the Availability Digest

Interview with Ron LaPedis on NonStop with XP Storage

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The editor of the Availability Digest, Dr. Bill Highleyman, was pleased to be granted an interview with Mr. Ron LaPedis on one of Ron's favorite subjects – NonStop server availability. Ron was a key figure at HP in the NonStop server world for several years before his retirement from HP. He can now be found at SanDisk, the largest manufacturer of flash memory cards, located in Milpitas, California.

[Highleyman]: Hi, Ron. I'm familiar with many of the roles that you played while at HP with the NonStop Enterprise Division. What exactly were they?

[LaPedis]: Good morning, Bill. Just before retiring, I was the product manager of business continuity, security, and internationalization (I18N) for the NonStop Enterprise Division. Before that, I held widely varying jobs, such as operations manager for Shanghai Systems (Scube), network architect for the India offshore group, and was Tandem's first continuity planner.

[Highleyman]: You were very involved in business continuity planning and security and, I believe, earned many certifications in that field. What were they?

[LaPedis]: Well, I guess there are a couple. I hold CISSP (Certified Information Systems Security Professional), CBCP (Certified Business Continuity Professional), ISSAP (Information Systems Security Architecture Professional), and ISSMP (Information Systems Security Management Professional) certifications.

[Highleyman]: I know that you have read our articles on active/active systems to achieve extraordinary availability. What other advice do you have for users to achieve high availabilities?

[LaPedis]: Availability during system maintenance can be increased through the use of a backup system with the same processing power as the primary system; through automated scripts, short NonStop TMF transactions, and automated file replication of non-database files; and through careful analysis of the processes and procedures needed to switch to the backup system.

[Highleyman]: Does this imply that there is no difference between the primary system and the backup system?

[LaPedis]: Yes. In reality, this means that the only difference between the primary and backup systems is the current status. Many customers have realized that once switched to a capable backup system, there is no need to switch back to the primary system once maintenance is completed.

[Highleyman]: Do you have any further tips or tricks to increase the availability of NonStop servers?

[LaPedis]: There are, of course, many. For instance, there are significant advantages to using HP's StorageWorks XP connected to the NonStop server(s) via a Storage Area Network (SAN) rather than 'private' disks connected to each system's CPU.

[Highleyman]: Why would this increase the availability of a NonStop server?

[LaPedis]: Primarily, with the use of a SAN, it is actually possible to switch disc volumes from one NonStop server to another in seconds if a few rules are met.

[Highleyman]: What are those rules?

[LaPedis]: First, the NonStop servers must have the same node names and node numbers. Second, the TMF catalog and audit trail volumes must be switched along with the protected data volumes. At this time, $system still must be on a private disk volume, However, the TMF catalog does not need to be on $system. In fact, moving it from $system is one of the easiest performance enhancements that you can make to TMF on a busy system.

[Highleyman]: Can you give us more detail on the communication configuration?

[LaPedis]: The setup looks like this. Both systems are defined with the same node name and node number, so of course there cannot be an Expand network between them. TCP/IP and other network addresses can be the same or different. If they are the same, then of course the two systems cannot be on the LAN at the same time, which severely limits system configuration and management.

[Highleyman]: Can the failover be scripted?

[LaPedis]: Scripts can be used to alter TCP/IP addresses and other network settings when a switch is required, either on the NonStop servers or on the LAN. That is, routers and switches can be used to reroute LAN traffic after a switchover with complete transparency to the endpoints.

[Highleyman]: What about nonaudited files?

[LaPedis]: If both systems are on the TCP/IP network at the same time, NonStop AutoSync can be used in TCP/IP mode to duplicate whole files between the systems, as can GoldenGate software for audited and nonaudited database files.

[Highleyman]: You talked about TMF earlier. Are there any special considerations with respect to TMF?

[LaPedis]: Yes. The TMF control and audit trail volumes as well as the data volumes are defined on both systems but left disabled on the inactive system. TMF is also left in a down state (obviously, since the TMF control volume is on one of the SAN volumes).

[Highleyman]: How is TMF handled on a failover?

[LaPedis]: When the active system is to be brought down, the applications are either stopped in a controlled manner, which is preferred, or the system can be crashed (or, in fact, the system may have suffered a crash). TMF is then stopped either nicely or abruptly, and the TMF control and data volumes are switched to the backup system and brought up. When TMF is started, it will either immediately be ready, or it will start volume recovery. Once TMF is running, the application can be brought up.

[Highleyman]: How long will failover take?

[LaPedis]: Depending on the application, this can take from minutes to hours.

[Highleyman]: That hurts. Is there anything that can be done to speed up failover?

[LaPedis]: One effective enhancement is to modify custom applications so that they can be pre-started in the backup system. However, they remain inactive and depend upon a takeover command before opening their files and becoming active.

[Highleyman]: Thanks, Ron, for your time. And good luck in your new life.

[LaPedis]: I was happy to spend this time with you, Bill. Any time.