

the Availability Digest

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@availabilitydig – Our March Twitter Feed of Outages

March 2018

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



Apollo 11: The computers that put man on the moon

By today's standards, the IT NASA used in the Apollo manned lunar programme is pretty basic. But while they were no more powerful than a pocket calculator, these ingenious computer systems were able to guide astronauts across 356,000 km of space from the Earth to the Moon and return them safely.

<https://t.co/JhmxPtBAOQ>

iPhone beaten in performance race by 1970s Apple II and other even older computers (and a mechanical calculator)

The iPhone 6, released in 2014, is 32,600 times quicker than the speediest Apollo-era computers and is capable of performing instructions a whopping 120,000,000 times faster. So in a race against seven computers from the past 75 years, you'd imagine the iPhone 6 would wipe the floor with an Apple II from 1977, a 1990s PC running Windows 98, and a £12.99 BBC Micro:Bit, right? Wrong.

<https://t.co/WmKqA282fK>

The Resilience Programme: Changing Japan's grid

Following the destruction caused by the Tōhoku tsunami in 2011, the Japanese city of Higashi Matsushima decided to rebuild its energy infrastructure using microgrids and decentralised power. More and more cities are following in its footsteps, so could microgrids provide the resilience Japan needs?

<https://t.co/w5qJZW9HH7>

The best kept secret in cybersecurity is protecting U.S. banks against catastrophic attacks

More than 100 industry experts from the U.S. banking and financial services industry quietly collaborated on a groundbreaking cyber resilience initiative dubbed Sheltered Harbor in 2017. The initiative provides its members with an extra layer of security. If a catastrophic cyberattack brings down a member bank, then another bank takes over.

<https://t.co/OD56WDeQNM>

Banks' underground data vault is evolving — will it use blockchain next?

Two years ago, dozens of U.S. banks, including Citigroup, JPMorgan Chase and Bank of America, began working on a secret, ultra-secure data bunker called Sheltered Harbor that would hold a copy of all bank transaction data in the event of a devastating cyberattack. But the banks and industry groups behind Sheltered Harbor have recently changed the plan from a single bunker, itself a possible target of attack, to a backup buddy system. Banks choose “restoration” partners that store a vault of one another’s core data that’s updated each night. If one bank goes down, the other could restore accounts and make customers whole.

<https://t.co/8SPLUB99sW>

Security bugs in Dell storage platform allowed hackers to gain root access

Security researchers recently unearthed up to nine security vulnerabilities in Dell EMC's Isilon OneFS platform that could allow remote attackers to launch social engineering attacks and subsequently access the Isilon systems at root.

<https://t.co/aU5iLS8sfQ>

Police suspect bank robbers after Internet cut in 40,000 Berlin homes

Early on a Sunday morning in February, residents in the Berlin districts of Zehlendorf, Steglitz and Wilmersdorf found themselves without Internet after a major cable was disconnected. Berlin authorities are investigating whether the shutdown has anything to do with an attempted bank robbery in the area. In Schmargendorf, a neighbourhood between the three Berlin districts, robbers possibly tried to immobilize the communications network in order to hinder an alarm system in an attempt to break into a nearby Sparkasse bank.

<https://t.co/7Nac2lC2SA>

Botched UPS maintenance causes outage at Vocus data

A poorly executed maintenance operation on a data center’s UPS system caused an outage in one of Vocus Communications’ Sydney facilities in mid-February. Vocus reported that not all equipment had been recovered, with an ongoing router failure on its Ipera network. The incident comes at a time of upheaval for Vocus, which recently announced its intention to sell 20 Australian data centers and the entirety of its operations in New Zealand.

<https://t.co/3mGJYtaV1s>

Apple iPhone 6 vs world's oldest working computer: Iconic machines from past seven decades do battle

Who would win in a race between an iPhone, a Windows 95 PC, and the world's oldest working computer? The answer might seem obvious; but as unlikely as it seems, the outcome is not a foregone conclusion. The matter will be settled once and for all in February, when The National Museum of Computing in the UK holds its inaugural Grand Computer Race.

