

ComputerWeekly

19-25 NOVEMBER 2013 | COMPUTERWEEKLY.COM

HOME

NEWS

HAMBURG COURT
RULES SAP LICENCE
NOT ABOVE LAW

PUBLIC SECTOR
FACES HURDLES
WITH BYOD

PUMPS MAKER
EMBRACES
RESTRUCTURE

HOW AMADEUS
DELIVERS FAIL-SAFE
TRAVEL SERVICES

EDITOR'S
COMMENT

OPINION

BUYER'S GUIDE
TO TESTING AND
CODE QUALITY

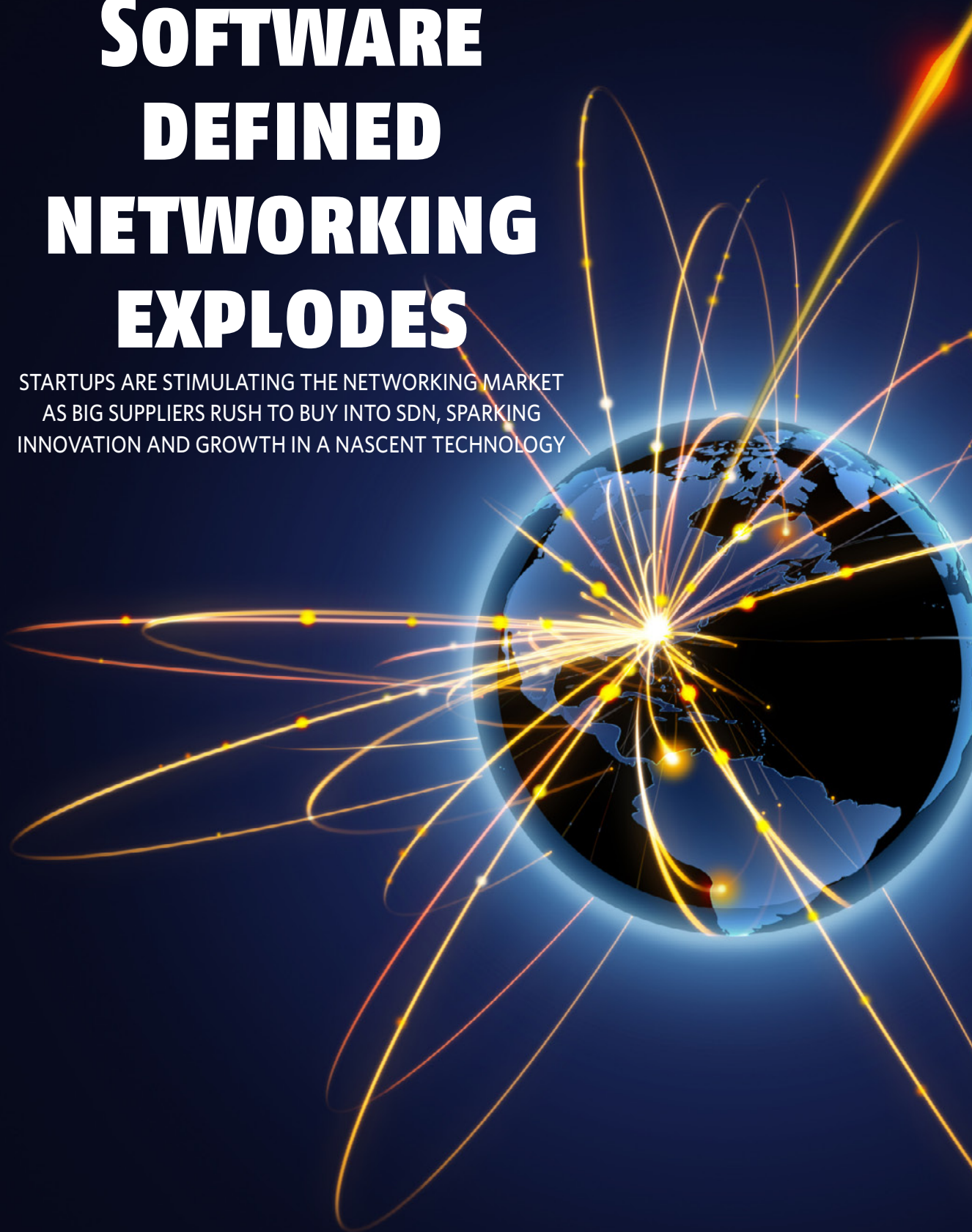
VIDEO AND VOICE
COMMUNICATION
IN A WEB BROWSER

OPEN SOURCE
SOFTWARE FOR
NETWORKING

DOWNTIME

SOFTWARE DEFINED NETWORKING EXPLODES

STARTUPS ARE STIMULATING THE NETWORKING MARKET
AS BIG SUPPLIERS RUSH TO BUY INTO SDN, SPARKING
INNOVATION AND GROWTH IN A NASCENT TECHNOLOGY



HOME

NEWS

HAMBURG COURT
RULES SAP LICENCE
NOT ABOVE LAWPUBLIC SECTOR
FACES HURDLES
WITH BYODPUMPS MAKER
EMBRACES
RESTRUCTUREHOW AMADEUS
DELIVERS FAIL-SAFE
TRAVEL SERVICESEDITOR'S
COMMENT

OPINION

BUYER'S GUIDE
TO TESTING AND
CODE QUALITYVIDEO AND VOICE
COMMUNICATION
IN A WEB BROWSEROPEN SOURCE
SOFTWARE FOR
NETWORKING

DOWNTIME

CYBER SECURITY**Operation Waking Shark 2 is good, but there are questions whether it is enough**

The information security industry has raised concerns over the UK's latest test of the financial infrastructure's resilience to cyber attack. IT workers say the exercise is a good opportunity to iron out flaws before the UK's cyber defences are tested to the limits by attackers, but many believe testing should happen more regularly – the last such test was conducted two years ago.

INTERNET TECHNOLOGY**Superfast broadband comes to Cornwall**

A total of 82% of premises in Cornwall can now access superfast broadband through the Superfast Cornwall project, which aims to connect 95% by the end of 2014. More than 35,000 homes and around 4,130 small businesses are now making use of the superfast connection. The project, which is funded by the EU, Cornwall Council and BT, now has connections to 200,000 premises in Cornwall.

IT SUPPLIERS**Gartner Symposium: GE Capital rethinks strategic supplier policy**

Financial services business GE Capital is rethinking how it selects strategic suppliers, in a bid to boost innovation within IT. Speaking at the Gartner Symposium in Barcelona, GE Capital CIO Kevin Griffin said the IT function was on a journey to simplify the systems it runs and supports.

STAFFING**BlackBerry reveals Alexandra Zagury will become new UK managing director**

Alexandra Zagury has been confirmed as the new managing director for BlackBerry in the UK and Ireland. Zagury has been at BlackBerry since 2008 and was the company's first managing director for Turkey. However, she will now leave her most recent role as vice-president and managing director for South Africa, Southern Africa and Turkey to take over the UK post.

ACCESS THE LATEST
IT NEWS VIA RSS FEED**ONLINE SURVEILLANCE****Mass surveillance a bad idea, says information commissioner**

Information commissioner Christopher Graham has said issues of national security cannot be allowed to overshadow concerns of legitimate public interest. Graham told the Society of Editors' annual conference he was concerned by the scale of online surveillance revealed by Edward Snowden, but stopped short of criticising US and UK security agencies.

GOVERNMENT IT**National Audit Office concerned over government supplier dominance**

The National Audit Office (NAO) has reported that £6.6bn was spent by the public sector on four outsourced services providers, including IT services suppliers. An NAO report revealed £700m was spent with Atos, £1.6bn with Capita, £3bn with Serco and £1.3bn with G4S.

CONSERVATIVES SLAMMED FOR ERASING WEB HISTORY

The Conservative Party has been widely criticised after Computer Weekly revealed it has removed all pre-General Election speeches and news articles from its website and from all web search engines.

The Tories altered the robots.txt file on the Conservatives.com site which instructs web crawlers such as Google about what content it is allowed to access. All news and speeches published on that website before May 2010 – the time of the last UK election – have been erased from the web.

The Conservative Party leadership has said in the past it would use the internet to transform politics, making those in power more accountable to the people. But it wiped even the speeches where it made these claims from its website, and after conducting a PR overhaul of its public message, even wiped them off the main repositories of the internet.



ISTOCK/THINKSTOCK

HOME

NEWS

HAMBURG COURT
RULES SAP LICENCE
NOT ABOVE LAWPUBLIC SECTOR
FACES HURDLES
WITH BYODPUMPS MAKER
EMBRACES
RESTRUCTUREHOW AMADEUS
DELIVERS FAIL-SAFE
TRAVEL SERVICESEDITOR'S
COMMENT

OPINION

BUYER'S GUIDE
TO TESTING AND
CODE QUALITYVIDEO AND VOICE
COMMUNICATION
IN A WEB BROWSEROPEN SOURCE
SOFTWARE FOR
NETWORKING

DOWNTIME

INTERNET TECHNOLOGY**BT backtracks on plans to publish broadband postcode details**

BT said councils could not publish postcode data revealing the locations of the BDUK roll-out as it was too "commercially sensitive". Bill Murphy, managing director of next-generation access for the telcoms giant, said details of who will and will not be getting superfast broadband as part of the government scheme would remain under lock and key, despite previous statements from BT to the contrary.

IT SECURITY**Over half of top bank websites hacked**

More than half of the world's 50 biggest bank websites have been hit by security incidents in the past eight years, according to research by Swiss IT security services firm High-Tech Bridge. It found high or critical risks made up 15% of the total incidents discovered, affecting 11 banks. Low or medium risks made up 46% of the 102 incidents that affected 23 of the banks.

STAFFING**Barclays IT head leaves to take on lead role at Juniper Networks**

Barclays global chief operations and technology officer Shaygan Kheradpir has left the bank to become CEO at Juniper Networks after two years transforming the bank's digital strategy. Kheradpir has been key to the bank's digital development, including its successful series of Pingfit apps.

