# ComputerWeekly

## Six months ago, this was the most influential man in UK IT. Now he's out of a job

AUTONOMY FOUNDER MIKE LYNCH WAS UNCEREMONIOUSLY DUMPED FROM HP LESS THAN A YEAR AFTER ITS £7bn ACQUISITION. SO WHAT DOES THE FUTURE HOLD FOR THE GREAT BRITISH SOFTWARE COMPANY?

# the week online

## MOST POPULAR

**1** Software glitch to blame for RBS and NatWest outages

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## PHOTO STORY

> **The 100th anniversary of the birth of Alan Turing**
Alan Turing was the genius mathematician who cracked the German Enigma code during World War II. Turing played a leading role in breaking coded messages sent to German forces using the Enigma machine. The electro-mechanical Bombe machine (*pictured*) he invented to help this work at the secret Bletchley Park centre has been rebuilt by volunteers of the BCS Computer Conservation Society.

## VIDEO

> **How NFC contactless payments will change the way we shop**
Windsor Holden, head of research at Juniper Research, talks about the key drivers and barriers to mobile contactless payments, and what the technology means to retail CIOs.

> **How to prepare for IPv6 migration**
While the IPv6 standard is not going to have an immediate impact, IPv4 addresses will eventually run out. Bob Tarzey, analyst and director at research firm Quocirca, discusses how businesses should prepare for IPv6.

## PREMIUM CONTENT

> **KPMG 2012 Global Technology Innovation Survey**
China and the US are the two countries most likely to come up with disruptive technology breakthroughs in the next two to four years, according to KPMG's Global Technology Innovation Survey 2012. Europe, however, hardly features on global map of technology innovation hotspots. Security and privacy governance are named as key barriers to commercialising technologies such as mobile payments and storage.

> **Buyer's guide to virtual desktops**
In this Computer Weekly buyer's guide to virtual desktops, we investigate the latency and bandwidth issues that arise with thin client access, take a look at cloud economics in the datacentre, review Citrix's XenDesktop 5 desktop virtualisation application, and see how virtualisation and business process optimisation work at the Co-operative Group.

> **Tablets in the enterprise: Five steps for successful adoption**
Tablet devices will give enterprises a competitive advantage, according to this in-depth report from Booz&Co. The popularity of tablet computers among consumers is forcing enterprises of all sizes to accept them as part of their technology arsenal as well. While companies bought just 5% of all tablets sold in 2010, that figure is expected to double, to 10%, by 2015.

## OPINION

> **Enterprise log managers: An unsexy but vital tool**
The goal of enterprise log management (ELM) is to get your most critical events escalated to operations staff to react and respond with the appropriate actions. In today's enterprise, you would be culling through millions of events if you were not relying on ELM to correlate that information and point to what is most critical.

> **Can Nokia's "next billion" strategy save the company?**
Nokia's announcement that it is to shed 10,000 employees is one more painful step the company's embattled chief executive and president Stephen Elop has had to make and it is not going to be the last, if the Finnish phone giant is to be turned around. While 10,000 is a lot it is less than 10% of Nokia's 139,000 workforce.

## BLOGS

> **Philip Virgo: Has RBS put the Information Society back five years or saved us from worse?**
As detail emerges to confirm the scale, nature and source of the problems faced by RBS and the impact on its customers, we can begin to ponder the consequences, including for government aspirations to move its dealings with the most vulnerable in society not only online, but reliant on call centres and support staff based on the other side of the world.

> **Adrian Bridgwater: Steven Gerrard and cloud computing**
Everything happens in the cloud now doesn't it? It appears to be an almost pre-ordained destiny today that once a piece of software has been developed, its form and function must ultimately form the part of a service-based delivery option that essentially depends on one hosting provider or another to virtualise its existence before it ends up on users' desktops.

> **Angelica Mari: What is the value of IT supplier events?**
Customer events hosted by IT companies are always interesting to the external observer - I mean, to someone who is neither the buyer nor the seller. I am now attending the Orange Business Live customer conference in Rome – a large, two-day event attended by several hundred IT leaders from all over the world.

> **Karl Flinders: Are we about to see a massive outsourcing boom?**
Outsourcing is set to see the fastest growth since the 1980s with the sector worth up to £5bn by 2015, say City analysts. According to an article in *the Financial Times,* over £4bn worth of tenders are being negotiated this year, according to the *Official Journal of the European Union* and supplier pipelines. There are lots of contracts involving prisons, police forces, defence and health up for grabs this year.

### SOFTWARE LICENSING
**Microsoft quadruples cost of software licences for charities**
Specialist charities such as housing associations and social enterprises face paying nearly four times as much for Microsoft software when it introduces licensing increases in September. The changes will see housing associations and other organisations lose their designation of voluntary status and with it access to software prices that are similar to those available to academic bodies.

### IT INNOVATION
**UK falls short in the technology innovation stakes, finds KPMG**
The UK has failed to make KPMG's latest top 10 list of technology innovation hotspots. The league table was formed from the results of a global survey of 668 technology executives conducted by the consultancy firm. It ranked the UK 11th, with just 1% of respondents citing the region as likely to provide "disruptive technology breakthroughs" in the next two to four years.

### PUBLIC SECTOR IT
**Whitehall urged to measure progress of IT strategy**
Whitehall must measure the progress of its IT strategy more effectively, particularly the use of agile methodologies, if it is to achieve its technology transformation agenda, the Institute for Government has warned. In its report, *System upgrade? The first year of the government's ICT strategy*, the think tank acknowledged the good start made by government in implementing its strategy, but urged that more progress needed to be made.

### INTERNET INFRASTRUCTURE
**Customers could get 330Mbps broadband in BT FTTP trial**
BT is to offer fibre-to-the-premises (FTTP) connections in a trial. The Openreach arm of the telecoms giant is giving customers in eight areas the opportunity to upgrade their connections to a possible 330Mbps if they are within range of one of BT's superfast broadband cabinets, which already provide fibre-to-the-cabinet connections.