<https://t.co/7uKglclic7>

FedEx S3 Bucket Exposes Private Details on Thousands Worldwide

Personal information for thousands of FedEx customers worldwide has been exposed after a legacy Amazon Web Services (AWS) cloud storage server was left open to public access without a password. Kromtech Security Center researchers stumbled upon the AWS S3 bucket, finding that it contained more than 119,000 scanned documents, including passports, drivers' licenses and Applications for Delivery of Mail Through Agent forms, which contain names, home addresses, phone numbers and ZIP codes. The victims include citizens of countries around the globe, including Australia, Canada, China, EU countries, Japan, Kuwait, Malaysia, Mexico, Saudi Arabia and others.

<https://t.co/J8hVtME3Jh>

An Availability Digest FYI

99.999% uptime = 5 minutes downtime / year. 99.99% uptime = 53 minutes downtime / year. 99.9% uptime = 8 hours 45 minutes downtime / year. 99% uptime = 3.65 days downtime / year.

Hotel apologizes for one single minute of Internet outage at 4am. (Yes, Japan, of course.)

"Dear Guests, due to the electric utility maintenance, we will have an interruption of Internet access for approximately one minute from 4 a.m. on Thursday, April 14th. We apologize for this inconvenience."

What is IPv6, and why aren't we there yet?

IPv6 has been in the works since 1998 to address the shortfall of IP addresses available under Ipv4. Yet despite its efficiency and security advantages, adoption is still slow.

<https://t.co/L5kWoOHcoE>

Tesco took payments from some customers' cards THREE MONTHS after they'd paid

TESCO has apologised to customers after taking up to three months to process thousands of credit and debit card payments - causing some shoppers to go overdrawn. The UK's biggest supermarket said 300 of its Tesco Express stores had been affected by a glitch in its payments system since the end of November.

<https://t.co/IUr40I7CEK>

How can banks stay secure in a data-sharing world?

How can financial institutions make sure that problems in one system don't spread to other parts of the infrastructure? There are a variety of security products that organisations can purchase to protect against glitches and external threats. But it is one thing to buy a product and another to integrate it in a way that fully protects the system without interfering with the complex interdependencies of critical applications.

<https://t.co/tTBsI384WL>

In all likelihood, someday the sun will knock out the grid

Shortly after sunset on June 18, 2013, a woman drove her minivan onto Brighton Street in Belmont, Massachusetts (USA). Her GPS told her to turn right. But the metallic voice, guided by satellite data, steered her wrong: onto a railroad track. She tried to drive off, but the van got stuck. No sooner had she unbuckled herself and her two kids and ushered them out than a train crumpled her car into a

ball of foil. Not long after, someone sent a news story about the incident to space physicist Tamitha Skov. She didn't just see a GPS acting up. She saw the sun acting up.

<https://t.co/dmf7fcLvY>

From Containers to Microservices: How to Modernize Legacy Applications

Are you the poor guy who gets to move legacy applications to the cloud or other modern platforms? The path to modernizing legacy applications is paved with containers and microservices as well as new tooling and development processes. The trick to get through this process is to make the right choices about how to refactor your applications to take advantage of the best approaches and technologies.

<https://t.co/e3jotYyqFy>

Dubai Airports' Modular Data Centre Complex a 'world first'

Dubai Airports in early 2018 announced the successful completion of the world's first Tier III certified Modular Data Centre Complex (MDCC) at Dubai International (DXB). The project was led by Dubai Airports and was delivered by Huawei - a leader in the field, in just over 400 days to coincide with UAE's month of innovation being held during February. The complex is equipped with next generation technologies to ensure the highest levels of availability, maintainability, resilience and seamless business continuity to support DXB's growing and complex operations.

<https://t.co/5bE9MD3lqh>

Explosion in Puerto Rico knocks out power, emphasizing grid's frailty after Hurricane Maria

An explosion and fire at an electric substation threw much of northern Puerto Rico into darkness in February in a setback for the U.S. territory's efforts to fully restore power more than five months after Hurricane Maria started the longest blackout in U.S. history.

