

Windows 2000 Based

Fault Tolerant Server

NEC Express5800/ft series

Case Study

Purkinje Inc.

Purkinje Inc. builds a powerful clinical documentation tool that provides patient records and information to doctors. How can they ensure that their application is continuously available when the software has not been written to be “cluster aware”? Purkinje turned to the NEC Express5800/320La Fault Tolerant server to provide that uptime. Now Purkinje can use the FT server to support their application in medical environments that either cannot afford or do not have the expertise to deal with the complexity of software-based clusters.

Purkinje Inc. Can't Afford Downtime



Purkinje Inc. knows that of all the computer applications in the world, theirs is one that can't afford to go down at any time for any reason. Makers of *Dossier™* a clinical chart management tool, this application must be available to doctors and other healthcare professionals at all times. With general-purpose servers offering just 99.5% uptime, this translates into the average server being off-line for an average of 44 hours per year. A hospital-based patient records application can't be down for 44 seconds, let alone 44 hours.

Purkinje's *Dossier™* is a powerful, cost-effective clinical documentation tool designed to run on desktop or portable, pen-based computers. Developed for and by physicians, *Dossier™* allows users to easily create comprehensive medical records that include the patient's history, physical exams, problems, diagnoses, orders and results as well as procedures, medications and treatments. The application can support hospitals with up to 450 beds.

When IT managers are faced with the need for high availability the most common solution is to run the application onto a pair of clustered servers. This provides a failover capability if one of the servers goes down. However, Purkinje couldn't take this approach for two important reasons:

- First, their application was not “cluster aware”. This means that the software was not written to understand that it was running concurrently on two different servers. Without this feature the application could not fail over if one of the servers were to go down.
- Secondly, because of the complexity of cluster set up and administration, many of Purkinje's targeted clients, hospitals, independent clinics and doctor's offices, do not have the technical expertise or availability to set up and administer an on-site cluster.

Fortunately, Purkinje turned to NEC Solutions America. NEC told them about the new fault tolerant (FT) server, the Express5800/320La and Purkinje's IT Manager was

intrigued enough to request a demo system to confirm its capabilities.

In October 2001, NEC provided Purkinje a demo system for 30 days to test with the Dossier application. They ran their software and found that they could provide full fault tolerant protection for their clients without changing a bit of the software code. This is because the NEC FT Server provides fault tolerance at the system or board level of the computer. The application is not aware that it is running on anything different from a regular server. In addition, in the unlikely event of a hardware component failure, the failover to redundant components is instantaneous with absolutely no impact on the application or user whatsoever.

With this new fault tolerant offering Purkinje was confident to propose their application on the 320La server to Listowel Memorial Hospital outside Kitchener, Ontario. Listowel is a moderately sized hospital with about 75 beds and 11 doctors on staff. Electronic patient records are a cutting edge application for the health care industry. Fewer than 2% of the hospitals in North America electronically store and access complete patient records in real time. The small IT staff at the Listowel hospital wanted to ensure their records would be safe and accessible 7/24 with no margin for error and that they would not be burdened with a large overhead of system maintenance. With the NEC Express5800/320La FT server, Purkinje could meet these objectives and the system was installed in January 2002.

The Listowel Hospital implementation has the NEC FT Server running Windows® 2000 Advanced Server with FT hardened drivers housing the Dossier application and a 30GB Microsoft SQL database of patient records. This database is accessed by two general-purpose servers running Citrix® MetaFrame XP, which provide the requested data to the healthcare professionals' desktop or mobile tablet devices. The Citrix application servers are load balanced to provide quick response and redundancy for that portion of the solution.

Pierre Vanasse, Purkinje Technology Director, states, "The NEC Fault Tolerant Server was just what we needed to provide high reliability to our application. We didn't want to have to re-write our software to make it cluster aware but we had to offer a high availability solution. In addition many of our target customers don't want to deal with the complexity and cost of implementing clusters, so this server is an easy way to address their high availability requirements. The implementation at Listowel has worked perfectly with no down-time to date."

Purkinje has two offices: its headquarters in Montreal, Canada and a sales office in San Antonio, Texas. They currently offer their application bundled with an NEC Express5800/320La fault tolerant server as a "Continuously Available" solution. Their web site is www.purkinje.com. More information on the NEC FT server can be found at www.necft.com.