the Availability Digest

More Never Agains

August 2008

We continue our tradition of reviewing just a small portion of computer failures (and a couple of other interesting failures) that have occurred over the first six months of 2008. In our previous article published a half-year ago,[1] we noted that one-third of all problems were power-related. That trend continues. 25% of the 28 stories below have to do with power failures of various kinds. In addition, five of the following incidents were caused by upgrades, usually with no failback procedure in place.

WWV Time Standard has an Availability of Two 9s

tf.nist.gov/stations/wwvoutages.htm – Maintaining time synchronization is very important for many applications. If your system time must be kept tightly synchronized with civil real time, access to an accurate clock is required. One such clock is the time signal broadcast by WWV, operated by the National Institute of Standards and Technology.[2] But if your mission-critical application really depends on civil-time synchronization, you should plan on a backup time source. Over a recent seven-month period, WWV was down five times for periods up to six hours, exhibiting an availability of about two nines.

Virgin Blue's Computer Crash Grounds Dozens of Passengers

zdnet.com.au – A computer crash grounded Virgin Blue, an Australian regional airline, for an hour starting about 7 PM in the evening on Wednesday, April 16, 2008. Agents reverted to manual check-in, and online bookings could not be made during this time. Hundreds of passengers were delayed for up to 90 minutes, mainly in Sydney, Melbourne, and Brisbane. Dozens were stranded overnight in Sydney. This wasn't the first time Virgin Blue's check-in system had crashed. It had gone down in 2004 and 2005 with serious impact on passengers.

Amtrak Moves from NonStop to PCs

reuters.com – For over two decades, Amtrak has been controlling its train traffic on the busy Northeast Corridor from Washington to Boston with fault-tolerant HP NonStop servers. Amtrak has now decided to replace this system with a network of PCs. We wish them luck in achieving the availability and manageability that they currently enjoy with their NonStop systems. Others have not been so fortunate.[3]

RBTT Bank Stymies Customers for a Day

trinidadexpress.com – On Thursday, April 10, 2008, customers of RBTT Bank (the Royal Bank of Trinity and Tobago) found that they could not get money or access their accounts from ATMs. Employees of companies that had posted wages the day before had to travel to bank branches to get cash. It seems that batch processing had gone awry the night before and had to be repeated

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[1] So You Think Your System Is Reliable?, Availability Digest; January, 2008.
[2] Time Synchronization for Distributed Systems – Part 1, *Availability Digest*; November, 2007.
[3] Can 10,000 Chickens Replace Your Tractor?, *Availability Digest*; December, 2006.

during the next day. Thus, customer accounts were not up-to-date and could not support online activity. RBTT is being acquired by the Royal Bank of Canada.

Google Glitch Compromises Email Privacy
zdnetasia,com – In late February, 2008, several users in the Mid-East reported that not only could they not logon to their own accounts but that they were seeing confidential information of other accounts. This included user names and passwords and, in one case, key codes for an embassy gate. Google found that one of their ISPs in the region was having caching problems on its servers. Affected was its Gmail services as well as some eBay accounts.

Horses Were Running, But Money Wasn't Flowing
app.com – On Saturday, April 12, 2008, Scientific Games' wagering processing center in Mount Laurel, New Jersey, shut down for several hours, causing the cancellation of races after the fifth race at Freehold Raceway. Dozens of patrons trying to cash winning tickets had their tickets eaten by the self-service ticket cashing machines. About $2 million in wagering and $600,000 in commissions due the state, the track, and horsemen were lost. It was reported that a disk failure in the data center caused the outage. What, no redundancy?

Soccer World Cup Blacked Out by Power Outage
southafrican.co.uk – Sunday, April 27, 2008. The Soccer World Cup semi-final game between South Africa and England was in its final two minutes. The score was tied 2–2. Benni McCarthy blasted through the England midfield and kicked a sure shot at the upper corner of the net. Then the stadium went dark! McCarthy insisted that he scored, but England goal-keeper Paul Robinson claimed that he had tipped the ball over the net. Was it a score? Who knows? What is known is that the backup power did not kick in because someone had stolen the fuel out of the diesel generator.

Can You Hear Me Now?
inrich.com – For an hour and a half on Tuesday, April 23, the answer was "No" in Verizon's Richmond wireless service area. Once the problem was corrected, it took another hour to restore service to all subscribers in the area. The problem was a failed switch. Though a backup system was available, it too failed. When was the last time the backup was tested?