<https://nbcnews.to/2HaoqS4>

'Olympic Destroyer' Malware Hit Pyeongchang Ahead of Opening Ceremony

Russian hackers, with hardly a shred of deniability, have targeted the Pyeongchang Olympics for months in retaliation for the country's doping ban, stealing and leaking documents from Olympics-related organizations. Now a more insidious attack has surfaced, one designed not to merely embarrass but to disrupt the opening ceremonies themselves.

<https://t.co/vriZMMen47>

What Does a Windstorm in Wyoming Have to Do with Cyber Security?

Natural disasters serve as excellent examples of the unforeseen consequences that a cyberattack against infrastructure will have. Take for example a strong windstorm in Wyoming in February 2017. The storm knocked down power lines, forcing water and sewage treatment plants to operate on backup generators, which weren't available to some of the pumps that moved sewage from low-lying areas to higher ground. As a result, the sewers backed up after the weather continued to prolong the outage. While government officials tasked with disaster planning have long focused on the cascading effects of power outages from natural disasters, only recently have they realized the effects of cyber warfare could be quite similar.

<https://t.co/N27YhocS4h>

Lost ... and Found: IMAGE Satellite in 'Good Shape,' NASA Says

A long-lost-but-recently-rediscovered NASA satellite appears to have a fully charged battery and is "in good shape" overall, the agency said in an update about the craft on February 5th. On January 20th, amateur astronomer Scott Tilly picked up transmission signals from what appeared to be NASA's Magnetopause-to-Aurora Global Exploration (IMAGE) satellite, which the agency lost contact with in 2005. NASA confirmed the probe's identity on January 30th and is now investigating the spacecraft remotely to see how healthy it is.

<https://t.co/C2WqRBrVla>

GDPR May 25th Deadline Approaching – Businesses Globally Will Feel Impact

In less than four months, the General Data Protection Regulation (the "GDPR" or the "Regulation") will take effect in the European Union/European Economic Area. It will give individuals in the EU/EEA greater control over their personal data and will impose a sweeping set of privacy and data protection rules on data controllers and data processors alike. Failure to comply with the Regulation's requirements could result in substantial fines of up to the greater of €20 million or 4% of a company's annual worldwide gross revenues. Although many American companies that do not have a physical presence in the EU/EEA may have been ignoring GDPR compliance based on the mistaken belief that the Regulation's burdens and obligations do not apply outside of the EU/EEA, they are doing so at their own peril.

<https://t.co/JLONLH49IJ>

Banks face spiraling costs from 50-year-old IT

Most bank mainframe systems are so old that there is hardly anyone left who understands their coding language — but a solution could be on the way.

<https://t.co/1WGYvprMel>

Breathing new life into crucial infrastructure

Gartner once said that traditional legacy systems will continue to underpin digital transformation in the enterprise and that by 2023, 90% of current applications will still be used. But these established systems, such as mainframes, need to be improved in order to provide customers with the deeper visibility required when measuring their digital enterprise.

<https://t.co/oFSI8TAXgp>

Ghost in the DCL shell: OpenVMS, touted as ultra-reliable, had a local root hole for 30 years

Forget Meltdown and Spectre. Someone's found a local privilege escalation in the operating system world's elderly statesman OpenVMS when running it on VAX and Alpha processors. On Itanium CPUs, the same bug can be exploited to crash a process.

<https://bit.ly/2G0m7UK>

Mission-critical system alert: 40-year-old OpenVMS hit by exploitable bug

A patch is available for a privilege-escalation flaw affecting the 40-year-old OpenVMS operating system on hardware powered by ancient VAX and Alpha processors from Digital Equipment

Corporation. The operating system, which has been supported by HP, is known for its reliability and has historically been used for core business systems that require high availability, including nuclear power plants and process-control systems.

<https://t.co/WUWsG6gxCs>

Machine Learning Drives Changing Disaster Recovery at Facebook

Consumers rely on hyperscale organizations like Facebook, Google, Microsoft, Amazon, Alibaba, Baidu, and Tencent for paid-for services that they reasonably expect will always be immediately accessible and secure. These hyperscalers have built networks of massive datacenters, spanning the globe, to ensure the data and services are close to their customers and that latency doesn't become a problem. Given all this, disaster recovery becomes a critical part of the business. Hyperscale companies need to make sure business can continue as usual even if a datacenter goes down.

