

# Aurora Health Care



## EMC and Oracle speed data warehouse upgrade, minimize backup times, and improve performance and efficiency

Nationally recognized as a leader in improving the quality of care, not-for-profit Aurora Health Care is the largest provider in Wisconsin. Its extensive healthcare network, consisting of 14 hospitals and more than 100 clinics across the state, is dedicated to delivering accessible, leading-edge preventative and critical care.

Impacted by diminishing performance, declining capacity, and a lengthy backup process, Aurora recognized it was time to upgrade its Oracle-based data warehouse infrastructure which supports a business-critical Care Management and Urban Population initiative. This initiative involves the collection of data from various systems, which is analyzed in many ways to provide valuable information on how the organization is performing. For example, it can provide details on what procedures were done, how often, and how successful they were based on patient outcomes.

A satisfied EMC customer for nearly a decade, Aurora turned to EMC again to help determine the best way to upgrade for optimum results. EMC recommended the EMC Oracle Database Layout Accelerator Proven Solution, a best practices EMC Services engagement that brings together cutting-edge products and expertise from both EMC and Oracle.

This comprehensive assessment and implementation solution was the conduit to an expeditious and successful transition to a new and larger AIX server environment running an upgraded Oracle *9i* database connected to EMC Symmetrix® DMX storage. The environment also supports new Oracle *9i* AS Discover and Oracle *9i* AS Portal applications. EMC

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also assisted Aurora with the integration of EMC TimeFinder® software into the environment to facilitate a reduced data warehouse backup cycle and rapid recovery.

“EMC Services gave us the expertise to carry out our Oracle Data warehouse infrastructure upgrade and also helped us cut our backup window from 12 hours to 20 minutes,” says Dick Sirianni, project leader for Technical Systems.

### **A necessary transition**

An older server, with a combination of internal disks and assigned volumes within the EMC Symmetrix DMX™, was at the core of Aurora’s previous data warehouse infrastructure. The server, which was running older versions of AIX O/S and Oracle software, was beginning to show signs of strain as the growth of the data warehouse environment began to accelerate. Backup within this rapidly expanding setting also was an issue and involved bringing down the data warehouse for up to 12 hours. This backup window often ran into business hours and affected production applications. In addition, data recovery had become a slow and tedious process.

Delivered by EMC Services, the EMC Oracle Database Layout Accelerator Proven Solution assisted Aurora’s IT staff in the effective layout of its *gi* database on the EMC Symmetrix DMX. It also helped them optimize the database on the EMC Symmetrix DMX for I/O, memory, CPU utilization, and volume management.

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**Dick Sirianni**  
**Project Leader for Technical Systems**

Although Aurora’s IT staff had been using EMC TimeFinder scripts in the organization’s IDX application environment, which handles things such as patient scheduling and billing for the more than 100 of the organization’s clinics, they had never used them in the Oracle environment—until now. It was through the EMC Oracle Database Layout Accelerator Proven Solution engagement that Aurora learned about EMC/Oracle best practices for backup and recovery, naming conventions, DMX architecture, and related topics.

Today, the integration of these EMC TimeFinder scripts into the Oracle environment has reduced the backup window by well over a business day, while providing Aurora with a fast and easy recovery process.

“One of the big advantages of TimeFinder is a rapid restore,” says Gary Weckwerth, IT operations director. “When part of the Oracle database was corrupted, TimeFinder was able to handle the restore piece in less than two hours. In our previous environment it would have meant a 24-hour-or-more outage before restoration.”

“It gave us a good feeling knowing that we could actually do with TimeFinder what we said we could do with it,” adds Sirianni.

EMC TimeFinder functionality also will soon be used to enable the IT staff to easily test an application before it is run in the production Oracle database environment. Previously, when analysis was done, daily queries/reports would go against production and would sometimes cause a drop in performance, or corrupt the data element or database. With EMC TimeFinder, a duplicate of the production environment can be created and used for a test database to ensure good results so that production is not affected.

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## A strong EMC presence

Aurora also continues to rely on EMC solutions and service to support other areas of the organization. In addition to supporting the Oracle data warehouse for Care Management, Aurora's EMC Symmetrix DMX-based SAN also is used to meet the storage needs the organization's IDX clinical application. Designed for data-intensive, high-transaction environments such as Care Management and IDX, EMC Symmetrix DMX storage has been supporting rapid, non-stop information access for over 3,000 IDX users and approximately 50 Care Management analysts since its deployment two years ago.

"It's great technology," says Weckwerth. "The performance and availability have always been there for us."

Centralized management for Aurora's EMC Symmetrix DMX-based SAN as well as HP and IBM arrays is covered by several EMC ControlCenter® family products including SAN Manager™, StorageScope™, and StorageScope File Level Reporter, Symmetrix Manager, and Symmetrix Optimizer.

SAN Manager, which provides zoning and LUN masking capabilities, is used by Aurora's IT staff to quickly and easily configure systems as they go onto the SAN.

StorageScope software tracks storage on servers to improve asset utilization and performance across the organization's heterogeneous storage environment. It is augmented by StorageScope File Level Reporter which extends StorageScope's monitoring and reporting functionality providing file level details for even greater control.

"We actually found a problem that was happening on Care Management with StorageScope," explains Sirianni. "We had a partition that had a particular log file in it that was filling up faster than we anticipated. StorageScope caught it, and we averted a possible outage."

EMC Symmetrix Manager and Symmetrix Optimizer are used specifically to configure EMC Symmetrix DMX storage and keep it running at peak performance levels.

"The benefit of the EMC ControlCenter family is in the whole integrated package," says Sirianni. "It gives us a single solution for monitoring and managing the environment. Also, the ability to only have to learn and use that one integrated tool is certainly a lot better than having to learn and maintain multiple tools."

Valued for the same reason in the IDX environment as in the Oracle data warehouse environment, EMC TimeFinder backup software is appreciated in for its ability to keep backup windows to a minimum.

"IDX is a 24x7 operation," says Sirianni. "TimeFinder makes it possible to perform backup with only a few minutes of outage every night on that application."

EMC CLARiiON® CX series storage was initially purchased to centralize all of Aurora's Intel-based storage on a highly available, yet cost-effective platform. Today, it supports about 20 different applications including a visual ICU monitoring system and a Neurology Center diagnostic/analysis application used for epilepsy patients.

The replacement for a small server with internal storage, the EMC CLARiiON system has been especially valuable to the Neurology Center which previously had to save much of its data to CDs and file it away to conserve storage space. Unfortunately, when archived data needed to be reviewed, it had to be tracked down and reloaded it into the system, which was a time consuming process.

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Today with EMC CLARiiON in place, everything stays online. The Neurology Center now has two pools of storage: a small pool of Fibre Channel drives reserved for high speed information access and a secondary, larger pool containing economical ATA drives for archives.

Like EMC ControlCenter functionality for streamlined Symmetrix DMX management, Aurora employs EMC Navisphere®, a similar management software solution, for the EMC CLARiiON environment.

### **EMC Proven lives up to its reputation**

Impressed with the way products and support came together, Aurora's IT team credits the EMC Oracle Database Layout Accelerator Proven Solution with their ability to speed the Oracle upgrade process and build the database for high availability, rapid recovery, and growth on their EMC Symmetrix DMX system. The success of the endeavor has set the stage for engaging EMC in other Oracle-related service activities that may arise in the future.

"One of the bigger benefits in working with EMC Services was the focus and expertise they brought to the table to help us successfully address our challenges," concludes Weckwerth.



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