ONLINE RETAIL**Sainsbury's digital efforts pay off as online sales grow by 15%**

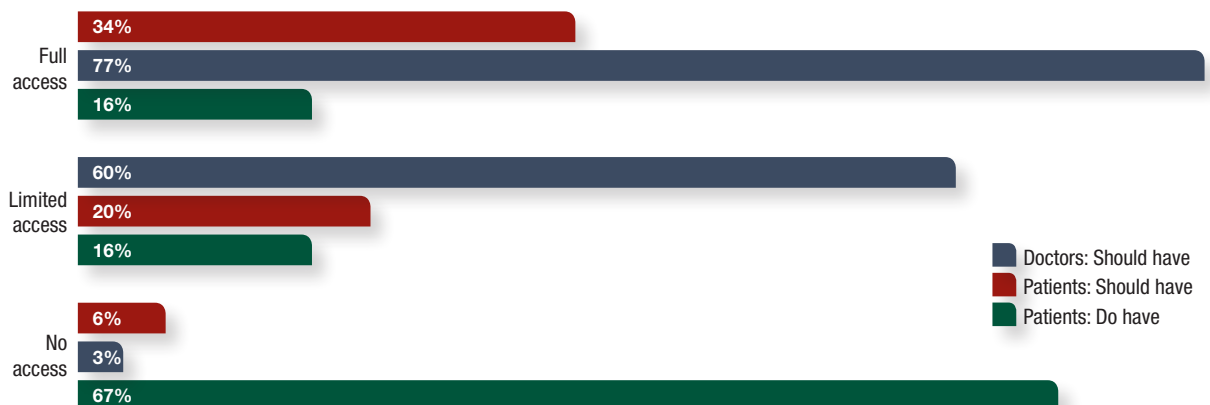
Sainsbury's online grocery channel has grown by 15% year on year, resulting in an annual turnover of £1bn. Its share of the grocery market has increased due to the growth in online sales and increased revenue during the first six months of its financial year. Sainsbury's reported revenue of £12.7bn and pre-tax profit of £433m in its half-year financial results to 28 September 2013.

ACCESS THE LATEST
IT NEWS VIA RSS FEED**GOVERNMENT IT****UK government digital services framework goes live**

A digital services framework designed to give the public sector access to suppliers to help them design and build public services has gone live. The framework supports the government's digital strategy by enabling departments to build services that are digital by default, focusing on users' needs.

MOBILE TECHNOLOGY**Europe to follow US clearance of mobile devices on flights**

The European Aviation Safety Agency is to follow the US lead in easing restrictions on the use of mobile electronic devices during flights. US carriers are expected to allow passengers to use smartphones, tablets and ebook readers throughout flights by the end of the year after US aviation regulator FAA eased restrictions. ■

ENGLISH PATIENT ACCESS TO ELECTRONIC MEDICAL RECORDS

Source: Accenture

HOME

NEWS


HAMBURG COURT
RULES SAP LICENCE
NOT ABOVE LAWPUBLIC SECTOR
FACES HURDLES
WITH BYODPUMPS MAKER
EMBRACES
RESTRUCTUREHOW AMADEUS
DELIVERS FAIL-SAFE
TRAVEL SERVICESEDITOR'S
COMMENT

OPINION

BUYER'S GUIDE
TO TESTING AND
CODE QUALITYVIDEO AND VOICE
COMMUNICATION
IN A WEB BROWSEROPEN SOURCE
SOFTWARE FOR
NETWORKING

DOWNTIME

 EUROPEAN
COURT OF
JUSTICE
LEGALISES SALES
OF SECOND-HAND
SOFTWARE

 BUYER
BEWARE:
MILLIONS LOST
FROM RIP-OFF
SOFTWARE
LICENCES

Hamburg court rules SAP licensing requirements are not above the law

As SAP loses a case against a second-use licence reseller – the court finding its licensing anti-competitive – Cliff Saran points to a 2012 ruling against Oracle

The district court of Hamburg has ruled against SAP in its case against a second-user software licence reseller.

The court's decision builds on a 2012 European Court of Justice landmark ruling on second-user software.

In the Hamburg case, SAP attempted to sue Susensoftware for reselling second-user licences, but the court ruled that two clauses in SAP's terms and conditions for licensing and maintaining standard software were anti-competitive.

In particular, the court said a clause that stipulated SAP's written approval for software transfers was not legally binding.

"To my knowledge, this is the first time that elements of SAP's general terms and conditions have been found to be anti-competitive. I hope this will result in more freedom for German companies that want to buy or sell current versions of SAP software," said Axel Susen, director of Susensoftware.

ORACLE CASE SETS PRECEDENT

The Susensoftware case followed from the European Court of Justice ruling in July 2012 in which Oracle sought to prevent the resale of its software by reseller, UsedSoft.

In that case, the European Court of Justice ruled: "Where the copyright holder makes available to his customer a copy – tangible or intangible – and at the same time concludes, in return for payment of a fee, a licence agreement granting the customer the right to use that copy for an unlimited period, that rights holder sells the copy to the customer and exhausts his exclusive distribution right."

In a recent Computer Weekly article, Glenn Wilson, executive vice-president and general counsel of the International Association of IT Asset Managers (IAITAM), said the European Court of Justice ruling had implications beyond the software licence.

The European Court of Justice ruled against Oracle in 2012 when it sought to prevent UsedSoft reselling its software



THINKSTOCK

"In addition to the purchase of the licence and product itself, existing contractual obligations transfer legally from seller to buyer," said Wilson.

"This includes maintenance and upgrade contracts that still recognise and uphold the licence in question. The implications are that resale seems to have no negative consequences for the buyer. This judgment brings a new perspective when discussing acquisitions, mergers and buyouts."

DOUBLE WIN FOR USERS

In the Forrester report, *Navigating the used software market*, Forrester analyst Mark Bartrick noted: "Enterprises with excess software licence capacity can sell off their unused software assets to resellers who can then offer the used software for sale."

HOME

NEWS

HAMBURG COURT
RULES SAP LICENCE
NOT ABOVE LAWPUBLIC SECTOR
FACES HURDLES
WITH BYODPUMPS MAKER
EMBRACES
RESTRUCTUREHOW AMADEUS
DELIVERS FAIL-SAFE
TRAVEL SERVICESEDITOR'S
COMMENT

OPINION

BUYER'S GUIDE
TO TESTING AND
CODE QUALITYVIDEO AND VOICE
COMMUNICATION
IN A WEB BROWSEROPEN SOURCE
SOFTWARE FOR
NETWORKING

DOWNTIME

"Not only can enterprises make money by selling unwanted licences, they can save money by buying cheaper used software to fill requirement gaps. It's a double win for software users and a loss for leading software suppliers such as Microsoft, Oracle, and SAP."

Paul Sheehan, partner at IT Asset Management Solutions, said: "In our experience, while a good number of IT managers say they would be happy to sell superfluous licences – provided all the right legal checks and procedures had been carried out – very few would be prepared to buy, even if they could save their businesses hundreds of thousands or even millions of pounds."

"A GOOD SECOND-USER SOFTWARE RESELLER WOULD MAKE SURE THE LICENCE PAPER TRAIL WAS COMPLETE"

NOEL UNWIN,
DISCOUNT-LICENSING

Organisations can save licensing costs buying second-hand and free-up shelfware maintenance costs by offloading unused software to a specialist reseller. Forrester advises organisations that come under pressure by software suppliers to use the threat of buying used software as leverage.

SOFTWARE ASSET MANAGEMENT KEY

Discount-Licensing has sold second-user Microsoft software for a decade. Managing director Noel Unwin said: "The biggest

obstacle in the secondary market is the software suppliers, because they do not

help us police the market. A good second-user software reseller would make sure the licence paper trail was complete."



IT departments might be cautious in how their actions affect their relationship with large suppliers such as Microsoft. A company that could net £100,000 in unused licences might still not want to create bad feeling with the supplier.

According to Unwin, the hardest part for IT managers thinking of offloading unused licences is proving they no longer use or own the software. "A new IT manager can lose track of licences," he said. Unwin recommended IT departments keep thorough records of all software assets.

Discount-Licensing has seen a surge in business since 2009. "Our business started to increase 30-40% year on year," he said. "The recession has helped us out."

So far as quality is concerned, second-user software is no different from new. Even client access licences (CALs) can be bought and sold. Unwin said buyers need to fully understand their position in the number of CALs they have. Discount-Licensing can sell second-user CALs with a licence pack that proves ownership in the event of an audit.

The SAP case against Susensoftware shows software companies may try to find ways to limit the European Court of Justice ruling. But the law is clear: once an organisation buys a perpetual licence, the supplier cannot prevent its resale, even if its terms and conditions claim otherwise.

Not every organisation wants to risk the impact of an adverse software audit, which may result in hefty fines, licence fee hikes or being named and shamed publicly. But, with tight software asset management, second-user software bought and sold through a reputable reseller can enable companies to pay only for the licences they use, and buy extra licences at a significant discount. ■



- BUYER'S GUIDE TO SOFTWARE ASSET MANAGEMENT
- BUYER'S GUIDE TO ASSET MANAGEMENT
- SOFTWARE LICENSING AND SUBSCRIPTION

HOME

NEWS

HAMBURG COURT
RULES SAP LICENCE
NOT ABOVE LAWPUBLIC SECTOR
FACES HURDLES
WITH BYODPUMPS MAKER
EMBRACES
RESTRUCTUREHOW AMADEUS
DELIVERS FAIL-SAFE
TRAVEL SERVICESEDITOR'S
COMMENT

OPINION

BUYER'S GUIDE
TO TESTING AND
CODE QUALITYVIDEO AND VOICE
COMMUNICATION
IN A WEB BROWSEROPEN SOURCE
SOFTWARE FOR
NETWORKING

DOWNTIME

ENTERPRISES
STRUGGLE WITH
BYOD SECURITY
CHALLENGECW500
CLUB: BYOD
BEST PRACTICE

Public sector faces stiff regulatory hurdles in rolling out BYOD projects

The government has issued challenging guidelines for local councils planning to implement bring your own device (BYOD) schemes. Caroline Baldwin reports

The government has allowed public-sector organisations to introduce bring your own device (BYOD) schemes for employees to access data and applications using their personal mobile devices.

The final version of the *End User Devices Security and Configuration Guidance* policy was published in October by CESG, the information security division of GCHQ.

The policy means that, for the first time, local authorities may introduce BYOD schemes – although the wording suggests CESG would prefer them not to, and places several restrictions on how staff-owned devices must be used.

“What is necessary is that the device is placed under the management authority of the enterprise for the complete duration it is permitted to access official information. Hence, a BYOD model is possible, although not recommended for a variety of technical and non-technical reasons,” it said.

Equally as important as the user devices policy was the less heralded PSN compliance changes released last month.

The Public Services Network (PSN) is a public sector “network of networks”, intended to connect public bodies on one secure network while cutting organisations’ costs through joint procurement.

The Cabinet Office wanted to ensure that, to join the PSN, certain thresholds of security standards were met. It instigated a process of auditing local authorities’ security with the deadline of the end of the year.