### CYBERSECURITY
**MI5 reveals cyber attacks are rife**
MI5 chief Jonathan Evans said the intelligence agency is working against "astonishing" levels of cyber attacks on UK industry. He warned that internet "vulnerabilities" were being exploited on an industrial scale by organised cybercriminals, as well as states carrying out cyber espionage. Evans claimed that a British company lost £800m in revenue as a result of such an attack.
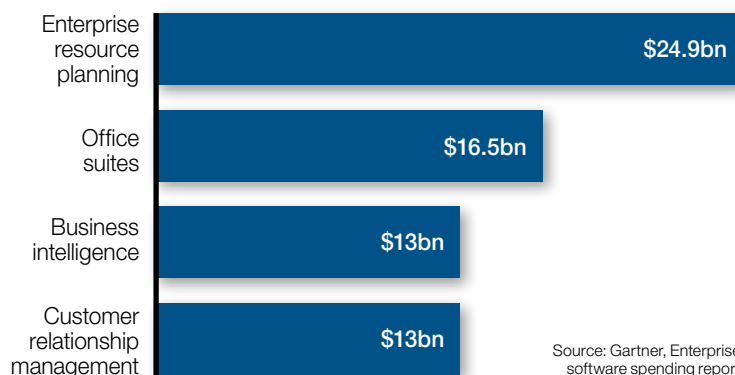


ELL BROWN/FLICKR

## CA Technologies helps to resolve RBS online banking technical fault

CA Technologies has confirmed to Computer Weekly that it is working with the Royal Bank of Scotland (RBS) to solve technical issues which left up to 12 million customers unable to access their funds for days.

The software supplier has been blamed for the outage that hit RBS, which was apparently caused by a faulty software patch update to the CA7 mainframe batch process scheduler used by RBS to update customer account balances.

Although CA would not confirm its specific responsibilities, it did admit that RBS is one of its customers. A spokeswoman for CA said: "We are offering all assistance possible to help [RBS] resolve its technical issues which are highly unique to its environment."

## Global software spending predicted in 2012 (main categories)

| Category | Spending |
|---|---|
| Enterprise resource planning | $24.9bn |
| Office suites | $16.5bn |
| Business intelligence | $13bn |
| Customer relationship management | $13bn |

Source: Gartner, Enterprise software spending report

### PUBLIC SECTOR IT SPENDING

> "I want Whitehall procurement to become as sharp as the best businesses"

**Francis Maude,**
**Cabinet Office minister**

### PUBLIC SECTOR IT
**Government to cut software and IT maintenance costs by £150m**
The government expects to slash its software licence and maintenance bills with Microsoft and SAP by as much as £150m by 2015 via a framework renegotiation. Under the deal, the public sector will avoid Microsoft's recent licence fee hikes. The Cabinet Office estimated the government would save £65m in annual fees to Microsoft in 2012/13, and more than £3m to SAP.

### IT OUTSOURCING
**MoD signs £17m five-year IT services agreement with HP**
The Ministry of Defence (MoD) has signed a £17m five-year deal with HP for desktop IT break-fix services. "For the first time, the British Armed Forces can rely on a consistent and transparent level of support for IT assets in the UK and at overseas bases," said Paul Beavin, head of ICT procurement at the MoD.

### IT RECRUITMENT
**London-based IT contractors enjoy higher rates of pay in 2012**
Despite the economic turmoil and return to recession, IT contractor rates in London have increased 3.4% over the past year. This reflects how organisations – which see IT as a way of improving business – are running projects that only require staffing for a short time but provide long-term benefits. Pay for permanent staff grew just 0.6% in the same period.

### BUSINESS INTELLIGENCE SOFTWARE
**Water company implements data governance software**
Water company United Utilities has implemented data governance software to manage its £8bn estate. Christopher Evans, enterprise information manager at the firm, said the company sought a tool to process multiple and complex data sets, and chose Trillium Software to improve data quality and deduplicate multiple records.

### CYBERSECURITY
**Security research unearths sophisticated global cyber fraud**
Security researchers have uncovered a highly sophisticated, multi-tiered, global financial fraud ring that has attempted fraudulent transfers of up to £1.6bn from at least 60 banks. Discovered by researchers from security firms McAfee and Guardian Analytics, the criminal operation, dubbed Operation High Roller, is made up of at least a dozen groups that use active and passive automated transfer systems to fraudulently make high-value withdrawals from high-balance accounts.

**MOBILE NETWORKS**

# The mobile side of net neutrality

Mobile users need to be better informed about how traffic management can affect their service, writes **Jennifer Scott**

The question of how to handle the growing amount of traffic on networks while still giving the customer a good experience has led to polarised conclusions.

Internet service providers (ISPs) argue they should be allowed to "manage" access to websites – giving priority to those willing to pay for better bandwidth and delaying those who won't – to ease congestion on their networks.

But opponents as high-profile as Sir Tim Berners-Lee say this damages the freedom of the internet and are fighting to get protection put in place to keep it as open as possible.

This side of the debate is known as net neutrality and, when it comes to fixed internet service providers such as Virgin Media or TalkTalk, it has been well publicised.

The same issues apply to mobile operators, yet despite being in the public domain, few realise the implications of traffic management on their mobile devices.

**Buying faster connections**
When trying to connect to a website from a mobile phone, you may blame a bad connection or even the website owner if it takes a while to load. However, it is often down to mobile networks accepting payments from large companies such as Google and Amazon to ensure they get the best network connection and their websites load the fastest.

This means other websites may appear slow, but it might simply be that they are not being given the same priority by mobile operators as other sites.

During a recent roundtable at Idate's launch of the *DigiWorld Yearbook* – an annual report on the state of the networking world – Mark Falcon, head of economic regulation at network operator 3, admitted his

**Google and Amazon pay for faster network connections**

company was going down this route and believed it was the only way to handle the growth in traffic.

"It is no surprise when you try to connect to Amazon and Google on your mobile that you get a quicker response [because they] are paying for faster access," he said.

**Lack of transparency**
Falcon defended this position, saying that 3 – along with Vodafone, O2 and Everything Everywhere – had signed up to the Broadband Stakeholder's Group code of conduct to ensure transparency with their customers to inform of this practice.

However, Falcon could not deny the code was not well-known outside technical circles and the industry could go further to let customers know this traffic management is happening.

Jean-Michel Chapon, vice-president of DigiWorld UK, said there was an issue in transparency both for mobile internet users and the operators themselves.

"We need more transparency between our users and what the likes of Google are doing, because they are selling us as the product," he said. "If something goes awry on the device, they may blame the network, but it is because [some sites are] purchasing [priority] network. Transparency [codes] need to expand on that and we understand that."