Venezuela's Equivalent of the Great Northeast Blackout
uk.reuters.com – Half of Venezuela went dark on Tuesday, April 29, 2008, including most of the capital, Caracas. A jungle fire caused the failure of a transmission system near a giant hydroelectric plant, plunging the city into darkness at the time of peak demand. The power failure disabled traffic lights and the city subway system and sent thousands of workers walking home through crime-ridden streets. There was no report on the number of data centers that also went dark for several hours.

Memphis International Airport Goes Dark
commercialappeal.com – Electricians turned off the power at Memphis Airport after the airport closed late Tuesday night, April 29, 2008, for planned maintenance. But when they tried to restore service around 4 am, a mechanical switch failed. Then the discovery of other failed parts delayed power restoration until early afternoon. Emergency power allowed critical systems such as screening devices to function. However, baggage conveyers were shut down; and airline agents had to check in travelers and baggage by hand. Many flights were delayed or canceled.

VA Data Center Outage Backed Up by Remote System
few.com – A hardware failure in its regional Denver data center denied service to twelve Veterans Affairs Department medical centers for seven hours beginning in the afternoon of Thursday, April 10, 2008. The problem was compounded by a simultaneous outage of the VA's telecommunications carrier, Qwest. A similar nine-hour VA outage nine months earlier was due to human error and prevented VA physicians at seventeen medical facilities from accessing their patients' records. In response, the VA implemented a read-only system that provides clinical

information entered up to the time of the outage, reducing the health-care impact of the latest outage.

Avalanche Wipes Out Juneau Power
nytimes.com – Talk about natural disasters! Juneau, the capital of Alaska, went dark when a mile-and-a-half wide avalanche wiped out the transmission lines from a major hydroelectric dam on Wednesday, April 16, 2008. It was estimated that it would take months to restore power from the dam. In the meantime, Juneau fired up massive diesel generators to power the city. With the price of diesel fuel as compared to falling water, electric bills went up over four-to-one. One bright spot – Juneau went instantly green. Power consumption is now 60% of what it was before the avalanche.

Intercontinental Exchange Stops Trading After Power Problem
reuters.com – A power problem of some sort in its primary Chicago data center forced the Intercontinental Exchange (ICE) to abruptly shut down trading for three-and-a-half hours on Thursday, May 15, 2008. ICE provides electronic trading services for commodities futures such as London Brent crude oil and other agricultural and energy contracts. London Brent crude is widely used by global energy traders as a benchmark for physically traded oil, and the shutdown disrupted oil markets for the day.

Lack of "Diversity" Takes Down NSA's Web Site
pcworld.com – The National Security Agency's web site and its mail services went down for seven hours on Thursday, May 15. The problem was caused by a lack of "diversity" in its DNS (domain name system) redundant servers used to translate names into IP addresses. The name servers became unreachable that morning. The primary and secondary name servers were not separated topologically from each other. Best practices outlined by IETF (the Internet Engineering Task Force) require that redundant name servers preferably be located in different cities and not be connected to the same network. A similar DNS problem knocked YouTube offline in early May.

Norwich Union Suspends Pension Payments for Weeks
ifaonline.co.uk – Norwich Union, the largest UK insurance company, was forced to suspend almost 400,000 pension payments, some for over two weeks, in late April, 2008. The problem occurred as NU experienced problems following a migration to a new computer system. What! No failback plan?

Air Traffic Control Lost in Southern California Due to an Off Power Switch
mercurynews.com – On Tuesday, May 20, 2008, the Southern California Radar Approach Control facility in San Diego lost its communication line over which it receives radio communications and radar signals. The failure darkened the control center, and controllers had to call neighboring control centers via their cell phones to transfer control of air traffic. The primary communication line had a backup, but it turned out that someone had turned off the power switches on the backup telecommunications equipment.

U.K. National Grid Computers Down for a Day
theregister.co.uk – The National Grid supplies electricity and gas throughout England and Wales. In late May, 2008, its office systems suddenly went down. It took Computer Sciences Corp., the Grid's outsourced service provider, 24 hours to recover the systems, during which 18,000 office workers twiddled their thumbs. Email was out even longer. It appeared that the Active Directory clusters were deleted on the energy giant's Windows 2003 servers, locking out all office staff. Where was the backup? Fortunately, energy supplies were not affected.

Light Rail Halted by Server Failure
manchestereveningnews.co.uk – The METROLINK light rail system in Manchester, England, was plunged into chaos when a control room server failure brought down the system's signal lights. After recovering, the server crashed again. In all, the server failed three times on this Wednesday

morning, the 30th of April, 2008. Promised buses never showed up, and passengers ended up walking or driving into Manchester for the working day.