Many councils predicted it would be difficult to achieve compliance by this time and Computer Weekly understood some risked disconnection if they missed the deadline.

The most important change to the PSN regulations has given councils more time to achieve security authentication to share data across the network.



WIKIMEDIA/MINISTRY OF DEFENCE

CESG – the information security division of GCHQ – has published its *End User Devices Security and Configuration Guidance* policy to let councils roll out BYOD projects

BYOD AND PSN COLLIDE

CESG suggested it would not allow unsecured mobile devices to share confidential data across the PSN. This left local authorities unable to access critical Whitehall services – for example, contacting the Department for Work and Pensions to exchange details of benefits claimants. Existing BYOD schemes would have been put in jeopardy.

Council leaders believe mobile technologies are instrumental to meeting their goals, and many have pursued BYOD schemes to help meet recent budget cuts. A report concluded that 86% of council leaders believed the most effective technology in local authorities are those that support agile and mobile working methods.

HOME

NEWS

HAMBURG COURT
RULES SAP LICENCE
NOT ABOVE LAWPUBLIC SECTOR
FACES HURDLES
WITH BYODPUMPS MAKER
EMBRACES
RESTRUCTUREHOW AMADEUS
DELIVERS FAIL-SAFE
TRAVEL SERVICESEDITOR'S
COMMENT

OPINION

BUYER'S GUIDE
TO TESTING AND
CODE QUALITYVIDEO AND VOICE
COMMUNICATION
IN A WEB BROWSEROPEN SOURCE
SOFTWARE FOR
NETWORKING

DOWNTIME

The *Changing Places* – how innovation and transformation is taking place in local government report, conducted by Civica and independent thinktank Localis, interviewed 80 council leaders and CEOs across the UK. It said 48% of respondents viewed PSN as the technology with the greatest potential to help councils achieve their goals.

"This is where two noble strategies collide," said Steve Halliday, president of public sector user group Socitm and CIO of Solihull Council.

SOLIHULL'S BYOD SCHEME

Many local councils have rolled out BYOD schemes to cut costs. Solihull Council was an early adopter, led by Halliday. In his role as Socitm president, he worked closely with CESG to bring in some of the PSN compliance changes. He said the security audit extension was critical for local councils.

**"IT ALMOST BECOMES
'DONATE YOUR OWN
DEVICE' IF YOU'RE NOT
VERY CAREFUL"**

**STEVE HALLIDAY,
SOLIHULL COUNCIL**

Halliday also worked with CESG, in his role as Solihull Council CIO, to ensure the local authority's scheme was compliant.

One of the requirements of the CESG BYOD guidelines was that mobile devices might have to be returned to factory settings to comply with security standards.

"It almost becomes 'donate your own device' if you're not very careful," he said.

"If your device is locked down and you can't

go to certain websites, you can only do a very limited set of things. If the organisation completely controls it, you have effectively donated it. Why would you do that?"



Halliday: Need for forum to conduct dialogue

While Solihull Council will not require employees to wipe their mobiles as CESG has recommended, Halliday says it has a reasonable BYOD architecture in place. This is permitted because the council only shares low-risk data over its mobile devices. But Halliday said employees could be forced to wipe devices in the future.

"The world keeps changing and, like all solutions, we have to keep re-assessing and respond with our information security solutions to how the world changes," he said.

THE IMPORTANCE OF DIALOGUE

"But I believe I have a suitably secure, proportionate solution in place and I'm confident that we will have a sensible pragmatic ongoing dialogue that will help BYOD."

Halliday said continuing conversations were important to compliance in the future. He has set up a working group, called the Local Government PSN Secure Solutions Group, as part of the compliance changes.

The working group will run workshops with members of the business community experienced in information security, to share their views on unmanaged endpoints as the technology evolves.

Halliday said there is already a dialogue between the user community and information security practitioners.

"To an extent the technical information security specialists in local authorities are saying they can deliver a secure solution with BYOD and meet my information security audit requirements," he said.

"What we need is a forum to enable us to continue to have that dialogue with mutual trust and respect." ■

- > CABINET OFFICE NAMES 12 PSN SUPPLIERS
- > CLOUD COMPUTING IN THE PUBLIC SECTOR
- > ICO ISSUES BYOD WARNING AFTER BREACH



Database Delivery: Making The Case

Many best practices for software application development, such as version control, continuous integration, and automated deployment, are equally important for database delivery.

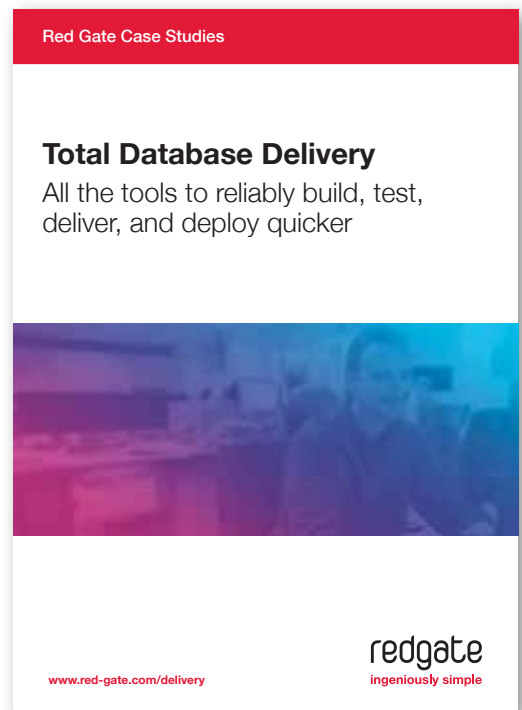
Adopting these practices can have significant benefits for your business, and database delivery tools from Red Gate make it much simpler.

Our case studies examine how teams in the finance, healthcare, and telecoms sectors have improved their database development processes using Red Gate tools:

- **Financial services broker Phillip Securities can now coordinate database development across 100 team members, thanks to database source control.**
- **Healthcare data provider StateServ can now deploy website features up to 30 times a week and reduced their release time by 50%.**
- **Telecoms software company Calvi has avoided database versioning bugs for two years.**

Each company gave us the details of their new processes, the advantages for the development teams, and the benefits to the business as a whole.

Read the case studies for the full story at
www.red-gate.com/database-delivery-case-studies



redgate
ingeniously simple

HOME

NEWS

HAMBURG COURT
RULES SAP LICENCE
NOT ABOVE LAWPUBLIC SECTOR
FACES HURDLES
WITH BYODPUMPS MAKER
EMBRACES
RESTRUCTUREHOW AMADEUS
DELIVERS FAIL-SAFE
TRAVEL SERVICESEDITOR'S
COMMENT

OPINION

BUYER'S GUIDE
TO TESTING AND
CODE QUALITYVIDEO AND VOICE
COMMUNICATION
IN A WEB BROWSEROPEN SOURCE
SOFTWARE FOR
NETWORKING

DOWNTIME

How
BUSINESS PROCESS
REDESIGN IS
AFFECTING ERPERP SYSTEM
INTEGRATION
POSES ONGOING
CHALLENGES

Pumps maker's restructure sharpens focus on enterprise resource planning

Hayward Tyler carried out a restructure to reduce overlap and waste, leading to an improvement in on-time delivery of equipment. *Lindsay Clark reports*

When the restructure of a business arrives nearly halfway through an important enterprise resource planning (ERP) upgrade, it could be seen as a threat to the IT programme.

But for Hayward Tyler, a manufacturer of pumps for the gas, oil and nuclear industries, it was an opportunity to ensure business goals were at the heart of the project.

Head of IT Keith Herring says the restructure allowed a sweep of business processes and job functions, reducing overlap and waste.

"We could get efficiencies, but also reduce headcount – one of the reasons for the restructure. The ERP upgrade fits into that, making sure that we have the right people in the right places," he says.

The ERP roll-out, an upgrade from Epicor Vantage to Epicor ERP, went live a year ago. Together with the business

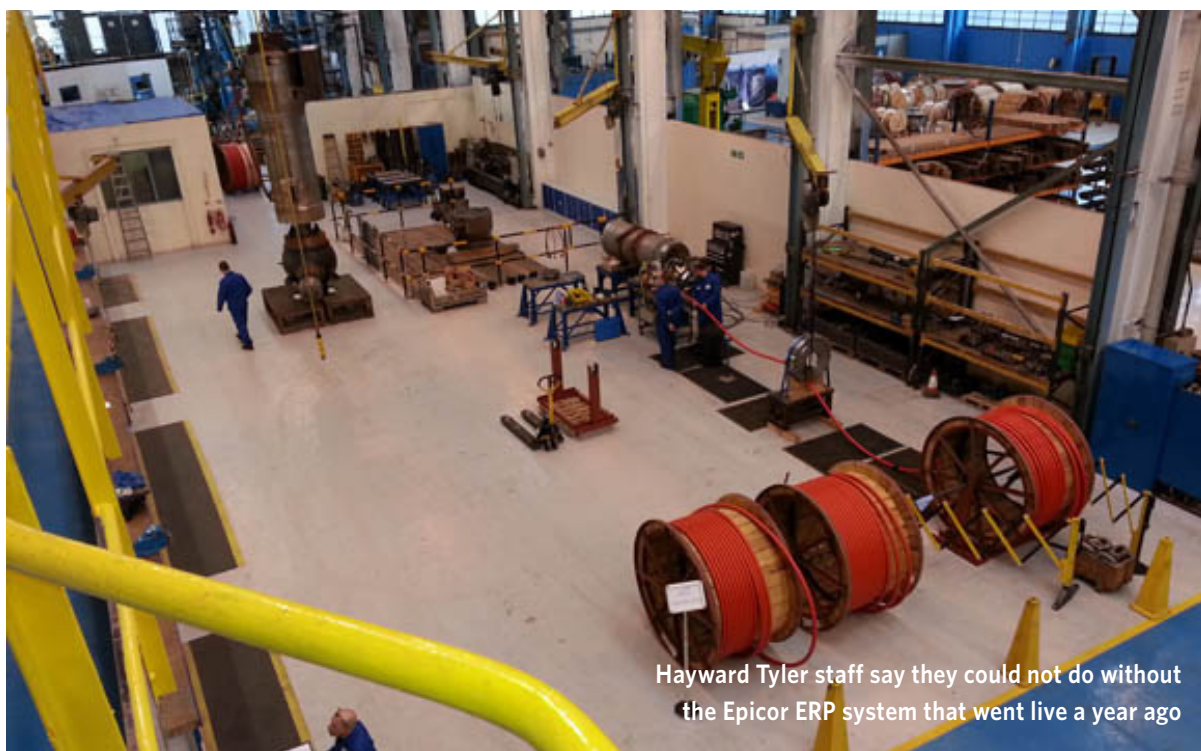
re-organisation, it has improved the on-time delivery of equipment from 20% before the implementation to 80% afterwards.

