



Telecommunications, Media, and Entertainment Customer Profiles 2007

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Convergence of technologies and content is finally becoming a reality for the telecommunications, media, and entertainment (TME) industries, as the market transitions from traditional products and retail channels to next-generation service offerings. Many of the world's leading TME companies rely on EMC products and services to compete more effectively, improve operations, protect their data and content assets and take advantage of new service opportunities as these markets converge.

Let us help you address your top challenges with:

Value-Added Services that enable your business to compete and bridge the gap between the content and service domains with underlying, proven delivery platforms.

Digital Media Services to help you manage all aspects of the content value chain—from creation and ingestion, to aggregation, management, distribution and archiving.

Operational Excellence Services that allow you to lower operational expenditures while maintaining or expanding network service quality.

Managed IT Services for when you want to augment enterprise service offerings with data and storage services such as hosted data management, business continuity, and disaster recovery.

For more customer profiles, visit www.EMC.com.

Cherokee Nation Enterprises

Cherokee Nation Enterprises, the fastest growing gaming and entertainment company in Oklahoma, operates multiple casinos and retail establishments.

Business Challenge

To ensure systems can be seamlessly recovered in case of a natural disaster or other catastrophic data loss.

EMC Solution

An EMC Avamar data protection solution backs up data to disk and replicates that data to a remote business continuity facility.

Business Benefits

- **Fast recovery time**—Recovery time dramatically improved, shortening data restore times of a single system from 48 hours to less than 10 minutes.
- **Data protection**—By only sending new or edited data, the efficient backup system provides more complete data protection while shortening the backup window.
- **Cost savings**—Instead of stacking thousands of tapes in a storage facility, data is protected on disk, saving thousands of dollars and making data more easily accessible and reliable.



Oklahoma casinos ensure availability for customer-facing systems with EMC Avamar data protection solutions

Running a successful gaming and entertainment company means relying on repeat business and ensuring 24x7 availability of services to maximize customers' entertainment experience. Today's casino management teams are focusing more on customer service and the technology that supports customer-facing systems like card readers, player tracking, and ticketing. If these basic systems are not operational—or slow to conduct transactions—casinos run the risk of customers taking their entertainment dollars to the competition.

Cherokee Nation Enterprises (CNE), the fastest growing gaming and entertainment company in Oklahoma, operates multiple casinos and retail establishments.

Casino IT managers around the country are working to ensure non-stop uptime, data protection, and business continuity so information regarding every customer, bet, and transaction is processed, stored, and protected in case of data loss. Backup and disaster recovery also help ensure that data can be restored if necessary, mitigating the financial impact of one or more systems failing. For gamblers, downtime means not being able to use the players' club card and may impact the odds of them returning which can negatively impact the operations and reputation of the business.

At CNE, management could not depend on its existing tape backup solution to accurately back up data, nor could it reliably recover a failed server or corrupted file. If one of CNE's customer-facing systems went down, business would essentially grind to a halt, potentially costing the company tens of thousands of dollars in missed bets and causing irreversible damage to its reputation. In addition, with several casinos in "Tornado Alley," CNE's IT staff needed to ensure that its systems could be seamlessly recovered in case of a natural disaster or other catastrophic data loss.

"Tape just wasn't doing the job for us," says Todd Gourd, manager of IT systems administration. "It took nearly 30 hours to conduct a full backup, requiring massive storage and staffing resources. Our recovery time was nearly 48 hours and even then we couldn't say for sure that we could restore every file we potentially needed."

Under the old system, each of CNE's nine properties would have to conduct local backups to tape. While the backups were done automatically through auto-loaders, local IT staff was still

“The Avamar solution gives us more-effective data protection and puts us in a better position to restore lost data if necessary. In turn, we’re able to recover failed systems faster and shorten time to recovery for customer-facing services.”

Todd Gourd
Manager of IT Systems
Administration

required to monitor the cycle and troubleshoot any problems, which occurred regularly and usually required dozens of hours per month per casino. At the end of the week, the tapes were transported by car to the main data center in Catoosa where they would accumulate until another courier could drive the tapes to an offsite storage facility for archival. These tapes were susceptible to environmental changes, human error, and theft.

“With our business continuity requirements and our industry’s focus on customer service, it was evident that we needed to make a change,” says Gourd. “We needed to dramatically improve our ability to restore lost data faster and shorten our time to recovery. Our corporate goal to provide quality customer experiences depended on it.”

Migration to disk backup and disaster recovery

CNE investigated numerous backup and disaster recovery solutions and chose EMC® Avamar® data protection solutions. Through a series of algorithms, the software identifies and only backs up new or edited data, dramatically reducing the amount of raw data that has to be backed up every night.

CNE deployed an EMC Avamar data protection solution to back up data to disk in its nine casinos in Oklahoma and replicate that data to a remote business continuity facility. By only sending new or edited data, the efficient backup system provides more complete data protection while shortening the backup window and relying on less infrastructure and fewer staffing resources. In addition, CNE’s recovery time has dramatically improved, shortening data restore times of a single system from 48 hours to less than 10 minutes.

Now, CNE’s storage administrator manages the backups for all nine casinos from a centralized console at the company’s headquarters in Catoosa. The data is then replicated across the wide area network to disk for data consolidation in Catoosa where it can be closely monitored. The entire night’s backup can then be replicated to an offsite business continuity site in another facility in Tahlequah. The entire process is conducted nightly so CNE can restore to the prior day’s snapshot.

While it previously took more than 30 hours to conduct a full backup once a week, full backups can now be conducted in every casino every night in less than eight hours. With the ability to manage the entire process from headquarters, local IT staff in the remote sites can focus their resources on more proactive projects. In addition, CNE estimates it has saved two hours per day monitoring the entire data protection process. Instead of querying each of the autoloaders individually, daily reports are printed and alerts are sent by the EMC Avamar solution. The solution also saves time on the road by reducing the number of failed cycles, eliminating the need IT staff to travel to each site to troubleshoot the system.

Better data protection and business continuity

CNE can now recover lost data and restore customer-facing systems within several hours of failure. Since it previously took more than 48 hours to restore a single server, the gaming company stands to save tens of thousands of dollars per incident and reduce the inconvenience to customers. Having a good gaming experience, customers will stay longer and are more likely to return to spend more money.

“The EMC Avamar solution gives us more-effective data protection and puts us in a better position to restore lost data if necessary,” says Gourd. “In turn, we can recover failed systems faster and shorten time to recovery for customer-facing services.”

CNE’s new disk-based backup solution also saves the company thousands of dollars on tape costs. Instead of stacking thousands of tapes in a storage facility, CNE’s data is simply protected on disk, where it is more easily accessible and reliable. In addition, EMC Avamar eases backup management and puts less strain on network resources. CNE is also backing up its Microsoft Exchange environment with the EMC Avamar solution, extending the business continuity benefits to e-mail so if individual messages or entire mailboxes become corrupted from any day over the past week, they can be restored. This functionality will help protect vital company information and help keep CNE compliant with the many regulations in the gaming industry.

COLT

COLT is a leading European provider of business communications.

Business Challenge

To employ a network management solution that maintains service levels, prevents network disruption, and improves productivity.

EMC Solution

The EMC Smarts solution enables COLT to keep operational costs at a minimum, quickly diagnose faults, and illuminate which customers and services are impacted.

EMC Smarts IP Availability Manager provides automated intelligent analysis of the network.

EMC Smarts MPLS Manager manages COLT's IP VPN Corporate product in an environment with over 30,000 devices.

Business Benefits

- **Ease-of-use**—A screen clearly displays network problems making it easy to diagnose and resolve root-cause problems.
- **Fast problem resolution**—The average time to resolve a network problem was cut in half shortly after deploying EMC Smarts software.
- **Improved productivity**—Before installing EMC Smarts IP Availability Manager, COLT dedicated 1,300 person-hours annually to rules writing and customization. With EMC Smarts, this has been reduced to virtually zero hours, improving productivity.



Meeting productivity and customer service goals with EMC Smarts

COLT, a leading European provider of business communications, has won the World Communications Award for Best Customer Care for four years in a row. Focused on out-performing competitors in reliability and value, the company continues to set new standards for service and redefine the concept of customer care in the telecommunications industry.

To meet its ambitious service goals, COLT has invested in the technology, infrastructure, and staff to deliver comprehensive, end-to-end data, voice, and managed services. Today, COLT leverages its 20,000km pan-European fibre network to deliver secure, high-speed business communications services to organizations throughout Europe and beyond. In addition, COLT has extended its range of IP Virtual Private Network (VPN) services to include an option for Multi-Protocol Label Switching (MPLS). MPLS joins COLT IP VPN Corporate offerings such as Internet services, dedicated point-to-point IP VPN leveraging leased line, and ATM/Frame Relay-based IP VPNs. With the launch of COLT IP VPN Corporate, the company realized it needed a new management solution that supported new service offerings such as MPLS-based VPNs.

COLT's strong emphasis on customer service, coupled with customers' expectations of near 100 percent uptime, drove a requirement for effective network management that would maintain service levels and prevent network disruption. The service assurance solution, which would be standardized across locations to improve productivity, also needed to be both scalable and future-proof.

COLT embarked on a thorough evaluation of several vendors within the network management space, using a live environment. One of the key requirements was that the product should be able to discover all the elements in a complex network. EMC® Smarts® was the only solution that met this need. EMC Smarts also demonstrated superior levels of accuracy in pinpointing network problems. In addition, minimal customization was required compared with other network management software. By enabling automation, Smarts allows COLT to increase its competitive advantage by keeping operational costs at a minimum. The solution automates diagnosis of faults and helps illuminate which customers and services are impacted.

Complex infrastructure demands state-of-the-art management solution

Between 2000 and 2002, COLT opened state-of-the-art data centers in 12 countries across Europe, offering a wide range of services from basic collocation to high-value managed and professional services. These data centers are designed for both corporate and carrier customers. Typically there are more than 100 client networks hosted within each data centre, so the infrastructure within each one is highly complex.

In a matter of hours, EMC Smarts IP Availability Manager was quickly and efficiently installed and rolled out to all locations and data centers across Europe, providing automated intelligent analysis of the network. Smarts is also easy to use. Network problems are displayed graphically on-screen with their impacts clearly highlighted. This information enables the IT staff to quickly diagnose and resolve the root causes of problems, rather than just the symptoms, to maintain the highest possible levels of service.

Unsurpassed support for the MPLS service offering

Based on EMC Smarts proven track record, COLT deployed EMC Smarts MPLS Manager to manage its IP VPN Corporate product in an environment with over 30,000 devices. Leveraging the patented Smarts Common Information Model™, MPLS Manager delivers cross-domain impact analysis of failures and offers visibility into the MPLS-based VPNs. COLT is also now using Smarts to manage its recently announced Switched Gigabit IP product—a high-speed managed Gigabit Ethernet IP network—the first such product in the marketplace.

Additional EMC Smarts investments include the Business Dashboard and Network Protocol Manager (NPM). The Business Dashboard provides operations with a Web-based user interface and will eventually enable the presentation of realtime reporting in COLT's existing customer portal. NPM provides COLT with increased visibility of faults and misconfiguration in the routing protocol domain—this is key for a Tier 1 ISP and providers of MPLS-based VPNs and managed Ethernet solutions.

Faster problem resolution, improved productivity

The ability to find the root cause of problems in the network saves COLT huge amounts of time. After just a few months of using EMC Smarts software, the company found that the average time required to resolve a network problem had been cut in half. When this is multiplied across each problem on each customer network, it adds up to real business benefit.

Reallocating personnel out of the intensive rules-writing and customization required by other network management software has improved productivity of network administrators and systems engineers. Unlike the software COLT was previously using, EMC Smarts IP Availability Manager automatically diagnoses and analyzes authentic problems that may affect services. The company used to dedicate around 1,300 person-hours annually to these tasks. Now, this work has been reduced to virtually zero hours a week, so more time can be spent on other areas of the business such as contract expansion.

Proven performance leads to expanded use

EMC Smarts has played a key role in helping COLT monitor and analyze its network more efficiently. With Smarts proactive diagnosis of authentic problems, COLT can now ensure that a problem will be fixed before it impacts the customer. Perhaps the greatest benefit to end users is that the high-quality service levels they expect and demand are guaranteed, so they can concentrate on running their businesses with confidence.

EMC Smarts results have been so impressive that COLT is planning on expanding the system to cover other domains including its rich portfolio of Ethernet and optical transmission services.

EchoStar Communications Corporation

EchoStar Communications Corporation, the parent company of DISH Network, delivers direct broadcast satellite television products and services to customers worldwide.

Business Challenge

Relocate primary data center—without impacting business operations, including the call center handling of over 500,000 customers per day.

EMC Solution

EMC Consulting Services managed the entire move using an application-centric approach—helping move over 300 applications, 38 production databases, 1,800 servers, and almost one petabyte of storage.

Business Benefits

- **Full solution**—EMC Consulting served as a single resource to project manage all key vendors including HP, Sun, StorageTek, INS, Cisco, and the Physical Move team.
- **On time, under budget**—On-time move completed within six months, under budget—with cost savings of \$1.2 million (versus using internal resources).
- **Minimized Risk**—Focus on overall strategy, with application-centric approach, resulted in zero unplanned downtime and no business disruption—as well as enabling definition of a disaster recovery strategy.



EMC Consulting Services provide full solution

Data center relocation requires unique capabilities, comprehensive services

With over 12 million subscribers, EchoStar is the fastest growing paid television provider in the U.S. The company's history of innovation and dramatic growth had pushed its primary data center to its limits. Inadequate cooling and power generation capabilities made it difficult to keep up with the demands of the business. Environmental factors also mandated a change of location.

EchoStar's IT staff faced a massive data center move project involving 1,800 servers, over 300 applications, and almost one petabyte of storage. Although it had performed data center relocation projects in the past, the staff had not done anything on this scale.

"Our executives were concerned with the risk caused by moving the servers while running applications—without disrupting business," says Scott Piper, vice president of Information Technology. "We needed an experienced vendor with an end-to-end solution at a highly competitive price."

EchoStar also needed to accomplish the entire data center move before the middle of its busy fall season—and spring and summer were rapidly approaching.

EchoStar closely evaluated six vendors to help its IT staff move operations to a new data center 15 miles away. It ultimately chose EMC® Consulting Services which offered end-to-end project management of all IT vendors, staff augmentation, and technical expertise which included mapping systems and application interdependencies to eliminate the risk of unplanned downtime.

With extensive experience in large-scale data center moves, EMC Consulting assumed the role of planning and coordinating the entire project. One related challenge was working around all of the ongoing business activity at EchoStar.

"Every day we receive 500,000 calls, around the clock, and we had to work around that," says Piper. "EMC did a great job helping us coordinate the project. In many cases, EMC communicated with our internal EchoStar customers so they were aware of every detail around any planned downtime during the move."