**Net neutrality legislation**
All companies along the value chain may soon be forced into more openness on this subject after the European Commission's lead for the Digital Agenda, Neelie Kroes, proposed net neutrality legislation in May.

A report on the state of the internet from the Body of European Regulators for Electronic Communications (Berec) raised concerns on net neutrality, after it revealed that at least 20% of broadband users and up to half of mobile internet customers had contracts allowing their providers to restrict certain services during peak times.

"Consumers need to know if they are getting Champagne or lesser sparkling wine," she said. "If it is not full internet, it shouldn't be marketed as such; perhaps it shouldn't be marketed as 'internet' at all, at least not without any upfront qualification. Regulators should have that kind of control over how ISPs market the service."

**Consumer awareness**
Kroes has said she won't force all providers to offer neutral internet services with no traffic management, but wanted to encourage citizens to make informed choices.

"If consumers want to obtain discounts because they only plan to use limited online services, why stand in their way? And we don't want to create obstacles to entrepreneurs who

want to provide tailored connected services or service bundles. But I want to be sure consumers are aware of what they are getting and what they are missing."

All the Idate representatives agreed, whether they liked traffic management or net neutrality, that consumers needed to be better informed.

Mike Short, vice-president of Telefonica Europe, was positive this could be achieved, having come out of the other side of the network issues surrounding its UK division, O2, and the exclusive deal it had with the iPhone.

"When we got the exclusive deal with Apple, which we paid a lot of money for, neither Apple nor we could have predicted the uptake," he said. "Even though we invested money in [additional infrastructure], the network suffered due to the huge increase in data traffic.

"However, we made sure we were transparent with customers, updated customer service scripts regularly, and set up one of the first social media teams to deal with these issues. We learnt lessons from this which we can use when it comes to net neutrality transparency," said Short

Now, it is a case of putting these lessons into practice. And it is up to operators whether they start now or wait until they are forced to by the European Commission. ■

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*The Cloud Opportunity*

**BUSINESS APPLICATIONS**

# How software producers should test and save costs during development

Growing numbers of developers are using the TMMi test methodology to reduce software costs, writes **Karl Flinders**

A survey of software testing capabilities has revealed a dramatic increase in the number of organisations embedding a test process into their software development.

Consultancy Experimentus measured organisations using the independent test maturity model integrated (TMMi) methodology.

TMMi embeds test processes into an organisation throughout the software development cycle to prevent bugs, rather than detecting them after software goes live.

The alternative to Capgemini Sogeti's Test Process Improvement (TPI) methodology has five levels (*see panel below*).

If carried out correctly, TMMi will find faults in software during development, saving on the cost of rectifying mistakes after completion.

The 150 organisations in the research were measured against TMMi.

Software developers use the methodology as a rubber stamp to show customers they can reduce the errors and costs of development.

### Growing trend
In its latest report, which questioned 150 organisations on five continents, Experimentus found a substantial increase in the number of businesses achieving TMMi level two and working towards level three.

This is a sign that software testing is increasingly becoming embedded in the development lifecycle, said Geoff Thompson, chairman of the UK Testing Board and consultancy director at Experimentus.

Level two was achieved by 89% of respondents in 2011, compared with



> "We have seen a trend for request for proposals to request the level of TMMi"
>
> Geoff Thompson, Experimentus

37% in 2010 and 27.5% in 2009. This means testing is a core repeatable process and these organisations are working towards level three.

In the past, the IT department would complete testing once the development was complete, which was costly and there would be no repeatable processes, Thompson said, but now the CIO is putting pressure on testing teams to have measurable out-

comes. Of the total sample, he said around 10% are at level three and 1-2% are at level four.

Thompson said many of the organisations putting themselves through TMMi accreditation are suppliers hoping to differentiate themselves.

"Many of the companies are tier two or three suppliers that want to stand out against bigger competitors," said Thompson.

Part of the reason for the sudden jump in companies reaching level two is down to the fact that more suppliers are in the survey and more testing is being outsourced.

"We have seen a trend for request for proposals (RFPs) to request the level of TMMi they want for a project," said Thompson.

About 70% of the interviewed group were service providers.

### Outsourcing software testing
More businesses are outsourcing software testing and, as a result, benchmarking is vital.

According to analyst NelsonHall, the global testing services market was worth $8.4bn in 2011. Although 2012 is expected to be flat, the BPO consultancy predicts an average 9% growth every year over five years.

Thompson said businesses are doing it for a reference point, either to improve processes or use it as a way to persuade their development partners to meet standards.

Working with Experimentus, UK bank HBOS carried out TMMi assessment across three of its four major IT departments in a programme designed to reduce the number of errors in thousands of applications it builds every year.

It began using the methodology in its corporate IT and insurance and investment divisions, following a successful pilot in retail banking in 2006.

Accenture is now accredited for TMMi assessment.

The Home Office is also going through the TMMi process. As a large buyer of software development services, it can ensure the software it buys meets the right standard. ■

## The five levels of TMMi assessment

**1. Initial:** The stage at which companies have nothing for a testing process. These companies rely on their people, rather than processes, to find faults. Testing is done *ad hoc* when the software development is complete.
**2. Managed:** When a company reaches this level it means testing is a core process. This will include design, strategy, planning and setting up initial models. Testing is separated from debugging at this stage.

**3. Defined:** The testing phase is no longer seen as something that happens after coding is complete. Test planning is done early on.
**4. Measured:** Testing is now fully defined with measurable processes. There will also be peer reviews.
**5. Optimised:** Testing is now completely defined and improvement to processes will be made through quantitative understanding of causes of software failures.

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> Experimentus: Companies' software quality management

> Reduce software testing cost without sacrificing quality

> Opinion: The business impact of TMMi assessment

BUSINESS APPLICATIONS

# One year after HP's acquisition, what does the future hold for Autonomy?

Following the departure of founder Mike Lynch, **Kathleen Hall** asks what lies ahead for the enterprise software supplier

**M**oves to subsume Autonomy into HP have lent the the firm's name an ever-increasing irony, after the departure of founder Mike Lynch and the integration of its key tools as add-ons to HP's much broader range of products. So, nearly a year after HP's £7bn acquisition, what does the future hold for Autonomy?