ERP FOR MAKING PUMPS

Hayward Tyler has been designing and manufacturing bespoke fluid systems, used across the world, since 1815. It has four sites and a turnover in excess of £30m.

The ERP project started nearly three years ago, when the company realised its software needed to be upgraded from a technology point of view. The old system, introduced in 2000, could produce a static view of the business, but it was unable to provide new data dashboards or cope with changing business processes.

"We had silos of data in product areas, rather than having a view of business activity across the board. From there, we were also having some problems getting our products



Hayward Tyler staff say they could not do without the Epicor ERP system that went live a year ago

HOME

NEWS

HAMBURG COURT
RULES SAP LICENCE
NOT ABOVE LAWPUBLIC SECTOR
FACES HURDLES
WITH BYODPUMPS MAKER
EMBRACES
RESTRUCTUREHOW AMADEUS
DELIVERS FAIL-SAFE
TRAVEL SERVICESEDITOR'S
COMMENT

OPINION

BUYER'S GUIDE
TO TESTING AND
CODE QUALITYVIDEO AND VOICE
COMMUNICATION
IN A WEB BROWSEROPEN SOURCE
SOFTWARE FOR
NETWORKING

DOWNTIME

out of the factory," says Herring. "We were looking to change, but then there was a business reorganisation, which extended the project slightly. After the restructure took place, it started to give momentum to the IT project. We had always wanted it to be a business project, not an IT project, so it was great timing."

The new ERP system offers greater flexibility and functionality because it is based on Microsoft's .Net web services and could be designed around business logic. It also made creating and pushing out business dashboards easier. The focus on the business goals of the programme was reflected in the recruitment of the project team, starting with its manager, who came from the business side of the house.

"He had been working in materials control, but he had a passion for programming and understood the systems," says Herring.

"That is one of the reasons why the whole project was a success. Not only did he understand the systems that we had, he also understands the business that we're in and why we were changing. He also knew all the other team members, so there were none of the misunderstandings that can crop up with someone purely from an IT background."

Seven other individuals were co-opted from business units to the project team, and dedicated around three hours a day to it. Because of the restructure, the ERP project was also driven from the top of the business, helping push through data cleansing and process-mapping in the new structure.

TECHNOLOGY CHOICES

Hayward Tyler remained with the Progress database to support Epicor ERP for the

time being, but it made plans to move UK factories in

Luton and Scotland to an SQL database in the future. Facilities in the US and China have already moved to SQL.

The system supports a supplier portal that allows them to view their invoices,

requests for quotes (RFQs), and submit their quotations.

The company invested in an HP Proliant server to run the new ERP system, as well as an upgrade to the PC estate. The new ERP client runs on the desktop, rather than through Windows terminal services, as it had with the earlier implementation.

**"ON-TIME DELIVERY IS
BETTER THAN IT WAS, OUR
CUSTOMERS ARE HAPPIER
AND THAT IS REFLECTED
IN THE GROWTH"**

The main project cost around £130,000 initially. In addition, the US invested \$80,000 (£49,000) and China around \$50,000 (£31,000). The server upgrade cost around £50,000. But the return has supported a 50% growth in business since the system went live.

"We got significant worldwide growth in the oil and gas industry. On-time delivery is a lot better than it was, our customers are a lot happier than they were and that is reflected in the growth," says Herring.

The upgrade has also changed the way data is used in the business. A standard view of performance is available to everyone who can log into the ERP system, also helping engineering and financial management.

"We are using it in standup meetings on the shop floor to offer accurate live information, rather than just word of mouth. That has helped some great team building. Everyone knows where we are and what is expected," he says.

"A lot of people used to have all the information in their head and we were trying to manage the whole business with just local knowledge. The system was just there to produce some jobs and paperwork," says Herring. "Now, the whole business revolves around the application, and people are saying that they could not do without it. That is testimony to what we have done." ■



› MARKS & SPENCER ACCELERATES IT RESTRUCTURING
› INTEL PLANS INTERNAL RESTRUCTURE
› THE GUARDIAN RESTRUCTURES IT DEPARTMENT

HOME

NEWS

HAMBURG COURT
RULES SAP LICENCE
NOT ABOVE LAWPUBLIC SECTOR
FACES HURDLES
WITH BYODPUMPS MAKER
EMBRACES
RESTRUCTUREHOW AMADEUS
DELIVERS FAIL-SAFE
TRAVEL SERVICESEDITOR'S
COMMENT

OPINION

BUYER'S GUIDE
TO TESTING AND
CODE QUALITYVIDEO AND VOICE
COMMUNICATION
IN A WEB BROWSEROPEN SOURCE
SOFTWARE FOR
NETWORKING

DOWNTIME


 HOW TO
PLAN AND
MANAGE
DATACENTRE
REDUNDANCY


 LOOKING TO
THE CLOUD FOR
THE FUTURE OF
DATACENTRES

No room for error in travel services

Head of global operations Wolfgang Krips tells Cliff Saran how Amadeus ensures its global distribution system is operational 24/7, without fail



Amadeus is critical to the travel industry.

The global distribution system (GDS) for airline tickets was established in 1987 by Air France, Iberia, Lufthansa and SAS to provide services to connect travel agents with airlines.

For Wolfgang Krips, head of global operations at Amadeus, automation and a highly skilled team work in unison to provide high-availability IT services. Krips has worked at Amadeus since July 2013. Prior to joining he was managing director of SAP managed services.

As head of global operations, Krips is responsible for ensuring the services Amadeus provides are available 24/7, 365 days of the year.

SUPPORTING MISSION-CRITICAL SERVICES

Krips is based at Amadeus's Erding data-centre outside Munich, which prior to the likes of Google, Microsoft and Facebook would have been regarded as one of the biggest European datacentres. Today it

operates the largest datacentre in Europe for the travel industry.

"Our systems build up travel itineraries and book your travel," he says. This is the core Amadeus global distribution system that enables travel agents to check seat availability and book tickets for passengers.

Since 2000, the company has been expanding to offer a number of cloud-based products.

"We also support the operational processes of airlines, such as check-in, printing baggage tags, boarding and the load plans for the aircraft," says Krips.

These systems are mission critical to the airlines. "If these services are not available, the aeroplanes are unable to leave the airport," he says.

Krips and the operations team at Amadeus are responsible for keeping these systems available at all times. Any failure could lead to major travel disruptions globally. "If we have a system outage, it affects the operations of the airlines," he says.

The site in Erding is made up of three separate datacentres, each operated in an

**"EVERYTHING IN THE
DATACENTRE IS REDUNDANT.
WE COULD OPERATE FOR
DAYS EVEN IF WE WERE CUT
OFF FROM POWER AND WATER.
WE HAVE REDUNDANT
COMPUTERS AND STATE-
OF-THE-ART FAILOVER
TECHNOLOGY"**
WOLFGANG KRIPS, AMADEUS



HOME

NEWS

HAMBURG COURT
RULES SAP LICENCE
NOT ABOVE LAWPUBLIC SECTOR
FACES HURDLES
WITH BYODPUMPS MAKER
EMBRACES
RESTRUCTUREHOW AMADEUS
DELIVERS FAIL-SAFE
TRAVEL SERVICESEDITOR'S
COMMENT

OPINION

BUYER'S GUIDE
TO TESTING AND
CODE QUALITYVIDEO AND VOICE
COMMUNICATION
IN A WEB BROWSEROPEN SOURCE
SOFTWARE FOR
NETWORKING

DOWNTIME

N+1 configuration which provides additional hardware for failover.

"Everything in the datacentre is redundant. We could operate for days even if we were cut off from power and water. We have redundant computers and state-of-the-art failover technology," says Krips.

DATACENTRE AUTOMATION

Amadeus makes extensive use of automation. "An automated environment is one of the ways we fulfil the requirements of the business. No matter how fast a human works, it can take a week or so to bring a physical server into a datacentre," says Krips.

"We now live in an age where you can go to Amazon in the cloud to get a virtual server instantly, so the classical approach of physically provisioning a server needs to be decoupled using virtualisation and automation," he says.

But Krips says datacentre automation is impossible if there are too many configurations, in terms of the hardware and software set-up. "We are trying to standardise the technology to reduce complexity by having as few variants as possible. From here you can automate," he says.

Fewer datacentre configurations reduces complexity and increases agility, according to Krips: "If you need to bring in automation that covers 85 variations of hardware, it takes much longer to deploy and test. If you have only two or three variations of hardware, complexity is less and the configurations can be automated more easily."

He says there needs to be a balance between having the highly skilled team which can solve complex issues that arise when running a datacentre like the Amadeus

site in Erding, and the procedures needed to repeatedly get high quality results. This procedural approach to change management fits

alongside the automation tools: "The human factor is very important."

Krips says standardisation plays a major role in reducing errors within a datacentre. "Operations has moved from box-shifting to a very sophisticated discipline where operations staff have to think through how

to make processes fail-safe. We have highly educated and skilled people who understand the systems they operate," he says.

The team adheres to a process framework to reduce the risk of human error. Krips says

**"OPERATIONS HAS MOVED
FROM BOX-SHIFTING TO
A VERY SOPHISTICATED
DISCIPLINE WHERE
OPERATIONS STAFF HAVE
TO THINK THROUGH HOW
TO MAKE PROCESSES
FAIL-SAFE"**

the operations team uses checklists, analogous to the pre-flight checks run on the flight deck of an aircraft, to minimise human error.

CAREER PROGRESSION IN IT OPERATIONS

In many ways, Krips regards automation as a way to run the mundane tasks required to operate a major datacentre, albeit extremely quickly, allowing the highly skilled operators to problem-solve situations that automation cannot handle.

"Our datacentre services are automated to minimise any service disruptions. But automation means the skills required by operations staff increase. They no longer think about how to do the job, but instead they are asking, 'What is the next level of automation I can use?'," he says.

Due to datacentre automation, he says a very different level of thinking is required.

Speaking about the progress of IT and the effect on IT operations, he says: "In the early days you could bring in any technology and the business would figure out what to do with it. But today you need a business case.