“EMC knows EchoStar like our employees know EchoStar. The data center move was absolutely strategic, and EMC helped us focus on the strategy and not jump right into the tactical.”

Scott Piper
Vice President of
Information Technology

The EMC Consulting Project Management Office assumed the management role for the entire project.

“We are a full-service data center and probably use a dozen vendors other than EMC,” says Piper. “EMC managed these entities in terms of contracts, on- and off-boarding, payment, and so on, which added tremendous value and made the project go smoothly.”

Another challenge was minimizing downtime across the business and to key applications, including Oracle ERP, HR, Financials, and CRM. EMC Consulting’s unique approach used tools to identify the interdependencies of applications and systems. In EchoStar’s middleware environment, which uses BEA Systems’ Weblogics, for example, many components were added to the application as the business grew.

“We kept getting add-ons to our applications, so we didn’t have a good perspective on the different interfaces that would be impacted during a data center move,” says Dwayne Barstad, systems architect. “EMC’s Systems Application Mapping database tool helped us start to aggregate many of these loose ends which were not documented. By mapping application and systems interdependencies, EMC Consulting helped EchoStar avoid unplanned application outages during the move.”

Project completed on time, under budget, with added benefits

EMC Consulting worked closely with EchoStar’s IT staff and vendors to successfully complete the critical components of the data center move before its busy fall season was in full swing. The project was completed on time and under budget without downtime. EchoStar saved \$1.2 million by outsourcing project management of the move to EMC, versus managing the move by itself. EchoStar also reported that it had less downtime from issues such as power and cooling as it had in the old data center. There were also unexpected benefits.

“We now understand our internal business and IT infrastructure better,” says Piper. “By carefully reviewing over 300 applications in a short period of time, we learned that there were capabilities we were not leveraging.”

For example, the EchoStar IT team evaluated the service-level requirements of a critical Siebel CRM call center application called DISH Smart, as well as defined related parameters for high availability and disaster recovery.

“The EMC Consulting engagement helped us identify the bare minimum infrastructure requirements for this application while maintaining an optimal service level so we could realize additional cost savings,” says Piper.

Accelerating business strategy and information lifecycle management

By working with EMC Consulting, EchoStar’s IT team developed improved project management methodologies and technical best practices.

“EMC brings all of its internal resources to bear on our issues, regardless of whether we need storage, network, or project management expertise or if we have performance issues,” says Piper.

For example, the EchoStar team learned data replication and migration best practices using EMC software such as EMC Symmetrix® Remote Data Facility (SRDF®).

“The overall technical expertise, assistance, and shared knowledge EMC Consulting provided to our team will help us go further now with our disaster recovery efforts or wherever we want to go,” says Patrick Malone, senior IT Manager.

EchoStar has almost a petabyte of EMC storage, ranging from Symmetrix DMX™ and CLARiiON® with Fibre Channel and ATA drives to EMC Centera®. It expects to realize additional information lifecycle management cost savings and service-level optimization benefits, similar to those in its Siebel CRM environment.

“EMC’s Systems Application Mapping database tool helped us start to aggregate many of these loose ends which were not documented. By mapping application and systems inter-dependencies, EMC Consulting helped EchoStar avoid unplanned application outages during the move.”

Dwayne Barstad
Systems Architect

Helping IT align closer with the business to optimize costs and service levels is a key benefit delivered by EMC Consulting. This alignment is focused on addressing business challenges with IT resources.

“EMC knows EchoStar like our employees know EchoStar,” says Piper. “The data center move was absolutely strategic, and EMC helped us focus on the strategy and not jump right into the tactical.”

EMC Consulting offers services related to infrastructure consolidation (including data center moves), business continuity, classification and policy (to optimize application service levels with IT infrastructure), and IT service management (e.g., storage management optimization and ITIL best practices). Piper concluded, “Based on the engagement that we had with EMC on the data center move, my perception of EMC Services definitely changed. I now know that they are extremely knowledgeable and capable—and I will definitely use them again.”

Elsevier

Elsevier is a global publisher of more than 20,000 scientific, technical, and health information products and services.

Business Challenge

To enable editors and writers to author and publish a wide range of web content, images, automated news feeds, and multimedia directly to the website.

EMC Solution

EMC Documentum products, such as EMC Documentum Content Server, Webtop, Web Publisher, Media Transformation Services, Site Deployment Services, Business Process Manager, and eRoom, enable the publishing of web content; management of critical business processes; and global collaboration.

Business Benefits

- **Centralized management**—Documentum’s centralized content management platform manages the corporate website and other information assets across the business.
- **Streamlined processes**—Shortens time to market for new products through streamlined content creation and approval processes.
- **Improved communications**—A collaborative environment enables 1,000 senior editors to communicate and share ideas.



Enterprise content management solution speeds web publishing and slashes time to market

Business overview

Elsevier is a global, multiple-media publisher of scientific, technical, and health information products and services, with 7,000 employees in 73 locations around the world. Elsevier publishes more than 20,000 products and services, including journals, books, electronic products, services, databases, and portals serving the global scientific, technical, and medical communities. Leading products include The Lancet, the world’s leading independent general medical journal, and MDConsult, a service providing clinical content resources for physicians and other health care professionals. Elsevier is a division of the Reed Elsevier Group plc, a leading international publisher and information provider operating in the scientific, medical, legal, educational, and business-to-business industry sectors.

Challenges

The emergence of the Internet in the 1990s and the accompanying explosion in new publishing formats, such as CD-ROM, video, and web content, has created major new opportunities—and challenges—for traditional print publishing companies like Elsevier. “The Internet has turned our entire publishing strategy on its head. In only a decade, we’ve gone from traditional print only, to print products with additional components that could be purchased on the Web, to today’s environment that includes entire product lines of web-only and electronic products,” says Paul Leland, ECM program director at Elsevier.

Over the years, Elsevier had developed in-house database and workflow solutions for creating, tracking, and managing the content of print products such as books and journals. However, there was no system for managing the non-print products. As demand for non-traditional electronic formats and web content continued to grow rapidly, the company was at a crossroads. “Our customers were demanding more and more web-based products and we were beginning to deal with large amounts of web content. In order to stay competitive, it had become critical to create and publish this content as quickly as possible—but it was extremely difficult without a central content repository and easy-to-use tools,” says Leland.

Elsevier faced the challenge of creating, editing, and publishing web content, images, and multimedia, while moving the management task to the editors rather than the technical developers.

“The EMC Documentum platform has opened up opportunities for us to increase our product line. For instance, when a new issue of a journal is released, we now have the ability to publish a whole set of ancillary content such as a companion website or a CD-ROM.”

Paul Leland
ECM Program Director

Content needed to be accessible and reusable, not hidden in a complicated archive. Moreover, Elsevier wanted to reduce the high volume of fragmented information sent to multiple websites via a high number of legacy systems.

To meet these challenges, Elsevier determined that it needed a comprehensive web content management solution. For greater efficiencies in the publishing process, the system would need to enable editors and writers to author and publish a wide range of web content, images, automated news feeds, and multimedia directly to the website. To help Elsevier manage its corporate website effectively, the system would need to provide world-class search capabilities and easy-to-use publishing tools that would lessen the company’s historic dependence on the information technology (IT) department. In addition, Elsevier required a comprehensive content management solution that would enable business improvements in other areas such as invoicing, collaboration, and document management.

EMC Documentum solution

These requirements led Elsevier to the EMC Documentum® content management platform—a complete family of products that deliver capabilities to create, manage, deliver, and archive all business-critical content. “Once we narrowed our list to three enterprise content management vendors, it was clear that EMC Documentum provided the most comprehensive system for web content management as well as traditional document management and collaboration,” says Leland. “EMC Documentum was also at the forefront of XML-based solutions, a critical requirement since Elsevier’s content philosophy is based on XML.”

Streamlined editorial process improves time to market

The EMC Documentum solution is part of Elsevier’s strategy to bring all product development under the control of electronic content repositories. Joining two other repositories that manage the printed journals and books, the EMC Documentum system is dedicated to managing all digital assets including web content, images, and other product formats such as video. All content is created and stored in XML. Currently, more than 3,500 worldwide users, including content editors and authors, are accessing the system, using templates, workflows, and lifecycles to facilitate quicker content development, better quality through managed approvals, and automated delivery to various channels.

This level of standardization is generating significant results and is in the process of being replicated across the business. In addition, the system has opened up opportunities for Elsevier to increase its product line. For instance, when a new issue of a journal is released, the company now has the ability to publish a whole set of ancillary content such as a companion website or a CD-ROM.

In addition, the new system has shortened time to market for new products by making content creation and approval processes more efficient. Previously, it could be difficult for editorial teams to find the content they needed because it was stored in a fragmented way, on different hard drives and multiple networks. Now, with everything stored in the central EMC Documentum repository, people know exactly where to go for the information they need—making them much more productive. “We are handling a huge volume of global content. EMC Documentum simplifies its management to the point where we know what, when, where, and how it is being managed,” explained Leland.

Easy deployment expedites web publishing

The easy deployment of the EMC Documentum platform has been a major benefit of the new system and has enabled Elsevier to meet one of its critical requirements for content management—the ability to rapidly publish new web content. And, by replacing multiple legacy systems with a single solution based on the EMC Documentum platform, Elsevier has been able to reduce the time and costs involved in content management.

“I have dealt with many different enterprise software implementations, and I was pleasantly surprised with how easy this solution was to implement,” says Geoffrey McCaleb, content management architect at Elsevier. “The Documentum setup was literally a point-and-click process and was very straightforward.”

He adds, “The support we’ve received from EMC Documentum has been stellar. You put in a support request for any reason, and within an hour or two you get a call back with a resolution.”

Extensibility for meeting future requirements

For Elsevier, another large selling point for the EMC Documentum platform is its extensibility. “Documentum is very easy to customize and extend, because all of the development tools are Java based. It’s very easy for Java developers to get ramped up and work with this solution,” says McCaleb.

“The EMC Documentum platform is not only extremely stable and well-supported, but you can extend your application using components such as business objects—and you can build out a solution that actually reflects your business,” he says. Examples of such customizations at Elsevier include XML in-line editing, a Microsoft Word-to-XML conversion for documents, and a custom file transport utility. “All of these customizations live within the platform so that they won’t be lost when it comes time to do a software upgrade. This kind of flexibility has reassured us that Documentum is the right long-term solution,” said McCaleb.

Comprehensive platform manages changing business needs

Although the EMC Documentum solution was originally selected for web content management, Elsevier quickly recognized its potential as a single consolidated solution for all of the company’s enterprise content needs. Shortly thereafter, EMC Documentum grew to become Elsevier’s de facto enterprise content management solution for front- and back-office needs by providing capabilities to help the company meet evolving business requirements. By extending the platform’s reach to manage key business and financial functions such as contract management, rights and permissions, invoice management, and order processing, Elsevier has demonstrated the value of a single, integrated enterprise content management system. Currently, the system manages around 40 million invoices, 5,000 locally-generated pieces of content, and 10,000 Reuters news stories a year. It also enables the financial services team to process 360,000 paper invoices (approximately 1.8 million pages) each year by converting them to PDFs, loading them into the system, and completely cross indexing with Oracle Financials.

“EMC Documentum’s built-in integrations with Oracle Financials and the Kofax scanning solution for document capture give us a world of possibilities for streamlining many business processes,” said Leland. Adds McCaleb, “The only downside, if you could call it that, is that we’ve got more work than we can possibly deal with—now that other business units have seen the potential of the EMC Documentum platform!”

eRoom environment facilitates global collaboration

Another vital component of Elsevier’s content management solution is EMC Documentum eRoom,[®] a web-based collaborative workspace that enables distributed teams to work together more efficiently. eRoom provides a central area of collaboration and communication for more than 1,000 senior editors around the globe to exchange data and information. By increasing efficiencies and streamlining information sharing across widely distributed editors, eRoom is playing a major role in Elsevier’s commitment to providing the highest levels of customer service.

Robust solution paves the way toward long-term strategy

Elsevier’s longer-term strategy for web content management includes the ability to enable customers to “pull” the information they need, by allowing them to search Elsevier content and select individual components. In one scenario, Elsevier would break content from separate education modules into smaller components that customers could select and assemble into their own custom courseware. “We needed a technology solution that would be robust and comprehensive enough to support these kinds of future business initiatives, and the EMC Documentum platform gives us that confidence,” said Leland.

Summary

By providing a central location for all product content, the EMC Documentum platform has enabled Elsevier to publish its electronic and web-based products more efficiently and deliver new web-based products to market more quickly. On an even more strategic level, the system has provided the foundation for Elsevier to expand its business in the future, as technology evolves and paradigms change for information retrieval and access.

“Currently we’re in the business of both print and web publishing, but our mantra is that ‘it’s all about the content.’ We believe the future of publishing is based on the ability to easily create, manage, and publish raw content regardless of the media or device on which it’s delivered,” says Leland. “Someday customers will be able to retrieve our content from their handheld devices, and if someone wants to be able to look at a medical video from their Sony PlayStation Portable, our vision is to make that happen.”

Informatel

Informatel is a privately owned Australian company that offers interactive telecommunications services to many of the country's largest organizations.

Business Challenge

To implement a reliable and robust technology infrastructure to support the availability of services 24x7.

EMC Solution

An EMC Celerra NS352 supports the iSCSI protocol—a technique for transporting storage data over long distances using standard Internet protocol networks. This makes it easier to consolidate file servers and direct-attached storage onto a single platform. EMC also made use of its position as a Microsoft Gold Certified partner for iSCSI and proposed a solution based on iSCSI with dual Data Movers.

Business Benefits

- **Fast implementation**—The EMC Celerra was delivered, installed, configured, tested, and in production, meeting a critical deadline.
- **Protection and high availability**—Automatic failover ensures no data will be lost if a system outage or disaster occurs, ensuring data is protected at all times.



Informatel the winner with enterprise-grade EMC solution at small-business price

Informatel is a privately owned Australian company that offers interactive telecommunications services to many of the country's largest organisations. When these businesses run a competition or make an announcement, Informatel's communications infrastructure supports and manages these initiatives.

Communications technology has changed the face of competitions and promotions. Competitors can now enter by phone, fax, short message service (SMS) and the internet. Informatel's extensive infrastructure can handle tens of thousands of calls or SMS messages per minute. It also offers automated payment systems that can operate by phone or integrate with a customer's website.

Informatel also operates one of the largest messaging services in Australia. This supports companies that need to regularly distribute information by fax, SMS, or e-mail to a large client database, for example, the Bureau of Meteorology's weather fax sheet. Informatel's clients include carsales.com.au, Dodo, Foxtel, Motorola, the Nine Network, Nintendo, Sensis, Sony, Target, Telstra, and Vodafone.

