Rather than adding to its existing server sprawl, this situation prompted the IT team to look more closely at virtualization.

"In addition to needing to get more out of our existing servers, we had a need for increased uptime," added Gumm. "We also wanted more flexibility in terms of managing our server environment so that if we needed to do maintenance, we could do maintenance at any time."

The team chose VMware vSphere on the virtual server-side. "We chose VMware because it was the only solution we saw that offered clustering," noted Gumm. To support the virtual machines (VMs), the IT team looked at various SAN solutions on the market to be deployed as a backbone for its virtual infrastructure, supporting the VMware server virtualization software. According to Gumm, "We had looked into a couple of different SAN solutions. We already had an EMC SAN. But we also looked at the DELL EqualLogic solution – and did not like some of the features that were brought to the table, particularly in terms of failover."

Complete Virtualization Environment Based on DataCore, Xiotech and VMware vSphere 4

“For all intents and purposes, we are 100% virtual,” commented Gumm. Barren County Schools has two data centers – one primary and one secondary. VMware vSphere is currently running on two, new PowerEdge servers. The Xiotech storage arrays are in both data center locations – the primary one and the “offsite,” or secondary, data center. The two locations contain a similar, mirrored, environment which includes two DELL vSphere servers and a Xiotech array which are attached to the SANmelody SAN server. To get to this, Barren County Schools migrated everything it had on an existing EMC SAN to the DataCore and Xiotech based SAN in a live environment using SANmelody to do so. The IT team mapped LUNs from the old SAN to the new SAN and while in production migrated all of the data to the new location.

Enter DataCore SANmelody – Providing V-Power to any Storage System

DataCore partner The Mirazon Group demonstrated DataCore’s SANmelody to Gumm and his team – highlighting its key features. “What was particularly relevant to Barren County Schools was exactly what makes DataCore storage virtualization a ‘pure’ virtualization solution – and that is portability,” explained Craig Stein, systems architect, The Mirazon Group. “What I mean by that is that with SANmelody, users can deploy it as a front-end to any back-end hardware SAN that they choose – thereby virtualizing the data storage.

It was this flexibility that was most appealing to the IT team at Barren County Schools. Of equal importance was the fact that with DataCore, the customer owns the software. It does not get thrown out with the next generation of the hardware it is tied to – like some solutions. On the contrary, users can swap out newer hardware whenever they want. When decision time came, it was clear to Barren County’s IT team that this flexibility/portability characteristic gave them a vital piece of the virtualization puzzle.

In the end, DataCore SANmelody was paired with Xiotech hardware because it did bring “so much to the table,” according to Gumm. Among the features he highlights as “hard to pass up” are the ability to thin-provision clients, the ability to migrate data seamlessly to users, and the ability to do upgrades to the school system’s SAN infrastructure (the data structure) without truly having to do a forklift upgrade.

“The proof in this instance is in the pudding,” explained Gumm. “This is not one of those products where we were sold more than we bought. With DataCore SANmelody, we bought more than we were sold. We are getting far more out of it than I thought we would, which is a wonderful thing.”

The IT Landscape – Total Virtualization

The IT infrastructure that supports Barren County Schools went from 30 physical servers to four (4) physical servers running 30 VMs. Two DataCore SANmelody SANs each now run on DELL 2850 servers that became available from being decommissioned during the drive to virtualize. Gumm and his team upped the RAM on those and since doing so have been “thrilled” with how they perform. If, however, these servers start underperforming, he is prepared to simply swap them for new servers to increase the I/O capacity. The data pool SANmelody is responsible for managing and keeping highly available is currently 16 TBs.

The SANmelody nodes are on separate power grids, albeit on the same campus – separated by about half a mile, each in climate-controlled rooms. “Today, the piece of the puzzle we have been most pleased with is the DataCore piece,” commented Gumm. “DataCore support is just rock-solid.”

In terms of the backend pieces making up the IT landscape, Barren County Schools has an SQL server, a MySQL server, a web server, a file and print server, several application servers, along with a myriad of other one-off applications the system supports.

“In a K-12 setting, if the school districts are not looking at virtualization, they are cutting their legs out from under themselves.”

- Steve Gumm, IT Director at Barren County Schools



For more information on storage virtualization, please visit:
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Serving a Large User Community

The virtual storage serves a user community of 5,500 users – comprising 4,800 students and 700 faculty members. The system supports all the schools in the county – or school district, which in this case consist of one high school, one middle school and seven elementary schools. The virtualized IT system also supports several sub-sites such as a bus garage, an annex, the school board office, and a day treatment facility.

Without the IT infrastructure working smoothly, faculty cannot access the Internet, school officials cannot use applications they need to run the school system, kids cannot check out books because the library automation system would not work, students cannot get their email, practice tests cannot be administered since testing software runs on the system, and students cannot even pay for their lunch. Moreover, each school has a financial application that is run off of this virtualized IT environment, known as STI Bookkeeper. Something that might not be considered mission-critical – but certainly is in a K-12 setting – is the Internet streaming server. This resides on the system as well. Students will download video clips and then pull these video clips as needed, which reside on the streaming server.

Bottom-line: Meeting the Objectives of a School District

“In a K-12 setting, if the school districts are not looking at virtualization, they are cutting their legs out from under themselves,” summarized Gumm. “The funding sources available for all of us are drying up. So being able to virtualize your SAN, your servers, and putting the dollars you do have in the back-end piece so that you can add as many servers as you want to – is the right way to go. Those districts that don’t will continue to put money into servers that run at five percent. And without virtualization, they will continue to only get five percent utilization out of those servers.”

Putting in a virtual infrastructure without a virtual SAN solution as well only gives you half the benefit of virtualization. The IT team at Barren County Schools has seen firsthand that the virtualization of the data pool is not to be overlooked. In order to get the most out of any virtualization deployment, users have to do both – servers and storage. “To get the full benefit of virtualization, you have to do both – your servers and your data,” concluded Gumm.