"You need people who not only understand the technology, but also understand the price in terms of operational costs and the total cost of ownership. This is what is needed for the managerial side of IT operations." ■



▶ [CLICK HERE TO WATCH
A VIDEO INTERVIEW
WITH WOLFGANG KRIPS](#)

HOME

NEWS

HAMBURG COURT
RULES SAP LICENCE
NOT ABOVE LAWPUBLIC SECTOR
FACES HURDLES
WITH BYODPUMPS MAKER
EMBRACES
RESTRUCTUREHOW AMADEUS
DELIVERS FAIL-SAFE
TRAVEL SERVICESEDITOR'S
COMMENT

OPINION

BUYER'S GUIDE
TO TESTING AND
CODE QUALITYVIDEO AND VOICE
COMMUNICATION
IN A WEB BROWSEROPEN SOURCE
SOFTWARE FOR
NETWORKING

DOWNTIME

Tory website wipe raises question: Who polices web history?

The hardest trust to gain is trust that was previously won and lost.

If David Cameron promised to make his government "the most open and transparent in the world" in a speech before the May 2010 General Election, it is now a lot harder to find the full text of what he said, since the Tories removed links to 10 years of articles from their website, and used the site's robots.txt file to also erase them from Google searches and the Internet Archive.

What was the result of Computer Weekly revealing this fact? National newspapers falling over themselves to print lists of Conservative Party promises, from now-disappeared speeches, that have subsequently been broken. That's the downside of claiming to be open – and then trying to remove history.

The Tories were by no means the first organisation to remove articles from the web – and they won't be the last. Indeed, the Labour Party has removed most of its archive from its website, but did not go as far as editing robots.txt, and nor is it the party in power.

But the context of the Tory website deletion has to come from the promise of openness. And its actions do not sit well in that context. The move has highlighted a particular failing of the web – who polices its history?

Every printed publication in the UK, from books to newspapers, still has to send a physical copy to the British Library to be archived in perpetuity. Just about the only place you can still find electronic copies of those lost Tory speeches is on the British Library's internet archive – which is not a full record, but simply a series of periodic snapshots of key British websites, and is not directly searchable through Google.

If you want to remove your history from the web, it's a straightforward thing to do.

Nobody at Conservative HQ would have imagined the storm they would create by deleting their internet history, but the reaction demonstrates how technology is changing politics and giving power to the people.

Even if the Tories' claims of being open are proved illusory, thanks to technology, politics becomes ever more open to public scrutiny. ■

Bryan Glick
Editor in chief

ComputerWeekly

Computer Weekly/ComputerWeekly.com
1st Floor, 3-4a Little Portland Street, London
W1W 7JB

GENERAL ENQUIRIES

020 7186 1400

EDITORIAL

Editor in chief: Bryan Glick

020 7186 1424

bglick@techtarg.com

Managing editor (technology): Cliff Saran

020 7186 1421

csaran@techtarg.com

Head of premium content: Bill Goodwin

020 7186 1418

wgoodwin@techtarg.com

Services editor: Karl Flinders

020 7186 1423

kflinders@techtarg.com

Security editor: Warwick Ashford

020 7186 1419

washford@techtarg.com

Networking editor: Jennifer Scott

020 7186 1404

jscott@techtarg.com

Special projects editor: Kayleigh Bateman

020 7186 1415

kbateman@techtarg.com

Datacentre editor: Archana Venkatraman

020 7186 1411

avenkatraman@techtarg.com

Storage editor: Antony Adshead

07779 038528

aadshead@techtarg.com

Business applications editor: Brian McKenna

020 7186 1414

bmckenna@techtarg.com

Business editor: Caroline Baldwin

020 7186 1425

cbaldwin@techtarg.com

Editorial content assistant: Clare McDonald

020 7186 1426

cmcdonald@techtarg.com

Production editor: Claire Cormack

020 7186 1417

ccormack@techtarg.com

Senior sub-editor: Jason Foster

020 7186 1420

jfoster@techtarg.com

Senior sub-editor: Craig Harris

020 7186 1416

charris@techtarg.com

DISPLAY ADVERTISING

Sales director: Brent Boswell

07584 311889

bboswell@techtarg.com

Group events manager: Jonathan Palma

0207 186 1430

jpalma@techtarg.com



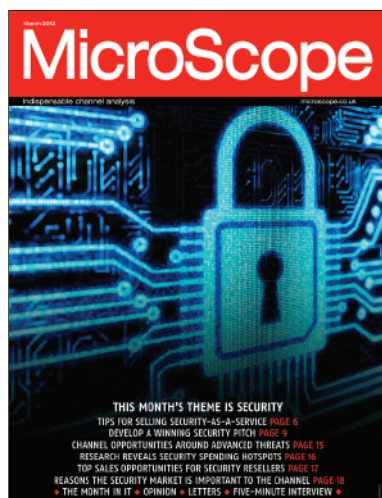
MicroScope

MicroScope is committed to providing objective reporting and informed analysis to maintain its position as the essential read for anyone working in the channel, and the number one news resource for computer resellers and suppliers.

Visit us online and access:

- **Independent analysis** on the industry, market leaders and technology trends
- **Tips and newsletters** covering the latest news, insight on the future of the channel, etc
- **Research Library** filled with white papers, webcasts, videos and more
- **Up to the minute news** to keep you current on events, technology, and market trends

Sign up to receive MicroScope



Our dedicated editorial team provides channels pros with the resources they need to help them make better business decisions. Receive the digital publication monthly to gain insight into:

- Expert insights
- In-depth technology guides
- Channel case studies
- Peer interviews

Sign up to receive MicroScope today!
www.microscope.co.uk

HOME

NEWS

HAMBURG COURT
RULES SAP LICENCE
NOT ABOVE LAW

PUBLIC SECTOR
FACES HURDLES
WITH BYOD

PUMPS MAKER
EMBRACES
RESTRUCTURE

HOW AMADEUS
DELIVERS FAIL-SAFE
TRAVEL SERVICES

EDITOR'S
COMMENT

OPINION

BUYER'S GUIDE
TO TESTING AND
CODE QUALITY

VIDEO AND VOICE
COMMUNICATION
IN A WEB BROWSER

OPEN SOURCE
SOFTWARE FOR
NETWORKING

DOWNTIME

GOOGLE
FACES SANCTIONS
OVER DATA
PROTECTION

MEPs VOTE
TO TIGHTEN DATA
PROTECTION
RULES
REVELATIONS

Amended Data Protection Regulation could introduce fines up to €100m

Changes to the European Data Protection Regulation will have far-reaching consequences for businesses across all industries. William Long reports

Following several delays, the European Parliament Committee on Civil Liberties has voted to adopt amendments to the EU's proposed Data Protection Regulation.

The regulation will apply to European businesses that process personal data, and businesses outside the EU that monitor EU citizens or process personal data obtained from offering goods or services to EU citizens.

Firms that do not comply with the regulation could face fines up to 5% of annual worldwide turnover, or €100m, with the possibility for individuals and associations, acting in the public interest, to bring claims for non-compliance.

SECURITY AND DATA PROTECTION

Under the proposed regulation, security measures will need to be implemented by businesses, and security policies will also need to contain specific provisions – for example, a process for regularly testing the effectiveness of security policies.

Businesses will need to keep details on data, and there will be a legal requirement to report security breaches to a data protection authority (DPA) without undue delay.

Businesses will also be required to take reasonable steps to implement compliance procedures and policies, which should be reviewed every two years. The procedures should detail the lifecycle of processing data, from collection to deletion, and carrying out privacy impact assessments.

Where a business has data on more than 5,000 people in any 12-month period, or business processes sensitive data, such as health data, it will need to appoint a data protection officer (DPO) who should have extensive knowledge of data protection.

For many businesses, the new obligations, if adopted, will require a review of existing

security and data protection measures, policies and procedures, with training of staff and provision of additional resource.

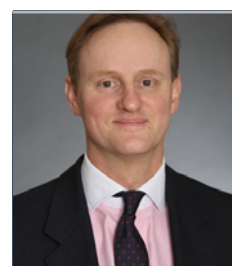
EXPLICIT CONSENT

Under the proposed regulation, consent for processing personal data should be explicit. It should also be as easy to withdraw consent as it is to give it, while processing personal data on children under 13 will require the consent of a parent or legal guardian.

There are also new requirements for standardised data protection policies for individuals using symbols or icons. The information should include details on rights of access to the data, rectification and erasure of data, the right to object to profiling, how to bring a complaint to the relevant DPA and how to bring legal proceedings.

The proposed regulation also includes a new Right of Erasure, which would give individuals a right to have their personal data erased where the data is no longer necessary or where their consent is withdrawn under certain circumstances.

The impact of the proposed regulation, once adopted, will likely be significant for businesses, governments and individuals not only in the coming months but also for years to come and therefore it should continue to be closely monitored by all industries. ■



William Long is a partner at law firm Sidley Austin

This is an edited excerpt. Click here to read the full article online.

HOME

NEWS

HAMBURG COURT
RULES SAP LICENCE
NOT ABOVE LAW

PUBLIC SECTOR
FACES HURDLES
WITH BYOD

PUMPS MAKER
EMBRACES
RESTRUCTURE

HOW AMADEUS
DELIVERS FAIL-SAFE
TRAVEL SERVICES

EDITOR'S
COMMENT


OPINION

BUYER'S GUIDE
TO TESTING AND
CODE QUALITY

VIDEO AND VOICE
COMMUNICATION
IN A WEB BROWSER

OPEN SOURCE
SOFTWARE FOR
NETWORKING

DOWNTIME

 IMPROVING
SOFTWARE
QUALITY BY
OPTIMISING
THROUGH
AUTOMATION

 THE RISKS OF
AGILE SOFTWARE
DEVELOPMENT:
OVERCOMING
FEATURE CREEP



THINKSTOCK

BUYER'S GUIDE
TESTING AND CODE QUALITY PART 2 OF 3

KEEP YOUR SOFTWARE HEALTHY DURING AGILE DEVELOPMENT

Developers have adopted agile methods to keep up with the pace of the market, but how can they ensure code stays in good shape? Adrian Bridgwater reports

The total biosphere of software application development is speeding up. Users download to consume (and of course delete) applications faster than ever before; and disposable mobile usage patterns only serve to exacerbate this trend. By direct consequence, programmers themselves have increasingly adopted agile development principles to match the speed of the market.

Under an agile doctrine, software development is focused on the need to release early and often – continuously even. The agile programming team positively welcomes changes to user requirements that will divert or alter the direction of the code in motion. Even late changes are welcome as these lead to higher competitive advantage for the customer who is ultimately (in theory) served with a better application.