These services need to be available 24 hours a day, seven days a week, so Informatel requires a reliable and robust technology infrastructure. The company found its biggest challenge was coping with the 'avalanche' workload caused by promotions and competitions.

The need for reliable archiving

Informatel was using IBM Blade Servers to manage its storage requirements. While this technology was reliable, it wasn't the most efficient solution for the company's needs. It became unfeasible to continue managing this system manually due to the significant time and resources required.

"We run a continually expanding Microsoft SQL Server environment with up to 50 production databases in use at one time across many servers," said Daniel Shelly, Operations Manager, Informatel. "We wanted to be able to consolidate these into a single platform that required very little management."

Informatel's highly transactional business means a large volume of records is continually being written. While these files aren't large, there can be hundreds of thousands of them generated

“The service and support we received from the EMC sales team was exceptional. They analysed our current needs and future requirements and suggested a solution that would help us get there.”

Daniel Shelly
Operations Manager

from a single promotion. The IBM Blade Server infrastructure was rapidly running out of space and staff needed to manually archive weekly to off line media. Shelly wanted to reduce the likelihood of human error and decrease the time staff spent on archiving.

“We wanted to achieve high performance and reliability,” said Shelly. “We can’t afford to lose a single entry.

“We wanted an assured system that would stay up, have greater capacity and allow us to archive monthly, or even yearly. This would enable us to expand our capabilities and demonstrate these to clients.”

Disaster recovery was also an issue. Informatel’s secondary system was housed in a nearby datacentre in Melbourne, but relied on manual failover. In the event of a system outage, the time needed to manually restore the systems and the data lost as a result would have been problematic.

When Informatel looked at mirroring IBM Blade Servers to its secondary site using fibre channel, it realised the costs of this method were prohibitive. It decided to investigate other options. It was particularly interested in using the iSCSI storage protocol to transmit data across its network.

“There were a lot of factors involved in our decision to seek out a new storage infrastructure,” Shelly commented. “Our storage environment was under pressure from a space, performance, cost and availability perspective.”

EMC a cut above the rest

Informatel approached EMC and a major competitor to quote on a high-availability solution for its production systems and a lower availability infrastructure for its data warehouse that would support a new reporting system.

“Our clients need a direct view of the statistics relevant to promotions and offers they are running, and we provide this across hundreds of thousands of transactions with only a small delay,” said Shelly. “We needed a powerful and scalable system that would count all transaction records and allow us to search for certain statistics, such as how many of the text messages received were from Telstra mobile phones.”

EMC put forward a solution based on the EMC Celerra NS352 networked attached storage (NAS) system. The EMC Celerra NS352 would allow Informatel to consolidate its storage into a single repository and would provide the speed and scalability required.

The EMC Celerra NS352 supports the iSCSI protocol – a technique for transporting storage data over long distances using standard internet protocol networks. This makes it easier to consolidate file servers and direct-attached storage onto a single platform.

As Microsoft SQL Server 2005 supports iSCSI, EMC made use of its position as a Microsoft Gold Certified partner for iSCSI and proposed a solution based on iSCSI with dual Data Movers.

Informatel had already installed two parallel gigabit ethernet networks for redundancy and was able to use one of them as a private iSCSI network, providing high performance without sacrificing the reliability of the existing infrastructure.

Informatel considered the two estimates and chose EMC.

“EMC’s proposal met all our requirements and demonstrated the company’s understanding of what we wanted to achieve,” said Shelly. “The service and support we received from the EMC sales team was exceptional. They analysed our current needs and future requirements and suggested a solution that would help us get there.

“EMC’s extensive product range also played a part in our decision. We were confident it had the breadth and depth to meet our requirements as the business grows and changes.”

Once it had selected the vendor, Informatel worked with EMC to plan the implementation. However, all its plans and timelines were thrown into disarray when a client required the infrastructure to be in place for a project just a few weeks away.

Informatel turned to EMC for help, and EMC pulled out all the stops to meet the tight deadline. Pre-planning was incredibly important as everything had to work perfectly on the first go. Before the solution was installed, EMC and Informatel conducted proofs of concept and worked together to design and configure the solution.

The EMC Celerra NS352 was delivered on 21 April 2006 and was installed, configured, tested and in production to meet the 1 May 2006 deadline.

“The EMC solution has worked flawlessly since it was implemented,” said Shelly. “We’ve had zero hiccups. It’s a really amazing outcome and testament to the quality of the EMC technology and team.”

High performance and availability

In an industry where speed and reliability are crucial, Informatel is now confident that performance won’t be affected when its system is inundated with data. In addition, automatic failover ensures no data will be lost in the event of a system outage or disaster.

“Now we don’t have to worry about having to log on and restore manually to get the system back online,” said Shelly. “The system does all that for us. The automatic restore process is faster and more reliable, and we’re confident that our clients’ data is protected at all times.”

Cost savings with iSCSI

The EMC solution is the first project in Australia that uses iSCSI to connect a NAS device to a Microsoft SQL Server 2005 database. This method has saved Informatel a significant amount of money.

“It would have been too expensive to use fibre channel on devices that needed to connect to the EMC machine,” Shelly explained. “Using iSCSI has allowed us to connect more machines to the device at a lower cost. It’s also easier to scale as required.”

Automated archiving

The EMC Celerra NS352 means Informatel no longer has to worry about allocating staff to perform manual archives each week.

“Not only are we saving up to seven hours each month archiving, we’ve also decreased the propensity for user error,” said Shelly.

“The EMC Celerra NS352 allows us to keep more data online and provide better services to clients by having more information accessible directly.”

EMC the best fit

Informatel is happy with its selection of EMC storage technology.

“The nature of our business makes it difficult to justify spending half a million dollars on a single piece of kit, however mission critical it may be,” said Shelly. “But we’re also too reliant on technology to buy small-business products. The EMC Celerra NS352 sits at just the right level. It’s a professional solution at a price that’s affordable for a business like ours.”

Shelly said Informatel is excited about the possibilities of EMC’s wide range of products.

Next on Informatel’s list is to install a disaster recovery capability using another EMC Celerra at its second site to act as a long-term archive.

“There are lots of things we can look at doing with our data,” he said. “Now, if a client tells us they require a specific capability, we can extend the functionality of the EMC platform and provide that with minimal fuss. It’s allowed us to be more flexible to meet client demands.”

KTF

With a customer base of 12.3 million in Korea, KTF is aggressively expanding its market share to become one of the world's top-ten mobile communications service providers.

Business Challenge

To implement disaster recovery training to enhance operational abilities.

EMC Solution

The company uses EMC Symmetrix DMX and EMC CLARiiON systems along with EMC replication solutions that include EMC SRDF and EMC MirrorView. Working with EMC Global Services professionals, the company carries out disaster recovery training five times a year to enhance its operational abilities. The company acquires realtime backup copies of its main databases using concurrent EMC SRDF and local EMC SnapView solutions.

Business Benefits

- **Expert training**—A disaster recovery training project was conducted to migrate operations and restore customer services promptly as if a real disaster had occurred.
- **Faster recovery**—Accurate and concrete measurements minimized interruptions that would affect the core business, service stability, and operational efficiency during a disaster.
- **Uninterrupted support**—EMC's worldwide service and support centers enable fast identification of root-cause issues; system recovery was completed in just four hours.



EMC Global Services supports successful disaster recovery training

In June 2002, KTF was ranked as the first mobile communications service provider in Business Week's World's Top 100 IT Companies. Since the launch of its PCS service in 1997, the company has acquired an unprecedented nine million subscribers in just three years. Today, KTF has a customer base of 12.3 million in Korea and is aggressively expanding its market share to become one of the world's top-ten mobile communications service providers.

In 1998, a failure occurred in KTF's computer room which caused hours of server downtime during the Korean Thanksgiving holidays. Although the business impact of the incident was limited, the company realized that the loss of customer data could translate into a serious crisis for the company's business. In addition, when KTF acquired a Korean mobile communications service provider, M.Com, compliance requirements set by foreign investors mandated the deployment of a disaster recovery (DR) system. As a result, KTF established a five-stage DR plan and addressed the importance of storing customer data at a remote site. To help facilitate a successful outcome, KTF collaborated with EMC® Global Services on disaster recovery training.

Total mobilization

By using EMC Symmetrix DMX™ and EMC CLARiiON® systems along with EMC replication solutions that include EMC Symmetrix® Remote Data Facility (SRDF®) and EMC MirrorView™, KTF successfully implemented the first stage of its DR system in 2005. Since then, with the commitment of EMC Global Services professionals, the company now carries out DR training five times a year to enhance its operational abilities.

In June 2006, KTF conducted its first DR simulation between the company's primary computer center in Yeoksam-dong, Seoul, and the DR center in Yongin, Gyeonggi-do, where the changed data was resynchronized.

When the professional services personnel from KTF and EMC Korea were notified about the simulated disaster, they began to move the data at the primary computer center to the DR center. They shut down all systems at the primary computer center and acquired realtime backup copies of its main databases using concurrent EMC SRDF and local EMC SnapView™ solutions. In particular, the unique data integrity features of EMC SRDF/Consistency Group in a multi-

“We trust EMC because we can work with the same dedicated service personnel consistently. The synergistic effects are also considerable because EMC service engineers know the features of the solutions better than anyone else. They have been working with us as partners for almost eight years.”

Tae-Jae Lee
Director
IT Infrastructure Team

storage-system environment enabled the acquisition of safe backup copies of the original data from the main computer center.

Target systems for disaster recovery, such as the Sales Information System and customer service systems and interfaces between each system, were in operation at the DR center in Yongin for 12 hours while data movement and verification were completed. During this time, the changed data stored at the DR center also was backed up using EMC TimeFinder® software.

The final stage of the DR training exercise involved restoring services provided by the DR center to the primary computer center. For the first time, KTF saw the data generated for one day of operation at the DR center resynchronized to the main computer center following a network recovery. KTF and EMC Korea focused on verifying the scenario and the reliability of the DR system from several perspectives and by completing the service recovery at the primary computer center.

“Although our competitors also have DR solutions in place, we see that the services and solutions from EMC are among the best in the industry,” says Tae-Jae Lee, director, IT Infrastructure Team. “The EMC Consulting and Customer Service organizations provide an extensive array of solutions that meet our business needs and they help us make the right decisions.”

A true partner

For the first time in the Korean communications industry, KTF and EMC were able to conduct a DR training project to migrate operations and restore customer services promptly as if it were a real disaster situation. Moreover, they provided accurate and concrete measurements to minimize interruptions that would affect the core business, service stability, and operational efficiency during a disaster.

According to Lee, a perfect DR solution is possible only when three key elements are in place: best-of-breed solutions, synchronization and resynchronization processes, and professionals with the expertise to carry out this kind of disaster recovery project.

“We trust EMC because we can work with the same dedicated service personnel consistently,” says Lee. “The synergistic effects are also considerable because EMC service engineers know the features of the solutions better than anyone else. They have been working with us as partners for almost eight years.”

KTF has also been very satisfied with the assistance provided by EMC’s global service and support centers.

“With support from their worldwide service and support centers, it was amazing to see how efficient the EMC service engineers were in identifying root-cause issues and debugging,” says Lee. “We completed system recovery in just four hours and that was within the scheduled deadline. We are fully satisfied with EMC Services, particularly after seeing the company’s uninterrupted global services and support and its efforts toward maximizing customer satisfaction.”

Future implementations

With the completion of the first stage, KTF is now planning to move to the second phase of its DR plan which involves the company’s billing information system. KTF is also considering the relocation of the remote DR center to the south of Gyeonggi-do by 2008 for truly remote DR in preparation for natural disasters such as earthquakes.

Liaoning Mobile

Liaoning Mobile owns a cutting-edge, highly intelligent network that provides extensive coverage, comprehensive functions, and services to its 10 million mobile subscribers.

Business Challenge

To have an effective set of disaster recovery policies, processes, and solutions in place.

EMC Solution

EMC Consulting Services helped the company with business continuity planning and information protection. EMC Technical Solutions services were also engaged for design, implementation, and migration services. Two powerful, highly reliable EMC Symmetrix DMX series systems support operations. EMC ControlCenter software is used to control storage management functions. EMC TimeFinder/Mirror and EMC SRDF/S backup and replication software as well as EMC PowerPath path management software provide comprehensive support for ensuring a highly available environment. EMC eServices have enabled Liaoning Mobile to quickly upgrade its system with the latest software simply by downloading new patches and releases.

Business Benefits

- **Business continuity**—If a data center outage or disaster occurs, recovery time is two hours instead of the three days it previously took in the old environment.
- **Improved productivity**—Using the EMC Symmetrix DMX systems, the billing cycle is expedited by two hours every day, which allows employees to achieve higher work efficiency and spend more time on other important tasks.
- **Information lifecycle management**—By classifying all of its data, EMC has helped the business create a single, tiered storage infrastructure application where information can be placed in the appropriate location according to its business value.



EMC Consulting Services help support uninterrupted mobile services

Liaoning Mobile is a subsidiary of China Mobile (Hong Kong) Limited, the leading mobile services provider in Mainland China. Liaoning Mobile owns a cutting-edge, highly intelligent network that provides extensive coverage, comprehensive functions, and services to its 10 million mobile subscribers.

In 1999, Liaoning Mobile replaced its inflexible and difficult-to-manage distributed IT environment and became the first in the province to benefit from a centralized storage infrastructure in the China Mobile Group. Using advanced EMC® storage technology to support mission-critical applications such as accounting, billing, settlement, and statistics, Liaoning Mobile's highly successful, centrally managed networked storage implementation was accepted as a best practice and promoted in all the provincial companies. In 2003, Liaoning Mobile initiated a proposal to boost its disaster recovery capabilities. The idea attracted considerable support and the organization was designated by the China Mobile Group as the pilot unit for disaster recovery construction.

To ensure uninterrupted mobile services to customers, the service provider required an effective, standardized disaster recovery (DR) plan and engaged EMC Consulting Services to develop and deploy an advanced business continuity and information protection solution.

“We are susceptible to technology and infrastructure failures, so it's vital for us to have an effective set of disaster recovery policies, processes, and solutions in place,” says Wang Hai-Jun, vice president, Business Support Center of Liaoning Mobile.

In addition, Liaoning Mobile wished to implement an information lifecycle management (ILM) strategy which was integral to defining the RTOs (recovery-time objectives) in its DR policy and in facilitating the ability to gain the most value from information at every point in its lifecycle. EMC Consulting Services was engaged to help Liaoning Mobile in this endeavor. In addition to its reputation as an experienced, cooperative, and successful provider of forward-looking services, EMC Consulting was selected because of its unique focus on business requirements and related application RTOs.

“EMC Consulting Services played an integral role throughout the implementation. This support not only helped us deploy an effective disaster recovery solution, but also enabled us to implement critical disaster recovery policy and processes in a much less risky manner. EMC Consulting Services conducted thorough testing by simulating our environment which was important in ensuring that the disaster recovery solutions would function optimally.”