The differing cultural attributes underpinning HP and Autonomy – one a hugely complex technology provider, the other with some of its start-up roots intact – meant the departure of former CEO Mike Lynch came as little surprise. But as HP tries to steer a course for itself, where does Autonomy fit into its strategy as primarily a hardware business?

Alan Pelzsharpe, analyst at 451 Research, is in no doubt that the outlook for Autonomy is bleak. "We are seeing the decline of a great British software company," he said.

"For a lot of people, unfortunately that sum of money has tainted the whole thing – at 11 times the revenue paid for the acquisition, the expectations from it were so high.

"Within weeks, everyone knew it was wrong and they'd made a huge mistake. The firm has great products and people, but there is no economic sense in keeping it all going. It needs to strip it down, maximise the strong points, and move on."

### Integrating Autonomy
Pelzsharpe sees rationalisation of Autonomy's portfolio as the only sensible move HP can make.

"I don't think anyone is in any doubt that this was not the best acquisition in history," he said.

"HP paid a lot of money, it not only bought a search platform but a massive portfolio of five record management systems and archiving," he said.

"The departure of Mike Lynch and the senior management team means HP can now rationalise the portfolio.

"In the coming year, we are going to see some hard decisions about what survives."

HP and Autonomy have six record management systems between them. Pelzsharpe questioned the need for so many and pointed out that sup-



**Cultural differences between HP and Autonomy foreshadowed Lynch's departure**

porting them would be a struggle.

"HP is now looking at what it bought and what the value is beyond the intelligent data operating layer [Idol] search platform," he said.

Tim Jennings, Ovum's chief analyst for enterprise IT, agreed HP made the right strategic decision to integrate Autonomy across the business.

"I was surprised from the start about the degree of independence Autonomy had, not so much in management, but in the fact there was very little effort in integrating the technology into the rest of HP's software portfolio and that, prior to the announcement a few weeks ago, it had a separate R&D team," he said.

"To reap the benefits of an acquisition like that, you have to look to integrate the core technology into other pieces in the portfolio."

Jennings added that the Idol platform lent itself well to being rolled out across other areas.

HP has typically been strong in securing and reducing the cost of handling information, records management, content management, security, architecture and enterprise search, Jennings said.

"I would really expect to see it make more emphasis on some of those areas, using Autonomy to give it the edge. What I'd like to see from HP is a solid two-year roadmap, where Autonomy fits in, providing incremental value," said Jennings.

### Increasing frustration
But while HP grasps at a strategy for Autonomy, its customers are beginning to get frustrated.

Gartner analyst Ann Lapkin said Autonomy's customer base has reported dissatisfaction with the company, due to a high turnover in sales and support staff.

"I haven't really seen a significant long-term vision from HP around Autonomy," she said.

"This acquisition is a completely different focus from HP's roots.

"I also find it concerning that the guy responsible for Autonomy [Bill Veghte] is responsible for the strategy of three other things, so there is a serious question about whether he is going to be able to give that $10.2bn acquisition the focus it deserves."

Brian Hill, principal analyst at Forrester, agreed that users are becoming

increasingly concerned about the company's direction.

"We are hearing from customers who are quite frustrated, as they face uncertainty over product investments and whether they will continue to be supported," Hill said.

"Frankly, the bumps from culture and product rationalisation are likely to continue. It takes a lot for corporate cultures to change and only by having new leadership can that happen."

### Beyond the integration
Hill said that, once integration is complete, the road ahead will be smoother: "Autonomy has lost significant talent and a certain energy has gone, but some of that excitement has the potential to be more than offset by a defined standardised approach to market Autonomy's services."

He said there is potential for HP in leveraging Autonomy's assets.

"We will probably see greater use of cloud-based applications. Autonomy had gone down that path and had significant cloud-based archiving applications, which now have greater potential with HP," Hill said.

"We will see HP make better penetration on the enterprise customer with big data applications."

For a company that has created such innovative products, it is unlikely HP will allow Autonomy's intellectual property to go to waste.

At its Discover conference in Las Vegas, HP announced the integration of Autonomy's Idol platform into its Data Protector 7 software to provide a deduplication storage platform. ∎

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

## more online

› What HP's Autonomy acquisition means for the UK technology sector

› HP integrates Autonomy with converged infrastructure for big data

› Analysts attack HP's decision to axe Autonomy founder Mike Lynch

**IT LEADERSHIP**

# Mobilising the IT department into an agile component of the business

Insurance firm Simply Business's CTO Lukas Oberhuber tells **Cliff Saran** how he turned around an isolated IT team

## CW500 INTERVIEW

**W**hen Lukas Oberhuber joined insurance firm Simply Business in September 2010, he had to deal with an overworked IT team the business did not trust.

Oberhuber admits he spent too much time during his early career on computers. He turned down working for Microsoft twice, attempted to get James Gosling – the father of Java – to make Sun's "write once run anywhere" language run efficiently on client devices and tried his hand at writing a novel.

His latest challenge is to boost the morale of the technology team at Simply Business, while giving the company the software it needs.

His technology strategy is about keeping the current system strong through new products and leadership. "Strong leadership means encouraging individual growth and self-management," he says.

Oberhuber believes the software his team is building can really help people. "Insurance should be more than about products that sort out pain. We need to build products that match the needs of people."

Oberhuber wants to build one of the best teams in Europe, but his first task was reducing the workload.

"When I joined, there was an overwhelming amount of development work, so the team was constantly cutting corners," he says.

### Increased productivity

This led to what Oberhuber calls the "technology debit". The platform used by the business may have once been a great piece of software, but now shows its age and the IT team is constantly being asked to enhance it.

He has swapped out aging Sun T2000 workstations with sleek MacBook Pros, allowing developers to take their portable developer workstation to a business user's desk.

"The Sun workstations used virtual machines. It would take 10 minutes to open up the development environment," he says. The MacBook Pros gave the team an instant 20% productivity improvement.

Oberhuber began a three-month programme to move the team from a traditional approach to programming to an agile programming methodology. He swapped out Java for Ruby on Rails and adopted Cucumber (a documentation language) and Jenkins for continuous integration.

Unlike traditional software development – where the development teams delivers a product to the business for testing as a one-off occurrence – products are shipped to the business regularly in agile development. Oberhuber points out that agile development requires more commitment from business people.

