



Volume 4
Issue 12

the Availability Digest

--- achieving 100% uptime

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Current topics on Continuous Processing Architectures. More than Business Continuity Planning.
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What's Active/Active, and What's Not? Join us on LinkedIn for a discussion.

Active/active systems have been around for awhile now, but there is often disagreement as to what active/active really means. To us at the Availability Digest, active/active is synonymous with continuous availability. An active/active system can recover so fast from a fault, whether it be a processor or an entire data center, that no one notices that there has been an outage. There are many examples of active/active systems that have been in production for a decade or more and have never experienced a disruption of user services.

There are technologies in the marketplace that purport to be active/active but that do not meet this standard. In an attempt to provide a basis for honest evaluation, we have begun an effort to carefully define what is active/active and to categorize various active/active architectures. This effort begins with our article entitled "Defining Active/Active," published in this issue.

We encourage you to review this first draft and give us your comments on our [Continuous Availability Forum](#) LinkedIn group at <http://www.linkedin.com/groupsDirectory?results=&sik=1260921605283&pp!SearchOrigin=GLHD&keywords=continuous+availability+forum>. As we refine the definition based on your comments, we will be revising the posted article with the results of your discussions.

Dr. Bill Highleyman, Managing Editor

Case Studies

Real-Time Fraud Detection

Much of today's commerce depends on plastic - credit and debit cards issued by banks. Fraudulent card transactions are a major concern of the issuing banks.

A major provider of card transaction switching services decided to offer real-time fraud-detection services for its issuing-bank customers. It felt that it could detect suspicious activity before a transaction was accepted so that suspicious transactions could be flagged or denied.

A NonStop authorization switch, a Solaris/Oracle fraud-detection server, and an issuing bank's mainframe authorization system cooperate to detect fraud while a transaction is still in progress. This complex interaction is made possible by high-performance, bidirectional data replication, which is an underlying technology fundamental to real-time business intelligence (RTBI).

RTBI will provide the competitive edge to companies in the future. This fraud-detection system is an excellent example of real-time business intelligence. RTBI allows events to control the actions of an enterprise by immediately integrating the independent results of diverse heterogeneous systems into a coherent action.

[--more--](#)

Never Again

The FAA's Availability Woes

Without a filed flight plan, a commercial airliner can't fly. This was painfully demonstrated on Thursday, November 19, 2009, when the FAA's flight-plan system went down for three hours. It seems that scheduled maintenance in Los Angeles corrupted a router in Salt Lake City. The router's backup failed to take over, and the communication services upon which flight-plan filing depended were lost.

As a result, air carriers had to fax or email their flight plans to the FAA so that controllers could enter the flight plans manually. The backlog built quickly; and planes sat on the tarmac, often for hours, waiting for takeoff clearance.

Our air traffic control system is old. It is built on the radar and radio technologies of the '50s, and it is becoming increasingly difficult for it to handle today's air traffic. The FAA's answer to this problem is NextGen – the next generation air traffic control system that will use satellite navigation and digital ground/air communications. However, Congress has not fully funded NextGen. Unless it does, we will have to live with our current tottering air traffic control system.

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Availability Topics

Defining Active/Active

If we ask a dozen people what the term “active/active” means, the general consensus will probably be that it is a technique for building extremely reliable computing systems. In fact, this is true. Theory shows that active/active systems can achieve failure intervals measured in centuries. There are many examples of such systems that have been in production for a decade or more with never a failure.

But when we probe deeper, we start to find the caveats – the limitations imposed by one technology or another to achieve such high reliability. How far can these caveats reach before we must conclude that a particular approach is really not suitable for our applications because of the approach’s limitations?

In this article, we start a Continuous Availability Group on LinkedIn to discuss just this issue. Please contribute to this work-in-progress by sharing your comments with us at

<http://www.linkedin.com/groupsDirectory?results=&sik=1260921605283&pplSearchOrigin=GLHD&keywords=continuous+availability+forum>. If this link doesn’t work for you, search on Continuous Availability Forum under “Groups” in LinkedIn.

[--more--](#)

Recommended Reading

Megaplex: An Odyssey of Innovation

Tandem Computers was born 35 years ago. My, how time flies. Dr. Bill Highleyman, the Digest’s editor, had his first experience with Tandem 32 years ago when he was responsible for developing the racetrack totalizator system to be sold by Autotote of Wilmington, DE. The availability of this system was paramount, as there had been riots at racetracks when earlier totalizators had failed just before race time; and no one could buy last-minute tickets. Tandem was the obvious solution.

Jim Johnson of The Standish Group has memorialized the impact that Tandem has had on the computing industry in his paper, “Megaplex: An Odyssey of Innovation,” freely available at www.standishgroup.com/megaplex. In this paper, he traces the history of Tandem’s unique technical innovations and extends them to the Megaplex. He defines the Megaplex as “a fabric of resources that will provide for application services for the next 35 years.”

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