

the *Availability Digest*™

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--- achieving 100% uptime

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The digest of current 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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Where Has All The Testing Gone?

Outages continue to happen when the backup system does not become operational following a production system failure. This is known as a 'failover fault.' A common reason for failover faults is configuration drift. It is often months or perhaps even years before the backup system is called upon to take over production. During this time, many updates have been made to the production system. The backup system may be overlooked when making these updates, and the configuration of the backup system drifts away from the production system. When the backup system is suddenly called upon to take over production processing, it is misconfigured and cannot do so.

It is imperative that the backup system be periodically tested to ensure that it can assume the processing load in the event of a production system failure. In our article "The Importance of Failover Testing," we explore this topic in detail.

These articles are an example of the stories 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, come talk to us. We also provide consulting services and seminars on high- and continuous availability. We will be glad to help you.

Dr. Bill Highleyman, Managing Editor

Never Again

How 'Fat' Are Your Fingers?

What is a 'fat finger?' A fat finger can cause a command to be entered improperly. Fundamentally, a fat-finger error occurs when a key on a keyboard is depressed; and the finger depressing the key overlaps an adjoining key and depresses it also.

However, for purposes of this article, we extend the definition of a fat-finger error to include any erroneously entered keyboard command that unintentionally compromises an IT system or takes down the system. Fat-finger commands happen all too frequently. We give some examples of fat-finger outages in this article. We also suggest a simple fix that should eliminate fat-finger errors, though it seems that this procedure is seldom used.

The solution to fat-finger errors is quite straightforward. We employ redundancy in our servers and databases for redundancy. Why not employ redundancy with humans during critical operations?

If a critical command that can take down a system is to be entered, use two humans. One enters the command, while the other checks the command before it is executed. In this way, fat-finger errors can be eliminated.

Do any of you use this simple technique to ensure system availability? I have never seen it in action.

[--more--](#)

Best Practices

IBM Builds Super-Dense 5-Nanometer Chip

Two years after IBM created the first 7-nanometer chip, it has announced a new breakthrough process to build an even more densely-packed chip, one measuring only 5 nm.

A human hair is about 100,000 nanometers thick. A strand of DNA is about 2.5 nanometers in diameter. The new IBM 5 nm chip is therefore about as wide as two strands of DNA. About 30 billion 5 nm switches can be packaged onto a chip the size of a fingernail.

The smallest and most advanced chips commercially available today are about 10 nm. The recently announced 5 nm chip is the smallest silicon processor ever produced.

The more densely transistors are packed onto a chip, the more rapidly signals can pass between the transistors. A 5 nm chip achieves a 40% boost in performance as compared to a 7 nm chip. Alternatively, the 5 nm chip can provide the same performance as a 7 nm chip while using 75% less power.

Ever smaller chips are arriving with some regularity. 10 nm transistors have been around for some time. 7 nm transistors are expected to be commercially available in 2019. Now 5 nm transistors are expected in the early 2020s.

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The Importance of Failover Testing

As we all know, testing an application thoroughly before deployment is an absolute necessity. Faults found following the deployment of the application can cause significant hardships to the users of the application and can be much more expensive to fix.

Now that we have thoroughly tested the application in service, we would like to make it highly available. This is typically accomplished by providing a backup copy of the application. Should the production application fail, the plan is to move all processing to the backup application. A good plan, but will it work?. Will the backup take over? Will the backup take over quickly, or will it take minutes or even hours to assume processing? Even worse, will the failover fail? We can only determine this by testing the failover capabilities of our system. But sadly, failover testing is hardly ever done or is undertaken only partially because during failover, the users are denied application services. This is because during failover both the production system and the backup system are down.

What a difference a little failover testing would make. Let's get creative and figure out how to do it in our respective applications with minimum user disruption. The benefits could be significant if a real disaster hits.

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Availability Topics

How HPE is Making Blockchain Resilient

Blockchain. Oh, no! Another new technology about which I know nothing. That statement summarized my feelings about blockchain until I heard a presentation from HPE's Matt Riesz at the May 2017 NYTUG meeting in Berkley Heights, New Jersey (USA). Matt is a superb speaker. His clear, concise explanation of how blockchain works elevated my understanding from total ignorance to a "not nearly as dumb as I thought I was" level. This article is based on Matt's presentation.

Matt also explained how HPE has partnered with R3, the provider of the Corda open-source distributed ledger technology (DLT) platform, to bring resilience and scalability to DLT applications. R3 leads a consortium of more than 70 of the world's largest financial institutions in the research and development of blockchain database usage within financial systems. It was the consortium's efforts that brought Corda into fruition.

R3 brings to the new partnership its expertise in distributed ledger and blockchain technologies. What it relies on from HPE is NonStop's acclaimed fault-tolerant environment, an impressive suite of HPE and partner solutions, and a large customer base that looks to HPE for assistance as new DLT applications.

[--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.

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