Oberhuber's advice to project teams is: "Don't build the machine." He believes in carrying out the process manually and then automating the process, rather than building the system first, only then to find out what needs changing. This is how he ran a project at Simply Business to improve customer renewals.

"The team was built around the project. The first application IT developed was around data extraction. We got it to work manually and started to see business benefits, then we addressed the manual process of sending e-mail," he says.

The systems team operates in the same way, so its action priorities are based on business priorities. In this way, the systems team does not hold up the rest of the business. ∎

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



Oberhuber: "When I joined, there was an overwhelming amount of development work"

## CV: A techy with a taste for theatre

A Harvard computer science graduate, Lukas Oberhuber ended up working at Oracle in the early 1990s. He says this fitted better with his combined passion for software development and theatre. While he began programming at an early age, writing a version of Space Invaders for the Tandy TRS 80, he said he joined Oracle because he felt Microsoft would have been too geeky.

While his parents came from dance and art, Oberhuber did not follow in their footsteps. However, he says: "At university all my extracurricular activities were in theatre."

He worked at Oracle for over six years, developing interactive television systems. He even met CEO Larry Ellison: "Larry was king at Oracle. I built a plug-in for Oracle media server. Larry came to my office to see the demo and stayed for an hour and a half."

From Oracle he moved to Dimension X, a 2D and 3D graphics Java developer. The company was later acquired by Microsoft, whereupon he turned down the offer to work for Microsoft again.

An eight-and-a-half year stint at Sapient from 1997 to 2006 gave him experience of consultancy and allowed him to move to Italy, learn Italian and then move to the UK.

After Sapient, Oberhuber decided on a career change. He wrote a novel about an Italian hacker who uploads blockbuster movies to the internet, until one day his hobby leaves his family murdered and his every move stalked by killers. While waiting for the publisher, Oberhuber formed a start-up, SipAlive, to provide low-cost internet telephony.

Prior to his move to Simply Business, Oberhuber worked between 2007-2010 at Forward Internet Group, the company behind uSwitch. As CTO, he was responsible for the creation and management of agile development teams during a period of huge company expansion.

## more online

BRYAN GLICK **LEADER**

# RBS fiasco shows vital role of IT professionals

"Financial services can be thought of as a technology business with a financial domain of expertise." That quote came from the CIO at investment banking giant JPMorgan Chase, and it is one that senior executives at Royal Bank of Scotland (RBS) would do well to pin on their walls.

Following days of conspiracy theories about the software failure that caused such huge reputational damage to RBS and its NatWest subsidiary, the real cause finally became clearer last week. Fingers pointed at the bank's CA7 mainframe batch processing software from CA Technologies, suggesting that what should have been a routine maintenance patch caused a wholesale collapse of an overnight batch run, leaving hundreds of thousands of financial transactions unreconciled.

The massively complex, interconnected nature of banking software systems meant the knock-on effects of rolling back to the previous state and reapplying all those transactions took days – and led to escalating customer discontent.

It's not due to offshore outsourcing, or even to non-offshore outsourcing. The biggest failure seems to have come either in testing or through poor contingency planning for how to deal with such a problem.

But it's difficult to get away from the fact that RBS has laid off thousands of IT professionals in recent years – actions that must have had repercussions.

The RBS problems should be a wake-up call to the boardroom of every major bank, telling them that their operation is entirely dependent on IT, and in particular on the IT resources they have to run their systems. There can be no mistaking the fact that the RBS fiasco demonstrates that it cannot scrimp on IT expertise and resources, and those skilled IT staff are central to its business.

The post-mortem on RBS/NatWest will no doubt highlight the importance of testing, business continuity planning and contingency management. But its biggest lesson should be that IT professionals are now the core of every major organisation, and that boardrooms need to recognise them as such if they are to avoid the sort of disaster that hit RBS. ■

TONY ROBERTS **OPINION**

# Delivering social change through crowdsourcing



In 1854, John Snow plotted cholera deaths on a map of London's Soho district to diagnose the cause of a deadly outbreak that was ravaging the community. By mapping the geography of cholera incidence, Snow was able to locate the local source of the outbreak and determine its root cause. The handle was removed from an infected water pump and it was revealed that the offending water company was drawing its supply just downstream of a major sewage outlet. His actions led to important changes in public health and epidemiology, but not before hundreds of people had died.

If the same Soho community were to be hit by a disease outbreak today, they could set up an online map themselves and within an hour be crowdsourcing incident reports submitted by community members. Texts and tweets could be used to plot incidents directly onto the map.

Free and open source tools such as CrowdMap and Open Street Map now mean that anyone can quickly create an online map to visualise the issue they most care about and use it to build a compelling case for action. The availability and ease of use of the software means that we all have the ability to map the issues that we most care about and promote the change that we wish to see in the world.

## Mapping provides a way to actively resist, gather credible evidence and build a compelling case for justice and social change

Maps are extremely popular with news media as they provide a quick and effective way to depict complex issues visually. CrowdMaps are used during tsunamis and earthquakes to guide emergency services to the location of vulnerable populations and functioning healthcare facilities.

Community groups are making increasing use of crowd-mapping to monitor issues such as election fraud or racist attacks, to spotlight such problems and to collect evidence of the need for change.

Crowdsourcing is used to build up a graphical representation of the issue on a map, data is crowdsourced from the public in the form of text messages or tweets indicating where incidents are happening, and the map illustrates events unfolding on the ground.

Community-generated maps can be powerful tools to monitor issues of real public concern and can provide graphic evidence to support a case for social change. When used well, crowdsourcing can help build communities of shared interest. Mapping projects can provide a focus around which to stimulate debate and provide a platform for otherwise voiceless communities.

Recently I attended the Free Elections Hackathon in London where activists from professional election monitoring organisations teamed up with coders and experts from Ushahidi and One World UK. Their objective was to improve existing software previously used in Senegal and Zambia to better enable citizen monitors to report and map fraud and intimidation at polling stations, to communicate incidents to official observer missions and the media.

In the case of electoral fraud, citizen election monitors are not necessarily able to rely on the independence of their government or police – think Zimbabwe or Russia – and foreign observers may not be best attuned to local dynamics. Whether communities are monitoring elections or racist attacks, mapping provides a way to actively resist, gather credible evidence and build a compelling case for justice and social change. Building self-reliance and local resilience in this way is a key benefit of CrowdMapping.