<https://t.co/fif4UsDo7Y>

Petrol stations left wide open to security flaw, says Kaspersky

Service stations around the world have been left exposed to cyberattacks as a result of a security vulnerability that operators have failed to address for a decade or more. Researchers at Kaspersky Lab said they found a string of security flaws in an embedded fuel station controller, with more than 1,000 of these devices currently active. They have since contacted the manufacturer, but this problem may have existed for year.

<https://bit.ly/2DPtrg7>

Boeing 757 Hacked in DHS Test

A team of government researchers successfully accessed the systems of a Boeing 757 in a non-laboratory environment in 2016. According to Robert Hickey, a program manager within DHS's Science and Technology (S&T) Directorate's Cyber Security Division, he and his team of researchers were able to successfully access the internal systems of a legacy 757 using only tools that can pass through a standard airport security checkpoint. They were able to accomplish this without having a person on the aircraft.

<https://t.co/txjW9PmbsF>

Hacker easily bypasses Windows 10 anti-ransomware protection with this trick

The Controlled Folder Access (CFA) in Windows 10—which Microsoft promoted as protection against ransomware—can be easily bypassed with the use of 'boobytrapped' Office files. CFA was added to Windows Defender in the Windows 10 Fall Creators Update in late 2017. Essentially, CFA keeps suspicious apps from augmenting or editing any files stored in a particular protected folder. However, the fact that it can be bypassed with the use of Office files could mean it isn't as secure as once thought.

<https://t.co/HITyFnZ6Lk>

Managed hosting: the key to getting container technology right

The popularity of container technology is on the rise, and it's largely thanks to Docker. Its adoption numbers and expanding market growth can vouch for it. But why? In a nutshell, organisations are wising up to the fact that containers can help make the mobility of applications – from one

environment to another – pretty much seamless. So, do you need help looking for a simplified container-based solution? Managed service providers (MSPs) can be the heroes for those who need a little extra expertise.

<https://t.co/Yp4h7x11cE>

Tesla is connecting 50,000 homes in Australia to create a power grid

The state of South Australia is taking on a revolutionary project to harness solar energy and power 50,000 homes – but instead of using solar cells at a single location, it's creating a decentralized network across the state; and Tesla is helping out.

<https://t.co/Egadut8nz7>

Children of the Cold War

During the height of the Cold War, with the Doomsday Clock minutes from midnight, the United States government drew up plans for all-out war with the Soviet Union. Secretly investing billions, it created huge underground structures - some for launching devastating strikes and others for surviving incoming nuclear attacks. Remains of that vast infrastructure can be found in Texas, where huge missile silos lie hundreds of feet beneath unassuming farmland. Elsewhere, in Florida, the backbone of a post-apocalyptic communications system sits behind 42-inch walls, dug into the side of a hill. After the threat of nuclear disaster receded and the Soviet Union collapsed, these sites have lain dormant for decades. Now, they could find new life as data centers – because of fresh security concerns.

<https://t.co/nqZjuKBFSB>

More Opportunity for Microgrids as Texas Coal Plants Retire

The U.S. state of Texas appears to be headed for a precarious summer with the potential for a tight power supply – a situation that could create opportunity for quick response microgrids. The Electric Reliability Council of Texas (ERCOT), the grid operator that manages the flow of electric power to 24 million Texas customers, issued a warning signal in late 2017. The buffer between supply and demand appears likely to be slimmer this summer than ERCOT would like. The problem? Texas had a rash of coal-fired plants announce that they plan to shut down. That – and some project delays and cancellations – left ERCOT facing a 7,200 drop in generation capacity for the summer, a period when hot days can create peaks in energy demand. Energy trends in Texas are always important because it is the largest electricity producer and consumer among the 50 states.

