

the Availability Digest™

Volume 13
Issue 6

--- achieving 100% uptime

June 2018

The digest of topics on Continuous Availability. More than Business Continuity Planning.
BCP tells you how to *recover* from the effects of downtime.
CA tells you how to *avoid* the effects of downtime.

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The Importance of Fault Tolerance and Failure Tolerance

You may have noticed that the May issue of the Availability Digest was not published. The problem was that my computer went bonkers. It simply showed page after page of beautiful color with no content. I had to purchase a new computer and transfer all my files over before I could get back to the Digest.

In this issue's article, "Fault Tolerance versus Failure Tolerance," we look at what is required to tolerate faults in an application. Fault tolerance requires redundancy of data so that if a data item is not available, it can be recovered from the redundant copy. Failure tolerance requires a backup copy of the application. If the application copy should become lost or corrupted, the backup copy can be accessed instead.

This article and our other stories in this issue are examples of what we write for the Digest and for others. If you have an article, a case study, or a white paper that you would like written, we encourage you to contact us. We also provide consulting services and seminars on high- and continuous availability.

Dr. Bill Highleyman, Managing Editor

Never Again

TSB System Migration Costs 1,300 Customers Their Savings

TSB Bank is a retail and commercial bank in the United Kingdom. It operates a network of 550 branches across England, Scotland, and Wales and has more than 4.6 million customers with over £20 billion of loans and customer deposits.

The bank was formed from certain business assets of Lloyd's Banking Group in 2013. The bank was sold by Lloyd's to the Spanish bank Sabadell in 2015.

TSB was migrating from the legacy banking system of its previous owner to a new system provided by its new owner Sabadell. The new system was launched in December 2017.

Over the weekend of April 21, 2018, TSB scheduled a shutdown of its online and mobile banking services in preparation for the transfer of 1.3 billion customer records. The records were to be moved from Lloyd's old legacy system to Sabadell's new system.

Though TSB claimed that the record transfer was successful, users began to report strange errors once the service was switched back on.

[--more--](#)

Fire Suppression Alarm Brings Down Nordic Nasdaq

The Nordic Nasdaq Stock Exchange was shut down for most of the day on Wednesday, April 18th, due to the accidental triggering of a fire suppression system in one of its data centers. The fire suppression system was triggered early in the morning, around 8 am. The stock exchange was closed from then until about 4 pm in the afternoon.

We have reported on similar incidents in the past in Availability Digest articles. In many cases, disks were damaged by the noise generated by the fire suppression system.

The fire suppression system was provided by Digiplex. It is a gas discharge system that is intended to put out a fire in the data center within 60 seconds.

Unfortunately, the release of the gas that extinguishes a fire is accompanied by a deafening noise. The noise is piercing enough to actually damage disks located in a data center. The fire prevention system that was designed to protect Nasdaq's data center killed some of the data center's servers.

[--more--](#)

Best Practices

Redundancy versus Backups

Redundancy and backup are often considered names for the same thing, but they are in fact quite different – and equally essential. Backup is about creating copies of data to protect against a catastrophic loss. Redundancy refers to the ability to provide a continuity of service, no matter what happens.

It is vital that should data be lost or corrupted, it can be reconstructed or recovered as quickly as possible. Though backup and redundancy are two very different aspects of data archiving, both can be helpful in this regard.

A backup is a duplicate of a file that can be stored in a secondary location. It can be used at a later time to access information if the first copy goes missing or is erased or corrupted.

Redundancy stores data in two places. If the data in one place becomes inaccessible, the data can still be read from the other place in which it was stored.

[--more--](#)

Availability Topics

Fault Tolerance versus Failure Tolerance

We define *fault tolerance* as hardware or software that is built with redundant components to ensure that processing survives the failure of an individual component. We define *failure tolerance* as an application that can continue even when failures such as a node or a site outage occur. Failure tolerance requires a backup system, but fault tolerance does not. Failure tolerance also requires an additional parameter – failover time.

Fault tolerance is a term frequently used in the industry. However, failure tolerance seems to be a term that is relatively unused. We show in this article that failure tolerance is every bit as important as fault tolerance.

[--more--](#)

Tweets

@availabilitydig – The Twitter Feed of Outages

A challenge every issue for the Availability Digest is to determine which of the many availability topics out there win coveted status as Digest articles. We always regret not focusing our attention on the topics we bypass.

Now with our Twitter presence, we don't have to feel guilty. This article highlights some of the @availabilitydig tweets that made headlines in recent days.

[--more--](#)

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Managing Editor - Dr. Bill Highleyman editor@availabilitydigest.com.
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