What I like about crowdsourced mapping is that, when done well, it builds on the active participation of community members who themselves monitor and report information. People who may have been feeling powerless in the face of incidents are empowered to take action around an issue and work towards producing the change they want to see. The evidence collected in maps can add substantial weight to a campaign; an interactive and visually attractive graphic can be worth a thousand words. ■

Tony Roberts is founder of development charity Computer Aid International

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# Virtual solution to consumerisation

**Archana Venkatraman** looks at how the virtual desktop can help businesses with employees using their own devices

**M**ost UK datacentres are not prepared for the IT consumerisation trend, but a move towards virtual desktop infrastructure (VDI) is a step in the right direction.

This year is set for the year of IT consumerisation, with many employees preferring to use their own laptops, smartphones and tablets to corporate-issued devices, often in officially sanctioned bring your own device (BYOD) or bring your own computer (BYOC) schemes.

But some experts say UK businesses have only just reached the stage of acknowledging this trend and have not taken the steps to build the proper datacentre infrastructure.

While many options provide users with access to Windows resources on their own devices, server-hosted virtual desktops offer a managed environment for non-mobile workers.

In Forrester's *Five steps to a successful BYOC program,* analyst David Johnston writes: "This is a better option for those who travel little and do most of their work where there is good, high-speed connectivity to the company network. But they require costly datacentre resources and skills and the infrastructure is complex."

However, Tony Lock, programme director at analyst Freeform Dynamics, says: "Many businesses in the UK and in Europe have no idea of how to deal with the consumerisation of IT."

One problem is that existing datacentre network infrastructures are just not built for the strain of serving multiple mobile devices.

"There is a big network black hole in organisations' efforts to face the consumerisation of IT," says Roy Illsley, an analyst at Ovum. "Businesses have yet to address connectivity issues and manage device traffic and varied connectivity speed."

Meanwhile, businesses that have adopted desktop virtualisation are prepared for the consumerisation trend, but only a small proportion have gone in that direction, says Clive Longbottom, managing director of research company Quocirca.

Then there is the strain on existing »

« infrastructure if the use of a particular application goes viral.

In a recent presentation, Ted Schadler, senior vice-president at Forrester Research, related how Kraft Food gave its executives a dashboard app for their iPads; but due to the unexpected success of the app, Kraft's datamart needed upgrading as many more people started accessing it, leading to greater datacentre costs.

**Preparing for consumerisation**

The first step is for IT professionals to design and implement a server topology that supports VDI or hybrid VDI.

In hybrid VDI, parts of the desktop are virtualised and other parts are streamed to access devices as required to make the most of available resources, but only if they are sandboxed from the user's own consumer environment, says Longbottom.

Either way, VDI server farms need the right storage infrastructure.

This can be achieved using thin provisioning to restrict the available memory from the start. Desktops should start small and can be scaled up later as required.

Server topology and thin provisioning are the biggest hardware considerations, says Longbottom.

Improving the performance of the storage area network (SAN) is key if users who previously booted off a local hard disk run Windows from a datacentre. Anglia Ruskin University has implemented a second storage area network, using Violin flash memory array, connected directly to blade servers running VMware Views VDI software, to improve performance.

"The Violin flash memory array sits in a separate SAN in our datacentre to run virtual machine images for virtual disks. Local storage runs on our original SAN – which means we can support a greater number desktops," says Gregor Waddell , assistant director, Anglia Ruskin University.

He noted that if the university had run VDI on the existing SAN that supports the university's core applications, the number of input/output operations – that is, the number of disk reads and writes – from VDI users would have swamped the network. Extending its existing storage area network would have required many shelves of disks, which would consume more power and require significant cooling.

Introducing a high-density server/ storage farm to support a few thousand users may also have an impact on power availability and distribution and cooling requirements in the datacentre, Longbottom says.

**Developing a BYOD strategy**

Once the proper infrastructure is in place, companies that let employees »

## Licensing costs slow virtual desktop adoption

Analyst NelsonHall expects strong growth of traditional virtual desktops in the next two years, but this will slow down after that period.

The end of Windows XP support in 2014 will drive adoption of virtual desktop services in 2013 and 2014 as a proportion of clients contemplating an operating system (OS) migration will instead adopt virtual desktops.

From 2015 onwards, VDI adoption by traditional clients will slow down as the need for an OS migration will have disappeared and clients will turn their end-user computing budget to other objectives, for example bring your own device schemes, adopting cloud-based office and productivity applications or hardware refresh projects.

Adoption is constrained by economics and the cost of virtualisation software licence rights.

In a traditional VDI installation, build services represent a quarter of all virtual desktop services spending. This is a high ratio and is due to the cost of software licences. This cost will erode over the next few years as virtualisation software suppliers lower their licence prices. The percentage will however not change drastically, unless Microsoft changes its Windows pricing scheme.

The cost of a PC over an expected life of four years ranges from $3,500 per device for the period (including $1,000 in the actual PC) to $6,000.

The $3,500 figure corresponds to four years of outsourced desktop service ($600 per year) plus the cost of the machine itself ($1,000).

The $6,000 cost corresponds to four years of internal service or outsourced desktop services with specific requirements ($1,200 per year during four years and the cost of the PC).

The cost depends on two factors. First, how standard the PC is and to what extent end-users can use it for personal use. The second factor affecting the cost of a PC over four years is how much of the desktop service has been outsourced.

The cost of a virtual desktop offering needs therefore to be below that of an outsourced desktop service and therefore below $500 per user and per year and below $3,000 over a four-year PC life period. This represents a 20% saving on the annual desktop management cost

Microsoft currently allows Windows clients to use Windows on virtual machines in two main instances.