Wang Hai-Jun
Vice president
Business Support Center of
Liaoning Mobile

“EMC solutions are well established and widely deployed in China and worldwide. This further boosts our confidence in its solutions and services,” says Wang.

Defining and implementing a complete solution

EMC Consulting Services for Liaoning Mobile covered business continuity planning and information protection. EMC Technical Solutions services were also engaged for SAN design and implementation, data migration, SRDF®/S implementation, and EMC ControlCenter® design and implementation.

Over the last two years, EMC Consulting has assisted Liaoning Mobile with the development and expansion of its ILM strategy. By classifying all of its data, EMC has helped the business create a single, tiered storage infrastructure where it can place application information in the appropriate location according to its business value.

In addition, EMC developed a plan to assess and classify application and operational RTOs as well as the related capacity and performance of the existing IT infrastructure. EMC worked with its partner, LINUS, a foreign business continuity consultancy, to support this effort. Apart from analyzing and identifying Business Resource Groups (which include all of the applications, data, systems, and dependencies to effectively fail over critical operations), specific policies and procedures were set to address the requirements of the RTOs. Today, RTOs for all major operations and applications are in place to ensure smooth operations and improved service. Different RTOs for critical applications such as accounting, billing, call center, and IT range from two to twelve hours.

EMC also established a customer service office in Shenyang shortly after Liaoning Mobile began its disaster recovery construction and appointed full-time customer support engineers. Additionally, EMC partnered with Liaoning Mobile to help perfect its service system and level of response to maintain a competitive advantage. EMC eServices, a complete suite of online support tools, have also helped. Among other proactive support features, EMC eServices have enabled Liaoning Mobile to quickly upgrade its system with the latest software simply by downloading new patches and releases from EMC’s customer extranet, Powerlink™.

The consulting services and deployment of the enhanced EMC storage infrastructure were completed in six months under a three-phased implementation.

Liaoning Mobile’s IT staff has been impressed with EMC’s strong sense of proactive service during and after implementation. EMC engineers were often the first to discover any issues with the organization’s long-distance management system and took the initiative to provide expedient service onsite or over the phone. In addition, EMC addressed any issues directly, taking the initiative to help solve problems.

“EMC Consulting Services played an integral role throughout the implementation,” says Wang. “This support not only helped us deploy an effective disaster recovery solution, but also enabled us to implement critical disaster recovery policy and processes in a much less risky manner. EMC Consulting Services conducted thorough testing by simulating our environment which was important in ensuring that the disaster recovery solutions would function optimally.”

Less risk, improved productivity

Liaoning Mobile operations are now supported by two powerful, highly reliable EMC Symmetrix DMX™ series systems, one located in the municipal area of Shenyang and another in its suburbs. EMC ControlCenter software is used to control storage management functions.

EMC TimeFinder®/Mirror and EMC SRDF/S backup and replication software as well as EMC PowerPath® path management software provide comprehensive support for ensuring a highly available environment. In the event of a data center outage or disaster, Liaoning Mobile can now recover in two hours instead of the three days it previously took in the old environment.

“This is certainly a significant improvement,” says Wang. “We have a very reliable platform to provide uninterrupted, 24x7 services to our customers.”

Faster batch processing, supported by the EMC Symmetrix® DMX systems, is an added benefit of the updated EMC storage environment. Liaoning Mobile can now expedite its billing cycle by two hours every day. The faster billing cycle allows employees to achieve higher work efficiency and enables them to spend more time on other important tasks.

Sustaining leadership in mobile services

EMC Consulting Services has successfully helped Liaoning Mobile initiate and continue to develop its ILM strategy, as well as to define and build a highly reliable disaster recovery infrastructure.

This comprehensive EMC solution provides the company with unequalled capabilities to manage people, technology, and processes and respond to any unforeseen event in an effective and timely manner—all of which empowers Liaoning Mobile to sustain its leadership in the mobile arena.

McLeodUSA

McLeodUSA is a premier voice and data services provider, delivering local, long-distance, Internet, and data services to residential and business customers in 25 states.

Business Challenge

To deliver the highest levels of network availability—99.9999 percent uptime—and performance guaranteed by its Managed Services offering.

EMC Solution

McLeodUSA chose EMC Smarts because of its root-cause analysis and topology discovery. McLeodUSA also added the EMC Smarts IP Performance Manager, Report Manager, Business Dashboard, Perl API, Syslog Adapter, and SNMP Trap Adapter to gain end-to-end visibility into its wide array of integrated communications services, and fully automate the root-cause analysis of network faults.

Business Benefits

- **Faster mean-time-to-repair**—Automated root-cause analysis decreases the number of alarms, including false and sympathetic alarms.
- **Data protection**—Streamlined deployment of the new architecture, while interfacing with the current infrastructure, protected existing investments.
- **Ease-of-use**—Dashboard views can be tailored for operations and management use as well as future customer deployment.



EMC Smarts helps deliver world-class telecommunications services to homes and businesses

McLeodUSA is a premier voice and data services provider, delivering local, long-distance, Internet, and data services to residential and business customers in 25 states. To expand its offering for business customers, McLeodUSA launched Preferred Advantage Managed Services, a complete managed network solution to meet organizations' broadband data Internet access requirements while helping them to manage costs. This new service plan forced McLeodUSA to re-evaluate its network management solution to deliver the highest levels of network availability—99.9999 percent uptime—and performance guaranteed by its Managed Services offering.

“Our company’s goal is to maintain world-class network performance and provide cutting-edge service offerings,” says Robert Teller, senior engineer. “It was critical to find a product that excels at monitoring the latest technologies, while providing true root-cause analysis, reducing both mean-time-to-repair and the overall number of events displayed.”

Answering the call for improved services

The company’s incumbent management system did not provide the network operations center (NOC) with the information it needed.

“The existing management system did not present us with all of the alarms and sent many false alarms,” says Teller. “The system did not perform root-cause analysis, so we were faced with trying to make sense of all of the sympathetic symptoms.”

The first step in solving these problems was to draw up a list of criteria for a new management solution. McLeodUSA needed event correlation and root-cause analysis to make sense of the flood of alarms they were receiving. The new solution needed to drastically reduce the number of sympathetic alarms displayed to operations personnel, which would simplify troubleshooting and allow quicker response time to issues. They needed a solution that could ensure the rapid deployment of new products such as its next-generation VoIP and managed services platforms. The solution would have to interface with systems already in place to protect McLeodUSA’s management investments.

“Our company’s goal is to maintain world-class network performance and provide cutting-edge service offerings. It was critical to find a product that excels at monitoring the latest technologies, while providing true root-cause analysis, reducing both MTTR and the overall number of events displayed.”

Robert Teller
Senior Engineer

Faced with a tight deadline for implementation and limited time for a formal evaluation, the engineering team chose EMC® Smarts® because of its root-cause analysis and topology discovery, which none of the other alternatives could perform out-of-the-box.

“EMC Smarts greatly reduces the number of events that come in, and seeing fewer alarms while displaying the true root cause is invaluable,” says Teller. “EMC Smarts is going after the new technologies, such as VoIP and MPLS, which was another factor in the decision-making process.”

Integrating EMC Smarts with the incumbent solution

McLeodUSA initially purchased Cisco Network Connectivity Manager (NCM), which is based on EMC Smarts Service Assurance Manager and IP Availability Manager technology. Based on the initial success of this product, McLeodUSA soon added more of the EMC Smarts family, including the IP Performance Manager, Report Manager, Business Dashboard, Perl API, Syslog Adapter, and SNMP Trap Adapter. These solutions help the company gain end-to-end visibility into its wide array of integrated communications services delivered to end users, and to fully automate the root-cause analysis of network faults. The Cisco NCM/Smarts solution enables McLeodUSA to integrate and correlate topology and events from sources spanning its network infrastructure.

McLeodUSA has a primary EMC Smarts production server in its Houston, Texas data center and an EMC Smarts failover server in Chicago, Illinois. The network operations center (NOC) in Cedar Rapids, Iowa, leverages the EMC Smarts Business Dashboard for visibility into the state of the company’s networks. The primary and backup servers are geographically dispersed with redundancy, providing automatic failover between the two servers. EMC Smarts provides automated realtime root-cause analysis of McLeodUSA’s mission-critical core network—consisting of Juniper, Foundry, and Cisco devices—and forwards these root-cause events into a Harris NetBoss system. EMC Smarts is also monitoring more than 1,500 end-user routers for the Preferred Advantage Managed Services Offering.

“EMC Smarts is monitoring our revenue data network, which consists of all of the aggregation routers in addition to the core routers, VoIP platform, Ethernet switches, and integrated access devices,” says Teller. “Many of these devices support our Managed Services platform under the Preferred Advantage product line. We are also beginning to migrate our internal network devices over to EMC Smarts for analysis, including our internal LAN/WAN and our telemetry network that supports communications to all of our internal elements.”

Instant results and a future with EMC Smarts

The EMC Smarts implementation went extremely well, and McLeodUSA was able to see results immediately.

“EMC Smarts has reduced the number of alarms, showing us what’s really going on in the network,” says Teller. “Our operations team is extremely pleased with Smarts and its exceptional reliability.”

MobiTel

MobiTel

MobiTel is Cambodia's first and largest GSM network.

Business Challenge

To support rapid response to new trends in the rapidly growing consumer telecommunications market.

EMC Solution

EMC CLARiiON systems created a centralized storage platform that consolidated all of the company's core data.

EMC Navisphere software manages, discovers, monitors, and configures EMC CLARiiON systems from a simple-to-use Web browser-based interface.

EMC PowerPath helps to provide application continuity if an I/O channel failure occurs.

EMC SnapView accelerates backup and recovery through disk-based "instant restore" of production data.

EMC Services provided continuous system monitoring and advanced remote diagnostics.

Business Benefits

- **Consolidation**—Since implementing its SAN, MobiTel has consolidated 54 call detail servers to 15.
- **Fast data access**—The time required to retrieve call detail records has been reduced from 45 minutes to less than 10.
- **Fast, secure data recovery**—Information and applications can be restored in seconds versus the hours often required for traditional tape-based methods.



EMC for storage flexibility

For Cambodia's MobiTel, the country's first and largest GSM network, seamlessly patching through a call is easy. However, ensuring things operate just as smoothly on the backend has become an increasing challenge.

MobiTel's previous IT infrastructure did not have the flexibility to support rapid response to new trends in the unpredictable and rapidly growing consumer telecommunications market. The company realized that it needed to replace its server-based storage topology with a more flexible storage area network (SAN) architecture.

"SAN is a good technology that allows us to add more storage capacity very quickly," says Mike Johnston, IT manager. "We need a technology infrastructure that is flexible enough to accommodate significant changes in the products and services we offer."

To address this goal, EMC was clearly the best choice and MobiTel's EMC® solution comprised powerful, highly available EMC CLARiiON® CX500 storage systems, EMC Navisphere® and EMC PowerPath® management software, EMC SnapView™ backup software, and EMC services.

Support for data protection, growth, and compliance

Previously, MobiTel's IT infrastructure was very ad hoc.

"The mentality was, if we needed more storage, we would buy more servers," says Johnston. "The server room had too much 'weight.' The question was how to make it simple."

MobiTel also had an eight-hour backup window every night, which impacted billing processes. Increased traffic, resulting in burgeoning call detail records (CDRs), was another issue and had started to bog down MobiTel's billing engine for both its wireless and wireline subscribers. In addition, compliance with the Sarbanes-Oxley Act meant that MobiTel needed to track and securely retain all information relating to SEC financial statements. This required more meticulous documentation of accounting and other processes which amassed terabytes of data.

The EMC CLARiiON systems created a centralized storage platform that consolidated all of the company's core data. It provided a high-performance architecture that scales easily in modular, pay-as-you-grow increments.

“EMC made it a point to come with both the sales and technical teams flying up for more than one trip. They knew what they were talking about and had the patience to teach our staff who had never seen a SAN before. I couldn’t be more complimentary about EMC Services.”

Mike Johnston
IT Manager

Before MobiTel implemented its SAN, it had the opportunity to consolidate the number of servers it had. Where it used to have 54 servers handling CDRs, there are now 15. Of these 15 servers, 10 are attached to the SAN, with five additional servers to be added.

The flexibility in the CLARiiON system is due to its support of the metaLUN capability. MetaLUNs are groups of LUNs that allow users to have a high degree of flexibility and control of data layout in the array through limitless storage configuration options.

EMC Navisphere software helps to manage, discover, monitor, and configure EMC CLARiiON systems from a simple-to-use Web browser-based interface. It enables MobiTel to securely discover, monitor, tune, and provision storage on multiple CLARiiON storage systems from anywhere, at any time.

“The EMC structure provides the flexibility to control the destiny of where our storage is going to grow,” says Johnston.

Where EMC PowerPath software helps to provide application continuity when an I/O channel failure happens, EMC SnapView accelerates backup and recovery through disk-based “instant restore” of production data. Information and applications can be restored in seconds versus the hours often required for traditional tape-based methods.

The number of staff managing different IT processes has also been reduced. One person manages all of the storage requirements, and four people now manage processes that took 15 people previously.

The time required to access data has also been shortened—from 45 minutes to retrieve call detail records to less than 10.

Impressed by strong EMC support

In addition to delivering a reliable information infrastructure, EMC’s unique support was another aspect that stood out. A key concern for technology purchases in Cambodia is finding vendors who can provide support. Typically vendors do not have a direct presence or their support structure cannot provide remote or virtual assistance. EMC helped in person, via phone, and over the Internet. EMC also made recommendations for training in Singapore to provide the MobiTel team with a comprehensive approach to systems implementation. Deployment took a week and went smoothly.

“EMC made it a point to come with both the sales and technical teams flying up for more than one trip,” explains Johnston. “They knew what they were talking about and had the patience to teach our staff who had never seen a SAN before. I couldn’t be more complimentary about EMC Services.”

Once the system was up, continuous system monitoring and advanced remote diagnostics through EMC’s call-home functionality provided ongoing support—all backed up by a local partner that MobiTel could reach in the event of a problem.

Plans to expand

For MobiTel, its EMC CLARiiON system was a starting point, but plans are already underway to scale when the need arises. MobiTel’s operations have stimulated Cambodia’s development and provided the population with easier access to information. With just 10,000 land lines in Cambodia, mobile phones are outselling land lines 8 to 1. Being a key player in an emerging telecommunications market has given MobiTel more freedom to adopt the latest and best technologies. A flexible IT infrastructure ensures that the service provider is positioned to scale to even greater heights.

“It is far easier to achieve return on investment than with a higher-end system,” says Johnston. “The market is based on return on investment to justify purchases. EMC CLARiiON provides a lot more flexibility and is an entry-point system at 10 terabytes.”

Motorola, Inc.