Power Failure Kills Woman in Iron Lung
cnn.site.printhis.clickability.com – Power failures can kill computers and people as well. Dianne Odell had lived in an iron lung for almost 60 years in Memphis, Tennessee, ever since she contracted polio at the age of three. From her iron lung, she got a high school diploma, took college courses, and wrote a children's book. Then the power failure came. A backup generator failed to kick in, and the iron lung stopped. A manually-operated backup pump also failed to work. Dianne passed away before power was restored.

Nordic Stock Exchange Openings Delayed Two Days in a Row
bloomberg.com – The NASDAQ OMX group operates Nordic stock exchanges in Stockholm, Helsinki, Reykjavik, and Copenhagen. It decided to upgrade its Saxess electronic trading system to better serve the European markets. On the day that the new system was launched, brokers suddenly found that they could not log onto the new system. Exchange rules require that at least 75% of the brokers be able to trade. As a result, exchange openings were delayed almost an hour on Monday, June 2, 2008, and for up to four hours on Tuesday, June 3.

Sun Failure Halts Aviation Pre-Flight Information
computerworld.com – A disk failure in an end-of-life Sun server brought down the FAA's NOTAM (Notices to Airmen) system for almost a day this past May. NOTAMs are accessed by pilots before a flight to find out navigation system outages, runway closures, and so on. The FAA had onsite a replacement system but hadn't installed it yet. The failed system did failover to a backup system, but the database corruption caused by the primary disk failure had been replicated to the backup system, causing a lengthy recovery process. The system did not use RAID disks.

Bank of Tokyo ATMs Downed by Upgrade
Mainichi Daily News – Several hundred Bank of Tokyo ATMs were inoperable immediately following the installation of a new integrated system. The Bank of Tokyo is the largest bank in Japan and, in fact, is the largest in the world by assets. It had recently acquired another bank and was in the process of integrating the systems of the two banks. A Chinese character sent to the ATMs instead of a Japanese character prevented the authorization of over 20,000 ATM transactions that morning.

Money Vanishes at South African ATMs
int.iol.co.za – For a few days in late April and early May, 2008, ATM customers of Standard Bank, one of Africa's four largest banks, had their deposits disappear. The problem occurred during a batch processing run that lost all deposits and withdrawals from Sunday, April 27, through Tuesday, April 29. Several days later, the problems were still surfacing. Standard Bank informed none of their customers and ordered tellers not to take any action on customer accounts until the problem was corrected. Not the greatest customer service.

Heat Wave Stalls Nasdaq
efinancialnews.com – On a hot Monday morning in June, trading on about 400 Nasdaq stocks was halted when an air-cooled chiller sprung a leak. With outside temperatures rising to 95º Fahrenheit, the data center room temperature began rising to dangerous levels. Though the problem was corrected in about fifteen minutes, Nasdaq routed many of the affected orders to a backup facility on the Mid-Atlantic coast.

Australian Bank Dodges Bullet with Failback
business.theage.com.au – Following the distribution of a new software release in early June, 2008, tellers of WestPac, one of Australia's largest banks, were frustrated when they found that they could not log on to the bank's systems. Unable to service customers over the counter, they temporarily allowed cash withdrawals up to $500 Australian. But WestPac was able to fail back to

their earlier release, and service was restored in a little over an hour. Congratulations on having a failback strategy.

Computer Crash Closes Sydney Tunnel for Hours
smh.com.au – Just as the morning rush hour started on Wednesday, June 25, 2008, the computer system managing the M5 East tunnel in Sydney, Australia, failed, taking down the ventilation, fire suppression, and other critical systems. Then the backup crashed. Tens of thousands of motorists were stuck for five hours on the major artery feeding downtown Sydney and its airport from the west. Both servers turned out to be irreparable, and a temporary server was brought in to reopen the tunnel. This was the fifth tunnel shutdown since it opened in 2001.

New Computer System Loses Patient Medical Records
thisislondon.co.uk – The Care Records Service, which holds electronic records for 50 million patients across Britain, is claimed to be the largest non-military program in the world. Launched in 2002, it came to light in June, 2008, that records of many patients had been lost during its years of operation. Cancer patients have missed critical appointments, patients were booked into closed clinics, and appointments were repeatedly cancelled. Hundreds of patients awaiting hip replacements were never scheduled. This serious failure is currently under investigation.

New York Air Traffic Control Goes Manual for Two Hours
crainsnewyork.com – During the morning rush hour on Monday, June 30, 2008, a computer malfunction in the New York Air Traffic Control center grounded hundreds of planes around the country for two hours. Without the computer, controllers had no flight information, no radar, and no traffic control. What about the backup? There isn't any. Operations revert to manual control, with controllers handing off aircraft via telephone lines. The New York system is 30 years old and has been having problems for years. New York is not scheduled to get a new system until 2011.