When the client is a software assurance (SA) client: the service is then offered free of charge. SA is an upgrade to Volume Licensing (Enterprise Agreement and Open Value) or to clients with new PCs with licences. This means the client must have purchased both the licence and SA.
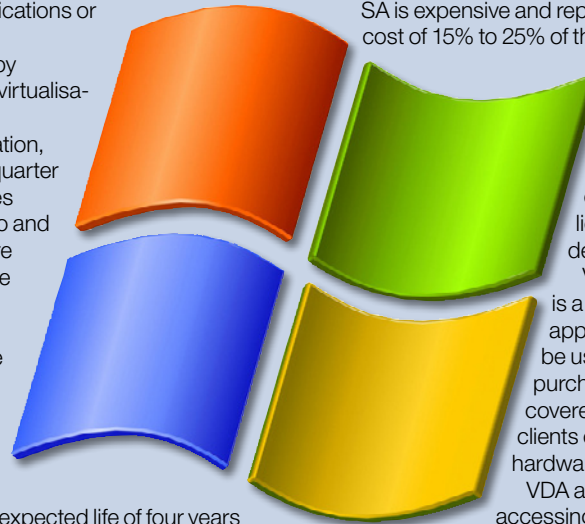
SA is expensive and represents a yearly estimated cost of 15% to 25% of the Windows licence (subject to price negotiations with the reseller or Microsoft). It is attached to client-owned devices but does not cover thin clients, which means clients need to buy Windows licences under the virtual desktop access (VDA) scheme.

Virtual desktop access (VDA) is a new licence scheme that first appeared on 1 July 2010. It can be used by clients that do not purchase SA or for PCs not covered by SA, for example thin clients or any combination of hardware and storage.

VDA allows some flexibility about accessing the virtual desktop from home computers, PCs outside of the corporate environment or contractors' PCs. It is an incremental cost to Windows licences and costs $100 a year per device through volume licensing agreements.

Clients only interested in virtual desktop-related Windows licences must select the VDA option, which carries an additional cost of $100 per year. This compares with the $600 cost per user per year for managing a physical desktop. The cost of VDA (itself 17% of the total cost) can therefore make the business case for moving to virtual desktops hard to achieve.

This is an extract from *Virtual Desktop Services Assessment and Forecast*, by NelsonHall (May 2012). Click here to read the full article and other papers on virtualisation

"Users must allow some components of their personal devices to be managed by the IT department"

« bring and use their personal devices for corporate purposes have to create a BYOD policy – or data access policy – compliant with industry regulations: "A policy to make the auditors happy," Ovum's Illsley says.

Any new internet-enabled mobile device attempting to access the network must also be monitored and its capabilities and context must be assessed in real time.

"Those devices that do not meet hardware requirements or the capability to support specific software needs – VPN, Java, whatever – need to be locked out," Longbottom says.

Devices that meet the basic hardware requirements but lack the software requirements – where this can be rectified by downloading the software directly to the device – need to be air-locked out of the network until the software is loaded on to the device, he added.

IT professionals must also determine how to maintain all the desktop images – patching, upgrading and so on – and put the right tools in place.

Meanwhile, data also has to be aware of the context and systems need to be in place to act accordingly.

"For example, if the user is coming in from a device that is connected to a public Wi-Fi spot in the middle of, say Moscow, you may not want much information to be sent over the link at all – even if a VPN is in use," says Longbottom.

"If they are coming in over a more trusted Wi-Fi environment, then you may want to make life a little easier."

In a well-trusted environment, such as a validated home connection, device users can work without too much issue. This means IT professionals will have to develop data taxonomies and store and transmit data in an encrypted manner.

Digital rights management should also be applied to prevent onward actions being carried out once it is on someone's device.

IT departments must educate employees on BYOD policies. "IT professionals must get the users to allow some components of their personal devices to be managed by the IT department," says Lock. ∎

## Virtual desktop case study: Sunderland City Council

> "We find ourselves at the epicentre of different storms. We have to save money, but we want to actively stimulate alternative models of service delivery"
>
> Tom Baker,
> Sunderland City Council

Sunderland City Council has converted its mainframe datacentre to a facility capable of providing virtual desktops and hosting to the city.

Technology is becoming a large part of the city authority as it strives for greater efficiencies.

Tom Baker, head of ICT, Sunderland City Council, says: "We find ourselves at the epicentre of different storms. We have to save money, but we want to actively stimulate alternative models of service delivery. There's a blurring between people's domestic and work lives – the panacea is to flip from one device to another."

Baker started working at the council three years ago. In conjunction with the CEO, he has developed a strategy to provision desktops using cloud computing. The project delivers a cloud platform, built on IBM cloud standards using Citrix.

There are huge pressures on local government to achieve efficiencies. Flexible working is regarded as one way for the council to approach this.

Baker says: "The benefit of Citrix is it can be used to support bring your own device schemes, with desktops virtualised in the datacentre."

The council made a substantial investment in its mainframe datacentre a few years ago. But as mainframes have been retired, it is now freeing the space to build its own desktop virtualisation cloud as well as selling datacentre hosting space.

The datacentre is providing hosting not only for the council, but also a primary care NHS trust and the Northern Gas network.

"We are looking at becoming a public services network provider," Baker added.

The infrastructure for VDI uses seven racks containing IBM 3850 multi-core high-end Windows server, IBM XIV storage and Citrix NetScaler.

Not only is the VDI being used to support internal staff, Baker is also looking at how the technology could provide schools with PC access. He is piloting remote desktops at three schools in the city. VDI can also be used to support social enterprises in the city.

## more online

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# High-performance computing drives high-performance F1 cars to success

**Jennifer Scott** investigates how Formula 1 team Marussia uses a supercomputer to design and test its cars on a budget

At the Marussia Formula 1 team base in Banbury, high-performance computing is helping the team compete on a budget. Oxfordshire and the surrounding area has been synonymous with racing for some time – numerous high-profile car companies have been ploughing money into Petrol Valley for years and you can even find the cast of *Top Gear* loitering behind motorway service stations.

But now a new kid has come to town. Marussia is a Formula 1 team born of Richard Branson's move into the sport in 2009. It has been racing under the new name, following the purchase of the controlling stake by Marussia Motors in 2010, throughout the 2012 season and, despite its strong Russian ties, has its headquarters in Banbury.

**F1 on a budget**

Technology plays a massive role in any F1 team, but for Marussia it means a lot more. The team has what is believed to be the largest CFD (complex fluid dynamics) array in Europe – a supercomputer capable of running complex algorithms that model the flow of air over a race car's body, effectively simulating a wind tunnel in a computer, to improve aerodynamics. Aerodynamics has the biggest impact on a race car's performance, which means the supercomputer plays a critical role in the team's success on the track.

Computer Weekly was invited to Marussia headquarters for a tour of the site and to speak to F1 legend Pat Symonds, now technical consultant for Marussia, and previously Michael Schumacher's race engineer and the executive director of engineering for Renault, on how technology helps Marussia approach F1 in a different way.