Motorola has the largest, most versatile, and fastest growing R&D presence in India among all telecom multinational corporations.

Business Challenge

To implement a new storage solution that would eliminate bottlenecks and scale effortlessly to accommodate rapid growth.

EMC Solution

The high-performance, high-capacity EMC Symmetrix DMX system with EMC PowerPath path management software, has more than doubled the rate of I/Os per second and reduced component build uploads by 12 hours. Simplified storage management is facilitated through EMC ControlCenter software and EMC Solutions Enabler APIs; EMC TimeFinder is used to clone data. EMC SRDF software will be used for data migration.

Business Benefits

- **High availability**—The EMC Symmetrix DMX system supports 24x7 availability.
- **World-class service**—EMC's dial-home capability—a remote diagnostic service—identifies problems and potential risks and escalates resolution before they can impact operations.
- **Centralized storage management**—EMC ControlCenter simplifies storage management and monitors the performance of the EMC Symmetrix DMX and host servers.



EMC solutions and services enhance IT infrastructure to keep pace with expanding R&D efforts in India

In 1991, Fortune 100 global communications leader, Motorola, Inc., established an R&D facility at Bangalore, India. Today, Motorola has the largest, most versatile, and fastest growing R&D presence in the country among all telecom multi-national corporations. Last year, the company launched Motorola Labs, expanded the presence of its Global Software Group to Hyderabad, and launched new facilities for its Core Network Division (CND) and Embedded Communications Computing (ECC) businesses. The mandate for Motorola Labs in India is to engage in applied research in converged networks, autonomic networking, enterprise applications, embedded systems, and physical sciences.

Motorola manages nearly all of its global software development in a ClearCase environment for different product builds. ClearCase is a software artifact management tool that streamlines software development. It accelerates release cycles by supporting unlimited parallel development; unifies the change process across the software development cycle; and scales from small teams to the enterprise without changing tools or processes. The new developments are tested, and if approved, progress to sample manufacturing. With almost all of Motorola's development on ClearCase, any dip in performance affects Motorola worldwide. To address this challenge, Motorola needed a new storage solution that would eliminate bottlenecks in the ClearCase environment and scale effortlessly to accommodate rapid growth.

The power, reliability, and dramatic scalability of the EMC® Symmetrix® DMX storage system stood out from the competition, and combined with EMC Global Services support, was deemed the best solution for Motorola's dynamic and quickly expanding R&D environment in India.

"EMC has come through and gained our trust in a very tangible way," says Tamil Mani, site manager. "Thanks to EMC technology, processes, and people, Motorola India is seen as a highly successful extension of our Global Software Delivery team, and our colleagues worldwide now learn best practices on information storage and management from us."

Business challenges resolved

In operation for more than a year, the high-performance, high-capacity EMC Symmetrix DMX™ system, complemented by EMC PowerPath® path management software, has more than dou-

“Proactive consultancy from EMC on all things—even beyond storage—significantly benefits Motorola India. EMC understands our business and our needs.”

Ramamoorthy Velayutham
Country Manager, IT

bled the rate of I/Os per second and reduced component build uploads by 12 hours. The EMC Symmetrix DMX system also supports non-stop availability. Since deployment, it has never been down.

Simplified storage management is facilitated through EMC ControlCenter® software and EMC Solutions Enabler application programming interfaces (APIs). EMC ControlCenter software also is used to monitor the performance of the EMC Symmetrix DMX and host servers.

For an added measure of data protection, EMC TimeFinder® software and a Veritas NetBackup application are used to clone data stored in the EMC Symmetrix system and make a copy of the ClearCase database available for rapid backup-to-tape processes.

The EMC Symmetrix DMX system, currently supporting both versioned object base (VOB) and view databases of the ClearCase application, will be augmented by EMC's newest and most powerful system, the EMC Symmetrix DMX-3, which is expected to be in operation by the end of the year. EMC Symmetrix Remote Data Facility (SRDF®) software will be used for migrating the VOB database from the EMC Symmetrix DMX to the new EMC Symmetrix DMX-3 system to help ensure downtime for migration is minimal.

EMC's world-class service

Strengthening the inherent reliability of EMC storage hardware is EMC dial-home capability, a remote diagnostic service that identifies problems and potential risks and escalates resolution before they can impact operations. At Motorola India, occasional disk spindowns have been automatically called in to the EMC lab for support, even before Motorola India's technical staff was aware there was an issue. The faulty components were promptly changed out by EMC service engineers, even when these situations occurred during late evening and weekend hours.

In addition, comprehensive, online EMC eService Support Tools have been useful in enabling Motorola's technical team to quickly and easily submit, track, and resolve any issues that arise.

“Today, with sustained information growth and rising information complexity, it is a great challenge for organizations to be able to quickly access resources to stay ahead,” says Ramamoorthy Velayutham, country manager, IT. “With EMC eService Support Tools we have been able to submit our case requests, access EMC's Knowledgebase to quickly get answers, and solve our issues more easily.”

All of these proactive efforts enable Motorola India to assess its business objectives to design and align its R&D developments.

“Proactive consultancy from EMC on all things—even beyond storage—significantly benefits Motorola India,” says Velayutham. “EMC understands our business and our needs.”

NZZ Group

NZZ Group publishes the Neue Zürcher Zeitung—one of the oldest newspapers in existence—225 years.

Business Challenge

To provide secure storage and rapid access to the newspaper's centuries of digitized records.

EMC Solution

EMC Centera provides highly available, fast online access to large, fixed-content databases up to the petabyte range. In 1999, an EMC Symmetrix system was deployed and an EMC Celerra system was also deployed as a file server. Since that time, the NZZ Group has integrated the whole storage landscape through EMC Connectrix into a SAN solution. In the context of migrating from Exchange 5.5 to Exchange 2003, NZZ Group will create the e-mail archive with EMC EmailXtender.

Business Benefits

- **Fast, online information access**—EMC Centera provides highly available, fast online access to large, fixed-content databases, up to the petabyte range.
- **Cost savings**—The archive would have been significantly more costly using conventional storage technology.
- **Service expertise and support**—Service, such as call-home remote maintenance, automatically notifies EMC technicians if any problems occur, so NZZ knows EMC is always there.



EMC Centera helps archive 225 years of newspaper history

Neue Zürcher Zeitung (NZZ) Group publishes the “Neue Zürcher Zeitung”—one of the oldest newspapers in existence—225 years. Since 1780, when the first issue debuted, two million pages have been written and printed. Under NZZ’s “Archive 1780” project, all of this material, including pictures and advertising, is being digitized and made available in an electronic archive—first internally as a research tool for the house editorial staff and, in a second stage, to the public.

A highly scalable, cost-efficient EMC® Centera® content-addressed storage (CAS) solution is a critical component of the “Archive 1780” project. It provides secure storage and rapid access to the newspaper’s centuries of digitized records.

“For a long time we’ve been dreaming of digitizing the complete archive back to 1780—which was only available on microfilm—and providing it in electronic format with full-text search capabilities,” says Rolf Brun, head of IT. “Regarding the time span covered and the technical procedure, this project is unique worldwide. I am not aware of anything comparable.”

The Fraunhofer Society helps develop an automated imaging process and text recognition support

The NZZ Group management and its IT team decided to collaborate with the Fraunhofer Society, which runs the Institute for Media Communication (IMK) in Sankt Augustin in the North-Rhine region. IMK had already created a multi-media Beethoven archive, and offered its support in the process development for the “Archive 1780” project. In 2004, the IMK competency center, NetMedia, and a specialized service provider, ScanPlex, tackled the fully automated digitalization of NZZ Group’s 1,503 microfilms.

“We’re talking about two million pages of newspaper,” says Brun. “Manually scanning, revising, and indexing would have taken dozens of man-years and would simply not have been affordable.”

To enhance legibility, equalization and focusing are also done without manual intervention, except for about five percent of the pages in particularly poor condition. This automated functionality helps address the challenges associated with imaging microfilms from newspaper pages bound into books, often with wavy pages, and a spine clearly distinguishable in the middle.

Cleanly scanned data is only half the job. As an aid for readers with no knowledge of Gothic type and to be able to extract index information for full-text searches, the text must also be con-

“Centera significantly facilitated our project planning. This solution specifically targets our problem. The archive would have been significantly more costly with conventional storage technology. Actually, Centera made the whole project possible.”

Rolf Brun
Head of IT

verted into machine-readable format. In the past, paper and print quality varied. For example, after the Second World War, paper was sometimes so thin that the reverse of the sheet was also visible on the microfilm.

Another problem is the varying typefaces. Until 1946, NZZ was set in Gothic type, and most text recognition programs (OCR) did not support Gothic type. Appropriate standard software was eventually found in Abby FineReader XIX. At two minutes per page, the effort of this OCR process was considerable. In order for the text recognition not to take years, IMK ran a Windows cluster with 20 PCs just for this process.

Alongside the digitization, IMK is also taking on the programming of the Web application for archive access, thereby providing the whole process. Entirely in line with NZZ's IT policy, IMK is aiming for open standards and open-source software.

“This is not a project that can simply be pulled out of the bag, but real pioneer work,” says Brun.

Object-oriented archive solution by EMC

At the end of the conversion process, the page produced is converted to current PDF format and an XML file with the metadata for the search added for each PDF. Altogether, a memory requirement of between two and four megabytes per page is anticipated.

With two million pages—even with high compression—huge amounts of data still accumulate. The archive takes up almost 10 terabytes. The relatively expensive disk arrays on which the NZZ Group's SAP system stores data would not be economical for this type of archive. Also, since it is used for read-only purposes, direct-write access is not necessary. Tapes and other removable media would be unsuitable as well. Online research requires fast read access to the entire data pool.

To solve this challenge, NZZ chose EMC Centera which provides highly available, fast online access to large, fixed-content databases up to the petabyte range.

“Centera significantly facilitated our project planning,” says Brun. “This solution specifically targets our problem. The archive would have been significantly more costly with conventional storage technology. Actually, Centera made the whole project possible.”

Investment in the future

The choice of hardware and service suppliers for the “Archive 1780” project was obvious. For six years, the NZZ Group has consistently relied on EMC solutions.

Following an in-depth evaluation, an EMC Symmetrix® system was deployed in 1999. An EMC Celerra® system was also deployed as a file server. Since that time, the NZZ Group has integrated the whole storage landscape through EMC Connectrix® into a storage area network (SAN) solution. EMC technology has enabled NZZ Group to replace storage units directly connected to its servers and benefit from a centralized storage solution with sufficient storage capacity and dynamic allocation.

Based on the success of the recent Centera deployment, NZZ is already considering further possibilities that will leverage the technology.

“In the context of migrating from Exchange 5.5 to Exchange 2003, we will create the e-mail archive with EMC EmailXtender®, installing the Centera as the target system,” says Bruno Friedli, head of System Support. “In the medium run, we see further possibilities. For example, since 1999 we have been scanning and storing all billing documents in accordance with jurisdiction in an IXOS archive. Until now, we have been using optical removable media—which could also be directly displayed on Centera.”

EMC's storage expertise also played a major role selecting EMC for this project.

“We appreciate the fact that EMC is focused on information storage solutions,” says Brun. “Along with the solution's quality, service was also a decisive factor, such as call-home remote maintenance. It automatically notifies EMC technicians if any problems occur, so we know EMC is always there.”

Paradise Casinos

Bordering California and Arizona, Paradise Casinos operates two casinos with over 800 slot machines, live bingo, blackjack, poker, fine dining, and live music.

Business Challenge

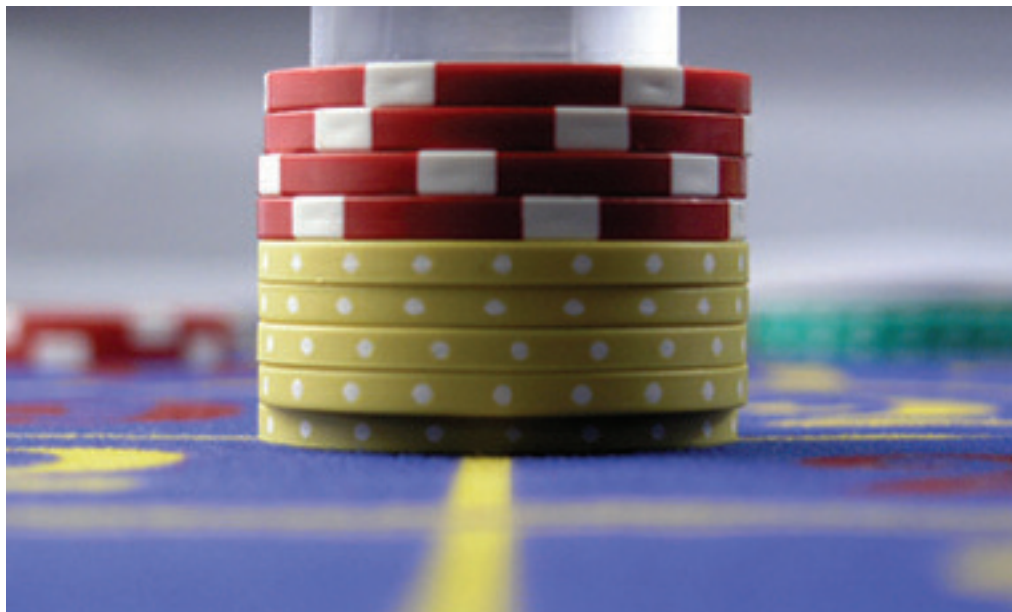
To achieve better backup performance, protect more data at a lower cost, and enable the level of business continuity and disaster recovery needed.

EMC Solution

EMC Avamar solutions provide 100-percent backup success rates, data replication between sites, and the ability to restore data quickly—all of which are critical for 24x7 operations.

Business Benefits

- **Faster backup**—Overall network traffic was reduced by nearly 99 percent and backup windows were shortened from 10 to 12 hours to less than one hour for most systems.
- **Improved end-user productivity**—User-initiated restores through a straightforward, point-and-click interface significantly improve end-user productivity and reduce IT staff support.
- **Rapid return on investment**—Eliminating costly license fees, reducing IT workload related to end-user restores, and maintaining 24x7 operations on all systems ensure a rapid ROI.



EMC Avamar solutions protect data and keep operations running 24x7

Paradise Casinos represents world-class entertainment facilities operated by the Quechan Indian tribe. Located in the desert southwest on the borders of California and Arizona, the business operates two casinos with over 800 slot machines, live bingo, blackjack, poker, fine dining, and live music.

A new 250-room hotel, which will provide an even broader range of gaming and entertainment options, is being built to accommodate increased business. This expansion, along with the implementation of a new hotel reservation system, are expected to drive up the amount of data the organization needs to protect. In the first year alone, data is forecasted to triple.

