



# University of Missouri

## University boosts campus communication with EMC solutions for Microsoft Exchange

### SOLUTION SNAPSHOT

- **EMC solutions:** EMC CLARiiON CX storage, EMC Replication Manager, EMC SnapView, and EMC SAN Copy software
- **EMC services:** EMC Microsoft Practice pre-sales consulting for migration to Microsoft Exchange 2007
- **Primary applications:** Microsoft Exchange 2003
- **Processing environment:** Microsoft Windows Dell servers
- **Overall EMC environment:** In addition to EMC solutions for Exchange, the University of Missouri's 200-terabyte EMC information infrastructure includes a third EMC CLARiiON CX system, EMC Centera® content-addressed storage, EMC Symmetrix® DMX™ storage, and EMC Celerra® network-attached storage (NAS); and supports a range of other applications, including agricultural research, PeopleSoft, file serving, Microsoft SQL Server for instant messaging, cardiology, and radiology imaging.

### BUSINESS VALUE HIGHLIGHTS

**Profile:** The University of Missouri is one of the nation's largest higher education institutions, with more than 63,000 students on four campuses and an extension program with activities in every county of the state.

**Industry:** Education

**Challenge:** The University's Exchange infrastructure could no longer keep up with the increasing number of both users and large files shared on e-mail, resulting in frustrated users, sluggish application performance, and burdensome IT processes for backup.

#### Benefits:

- Reduce time to back up Microsoft Exchange from four hours to 90 minutes despite quadrupling the amount of data being backed up
- Increase mailbox quotas for employees by 500 percent and for students by 100 percent
- Accelerate recovery of Microsoft Exchange from hours to minutes
- Build a foundation for a smooth transition to Exchange 2007 that will not require re-architecting the information infrastructure

### Business overview

As one of the nation's largest and most prestigious public research universities, the University of Missouri provides a vibrant learning environment that includes extensive online communication and collaboration utilizing the Microsoft Exchange e-mail solution. With more than 50,000 students, faculty, researchers, and administrators at its largest campus sharing increasing volumes of information every day, the University's information infrastructure was straining under the pressure.

### Challenges

The limited mailbox capacity allocated to e-mail users was quickly filling up, dragging down productivity and slowing application performance. And the University's IT staff was also affected, swamped by lengthy backup processes and service issues.

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## EMC solution

To enable greater collaboration and alleviate the strain on IT, the University of Missouri implemented an upgraded EMC® information infrastructure based on expert guidance provided by EMC Microsoft Practice consultants. With the new EMC solution, the University has increased Microsoft Exchange 2003 mailbox quotas dramatically, while slashing backup time by over 60 percent, even as the volume of data being backed up has quadrupled. What's more, the University now has a system configuration that will continue to support its information needs as it migrates to Exchange 2007 over the coming year.

“There are a number of new capabilities in Exchange 2007 that will enhance our backup and disaster recovery strategies. We are still evaluating which features of Exchange 2007 we will adopt, but because of the advance planning we did with EMC Microsoft Practice, we're confident that our current EMC solution will enable a smooth transition. Sophisticated support for Exchange 2007 is already built into the EMC systems, which will enable us to focus on optimizing Exchange services with no need to re-architect our storage infrastructure.”

**Randy Wiemer, Associate Director of IT, University of Missouri**

Randy Wiemer, Associate Director of IT, said, “E-mail plays a central role in University life today with students and employees relying heavily on it for everything from distributing class assignments to researching and collaborating on projects to conducting the everyday business of running the University. It's not unusual today for the number of concurrent users of Exchange e-mail to frequently exceed 15,000, an increase of nearly 50 percent from what we experienced only a few years ago. And the size of each e-mail message has also grown tremendously because people are sharing large PowerPoint files, Excel spreadsheets, and even videos.

“By deploying EMC, though, we've been able to handle the load by increasing the size of employee mailboxes by 500 percent and doubling the size of student mailboxes. This allows our users to experience faster, more reliable access to their e-mail. And with EMC software, we've automated critical administrative functions, such as backup, enabling us to manage four times as much storage capacity for Exchange without increasing our storage administration staff.”

## EMC's Microsoft experts guide Exchange 2007 strategy

In planning a strategy for upgrading the information infrastructure supporting its Exchange environment, the University had to consider the impact that migrating to Exchange 2007 might have on the infrastructure. Making the right architectural choices was critical to avoiding costly changes down the road. So, Wiemer and his team consulted with the EMC Microsoft Practice experts from EMC Global Services.

“We were impressed with the Exchange 2007 expertise that EMC Microsoft Practice consultants brought to the discussion,” noted Wiemer. “They provided us with valuable insights into the new features and helped us understand how to address critical issues such as I/O, dynamic disk, and recovery. These were insights we would not have gotten on our own, and really guided us in making critical design decisions. As a result, we now have a solution that solved our immediate e-mail needs and will protect our investments when we migrate to Exchange 2007.”