HOME

NEWS

HAMBURG COURT
RULES SAP LICENCE
NOT ABOVE LAWPUBLIC SECTOR
FACES HURDLES
WITH BYODPUMPS MAKER
EMBRACES
RESTRUCTUREHOW AMADEUS
DELIVERS FAIL-SAFE
TRAVEL SERVICESEDITOR'S
COMMENT

OPINION

BUYER'S GUIDE
TO TESTING AND
CODE QUALITYVIDEO AND VOICE
COMMUNICATION
IN A WEB BROWSEROPEN SOURCE
SOFTWARE FOR
NETWORKING

DOWNTIME

Surely then, it remains tougher to control software quality in this vortex of dynamism? The *Agile Manifesto* demands a "continuous attention to technical excellence and good design" throughout, but we know that nobody and no team is perfect. Among other agile principles there are edicts insisting on business-developer connections and face-to-face conversations, but is any of this enough to ensure the health of your software in the real world?

THE AGILE PURISTS VIEW VS. THE APPLIED VIEW

Purists will argue that the agile process involves continuous testing for software quality and thus standalone testing tools are not needed. This assertion is a little overemphatic for most reasonably prudent software architects. This is the reason why we have both "pure" and "applied" mathematics – that is, one works on paper, one works in the real world.

Software quality itself is something of a moveable feast. For some it means straight quality control to examine whether a product is broken or not, but it can also relate to quality assurance to examine whether a product meets the needs and expectations of its users. We can even form subdivisions between software "functionality" quality and software aspects classed as non-functional, that is, more structurally focused on strength and maintainability.

Given this brief history of the agile software quality envelope, we can perhaps reason why so many suppliers have indeed developed products to serve this space. Sometimes shrouded in a wider application lifecycle management (ALM) suite of tools, software quality systems range from code testing to penetration testing to stress testing to usability and performance testing in their shape and focus.

**"DEVELOPMENT, TEST AND OPERATIONS
TEAMS NEED TO WORK COLLABORATIVELY
TO REDUCE DEVELOPMENT TIME WITHOUT
SACRIFICING QUALITY – OR USERS WILL BE JUST
AS AGILE IN SWITCHING TO A COMPETITOR"**

MICHAEL ALLEN, COMPUWARE

HOME

NEWS

HAMBURG COURT
RULES SAP LICENCE
NOT ABOVE LAWPUBLIC SECTOR
FACES HURDLES
WITH BYODPUMPS MAKER
EMBRACES
RESTRUCTUREHOW AMADEUS
DELIVERS FAIL-SAFE
TRAVEL SERVICESEDITOR'S
COMMENT

OPINION

BUYER'S GUIDE
TO TESTING AND
CODE QUALITYVIDEO AND VOICE
COMMUNICATION
IN A WEB BROWSEROPEN SOURCE
SOFTWARE FOR
NETWORKING

DOWNTIME

SIZE (OF CODE LENGTH) MATTERS

A seasoned player in this space is Compuware with its application performance management (APM) software. The firm's eponymously named Compuware APM encompasses some language-specific (or at least language nuance-aware) intelligence to get to the heart of where performance bottlenecks or errors may lie.

Compuware explains that, with modern high efficiency programming languages such as Scala, there is a need to architect quality testing that is conscious of the fact that developers can write code that is much shorter than traditional code in length. While this can help programmers create new software and bring new services to market much faster, it also makes it markedly more difficult to see into the application to identify the root cause of any performance issues during the testing stage.

"In the agile world, development, test and operations teams can no longer work in silos. They need to work collaboratively to reduce development time without sacrificing quality – or users will be just as agile in switching to a competitor," says Michael Allen, director of APM at Compuware.

"All this demands a continuous quality assurance process across the delivery chain, combining production environment tests with real world feedback and cloud-based testing. Automating this process will ensure problems are discovered early on with sufficient detail and context to eliminate any guesswork."

We started off talking conceptually about "application biospheres". At a higher level, Compuware advocates and insists on an appreciation for the other environmental factors that exist inside a given agile application's own microclimate. Only by appreciating these factors can thorough quality testing be performed.

**"MANY
STRUGGLE TO RUN
THE CONTINUOUS
INTEGRATION
ENVIRONMENT
AT MEANINGFUL
SCALE"**

**OLIVIER BONSIGNOUR,
CAST**

AGILE MOVES FAST, TESTING MUST MOVE FASTER

In the real world, testing must be multifaceted and multifarious. An application could be optimised for one localised market with wildly different web connection speeds to another. An application inside an e-commerce platform relying on a multitude of other services all working in harmony together needs testing that embraces the entire service delivery chain. An application needs external testing with real data to assess its suitability for cloud-based deployment. Agile moves fast, so testing needs to move just as fast – if not faster.

One way to make testing faster is to focus it on the areas of the code that pose the greatest risk, such as new code, or legacy code affected by change.

"Too many companies chase 'code coverage' numbers. They may reach a point where 50% of their code is covered by an automated test, but how do they know if they have done 'enough' testing? What about the 50% that isn't covered by a test? With code coverage, each line of code is treated as if it is of equal value, including code for a critical feature as well as dead code and debugging code," says Kristin Brennan, senior director of product marketing at code testing and analysis company Coverity.

Brennan advocates an approach in tight agile cycles where development teams are able to focus their testing efforts on the most critical code and ensure that the most serious defects are being found as the code is created.

GARBAGE IN, GARBAGE OUT

Mark Warren, European marketing director at version management specialist Perforce, warns of the old "garbage in, garbage out" axiom. He says that if quality assurance is only performed towards the end of a project (or even as part of a continuous integration

HOME

NEWS

HAMBURG COURT
RULES SAP LICENCE
NOT ABOVE LAWPUBLIC SECTOR
FACES HURDLES
WITH BYODPUMPS MAKER
EMBRACES
RESTRUCTUREHOW AMADEUS
DELIVERS FAIL-SAFE
TRAVEL SERVICESEDITOR'S
COMMENT

OPINION

BUYER'S GUIDE
TO TESTING AND
CODE QUALITYVIDEO AND VOICE
COMMUNICATION
IN A WEB BROWSEROPEN SOURCE
SOFTWARE FOR
NETWORKING

DOWNTIME

process), feedback to the code writer on build fail, test fail or poor performance is always coming late in the day and therefore needs more effort to correct than if the code had been right in the first place. Much better, and cheaper, to have good quality in the first place.

"One approach that many agile teams adopt when moving into continuous delivery is to adopt a mainline model for source control. This is not a new concept, Perforce founder and CEO Christopher Seiwald was writing about this in the last century. The proposition is that a single mainline should contain an always buildable and complete version of the project source code. This means all developers have visibility into all changes which should avoid the 'integration hell' that typically happens when trying to merge parallel branches of development," says Warren.

SHELVE, PEER REVIEW, PRE-INTEGRATION

But keeping this clean and essentially buildable mainline requires some thought and process. This means that changes intended for the mainline must be validated before being committed. "That validation may include 'shelving' the changes so they are stored securely while peer review and pre-integration testing can be performed," says Warren.

The company provides code review and collaboration tools such as Perforce Swarm, which promises to automate much of this process and capture discussion around the changes for future audit purposes or just to try to work out what was going on.

Olivier Bonsignour, European vice-president of product development at software analysis and measurement company Cast, offers a departmental manager perspective asserting that, while agile has shown success in small, greenfield projects, most organisations have found it difficult to scale agile to mission-critical systems that involve legacy components.

"Many organisations struggle to run the continuous integration environment at meaningful scale. They find it difficult to follow all the tenets of Scrum to produce high-quality output. Code quality is frequently compromised when agile is not followed thoroughly. This creates risk for the business, which may get stuck with a software architecture that does not work. Teams may use methodologies such as Scrum, but take out certain aspects such as doing daily builds, which reduces the effectiveness of the methodology," says Bonsignour.

Cast's latest offering of its flagship application intelligence platform includes features designed specifically to address technical vulnerabilities during the increasing adoption of agile techniques in the face of ever-increasing code sourcing complexity across multi-tiered, multi-technology applications.

"Agile has driven automation. We need to automate software build processes and testing, because there is little time for humans to do commoditised work. Part of the automation missing is an intelligent source configuration management capability across all components of critical systems – not just the most recent ones. This industrialisation of software development is essential for IT-intensive businesses to survive, lest the IT organisation is left to drown in maintenance issues, technical glitches and security breaches," says Bonsignour.

AGILE TESTING WITHOUT AUTOMATION IS WORTH ZERO?

So it would seem, at least from the testing suppliers' points of view, agile testing without automation is worth zero. Continuous agile delivery across structural and architectural software quality factors needs to incorporate everything from robustness to penetration and security, right through to performance under stress and even transferability or changeability of the application software code in hand.

Software today needs to change fast and agile software changes faster than most. Pulling off competent analysis and refactoring of the application code in a high wind is no mean feat and the agile software testing suppliers know this. Perhaps not quite fully envisioned at the inception of the *Agile Manifesto* itself back in 2001, agile proponents have not voiced major objection to the tools here referenced, so they may just be useful in some cases. ■



- › AGILE 2013 CONFERENCE COVERAGE
- › AUTOMATE TESTING FOR AGILE QUALITY
- › MEASURING QUALITY IN THE AGILE ENTERPRISE

CWEurope

CWEurope is an E-Zine developed exclusively for our European audience covering all the major areas of change within IT. The monthly E-Zine focuses on themes relevant to the European market, offering both local language content as well as English. Whether it's building a new data centre, considering cloud computing, developing a more secure infrastructure, CWEurope discusses key management questions for IT pros to explore as they consider upcoming IT purchasing and technology decisions.

Access this month's issue today!

From the publishers of

ComputerWeekly



HOME

NEWS

HAMBURG COURT
RULES SAP LICENCE
NOT ABOVE LAW

PUBLIC SECTOR
FACES HURDLES
WITH BYOD

PUMPS MAKER
EMBRACES
RESTRUCTURE

HOW AMADEUS
DELIVERS FAIL-SAFE
TRAVEL SERVICES

EDITOR'S
COMMENT

OPINION

BUYER'S GUIDE
TO TESTING AND
CODE QUALITY

VIDEO AND VOICE
COMMUNICATION
IN A WEB BROWSER

OPEN SOURCE
SOFTWARE FOR
NETWORKING

DOWNTIME

 DOES
WebRTC
SUPPORT IPV6?