<https://t.co/hVyFzIwbpt>

MTA Cuts MetroCard Machine Upgrades to Single Night After Outrage

A two-day outage planned for a February weekend outraged New York City commuters when the MTA (Metropolitan Transportation Authority) announced it with just two days' notice. The agency reneged after straphangers complained it made little sense to go cash-only for so long at a time when many people renew their USD \$121 monthly MetroCards. The upgrade aims to make credit and debit card purchases more secure on the machines, which process about 800,000 transactions a day. Workers performed the update from a central mainframe computer over six hours — less than an eighth of the previously planned 53-hour outage.

<https://t.co/Wvs58U17y8>

What the Coincheck hack means for the future of blockchain security

The recent plunder of more than \$500 million worth of digital coins from the Japanese cryptocurrency exchange Coincheck has added to a growing perception that cryptocurrencies are particularly vulnerable to hackers. It's an expensive reminder that like many things in the cryptocurrency world, security technologies—and the norms, best practices, and rules for using them—are still emerging.

<https://t.co/U1xzdC98Po>

Read new Gravic white paper on Switching Replication Engines with Zero Downtime and Less Risk

“Switching replication engines with zero downtime is a topic with immense complexity. In this paper, we discuss how a data replication engine can be changed or upgraded without taking either the application or the database offline.”

<https://t.co/fjR3PhdMiq>

Managing Risk in the NHS Starts with Retiring Legacy Applications

In October, NHS England released its 2017/2018 Data Security and Protection Requirements, which sets out ten data security standards recommended by Dame Fiona Caldicott, the National Data Guardian for Health and Care. This comes in the wake of a National Audit Office (NAO) report criticizing the NHS for its handling of the WannaCry attack earlier this year. One of those data security standards calls for the NHS to “remove, replace or actively migrate or manage the risks associated with unsupported systems by April 2018.” While this largely refers to outdated operating systems, we would argue that the reason these outdated operating systems persist is often because legacy applications depend upon them.

<https://t.co/VpKNQJCUhf>

After failure of EHR program, Coast Guard needs to find new solution ASAP

The U.S. Coast Guard must urgently find and implement a new electronic health records system after a past project that took half a decade failed and left the organization using a paper process. The Coast Guard began working with Wisconsin-based Epic Systems in 2010 to implement a new EHR system, dubbed Integrated Health Information System (IHiS). Over the following five years, the project faced multiple setbacks and delays. IHiS was ultimately scrapped in 2015, with nearly \$60 million spent as of August 2017 and some payments still to be made. The Coast Guard came away with no software or equipment from the project to be used for the future. To make matters worse, in the two years since IHiS's cancellation, the Coast Guard had to also decommission its two legacy EHR systems because they did not comply with international standards.

<https://t.co/JBdNf7jj1>

NVIDIA's driverless car computers just got a nervous system

Self-driving cars aren't just going to shake up road systems but automotive architecture as well, with NVIDIA and Aquantia announcing a new, super-high-speed connectivity system designed for driverless data. The pair have confirmed that NVIDIA's DRIVE Pegasus and DRIVE Xavier AI platforms for autonomous vehicles will be used by Aquantia's Multi-Gig networking in order to keep up with the huge flow of information between sensors.

<https://t.co/W3KMg8fMj8>

A Parched Cape Town Counts Down to Day Zero

It sounds like the title of a disaster movie, but the reality is a bit more muted. Still, for the residents of South Africa's second largest city, the approach of "Day Zero" is already inducing a certain degree of panic. In a little over two months, local officials will shut off the taps of Cape Town if the city's reservoirs drop too low amid a drought aggravated by political infighting and aging and inadequate infrastructure.

<https://t.co/JDDosNeOIW>

Jump-Starting the Dark Grid

A new project headed by Lawrence Livermore National Laboratory aims to use microgrid resources to boost the electric grid's ability to bounce back more rapidly from blackouts or cascading outages, such as those following major storms or earthquakes.

<https://t.co/pzLTedMknS>

Massive outage crippled 911 centers throughout Tampa Bay

On Wednesday, January 31st, Frontiers Communications experienced an outage during routine maintenance. Then hours later, a fiber line cut; and backup systems stopped working. The incident crippled 911 services for Tampa Bay, Florida (USA). Frontier is now making changes to its backup procedures.

<https://t.co/bpb50UYW6c>