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## EMC software for Exchange slashes backup time by over 60 percent

Today, the University of Missouri relies on next-generation EMC software and storage to run its Exchange e-mail. Employing an information lifecycle management (ILM) strategy, the University uses EMC software to automate the capture and movement of Exchange data across storage tiers—optimizing capacity utilization and I/O, accelerating backup and recovery, and lowering storage administration costs.

“EMC continues to demonstrate leadership in supporting Exchange and is out in front when it comes to providing software and storage to manage demanding communications and collaboration environments like ours. Consequently, we’ve been able to get a lot of value from our investment—value that we can build on as we migrate from Exchange 2003 to Exchange 2007. Thanks to the advanced capabilities provided by EMC, we’ll be able to minimize the time and costs associated with Exchange migration and deliver the new features our users need more quickly, while ensuring high performance and strong protection.”

**Randy Wiemer, Associate Director of IT, University of Missouri**

Exchange data is stored on two EMC CLARiiON® CX networked storage systems in separate data centers, with each CLARiiON providing both production services and mutual backup. The pair of CLARiiON systems provides the critical redundancy required to maximize availability and performance for the Exchange application clusters. In addition, the University uses EMC SnapView™ software to capture point-in-time, full-copy clones of production Exchange data on CLARiiON fibre channel. EMC Replication Manager software, which is designed to tightly integrate with Microsoft Exchange, coordinates clone creation with SnapView and Microsoft Volume Shadow Copy service (VSS) to ensure a complete and consistent copy of active Exchange stores without disrupting the application. The University then uses EMC SAN Copy™ to move the clones from fibre channel disk at each data center to backup ATA disk at the opposite data center.

“One of the things that sets EMC apart from other vendors is that the software they provide is seamlessly integrated with the storage and Microsoft Exchange,” said Wiemer. “With Replication Manager, for example, we create policies that automate the entire backup process, coordinating with the CLARiiON disk, EMC’s SnapView software, and Microsoft VSS, so we don’t even have to worry about it. Replication Manager takes care of all the underlying details, which simplifies the management of backups and restores dramatically. In fact, it’s enabled us to reduce backup time from four hours to just one-and-a-half hours, even though we’re backing up nearly four times as much data.”

### Full-copy clones provide non-disruptive backup; instantaneous recovery

Another factor that distinguishes EMC is support for full-copy clones, which proved critical for the University of Missouri to maximize Exchange performance and avoid disruption to users during maintenance.

Wiemer explained, “Because Replication Manager, SnapView, and VSS work together so well to create clones, we’re able to capture full, separate copies of the production Exchange data with virtually no impact on active users. Having these full-copy clones then becomes particularly important when we back up. Since they are completely independent copies, we can move the clones without contending with the production application. So there’s no need to touch the live data, which allows us to maintain high application performance during our backup processes.”

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“The EMC software also enables virtually instantaneous recovery from the clones in the event of file corruption. And by copying the clones to each respective backup system, we have rapid disaster recovery for Exchange should an entire site be lost. That means our Exchange users can be active again in minutes rather than the hours it used to take recovering from tape.”

### **Precise capacity tuning maximizes Exchange performance**

The capabilities of CLARiiON storage also played a key role in enabling the University of Missouri to optimize its information infrastructure for Exchange. Because of the University’s high user activity and the large amount of Exchange data being managed, the storage system had to be precisely tuned to balance I/O and maximize utilization.

“EMC makes it very easy for us to manage exactly how we allocate storage, which enables us to carefully balance the workload on our systems,” said Wiemer. “It’s important for us to manage that level of detail because we’re constantly testing the limits of the hardware with the volume of Exchange activity we support. By tweaking just where we place data on the disk, we can get the most out of available capacity. It’s one of the reasons we were able to increase mailbox quotas by so much. And it’s also the key to getting the most performance possible out of the systems to satisfy the growing demands of our users around the clock.”

### **Sophisticated infrastructure meets evolving e-mail requirements**

As the University of Missouri looks ahead to adopting Exchange 2007, it now has an information infrastructure that will support the new features and capabilities from Microsoft, and continue to provide robust, efficient management of Exchange data.

“There are a number of new capabilities in Exchange 2007 that will enhance our backup and disaster recovery strategies,” suggested Wiemer. “We are still evaluating which features of Exchange 2007 we will adopt, but because of the advance planning we did with EMC Microsoft Practice, we’re confident that our current EMC solution will enable a smooth transition. Sophisticated support for Exchange 2007 is already built-in to the EMC systems, which will enable us to focus on optimizing Exchange services with no need to re-architect our storage infrastructure.

“EMC continues to demonstrate leadership in supporting Exchange and is out in front when it comes to providing software and storage to manage demanding communications and collaboration environments like ours,” concluded Wiemer. “Consequently, we’ve been able to get a lot of value from our investment—value that we can build on as we migrate from Exchange 2003 to Exchange 2007. Thanks to the advanced capabilities provided by EMC, we’ll be able to minimize the time and costs associated with Exchange migration and deliver the new features our users need more quickly, while ensuring high performance and strong protection.”



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