 WHAT
WebRTC WILL
AND WON'T DO
FOR ENTERPRISES



REAL-TIME VIDEO COMMUNICATION ON A BROWSER WITHOUT PLUGINS

WebRTC is an open standard for video and voice communication, embedded in a web browser. Simon Bisson reports on this developing technology

Talking to someone over the internet is not as easy as it could be. First, you need to find out what software your contact is using and make sure you are using the same. That's fine if you are both using a common platform, such as Skype, but what if you are using a PC and they are using FaceTime on a Mac?

Real-time communication (RTC) is already in use across the web, with tools such as Google Hangouts, Microsoft's Lync and Outlook.com, and Facebook all offering web-based voice and video communications. But like choosing a desktop tool, they all need plugins, and you need to be sure you have the right version and that your browser's security settings are not blocking it. With most IT departments blocking browser plugins, it is clear there needs to be another way.

Proprietary software and plugins are the bane of internet communications, be it voice or video. They get in the way of communicating, because you spend more time negotiating over what tool to use than on the eventual conversation.

HOME

NEWS

HAMBURG COURT
RULES SAP LICENCE
NOT ABOVE LAWPUBLIC SECTOR
FACES HURDLES
WITH BYODPUMPS MAKER
EMBRACES
RESTRUCTUREHOW AMADEUS
DELIVERS FAIL-SAFE
TRAVEL SERVICESEDITOR'S
COMMENT

OPINION

BUYER'S GUIDE
TO TESTING AND
CODE QUALITYVIDEO AND VOICE
COMMUNICATION
IN A WEB BROWSEROPEN SOURCE
SOFTWARE FOR
NETWORKING

DOWNTIME

That is where WebRTC comes in. It is an open standard for video and voice communication, embedded in the software that is on every desktop – the browser. As it is both a browser technology and a protocol, standardisation is handled by two different organisations – the W3C and the IETF – with much of the technology coming from Google.

In a WebRTC world you will be able to use a web-based communications service to start a conversation with a friend or colleague (or even a one-to-many or many-to-many web conference), with voice and video. You will also be able to share files over a peer-to-peer connection. While a web service will mediate the call, the browser you are using will not matter, because the technology to work with your computer's camera and microphone will be built-in, with no plugins needed. All that will be necessary is a few lines of JavaScript to set up the call.

WebRTC APIs

At the heart of WebRTC are three JavaScript application programming interfaces (APIs): `MediaStream`, `RTCPeerConnection`, and `RTCDataChannel`. `MediaStream` uses the `getUserMedia` JavaScript API to access device cameras and microphones, while `RTCPeerConnection` handles audio and video calls, and `RTCDataChannel` is for peer-to-peer data transfers. Put together, the three APIs are the building blocks of a video chat application.

One interesting feature of the `MediaStream` API is how it works with audio and video, taking device output and delivering it as a stream, with separate streams for each connected device. It is easy to imagine applications that work with both front and rear cameras on a tablet, use multiple microphones, or treat the screen display as a video stream – an approach that is ideal for presentations or sharing your screen. `MediaStreams` do not need to be sent over the internet. They can be used inside local applications, allowing you to quickly capture images and video that can be used elsewhere.

Getting access to devices is only part of the story. The real complexity in building any real-time communications service that is connecting users, and, sensibly, WebRTC leaves the choice of the underlying communications channel to web developers. That means you can use proven technologies such as SIP and XMPP in your applications, or choose any other communications protocol.

While there are libraries you can take advantage of to simplify development, the process of setting up a connection can be complex, using the Session Description Protocol (SDP) and the JavaScript Session Establishment Protocol. With SDP you can send information about camera resolution, the codecs in use, and the type of `MediaStreams` that can be used in a conversation. It will also deliver the information needed to traverse firewalls and handle peer-to-peer file exchanges.

The `PeerConnection` API handles the work of passing `MediaStreams` between browsers. That means there is a lot under the hood, and a lot that needs to be built into your web browser. Browsers that support WebRTC will need to include much of the tooling that goes into an app such as Skype – just without the user interface. Apps that use WebRTC will also need server infrastructure to handle the initial session negotiations and as a backup if there is no peer-to-peer path between browsers.

Real-time communication is not just about voice and video though. It is a tool that is at the heart of many of the things we do online, such as business conferencing, instant messaging, virtual desktop infrastructures and even file transfers. WebRTC's `RTCDataChannel` API uses browser-to-browser connections to work with any content type, with sample apps using it for gaming and peer-to-peer file transfer.

AT THE HEART OF WebRTC ARE THREE JAVASCRIPT APPLICATION PROGRAMMING INTERFACES

HOME

NEWS

HAMBURG COURT
RULES SAP LICENCE
NOT ABOVE LAWPUBLIC SECTOR
FACES HURDLES
WITH BYODPUMPS MAKER
EMBRACES
RESTRUCTUREHOW AMADEUS
DELIVERS FAIL-SAFE
TRAVEL SERVICESEDITOR'S
COMMENT

OPINION

BUYER'S GUIDE
TO TESTING AND
CODE QUALITYVIDEO AND VOICE
COMMUNICATION
IN A WEB BROWSEROPEN SOURCE
SOFTWARE FOR
NETWORKING

DOWNTIME

WebRTC COMPLEXITIES

Any web-based communications tool built using WebRTC will need to use all these technologies to build the full-featured application users expect, along with an assortment of HTML5 technologies to display controls and video.

There is a lot that needs to be done, and while WebRTC is attempting to make the complex easy, it is not a complete success. For one thing, the structure of SDP and the process of setting up a communications channel makes it harder to build a communications web app than most developers would like.

Luckily there are already libraries and services that simplify building an app, but they are as experimental as WebRTC. You can trial them, but be prepared for things to change, and to change your code. You can use the WebRTC internals tooling built into Chrome to see how your application works, and how it is using your network – letting you tune video and audio for optimal network performance.

Part of agreeing on a standard involves settling on the codecs that will be used. That is a more complex task than it might first appear because there are two distinct blocks in the W3C: one focused on standardising open source video and audio codecs, such as Google's WebM; and one wedded to industry

standards such as H-264. That aside, the WebRTC community seems to be coalescing around WebM and VP8 for video, with a range of audio standards including the royalty-free Opus codec (based on Skype's Silk).

WebRTC IS NOT THE ONLY PROPOSAL FOR A BROWSER-BASED COMMUNICATIONS PLATFORM

EXPERIMENTING WITH WebRTC AND CU-RTC-Web

WebRTC is not the only proposal for a browser-based communications platform. Microsoft's Open Technologies subsidiary is working on the alternative CU-RTC-Web, which is being designed to support more than just video chat as it is a much lower-level protocol. One advantage that Microsoft has over the current WebRTC software is better support for mobile use cases, including on smartphones and between clients on different types of networks. A prototype CU-RTC-Web plugin is available on Microsoft's HTML5Labs site ([click here to download](#)).

But with WebRTC still under development, it is not surprising that implementations are currently experimental. Even so, there are services that you can use to see just how well your browsers support its core technologies, as well as support for WebRTC in telecoms-as-a-service provider Twilio's client software.

Outside of the obvious business communications use cases, there have also been demonstrations of WebRTC being used as part of an emergency wireless network for quick deployment of telecoms infrastructure after a disaster. With much work on WebRTC coming from Google and the company's move to open standards in its Hangouts service, it is likely to adopt WebRTC alongside its VP8 video codec, with the aim of delivering plugin-free web conferencing that it can build into its Google+ social network.

There is still a lot of work to be done before we get to that point, as WebRTC has to be agreed in two different standards bodies. There is currently only experimental support in Opera, Chrome and Firefox, on desktop operating systems and Android – with some interoperability issues, including use of different browser prefixes in both Firefox and Chrome for the same APIs. While that is a problem for anyone wanting to experiment with WebRTC, it is one that goes away once WebRTC is standardised.

When that milestone is reached, we can expect quick support from most browsers, and the rapid roll-out of commercial services, including gateways to commercial communications platforms and services. ■

HOME

NEWS

HAMBURG COURT
RULES SAP LICENCE
NOT ABOVE LAW

PUBLIC SECTOR
FACES HURDLES
WITH BYOD

PUMPS MAKER
EMBRACES
RESTRUCTURE

HOW AMADEUS
DELIVERS FAIL-SAFE
TRAVEL SERVICES

EDITOR'S
COMMENT

OPINION

BUYER'S GUIDE
TO TESTING AND
CODE QUALITY

VIDEO AND VOICE
COMMUNICATION
IN A WEB BROWSER

OPEN SOURCE
SOFTWARE FOR
NETWORKING

DOWNTIME

🔍 A GUIDE TO
SOFTWARE
DEFINED
NETWORKS

🔍 PREPARING
YOUR TEAMS
FOR SOFTWARE
DEFINED
NETWORKING

OPEN SOURCE COLLABORATION DRIVES NETWORKS INNOVATION

The OpenDaylight project has attracted members across the networking industry as software-defined networking gathers interest. Steve Evans reports

Software-defined networking (SDN) is exploding. Startups such as Big Switch Networks, Embrane and Plexxi are bringing innovation and excitement to the nascent industry, while established networking giants such as Cisco and Juniper – which have huge businesses built on selling networking hardware to protect – have been buying their way into the SDN space.

Cisco has snapped up vCider and Meraki, among others, and Juniper acquired Contrail Systems – a startup with no customers and no shipped products – for \$176m.

Companies looking to become end-to-end enterprise IT suppliers, including IBM, HP and Dell, have also dipped their toes in the SDN waters.

In July 2012, VMware acquired Nicira, the hottest SDN property around at the time, for \$1.2bn to boost its software-defined datacentre strategy, and more recently announced details of its first Nicira-based product.



FUSE/THINKSTOCK

HOME

NEWS

HAMBURG COURT
RULES SAP LICENCE
NOT ABOVE LAWPUBLIC SECTOR
FACES HURDLES
WITH BYODPUMPS MAKER
EMBRACES
RESTRUCTUREHOW AMADEUS
DELIVERS FAIL-SAFE
TRAVEL SERVICESEDITOR'S
COMMENT

OPINION

BUYER'S GUIDE
TO TESTING AND
CODE QUALITYVIDEO AND VOICE
COMMUNICATION
IN A WEB BROWSEROPEN SOURCE
SOFTWARE FOR
NETWORKING

DOWNTIME

The analyst firms have also had their say on SDN's rise.

IDC claims the market will reach \$3.7bn by 2016 and account for 35% of Ethernet switches in the datacentre, up from what it describes as "negligible penetration" in 2012.

It also believes the major network suppliers will continue to snap up innovative startups in an attempt to dominate this "radically new networking landscape".

