

Case Study: Alameda County Medical Center

The Company

Alameda County Medical Center (ACMC) is a regional institution that includes 236 bed Highland hospital and its Trauma Center, a 80 bed psychiatric hospital, a 159 bed Skilled Nursing and Acute Rehabilitation facility and three ambulatory clinics all located in Northern California. The IT infrastructure is critical to the daily operation of the medical center--with over 1,500 desktops (350 thin clients currently) and 140 servers. A lean operations team manages this complex environment with a 70:1 server to administrator ratio, making management and automation vital to successfully delivering quality data services.

The Need

Wright Lassiter, III, who became CEO of the Medical Center in 2005 spent the first months assessing the strengths and needs of ACMC. The Medical Center's Information Technology Group headed by CIO, Ed Dullard, along with Dave Bennett, Director of Technology and Tech Support determined the need to create additional operational efficiencies and infrastructure flexibility in order to deliver cost effective, high quality IT services to its hospitals and clinics.

As an initial thrust in this direction, ACMC undertook a comprehensive reevaluation of their Disaster Recovery and Business Continuity infrastructure and procedures. With two fully developed data centers in separate physical locations and a 70:1 ratio of servers to administrators, ACMC needed a fully automated, reliable method of managing site-to-site failover and recovery of critical business and medical records systems.

In addition, ACMC IT management analyzed their processes and support procedures for managing, patching and updating the 1,300 plus desktops. It was determined that a more centralized, flexible desktop infrastructure was required, one that would be simpler to maintain and support and one that could rapidly expand and/or contract as the demand for desktops ebbed and flowed.

Entisys Solutions Group, a Platinum Citrix and Quorum Technologies' partner was contracted to architect a solution. Entisys realized the need for automation in a disaster scenario where key administrators may not be available to restore vital services. They also quickly ascertained the need for a virtual desktop infrastructure; one that could be automatically provisioned based upon the service level requirements of the business and medical records system users. Flexibility for partial or total failover/recovery, integration with third party products such as XenServer and XenDesktop and ease of customization were also central to the requirements.

The Challenge

ACMC has a mix of approximately 140 physical and virtual servers in their data centers, hosting a variety of applications including their Electronic Health System (EHS), Microsoft Exchange with external archival and SQL. For most systems, a single administrator is responsible for all maintenance and configuration. If they are unavailable in a disaster or failover situation, irreparable harm could be done to data or systems by administrators unfamiliar with the environments. Even if the appropriate administrator had proper connectivity to work on a failed system, there is a significant risk of human error during a crisis situation.

On the desktop front, administrator staff is stretched very thin as well. End user experience must be monitored constantly and appropriate action taken swiftly to ensure consistent access to critical business systems despite this lack of personnel. Any management system must have the ability to monitor desktop performance relative to service level requirements, decide upon the appropriate infrastructure changes to improve performance should service levels be less than required, then implementing. These improvements must all be self-contained within the management solution, all performed with a high degree of automation.



Company

Hospital chain based in Northern California with the chain served by two data centers, one in Oakland, CA and one in Fairmont, CA

Business Need

- Automated monitoring, notification and execution of Disaster Recovery
- Desktop virtualization management & automation centered on service level
- Easy to integrate system for physical as well as virtual infrastructure management

Solution

- Quorum's Enterprise Mgmt Appliance for XenServer™

Selection Criteria

- Windows, XenServer and XenDesktop integration
- Flexible, scalable to meet current & future needs
- Self contained multi-site solution
- Policy driven allowing admin to define automation levels as well as responses

MONITOR DECIDE OPTIMIZE

About Quorum

Quorum is the innovation leader in Virtualization Management and Optimization.

Our patent-pending Virtual Optimization System (VOS) brings new capabilities to the Virtualized Data Center such as Management of Applications within Virtual Machines, In-Context High-Availability, Virtual Resource Management and End-to-End Business Continuity.

Headquartered in Fremont, California, Quorum has over 40 man-years of development in its solutions. It has customers worldwide, served by its global partner network.

Quorum is a standards based system built initially for use in U.S. Navy combat command and control systems. As such, it is architected to meet stringent Open Architecture Standards.

Quorum's 4.5 software release is generally available for purchase through our worldwide partner channel.

The Solution

After eliminating other solutions as too costly, inflexible or lacking the ability to automate to the degree required, ACMC decided on a multifaceted approach to business continuity, with the Quorum Enterprise Management Appliance for XenServer at the heart of the solution. A key aspect of the solution is the use of Quorum to initiate conversions at regular intervals for critical physical servers to be recreated as virtual machines in the alternate site. In the event that a failover situation is detected, Quorum then starts the cloned virtual machines. Quorum also brings new DHCP server scopes online and initiates configuration changes on all appropriate routers to inform them of the new address. All these operations, among others, can be in progress within seconds of detecting a failure condition with no manual intervention required.

After Quorum was installed in each site, administrators were quickly able to detect failure conditions on physical and virtual servers, and initiate the deployment of standby virtual machines at the remote location through integration with XenServer's XenMotion capabilities.

Once the disaster recovery phase of the project was complete, attention was turned to the virtual desktop component. Using monitoring information from Quorum at the physical and virtual machine levels as well as end user information from Citrix EdgeSite, the EmaX compares performance against pre-determined service level requirements. When a service level is violated, EmaX, by integrating with XenDesktop, XenServer and Citrix Provisioning Server, reconfigures the virtual infrastructure to bring performance into compliance with service level requirements.

"In a disaster situation, you need a solution you can rely on and we've found it with Quorum and XenServer" states Director of Technical Support at ACMC, Dave Bennett. Bennett adds, "We are also very pleased with the EmaX solution for our desktop initiative as well. With the Quorum solution, we know that our virtual desktop infrastructure is meeting service level requirements at all times, without personnel involvement."

The Result

As the centerpiece of the disaster recovery solution for ACMC, Quorum is vigilantly watching the entire network for failure conditions and taking corrective actions as necessary. In addition, Quorum's EmaX is monitoring the virtual desktop application and infrastructure constantly, taking steps as appropriate to ensure that use of this centralized desktop approach delivers the service levels demanded by the end users. Beyond these crucial roles, the Quorum system is capable of doing far more. The existing system can be expanded for additional application level quality of service monitoring – providing greater insight into scalability and potential bottlenecks before they negatively impact the services being used by critical end users. The system may also be deployed to monitor and manage physical assets as needed. Future upgrades will enable system administrators to customize monitoring and notification while reducing or eliminating agent software on managed systems.

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