Paradise Casinos realized that its legacy data protection products and practices would not be able to keep up with increasing volumes of data or provide the speed of recovery needed to protect the revenues of its 24x7 operation. In addition, the company wanted to leverage its multiple facilities to support a replicated disaster recovery solution.

To achieve better backup performance, protect more data at a lower cost, and enable the level of business continuity and disaster recovery its business demands, Paradise Casinos chose industry-leading EMC® Avamar® solutions.

“In our gaming environment we cannot afford downtime,” says Pete Uribe, IT director. “If our systems are down, we lose revenue. EMC Avamar solutions provide us with 100-percent backup success rates, data replication between sites, and the ability to restore data quickly—all of which are critical for our 24x7 operations.”

Data protection and business continuity

Paradise Casinos’ 24x7 entertainment venues are supported by many business-critical, gaming-specific systems that include player tracking, slot accounting, table games accounting, and point-of-sale. These systems, as well as other internal files, applications, mail servers, and workstations, all run on Windows and leverage direct-attached storage. A small, highly efficient IT staff of four people is responsible for maintaining continuous system operations—critical for driving revenues. The staff operates two data centers, one in California and one in Arizona.

“In our gaming environment we cannot afford downtime. If our systems are down, we lose revenue. EMC Avamar solutions provide us with 100-percent backup success rates, data replication between sites, and the ability to restore data quickly—all of which are critical for our 24x7 operations.”

Pete Uribe
IT Director

Challenged with growing data volumes and an increasing need for data protection, Paradise Casinos’ legacy backup infrastructure and methodologies were becoming increasingly burdened. The amount of data being backed up was driving longer backup windows, and those backups did not address all the data Paradise Casinos wanted to protect. In some cases, backup jobs were not completing, and the ones that did took between 10 and 12 hours, which represented a significant business interruption cost when applied to the core systems for gaming operations.

End-user workstations presented another data protection challenge; they were not being backed up directly. End users moved critical file system data to shared file servers which were then backed up to tape. Supporting the desktop users’ restore requests within this environment took nearly 30 percent of the already stretched IT team’s time.

Another major driver for architecture re-evaluation at Paradise Casinos was a need for a disaster recovery strategy that enabled the replication of data between sites and allowed for rapid restore. Disaster recovery practices within the legacy environment involved shipping tapes offsite for both locations, putting the desired recovery-time objectives (RTOs) after system failure or disaster out of reach.

Paradise Casinos quickly recognized that EMC Avamar solutions would significantly improve the scope and efficiency of its overall data protection infrastructure. Through the EMC Avamar solutions’ patented data reduction and single-instance store technologies, Paradise Casinos reduced overall network traffic by nearly 99 percent, and dramatically shortened backup windows from 10 to 12 hours to less than one hour for most systems.

EMC Avamar solutions’ capabilities were also leveraged to protect previously unprotected workstations and now enable user-initiated restores through a straightforward, point-and-click interface. These self-service restores have significantly improved end-user productivity and reduced the amount of support required by the IT staff.

Paradise Casinos also was able to leverage EMC Avamar technology to efficiently move data between its two locations across a wide area network. Bi-directionally replicating data from one site to another has enabled the company to gain unsurpassed data protection, with each casino providing a disaster recovery location for the other. Because the data is stored on disk rather than tape, it can be quickly and efficiently retrieved, providing a recovery time that exceeds Paradise Casinos’ desired RTO.

A rapid return on investment

Paradise Casinos believes that its EMC Avamar solutions will pay for themselves in less than a year. The return on these investments comes from a combination of factors that include the elimination of costly license fees, a reduction in IT workload related to end-user restores, and the ability to maintain 24x7 operations on all systems.

RadioFrame Networks

RadioFrame Networks delivers solutions that help telecommunications operators enhance coverage and capacity, including wireless LAN service for voice and data.

Business Challenge

To create a new generation of wireless hardware and software that delivers greater capability and productivity for end users.

EMC Solution

The EMC Avamar solution uses a grid architecture that can be easily and seamlessly scaled, enabling a company to quickly and non-disruptively address data growth and retention requirements with additional storage capacity. The solution also uses redundant array of independent node (RAIN) technology, which provides high availability and fault tolerance.

Business Benefits

- **No data redundancy**—EMC Avamar eliminates all redundant data at the source, which reduces the network traffic for backup by 99 percent, storage requirements by 90 percent, and total cost of ownership by 50 percent.
- **Shorter backup windows**—Backup windows have been reduced from 37 hours to an hour and a half.
- **Reduced disaster recovery time**—Since deployment, disaster recovery times have been cut from eight hours to minutes.



EMC Avamar solution supports rapid backup and restore for a fast-growing company

RadioFrame Networks' mission is simple and revolutionary: to create a new generation of wireless hardware and software that delivers on the promise of greater capability and productivity for the end user. Its solutions help telecommunications operators enhance coverage and capacity, including wireless LAN (WLAN) service for voice and data.

RadioFrame was using conventional tape for its data storage, which was becoming a challenge because backup data was increasing while the backup window was decreasing. This left the company with too much data to protect in a short amount of time. Data recovery time also was becoming unacceptable.

An EMC® Avamar® solution was chosen to replace the company's tape-based system. The technology uses client software agents that eliminate all redundant data at the source, which reduces the network traffic for backup by 99 percent, storage requirements by 90 percent, and total cost of ownership by 50 percent. Since deployment, backup windows have been reduced from 37 hours to an hour and a half, and file recovery by the user takes seconds—without IT staff assistance. Disaster recovery times also have been cut drastically from eight hours to minutes.

"RadioFrame Networks is a pre-IPO company on the fast track to substantial growth," says Chris Smith, IT manager. "The EMC Avamar solution gave us the flexibility and competitive advantage we were looking for in a product to back up and restore our data—and within timeframes that were unmatched by any other vendor."

Remote office data no longer a challenge

Leveraging the EMC Avamar solution, the company can take advantage of increased operational efficiencies to meet the new organizational requirements for its data centers, remote facilities, and distributed clients. Centralized protection of remote office data is done over an existing WAN infrastructure using the EMC Avamar solution's patented global data de-duplication technology, which had reduced data from 700 to 36 gigabytes, dramatically decreasing the backed up data that must be transmitted over the network.

The EMC Avamar solution uses a grid architecture that can be easily and seamlessly scaled, enabling the company to quickly and non-disruptively address data growth and retention

“RadioFrame Networks is a pre-IPO company on the fast track to substantial growth. The Avamar solution gave us the flexibility and competitive advantage we were looking for in a product to back up and restore our data—and within timeframes that were unmatched by any other vendor.”

Chris Smith
IT Manager

requirements with additional storage capacity. The solution also utilizes patented redundant array of independent node (RAIN) technology, which provides high availability and fault tolerance.

A highly efficient, cost-effective disaster recovery solution

RadioFrame had to ensure that all corporate and client data could be effectively recovered in the event of a disaster. The company’s previous disaster recovery mechanisms relied on tape-based solutions, which meant transporting tapes to an offsite location, and using the archived tapes to restore a data center at an alternate location in the event of a disaster. This involved significant cost and manual effort.

Delivering a much more effective approach to disaster recovery, the EMC Avamar solution provides offsite replication of backup data over the existing network infrastructure. It ensures the backup data is retained online for rapid recovery if a disaster occurs. Data is also replicated into a datacenter located in Chicago, IL. These capabilities have enabled RadioFrame to implement a highly efficient and cost-effective disaster recovery solution.

Positioned for success

The EMC Avamar solution benefits RadioFrame by helping it meet regulatory compliance through the implementation of improved internal controls. It is providing peace of mind to the company’s executives and network analysts, and it is facilitating the ability to better support the growth of corporate and customer data. All of these advantages help RadioFrame further strengthen its leadership position in the wireless infrastructure industry.

Screen Actors Guild

The Screen Actors Guild is the United States' premier labor union representing nearly 120,000 actors in film, television, industrials, commercials, and music videos.

Business Challenge

To create a new, dynamic website that would empower its members to access the information they needed on their own, 24x7.

EMC Solution

EMC Documentum Content Services for BEA WebLogic Portal enables SAG employees to securely access, contribute to, and interact with all types of content through the portal interface. Using Documentum Web Publisher, SAG developed XML-based templates for easy web publishing. The Documentum system integrated with Captiva InputAcce! helps automate the capture of millions of documents.

Business Benefits

- **Customer/employee satisfaction**—Improves service to members while saving SAG staff time.
- **Easy, user-friendly processes**—Empowers staff to publish content easily without HTML programming knowledge.
- **Reduced costs**—The Documentum solution slashes operational costs by reducing paper-based processes, decision-making time, and redundant activities.



Improving service to members with dynamic website and better contracts management

Business overview

The Screen Actors Guild (SAG) is the United States' premier labor union representing actors. Established in 1933, SAG today has 20 branches nationwide and represents nearly 120,000 actors in film, television, industrials, commercials, and music videos. The guild exists to enhance actors' working conditions, compensation, and benefits, and to be a powerful, unified voice on behalf of artists' rights.

Challenges

As with most nonprofit organizations, the guild's mission is to deliver the best service it can for its constituents, using limited funds and resources. SAG needed to provide better service to its dues-paying members, as well as agents, producers, casting directors and publicists, but several obstacles stood in its way.

Information trapped in millions of paper documents

By 2003, SAG had several million documents—myriad contracts and legal documents, resumes, claims forms, payment schedules, cast lists, photos, and video—stored in file cabinets and boxes in various onsite and offsite locations. Having multiple silos of paper-based information resulted in many duplicate efforts, excess costs, and error-prone processes that impeded the guild's ability to operate efficiently.

Static website insufficient

To get answers to their questions about contracts, residuals (money owed them), schedules, and so on, performers had to call the organization and wait while SAG staff looked for the information, which could be on paper, in a file cabinet, or on someone's hard drive. Sometimes it took hours or even days to locate requested information. Some data was accessible via the static SAG website (www.sag.com), which kept three full-time HTML programmers busy, but the SAG Board of Directors knew that the time had come to create a new, dynamic website that would empower members to access the information they needed on their own, 24x7.

“We were confident that the Documentum solution could address all our content management issues, from web content management to contract management and digital asset management, and that it would not only bring us into the twenty-first century but also position us well for the future.”

Beverly Kite
Chief Information Officer

Contract renewals require extensive knowledge of past contracts

One of the primary functions of the Screen Actors Guild is to help negotiate contracts for its members. The business rules surrounding SAG contracts are extremely complex. Every three years contracts must be renewed, which requires SAG negotiators to revisit previous contracts and clauses and attempt to remember—based on notes kept on hard drives, sticky notes, and in people’s heads—why certain clauses were negotiated the way they were. Whenever people involved in the negotiation process left the organization, they took with them important contract knowledge that was difficult or impossible to replace. According to Beverly Kite, chief information officer at SAG, “We desperately wanted to develop an electronic bank of intellectual capital, especially with respect to contracts.”

EMC Documentum solution

After researching leading content management solutions, SAG chose the EMC Documentum® enterprise content management platform. “We were confident that the Documentum solution could address all our content management issues, from web content management to contracts management and digital asset management, and that it would not only bring us into the twenty-first century but also position us well for the future,” said Kite.

Leveraging tight integration with BEA portal

The first priority was to develop and roll out the new SAG website. SAG chose to implement a BEA Systems WebLogic Portal, in part because of its tight integration with the Documentum platform. With Documentum Content Services for BEA WebLogic Portal, a set of embeddable application components that deliver out-of-box content management capabilities to the BEA portal, SAG employees can securely access, contribute and interact with all types of content—web pages, documents and rich media—through the portal interface.

Using EMC Documentum Web Publisher, SAG developed XML-based templates that enable authors in the corporate office and branch offices to publish web content without needing to know any HTML programming. Documentum workflow passes web content by the Corporate Communications department in Hollywood for review and approval. With only a few mouse clicks, approvers can see exactly how the final web page will appear on the screen. After final approval, the web content is automatically pushed to the SAG website.

Saving time for SAG members as well as staff

The new SAG website has been a huge success, providing dramatically improved service to thousands of SAG members, with additional members added monthly. Instant around-the-clock access to current news, FAQs, contacts, calendars, and other important information means performers can manage personal professional business chores at home and be more productive on the set. For instance, actors can check television or theatrical residuals status; view the latest news on contracts, career seminars, and workshops; and find answers to questions, such as “What’s my minimum day rate for a television series?” or “What’s the per diem on an overnight location?” Before, performers had to place a phone call to find out the answer to these questions—and SAG staff had to spend time searching through paper and computer files for the information.

Providing fresher information faster

In addition, because web content can now be easily authored by non-programmers in the branch offices, important regional content—such as information pertaining to local auditions—is created and published much more quickly than before. Regional offices can add new content or modify existing content on their own using preset Web Publisher templates. Documentum workflow routes the content to the appropriate person in the corporate communications department for verification and approval, and then automatically publishes it to the Web. The result is faster, fresher content, and more of it. And IT staff who previously had to create and edit HTML pages for the regional offices are now free to work on other activities, such as creating additional functionality for the website.

Planning for future service offerings

SAG plans to continue adding electronic services to its website to provide even more benefit for its members. For instance, today the “Locate a Performer” feature on the website contains only basic information about each performer. However, SAG is currently evaluating using the Documentum platform to provide a much richer online directories service. Using EMC Documentum Web Publisher, SAG member performers would be able to create, update, and publish their resumes to the website where casting directors would be able to easily view them. Eventually SAG also hopes to use the digital asset management (DAM) capabilities of the EMC Documentum platform to store and manage photographs, video, and audio for its members. Claims and case management are other areas that SAG hopes to streamline by using the Documentum platform.

Automating capture of millions of documents to create extensive contracts knowledge base

For the contract management system, SAG integrated the Documentum system with Captiva InputAccel. To scan documents into the system, users create an electronic cover sheet from a template with pull-down fields that map directly to object attributes in the Documentum repository. Then they print the cover sheet and place it on top of the documents, which can range from a three-page contract to a 200- or 300-page movie production package, with pink barcode sheets between documents to denote document breaks. When the resulting batch is scanned into the system, a series of InputAccel and Documentum processes automatically assigns the cover sheet attributes to each of the documents that follow and moves the document images and related data to an import folder within the Documentum repository, where they are evaluated for accuracy. A JavaScript and XML configuration file job then moves the information to its appropriate place within the Documentum infrastructure.

As of late 2005, SAG had scanned two million documents into the contracts management system, which is used by 280 SAG employees. Approximately 10,000 archived documents are added monthly, with several million still to go. SAG also recently implemented e-fax technology to enable branch offices to scan new documents directly into the system. With all these documents stored in one, secure searchable repository, SAG is well on its way to developing a powerful bank of intellectual capital related to contracts.