Gartner has not yet put a financial figure on the SDN market, but called it a "trigger technology" in its *2012 Hype Cycle for Networking and Communications Technologies*.

An altogether more ambitious forecast was recently put together by Plexxi, along with its venture capital backer Lightspeed Ventures and SDNCentral, an online community for the SDN industry. The data revealed a potential SDN market far larger than anything predicted before. By 2018, it estimates the SDN market could top \$35bn, driven by cloud computing, mobility and big data. Venture capital (VC) investment in SDN hit \$454m in 2012, up from \$202m the year before and just \$10m in 2007.

Matthew Palmer, a partner at SDNCentral, says the astronomical figure was reached by looking beyond current deployments. "The market for SDN is growing faster than just about anyone predicted," he says. "While past efforts to measure the size of the SDN market focused on existing deployments, a more accurate analysis of companies that are factoring SDN compatibility into their current buying decisions shows that the shift towards software-defined networking is already having a massive impact on businesses."

While there is a lot of excitement about SDN, it is still an emerging and relatively immature industry. Despite all the hype, many companies are holding back on it, waiting instead to see how software-defined networking develops over the next few years to establish exactly how it will benefit their business.

**"By 2018,
the SDN
market could
top \$35bn,
driven by cloud
computing,
mobility and
big data"**
MARKET FORECAST

CREATING AN OPEN PLATFORM

Not surprisingly, the industry is doing all it can to push the SDN message. In April 2013, The Linux Foundation announced the creation of the OpenDaylight project – a framework of open source technologies that aim to increase SDN adoption and innovation. The aim is to create an open platform that companies and individuals can contribute to and work together on.

Initially, OpenDaylight will support OpenFlow, as that's the standard most networking suppliers are going with for SDN, but the group hopes to expand its support for other protocols as they emerge. The goals of the project are to:

- Create a robust, extensible, open source code base that covers the major common components required to build an SDN solution;
- Get broad industry acceptance among suppliers and users;
- Have a thriving and growing technical community contributing to the code base, using the code in commercial products, and adding value above, below and around.

In terms of its effect on the industry, the OpenDaylight project wants to create "an open framework, an open standard and an industry-wide supported open controller code base that anyone can use, plug into or contribute new enhancements to", while "customers can participate and gain access to new technologies more quickly". Ultimately, the project aims to enable faster innovation from suppliers.

Members include traditional network suppliers Cisco, Juniper Networks and Brocade, as well as other big technology firms such as IBM, Microsoft, Citrix, VMware, Dell, HP, Intel and Huawei. Smaller companies such as Plexxi, Plum Grid and Nuage Networks are also members. Some 29 companies have so far contributed.

HOME

NEWS

HAMBURG COURT
RULES SAP LICENCE
NOT ABOVE LAWPUBLIC SECTOR
FACES HURDLES
WITH BYODPUMPS MAKER
EMBRACES
RESTRUCTUREHOW AMADEUS
DELIVERS FAIL-SAFE
TRAVEL SERVICESEDITOR'S
COMMENT

OPINION

BUYER'S GUIDE
TO TESTING AND
CODE QUALITYVIDEO AND VOICE
COMMUNICATION
IN A WEB BROWSEROPEN SOURCE
SOFTWARE FOR
NETWORKING

DOWNTIME

The project, which is open to anyone, will be funded by annual fees. Platinum members will pay \$500,000 per year and get a place on the OpenDaylight board of directors, gold members will pay between \$50,000 and \$250,000 per year, and silver members will pay between \$10,000 and \$20,000 per year. Individual developers wishing to contribute to the project will not be charged.

Speaking when the project was first announced, Jim Zemlin, executive director at The Linux Foundation, described it as a "rare gathering of leaders in the technology ecosystem who have decided to combine efforts in a common platform to innovate faster and build better products for their customers".

"The world has learned that collaborative development can quickly drive software innovation, especially in fast-moving markets," he added.

OPEN SOURCE PROJECTS UNDERWAY

The list of projects already underway at the OpenDaylight project is impressive. Details on the project's Wiki show the eagerness to develop end-to-end components needed for software-defined networking. For example, an OpenDaylight controller is in the works. It is described as a "highly available, modular, extensible, scalable, and multi-protocol controller infrastructure built for SDN deployment on modern heterogeneous multi-vendor networks". The controller is what enables IT to deploy the software that controls the network and is the central element of software-defined networking, so it is no surprise to see it is one of the first projects undertaken by OpenDaylight.

Proponents of SDN claim open source controllers, such as the one being worked on by the OpenDaylight project, will mean networks become easier to control and more flexible and agile.

Instead of manually reconfiguring an individual router or switch every time a change is needed, IT can simply make the changes via a centralised management console and push them out to the network.

Other projects underway include an OpenFlow plugin, a network virtualisation platform and a Virtual Tenant Network – an application that provides a multi-tenant virtual network on an SDN controller. These are all listed in the "bootstrap" phase of development, meaning they are just getting started. After that they will be considered "mature", "core" or "top level" projects.

The OpenDaylight project is only just getting off the ground, so analysing its effect up to now is a difficult task. But what is clear is that it has the backing of a huge proportion of

the networking industry – an industry which seems certain to be profoundly shaken up by the emergence of software-defined networking.

As Zemlin points out, collaboration is the key:

"Collaborative development is powerful in bringing together the best and brightest in their fields and surfacing solutions to the computing industry's pressing challenges. SDN is one such challenge.

"OpenDaylight has seen a level of participation that is rare at so early a stage in an open source software project and we're excited about its progress. This momentum is a good sign for the future of SDN." ■

**"OPENDAYLIGHT
HAS SEEN A LEVEL
OF PARTICIPATION
THAT IS RARE
AT SO EARLY A
STAGE IN AN
OPEN SOURCE
SOFTWARE
PROJECT AND
WE'RE EXCITED
ABOUT ITS
PROGRESS"**

**JIM ZEMLIN, LINUX
FOUNDATION**

➤ SDN SCARES BIG NETWORK SUPPLIERS

➤ SDN WILL TRANSFORM YOUR NETWORK – BUT NOT JUST YET

➤ ENTERPRISES WILL ADOPT SDN BEFORE FULL STANDARDISATION



HOME

NEWS

HAMBURG COURT
RULES SAP LICENCE
NOT ABOVE LAW

PUBLIC SECTOR
FACES HURDLES
WITH BYOD

PUMPS MAKER
EMBRACES
RESTRUCTURE

HOW AMADEUS
DELIVERS FAIL-SAFE
TRAVEL SERVICES

EDITOR'S
COMMENT

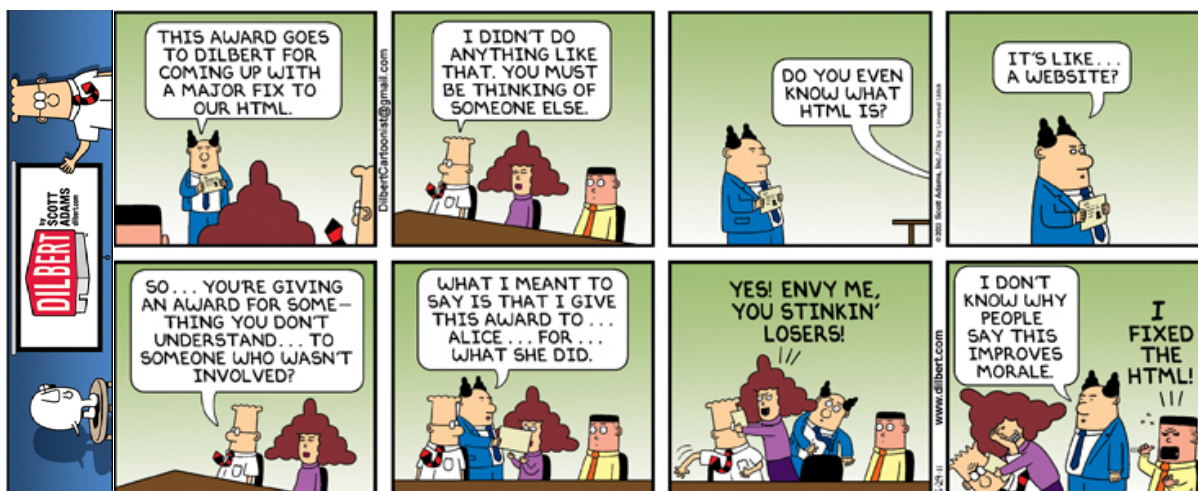
OPINION

BUYER'S GUIDE
TO TESTING AND
CODE QUALITY

VIDEO AND VOICE
COMMUNICATION
IN A WEB BROWSER

OPEN SOURCE
SOFTWARE FOR
NETWORKING

DOWNTIME



Robots of the future to take the piss

Researchers from the University of Western England and Bristol Robotics Lab are developing what they claim will be the ultimate environmentally friendly robots.

The reason they are environmentally friendly, say the scientists, is that the robots will be powered using urine.

"In cities, the robots could recharge using urine from urinals in public lavatories, while in rural environments, liquid waste could be collected from farms," said project lead Peter Walters.

At the heart of the project are microbial fuel cells that contain micro-organisms that produce electrons by breaking down the liquid waste.

The research team managed to generate enough electricity this way to power a mobile phone. In the future, it is believed that EcoBots could be deployed

as monitors in areas where there may be dangerous levels of pollution or dangerous predators.

Executive suffers an embarrassing snip

One senior executive has changed his mind on the introduction of a corporate BYOD scheme after a BYOD faux pas.

After gathering his team in a conference room, he found the presentation system to be faulty, so used his laptop instead. What could be easier? Plug and play.

During the presentation, assorted email headers appeared on screen. These included "Hi dad, need a lift later" and "Meeting reminder with Dave at 5pm." These were hardly noticed, but "Appointment confirmed for your vasectomy" was a snippet imprinted on a few minds.

Downtime thinks men should have the balls to talk about these issues in public. ■

BIEBER SUPPORTS ULTIMATE APP FOR NARCISSISTS

A new photo-sharing app has been launched with the financial backing of cacophonous ratbag Justin Bieber. The egocentric app "Shots of me" has been designed solely to allow self-absorbed users to share so-called "selfies", because apparently more opportunities to share shabbily taken pictures of oneself is precisely what the internet needs.

Developer RockLive claimed Bieber wanted to invest in the app after being a "bit annoyed" by other similar apps. RockLive wants to help users share more pictures of themselves without being interrupted by foodies sharing snaps of every Instagrammed plate of nosh they've ever shovelled into their face.



READ
MORE ON THE
DOWNTIME BLOG