Slashing operational costs, including reducing administrative staff by 75 percent

Having one central repository of shared information has increased efficiency, reduced the chance of misplaced or lost information, and lowered operational costs. For instance, before the Documentum implementation, four administrators were kept busy making copies of the same documents and managing them for different contracts departments. Soon only one administrator will be needed. Copying and faxing expenses have already been slashed. The new solution also replaces an obsolete microfiche system, rows of filing cabinets, and many boxes of offsite storage.

Summary

With the EMC Documentum enterprise content management platform, the Screen Actors Guild has been able to provide a dramatically improved, dynamic website that is providing better service for its members while improving efficiency internally and setting the stage for future benefits. The guild’s Documentum-based contracts management system, containing millions of searchable electronic documents in a common repository, is also enabling the organization to develop its highly desired electronic bank of intellectual capital.

About Documentum software from EMC

Documentum software from EMC Corporation includes enterprise content management solutions that enable organizations to unite teams, content, and associated business processes. With a single platform, EMC Documentum software enables people to collaboratively create, manage, deliver, and archive the content that drives business operations, from documents and discussions to e-mail, web pages, records, and rich media. For more information, visit www.EMC.com/documentum.

About EMC

EMC Corporation (NYSE:EMC) is the world leader in products, services, and solutions for information storage and management. Through information lifecycle management (ILM) strategies, EMC helps enterprises of all sizes manage their growing volumes of information—from creation to disposal—according to its changing value. EMC information infrastructure solutions are at the heart of this mission, helping organizations manage, use, protect, and share their information assets more efficiently and cost-effectively. The result? Information with greater business value and at lower management cost.

TELLAS Telecommunications Company

TELLAS, the leading alternative telecommunications operator in Greece, provides services such as fixed telephony, Internet access, and broadband to more than 750,000 subscribers.

Business Challenge

To improve information storage and management.

EMC Solution

An EMC Symmetrix solution successfully addresses performance and capacity needs. Economical EMC Centera storage archives aging data and keeps retrieval performance at satisfactory levels (near-online).

Business Benefits

- **Information lifecycle management**—EMC Centera enables the transfer and management of aging data to more cost-effective storage, optimizing tier-one storage resources.
- **Active archiving**—EMC Centera enables fast and transparent access to archived data.
- **Maximized business value and lower costs**—EMC storage management software supports increased storage utilization, data availability, and security, while reducing management costs.



EMC helps TELLAS maximize business value from information and minimize operational costs

TELLAS, the leading alternative telecommunications operator in Greece, provides services such as fixed telephony, Internet access, and broadband to more than 750,000 subscribers.

The company's thriving business resulted in a critical need to improve the storage and management of its information. To address these requirements, TELLAS approached its long-time storage solutions provider, EMC, to help introduce more storage tiers for its data; maintain near-online data access; and enable centralized management—all at the lowest possible cost.

Although the existing EMC® Symmetrix® solution successfully addressed the company's performance and capacity needs, a solution was needed to archive aging data and keep retrieval performance at satisfactory levels (near-online). EMC Centera® content-addressed storage was an economical solution that fully met these requisites.

Now the TELLAS staff can also manage, control, and monitor information more effectively using EMC storage management software which supports increased storage utilization, data availability, and security, while reducing management costs.

Active archiving for a TELLAS data management system

Today, access to an online database resides on EMC Centera for fast and transparent access to archived data. Aging data is stored on the cost-effective EMC Centera platform while simultaneously increasing capacity on the more expensive, EMC Symmetrix system without compromising end-user service-level agreements. The solution's successful deployment was achieved through close cooperation between EMC's expert solutions center team and TELLAS' IT department.

EMC Centera has become a key component of TELLAS' information lifecycle management (ILM) initiatives. Its unique functionality, self-healing capability, and rich set of integrated independent software application offerings make it the ideal platform for use as an enterprise archive for the company's digital assets.

“By including Centera as part of our overall ILM strategy, we can effectively transfer and manage aging data on less-expensive storage, and as a result, preserve tier-one storage resources. Both Centera and Symmetrix solutions help us match the right type of data to the right price point of storage. We value EMC’s contributions in making the Centera implementation successful.”

Yiannis Theodorakos
Architecture and
Operations Manager
IT Division

“By including Centera as part of our overall ILM strategy, we can effectively transfer and manage aging data on less-expensive storage, and as a result, preserve tier-one storage resources,” says Yiannis Theodorakos, architecture and operations manager, IT Division. “Both Centera and Symmetrix solutions help us match the right type of data to the right price point of storage. We value EMC’s contributions in making the Centera implementation successful.”

Verizon Business

A global communications giant, Verizon Business provides leading-edge network management to business customers worldwide.

Business Challenge

To move beyond traditional event management and acquire a solution that offers both root-cause analysis and a platform for advanced automation.

EMC Solution

Using EMC Smarts technology, Verizon Business provides industry-leading time-to-repair service-level agreements to nearly 3,200 customers in 149 countries.

Business Benefits

- **Automatic trouble-ticket generation**—EMC Smarts advanced automation functionality improves mean-time-to-isolation by an average of eight to 11 minutes per event.
- **High availability**—With EMC Smarts' automated root-cause analysis, 99.7 percent of alarms can be identified in real time, which helps Verizon Business consistently meet its industry leading SLAs.
- **Fast network restoration**—With the help of EMC Smarts, Verizon Business leads the industry with its three-and-one-half-hour time-to-repair in the U.S., four-hour time-to-repair for third-party managed networks in the U.S. and key global business centers, and six-hour time-to-repair for remote regions of the world.



EMC Smarts provides the technology behind Verizon Business' IMPACT fault management architecture

Verizon Business is borne from a heritage of innovation and excellence. It is also a leading provider of managed network services. In this highly competitive marketplace, Verizon Business differentiates its offerings by providing leading-edge network management to business customers around the world. Today, Verizon Business' patent-pending Rapid Fault Isolation capability and world-class IMPACT fault management architecture, using EMC Smarts® technology, provides industry-leading time-to-repair service-level agreements (SLAs) to nearly 3,200 customers in 149 countries.

Achieving exceptional levels of network availability and performance required Verizon Business to take a new approach to network management. The company needed to move beyond traditional event management and began looking for a new solution that offered both root-cause analysis and a platform for advanced automation.

"As long as our operations team had to deal with the very large number of events generated by the existing IBM Tivoli NetView solution, advanced automation was not possible," says Steven Smith, Verizon Business senior manager, Enterprise Network Systems. "Event reduction through root-cause analysis was clearly our first step."

The importance of root-cause analysis

Verizon Business began to explore root-cause analysis solutions that could integrate with IBM Tivoli NetView.

"I had a single criteria—one ticket for one outage," says Mark Fontes, senior network consulting engineer for Verizon Business. "We were spending too much time reviewing bad tickets and doing manual event correlation."

As Verizon Business' Managed Network Service business grew to more than 1,000 networks under management, its system had to be highly scalable, support multiple technologies, offer ease in adding new devices, and have the ability to feed events into the Verizon Business main-frame in a standardized way.

“The customer networks we manage are dynamic, and topology changes are often not within our control. We needed a root-cause analysis solution that was easy to monitor and maintain. Smarts’ ready-to-use automated discovery, topology, certification of devices, and root-cause analysis worked ‘out of the box’ and were all instrumental in choosing EMC Smarts over other options.”

Steven Smith
Senior Manager
Enterprise Network Systems

After extensive lab testing, Verizon Business made its initial Smarts purchase of Router Connectivity Manager, an early version of today’s IP Availability Manager.

“The customer networks we manage are dynamic, and topology changes are often not within our control,” says Smith. “We needed a root-cause analysis solution that was easy to monitor and maintain. Smarts’ ready-to-use automated discovery, topology, certification of devices, and root-cause analysis worked ‘out of the box’ and were all instrumental in choosing EMC Smarts over other options.”

In 2002, when Smarts released its Service Assurance Manager product, Verizon Business made the decision to retire NetView as its “Manager of Managers” (MoM) and convert to an all-EMC Smarts solution.

According to Smith, Verizon Business’ findings were validated when Network Computing magazine published its “Hot MoMs” article that ranked Smarts Service Assurance Manager as the top product in its class, beating out Aprisma, BMC, and Micromuse.

Achieving advanced automation

With the success of its root-cause analysis deployment, Verizon Business decided to take automation to the next level. A project was begun to integrate the company’s internal IMPACT system to automate first-line fault management operations such as testing, maintenance verification, and ticketing.

“Ten years ago, when we saw that a device was down, we turned to our manual,” says Mark Fontes. “Seven years ago, we looked it up on a Web page. Most recently, we use an Oracle database, but the process was still largely manual. Instead of acting as ‘human modems,’ we wanted to build a process where an event populates the ticket automatically. We wanted a system that could look at three to four alarms, automatically determine if they had a single cause, and open one ticket.”

EMC Smarts provides this functionality, with automation improving mean-time-to-isolation by an average of eight to 11 minutes per event.

Today, automatic trouble-ticket generation is just one advanced feature of the IMPACT system. Integration with change management lets operators know if events are caused by a scheduled change in the network. The system also runs end-to-end circuit tests without operator intervention (required for 80 percent of tickets), updates tickets appropriately, and notifies the customer via pager, e-mail, and Web-based portal.

“This is a complex process,” says Fontes. “Reliable identification of the disruption is the critical first step. Smarts pinpoints the root cause of network issues with amazing accuracy.”

Reaping competitive advantage

Today, with Rapid Fault Isolation capabilities and Smarts-based IMPACT fault management, Verizon Business is offering customers an unparalleled set of SLAs for availability and restoration. The company’s three-and-one-half-hour time-to-repair in the U.S (Verizon Business network), a four-hour time-to-repair for third-party managed networks in the U.S. and key global business centers, and a six-hour time-to-repair for remote regions of the world (all with Verizon Business maintenance) lead the industry.

Faster restorations translate to a significant bottom-line advantage for Verizon Business customers. With industry estimates putting the cost of downtime at \$4.5 million per hour for a large enterprise (Zeus Kerravala, Yankee Group), network availability and performance are absolutely critical.

“Advanced automation makes it possible for us to quickly restore networks when an issue occurs,” says Smith. “With automated root-cause analysis, 99.7 percent of alarms can be identified in real time, which reduces time-to-repair, helps us consistently meet our industry-leading SLAs, and delivers the levels of network availability and performance our customers demand.”

Vodacom

Vodacom is a leading provider of cellular communications in South Africa with a customer base of over 21.5 million.

Business Challenge

To support optimized information management to facilitate improved operations and unequalled customer service.

EMC Solution

An EMC tiered storage infrastructure includes EMC Symmetrix DMX, EMC CLARiiON, and EMC Centera systems. EMC PowerPath is used for automatic load balancing and path failover. EMC SAN Manager, EMC Connectrix Manager, and EMC ControlCenter provide a comprehensive toolset for streamlined administration. EMC Navisphere supports fast and easy administration at the mid-tier. EMC TimeFinder allows for fast, easy, and seamless local backup. EMC NetWorker transfers BCVs. EMC SnapView, EMC SAN Copy, and EMC MirrorView/Synchronous support local and remote replication.

Business Benefits

- **Higher storage utilization rates**—Storage utilization went from 40 to 60 percent since the EMC deployment.
- **Comprehensive backup and recovery**—EMC TimeFinder non-disruptively creates mirror images of active production data enabling fast, easy, and seamless local backup of business-critical systems.
- **Faster time to market**—The capability to rapidly roll out and support new offerings is strengthened by VMware virtualization technology.



An EMC tiered storage infrastructure supports large-scale storage demands

A leading provider of cellular communications in South Africa, Vodacom is undergoing exceptional growth. An average of 500,000 new subscribers are signing on every month, and join a customer base of over 21.5 million—all who have come to rely on Vodacom's world-class mobile network services delivered via a 5,700 base station cellular network.

The company's investment in EMC® storage technology over the years has helped Vodacom support optimized information management to facilitate improved operations and unequalled customer service. In addition, EMC technology is seen as a key enabler in Vodacom's efforts to quickly develop, release, and support new products and services.

Providing approximately 2.4 petabytes of storage capacity, Vodacom's powerful, highly reliable, EMC tiered storage infrastructure includes a combination of EMC Symmetrix DMX™, CLARiiON®, and most recently, EMC Centera® systems, along with state-of-the-art EMC software solutions that allow for simplified management and unsurpassed business continuity.

"EMC understands what it takes to deal with large volumes of data," says Derek Morgan, managing executive, Billing Systems Group. "They also understand the data availability and integrity needs that are required in this type of environment. EMC listens to its customers, giving them the opportunity to direct the development of future products."

Storage designed for business-critical applications

Prior to the deployment of its EMC Symmetrix®-based SAN several years ago, Vodacom's operations were supported by a traditional direct-attached storage-to-server environment. As the company and its IT environment grew, so did its management challenges. The ability to quickly and economically adjust capacity for a growing number of business-critical applications had also become increasingly constrained.

At the time of the evaluation, the EMC Symmetrix DMX had not yet been released, but Vodacom wanted to conduct a proof-of-concept onsite, and they evaluated the EMC Symmetrix model 8830 and found it to be very competitive.

“One of the reasons for Vodacom’s success is the passion and drive of our people—not just the technology. At Vodacom, we want to give to our customers simply the best customer experience. In EMC we’ve found that same passion and drive, and the customer experience that we’ve had with them has been tremendous.”

Derek Morgan
Managing Executive
Billing Systems Group

“EMC’s professional approach was most impressive,” says Morgan. “The entire evaluation was marked by absolutely superb services—and ultimately, that’s what made us choose EMC.”

Today, a multiple-system EMC Symmetrix DMX-based SAN, supported by EMC PowerPath® software for automatic load balancing and path failover, flexibly and reliably address the growing and changing needs of applications vital to Vodacom’s day-to-day operations.

“One of the biggest challenges in our previous environment was that storage utilization was only around 40 to 60 percent,” says Morgan. “In terms of pure storage consolidation, the key advantages we have realized since the EMC deployment are much higher utilization rates, easier management of the storage environment, and the flexibility to adjust capacity as needed.”

Advanced storage and SAN management products, which include EMC SAN Manager™, EMC Connectrix® Manager, and EMC ControlCenter® provide Vodacom’s technical staff with a comprehensive toolset for streamlined administration.

“We rely on all of them,” says Morgan. “That’s how we manage the 2.4-plus petabytes of storage. They provide a simplified approach and give us a single point-of-view.”

Also deployed within Vodacom’s production environment are over 30 EMC CLARiiON® systems which currently provide a high-performance, highly reliable, yet more economical alternative to the company’s tier-one EMC Symmetrix DMX storage. Fast and easy administration at the mid-tier is supported by EMC Navisphere® management software.

“The first CLARiiON systems we deployed were meant for backup to ATA disk,” says Morgan. “However, we’ve found them to be a very good alternative to the high-end Symmetrix for certain applications. The performance is excellent and they’re a good value for the price.”

EMC Centera helps enable compliance for call center records

Vodacom’s most recent EMC deployments include two mirrored 30-terabyte EMC Centera Compliance Edition Plus content-addressed storage systems housed in separate locations. These highly reliable, easily managed and scaled systems replace a demanding archive-to-tape process for NICE Systems voice recording and logging applications within the organization’s call center environment. Fielding approximately 3,000 calls a day, Vodacom call centers from across the region now archive NICE records to the EMC Centera Compliance Edition Plus platform.

“Centera’s integration with NICE applications was seamless, and users have commented that they’ve seen a performance improvement since deployment,” says Morgan. “They can now retrieve an archived call quite fast. It’s also a more manageable solution than tape.”

In addition, EMC Centera’s scalability, guaranteed content authenticity, object-level control of archived records, single-instance storage, and rapid accessibility make it well suited for Vodacom’s growing volume of call center records which are governed by stringent regulations.

“New regulatory requirements will have a big impact on storage,” says Morgan. “In South Africa we’ve recently implemented monitoring and interception. In the past, call data would have only been kept for six months, but now it needs to be retained for three years.”

A comprehensive backup and recovery plan

For a company like Vodacom, even the smallest amount of downtime could have considerable impact. To help ensure that business-critical information is consistently and readily available, the company has implemented a comprehensive backup and recovery plan using advanced local and remote replication technology from EMC.

EMC TimeFinder® software’s ability to non-disruptively create mirror images or business continuity volumes (BCVs) of active production data from EMC Symmetrix DMX storage allows for fast, easy, and seamless local backup of Vodacom’s business-critical EMC Symmetrix systems. EMC NetWorker® is then used to transfer certain BCVs to CLARiiON ATA drives or CD-ROMs.

“Most of the mission-critical applications are deployed on Symmetrix,” explains Morgan. “The issue that normally arises is that there isn’t time to perform any type of backup because the system has to stay up and running. So in our case, the use of TimeFinder BCVs has made a considerable difference.”

EMC TimeFinder also is used to produce production content instantly and without disruption for test systems whenever required.

“Within our billing system, we have 10 different sets of BCVs,” says Morgan. “The fact that we can—very quickly—establish, split off, and mount BCVs on a test system, and go through all the test scenarios for the different test groups’ interfaces with different systems has been very advantageous.”

Key components of Vodacom’s disaster recovery initiatives include industry-leading EMC Symmetrix Remote Data Facility/Synchronous (SRDF®/S), Asynchronous (SRDF/A), and Cluster Enabler (SRDF/CE) solutions.

“The SRDF advantage is point-in-time recoverability on a different site,” says Morgan. “SRDF/Asynchronous gives you the added benefit that high-write I/O systems can also have disaster recovery in the same site without negatively impacting the host I/O. It doesn’t take up any of the server cycles to get the data across to the other site. It’s brilliant.”

EMC SnapView®, EMC SAN Copy™, and EMC MirrorView™/Synchronous are used to support local and remote replication of CLARiiON system data.

“We use MirrorView/Synchronous for cross-site replication, and we use SnapView created clones [point-in-time copies] quite extensively for backup, especially on those bigger systems such as a 60 terabyte database,” says Morgan. “We also use SAN Copy with clones in the same storage arrays, and then SAN Copy to a different box cross-site for disaster recovery.”

EMC Open Replicator for Symmetrix is also part of Vodacom’s backup and recovery strategy and allows the migration of storage from EMC Symmetrix to EMC CLARiiON and from Symmetrix-to-Symmetrix systems.

“If you use SRDF for migrations, it must be the exact same source and target configuration,” says Morgan. “With Open Replicator the source and target don’t have to be configured the same way so we’ve used it quite a bit in that space.”

Managing growth and costs through ILM

Considered a necessity, Vodacom has initiated an information lifecycle management (ILM) strategy guided by EMC’s comprehensive ILM roadmap.

“EMC’s vision for ILM is simply one of the best in the marketplace today,” says Morgan. “We see ILM as the means to help us manage growth while keeping costs manageable.”

Key ILM milestones for the company include the deployment of different tiers of storage to meet different application needs. Applications and information, such as data from the call center system, also have been analyzed and classified for placement on the most appropriate and cost-efficient storage tiers for the job. In addition, backup and archiving processes initially supported by tape now use online storage solutions which provide time, cost, and functional advantages through economical, easily scaled platforms; faster backups and simplified management; and greater accessibility for improved productivity and customer service. The next step for Vodacom will be to introduce policy-based information classification.

EMC storage and VMware virtualization technology speed time-to-market

Vodacom’s continued success is due in part to its ability to develop new and resourceful offerings and go to market quickly. The capability to rapidly roll out and support these new offerings is strengthened by the flexibility to quickly add storage capacity, as well as through VMware® virtualization technology which enables Vodacom to easily and cost-efficiently deploy virtual servers.

“When we tested the VMware solutions, we found that we were able to deploy a new virtual server within a few minutes,” says Morgan. “If you take into account the storage and the server availability made possible through EMC technology, we can quickly release products today that we might not have been able to in the past.”

World-class service and support

EMC Global Services is credited with the rapid deployment of EMC solutions and facilitating integration with top proprietary operating systems.

“Everything was extremely well-handled,” says Morgan. “EMC’s professional approach was exceptional—not only in terms of attitude, but also from the technical standpoint of integrating these solutions with the proprietary operating systems we were using at the time. They would come in, know what to do, and make it work quickly, and that totally impressed us.”

Today residency services are in place to provide ongoing onsite support. In addition two new proof-of-concept engagements are underway including an EMC Smarts[®] solution for improved root-cause analysis on the network side, and an EMC Invista[™] application for networked storage virtualization to better support ILM initiatives.

“One of the reasons for Vodacom’s success is the passion and drive of our people—not just the technology,” explains Morgan. “At Vodacom, we want to give to our customers simply the best customer experience. In EMC we’ve found that same passion and drive, and the customer experience that we’ve had with them has been tremendous.”

Wolters Kluwer Health

Wolters Kluwer Health is a multi-national print and online publishing company that provides information for professionals and students in the healthcare-lifesciences industry.

Business Challenge

To implement a publishing system that reduces cycle and publishing times while enabling greater visibility into the publishing process.

EMC Solution

The EMC Documentum enterprise content management platform enables easier customization and integration with other systems. The EMC Documentum system attaches metadata tags, stores a document, tracks versions, and automates numerous manual processes with workflows and integrations.

Business Benefits

- **Reduced costs**—Production expenses were reduced by \$1.2 million with future annual savings projected at \$2.6 million annually.
- **Faster information availability**—Improved on-time mail delivery and online posting by 15 percent.
- **Information accuracy**—Saved an additional \$150,000 in six months by eliminating errors in advertisement display or placement.



New publishing system to save \$2.6 million annually and improve on-time delivery

Business overview

Wolters Kluwer Health (WK Health) is a leading provider of information and information services for professionals and students in medicine, nursing, allied health, pharmacy, and the pharmaceutical industry. Major brands include traditional publishers of medical and drug reference tools and textbooks, such as Lippincott Williams & Wilkins and Facts & Comparisons; electronic information providers, such as Ovid Technologies, Medi-Span, and SKOLAR; and pharmaceutical information provider Adis International.

WK Health is a division of Wolters Kluwer, a leading multinational publisher and information services company with core markets spread across the health, corporate services, finance, tax, accounting, law, regulatory, and education sectors. Wolters Kluwer has annual revenues (2004) of \$3.3 billion, employs approximately 18,400 people worldwide, and maintains operations across Europe, North America, and Asia Pacific.

Challenges

Each year WK Health publishes more than 33,000 articles in approximately 200 medical journals, newsletters, and other professional publications. During the past five years, as online publishing became more popular, Wolters Kluwer found that its manual systems for moving and tracking content from manuscript through revisions and ad placement to proof production and final publication, both in print and online, could not handle the increasing complex environment. It became much more difficult to know the status of a given manuscript or whether a version was the most current. "Our costs to manually track the manuscripts and all their associated revisions were becoming too difficult to control," said Patti Ward, director of product management for the publishing solutions group of Wolters Kluwer.

Reduce time to publishing and meet mail and online posting dates

In addition, the medical societies and associations that WK Health serves had begun requesting more information about the status of a manuscript or issue, and wanting that information faster than ever before. They also wanted to have both print and online issues finalized in less time to more quickly disseminate relevant and timely medical research information. However,

“Our EMC Documentum-based publishing system is more mission-critical than e-mail. We simply cannot function if it isn’t up and running.”

Patti Ward
Director of Product
Management
Publishing Solutions

with article manuscripts arriving in many different formats and typically needing three or four revision cycles, the scheduled time from acceptance to final publication could slip all too easily.

Being able to meet mail delivery dates and online posting dates is a critical success factor in the commercial publishing industry. Until content has been published and ads run, Wolters Kluwer cannot recognize revenue either from subscriptions or advertising. Consequently, in early 2004, the company began looking earnestly for a publishing system that could not only reduce cycle time but enable greater visibility into the publishing process to allow better tracking and facilitate better communication with customers.

EMC Documentum solution

After conducting a formal RFP process and researching 12 different content management technology solutions, WK Health chose the EMC Documentum® enterprise content management platform. The company especially liked the platform’s open, flexible architecture, enabling easier customization and integration with other systems, and its digital asset management (DAM) capabilities. “Because of challenging past experiences working with small niche vendors, we also felt very comfortable going with EMC, a well established company with a huge R&D investment,” added Ward.

With help from systems integrator Flatirons Solutions, WK Health built a customized publishing management and planning system on top of the EMC Documentum platform, leveraging the platform’s content management functionality, such as version control, lifecycle, workflow, and DAM capabilities. After nine months of design and implementation, the new system was rolled out in March 2005. By September 2005, eight locations—five in the U.S., one in the U.K., and third-party outsourcers in the Philippines and India—were using the system to produce 162 publications. By March 2006, all 14 locations involved in the publication process should be using the new system to produce over 180 publications, 60 of which are being produced in partnership with prestigious medical associations and societies.

Automating numerous manual processes with workflows and integrations

In the past, after a medical researcher or doctor wrote an article, it was reviewed by peers and then sent—via hard copy, CD, or e-mail—to WK Health for publishing. Today a web-based peer review system feeds the article directly into the secure EMC Documentum system which attaches metadata tags, stores the document, and tracks versions. The system also kicks off a series of complex Documentum-based workflows that manage the whole planning and production process for each manuscript and issue, from copy-editing and approvals through proof production and printing or online posting. Two-thirds of the steps in all the workflows are automated, eliminating numerous manual processes.

Integrations with other systems also help eliminate manual processes and paper shuffling. For instance, integration with WK Health’s advertising billing and accounting system eliminates the manual tasks of re-entering critical article, issue and advertisement information into multiple back office systems. The new publishing system is also integrated with Ovid Technologies’ online aggregation service (www.ovid.com). Third-party outsourcers create SGML renditions of the articles which the Documentum system then validates and automatically delivers to the Ovid system so that Ovid subscribers can conduct searches and click on links that include WK Health–published articles. Workflow also ensures that issues become available according to embargo dates and other publishing rules.

Expecting savings of \$2.6 million annually in operational expenses

By using the Documentum-based system to eliminate manual tasks and redundancy, WK Health is on track to reduce operating expenses by 10 percent, or \$1.2 million, in its first year of operation. The company expects to save \$2.6 million annually in future years. If all goes as planned, WK Health expects will have recovered its initial investment in well under two years.

Reducing cycle times boosts on-time delivery by 15 percent

Having a shared repository, automated workflow, and additional time-saving functionality from the EMC Documentum platform greatly accelerates previously manual processes. For

instance, WK Health users can create, on the fly, low-resolution thumbnails of illustrations and advertisements. With this EMC Documentum Media Transformation Services feature, workflow can automatically produce PDF renditions for review that incorporate low-resolution images, and final renditions that incorporate the correct high resolution images. As a result, within six months of operation, the new system has reduced the cycle time from manuscript to publication by 10 percent. WK Health anticipates reaching its goal of a 30 percent reduction in cycle time within two years.

Improving quality control saves thousands of dollars in ad revenue

Built-in version control and audit trails within the Documentum platform make it easy to know which version is the most current and what the status is of any given manuscript. “When the Internet boom hit and authors started submitting content in so many different formats, our quality was hard to control,” explained Ward. “But with our new publishing system our quality is going up.”

Commercial publishers like Wolters Kluwer cannot recognize advertising revenue on their books until the issue the ad is in has been released to the market. If the ad does not run correctly, then the advertiser does not have to pay. According to Ward, “The journals running on the Documentum platform haven’t had any advertising mistakes. By catching errors before publication, the new system has already saved us \$150,000 this year compared to the same six months last year.”

Creating additional revenue opportunities through content reuse and multichannel publishing

Before the new system was implemented, the company could not easily locate and reuse content. With the new system, however, WK Health can easily take content intended for print publication and repurpose it for online articles. Being able to easily publish the same or similar content to multiple channels creates additional revenue opportunities for the company.

Satisfying customers with increased visibility, faster turnaround, and XML

The medical societies and associations served by WK Health are very pleased with the new system. “One prominent medical association was skeptical at first, but when we showed them how easy it was to use and how much better informed they could be, they were sold,” said Ward. “Customers love the increased visibility as well as the faster turnaround of articles.”

In addition, with the new publishing system, WK Health is well prepared to meet future customer demands. For instance, with EMC Documentum Digital Asset Manager, the company can manage video clips and other rich media as authors start delivering those to supplement their static print and online articles. Also, as more and more journals move to publishing in an XML-based format, WK Health is ready. The company is already using the new publishing system to convert article manuscripts into XML and perform all the copyediting, proofreading, and proof production without having to involve an outsourcer.

Summary

Wolters Kluwer Health is extremely pleased with its new publishing system. “Our EMC Documentum-based publishing system is more mission-critical than e-mail,” said Ward. “We simply cannot function if it isn’t up and running.” Managing publishing processes from planning and scheduling through article review and distribution, the new system is already saving the company hundreds of thousands of dollars in operating expenses and ad revenue, reducing cycle time, improving on-time delivery, and creating satisfied customers. It is also on track to pay for itself in less than two years.

About Documentum software from EMC

Documentum software from EMC Corporation includes enterprise content management solutions that enable organizations to unite teams, content, and associated business processes. With a single platform, EMC Documentum software enables people to collaboratively create, manage, deliver, and archive the content that drives business operations, from documents

and discussions to e-mail, web pages, records, and rich media. For more information, visit www.EMC.com/documentum.

About EMC

EMC Corporation (NYSE: EMC) is the world leader in information storage systems, software, networks, and services, providing automated networked storage solutions to help organizations get the maximum value from their information, at the lowest total cost, across every point in the information lifecycle. Information about EMC's products and services can be found at www.EMC.com.

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