"When we entered [the championship], we agreed to operate throughout a season for £30m," said Symonds. "It costs £100m more than that for a medium-level team, and a top-level team would be working on budgets the wrong side of £150m.

"My role was about what we have to do different [to compete]. We needed to mimic existing teams in some ways, while being innovative in other ways," he said.

The first step was to find a partner. The rules in Formula 1 racing mean teams cannot share or sell exact designs between one another, but they can reveal the process to help lead others up the right path.

Marussia signed a deal with F1 champion McLaren before the 2012 season kicked off to try to emulate the team's success on a lower budget.

"We needed to get the heritage of IP [intellectual property] in a mature F1 team and we needed to do that quickly," said Symonds. "We couldn't go to McLaren and ask for the IP of a car, but we could ask it to help us with the IP of the process."

However, with a small budget, Symonds and the team at Marussia realised they could not just throw staff at the process and see what came out. The team is made up of roughly 150 people, compared with rivals which have between 500 and 600.

On the IT side, Marussia uses services firm CSC to provide IT expertise, both in the Banbury head office and on the trackside. **»**

**Garage information system (top), the Marussia team (right), a Marussia F1 team car on the track (bottom)**





works as a digital wind tunnel, with software running a simulation of the wind and the design of the car. It enables engineers to see any weak points in the design and tweak the car accordingly, without having to put it into production or spend huge amounts on rent.

Named after the Swahili word for wardrobe, its Kabati supercomputer for CFD has four clusters with just over 600 servers. This provides 72 teraflops of power, which is equivalent to making 72 trillion floating point calculations per second.

The supercomputer runs the equivalent of 6,500 cores, an internal infiniband network and 130TB of usable high-performance storage. However, F1 regulations prevent the team going over 40 teraflops at any one time. It is the 10th largest supercomputer in the UK, 230th largest in the world and by far superior to any rival F1 team.

"If you want to have a creative team, the computing needs to be on tap like a utility," said Ian McKay, HPC services manager at CSC. "It is the equivalent of computing power for 90,000 iPhone 4Ss. We do big data [and] big problems, and we try to do it fast."

All this power and an extra partnership with a technology services firm may sound expensive, but it still ensures the testing phase for the car's aerodynamics is significantly cheaper than its rivals, allowing Marussia to save money while having a hugely competitive car.

"It is not just cheaper, but also quicker," said Symonds. "Rather than a seven-week run in a wind tunnel, with CFD… it is 18 hours for a normal run."

**Trackside technology**

CFD is a very significant factor, but Marussia still has to do some physical testing, and CSC has also helped with what it calls the "correlation" phase.

Once the CFD has been done to the allocated allowance – 40 teraflops over the average eight weeks – there is time to do a small amount of wind tunnel testing and track testing. The correlation team then puts these results together to add in any other factors that may have occurred in physical testing, and relays these to the design team.

The final role CSC plays is at trackside. We met two of its employees who scored their dream jobs when they were asked to travel alongside the Marussia team to each race to set up the IT environment needed in the garage.

"It may sound easy, trundling off to the races, going racing and

**Wind tunnels in silicon**

"With F1 today, the majority of the performance comes from aerodynamics," said Symonds. "It is probably true to say other things come into the mix – engines, drivers, chassis – but generally speaking, nothing contributes

more than aerodynamics."

Most teams work out the best designs for this and test out their decisions using wind tunnels. The largest teams will have their own wind tunnels at their headquarters and others will spend millions on renting space at one.

With just £30m on the table, Marussia did not have the luxury of renting wind tunnels for 60 hours every eight weeks, as allotted by the FIA (Fédération Internationale de l'Automobile), the governing body of F1 racing.

The team decided to invest the majority of its money in CFD. It

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**Trackside technology: Ian Jackson, trackside IT engineer (left), and a number of other CSC employees have to set up a sophisticated local area network that is connected to the huge supercomputer at Marussia headquarters to deliver "100% availability"**

then coming back and drinking champagne, but it is not quite like that," said Ian Jackson, trackside IT engineer for Marussia. "[Members of the team] want to work in the same way as if they were in [headquarters]. They want their systems to be transparent, wherever they are – they just need the data and analysis tools to work."

Each F1 car has hundreds of sensors embedded to relay information to the team in the garage, both to figure out ways to improve the race immediately and to help with design features later on.

As such, Jackson and a number of other CSC employees need to set up a sophisticated local area network that is connected to the huge supercomputer at headquarters and able to withstand the elements, with races moving from sandstorms to snow every two weeks.

"We need 100% availability," said Symonds. "You can't ask Bernie Ecclestone to hold a race for five minutes because a server has gone down. We need excellent communication, data coming off cars, and people being able to look at it no matter where the race is. This is what we have with CSC and our supercomputer."

### Race to the finish

So, if it is the back-end technology and specifically the CFD that is growing the success of the Marussia F1 team, will all the other constructors follow suit?

"I think it will all go that way," Symonds told Computer Weekly. "We have a parallel in vehicle dynamics where we used to do all our experimentation of vehicle handling on the track. It is very expensive and has many variables so in the vehicle dynamics domain, we have moved nearly totally over to simulation. I think that is the trend we will see in aerodynamics."

The head of Marussia has told the team he wants to be on the podium for the inaugural Russian Grand Prix in 2014. It may be a lot to ask, but with the technology on offer, we cannot wait to watch the race and find out. ∎

## more online

› Guide to supercomputers

› Southampton University upgrades supercomputer for high-performance computing research

› STFC ploughs £30m into high-performance computing centre with IBM

## RFID wristbands for rocking out

Looking outside, it might be hard to believe summer has begun and the festival season is already kicking off, but technology companies are trying to remind us.

Last week, Downtime told you about Vodafone's funky umbrella that could keep you dry and charge your phone at the same time. Now, Samsung is getting in on the summer music act by introducing ticketless systems for festival goers.

Fans will be given radio frequency ID (RFID) wristbands to be scanned on entry, which the backers believe will shorten queue times dramatically. Wristband wearers will also be able to use the tag to link up with social networks, enter competitions or even upgrade to VIP status.

The first outing for the new technology was at the Red Hot Chili Pepper's one-day festival at Knebworth recently, with other events set to follow over the course of the summer.

Shorter queues, VIP passes and the ability to show off to your friends about it? Count us in.
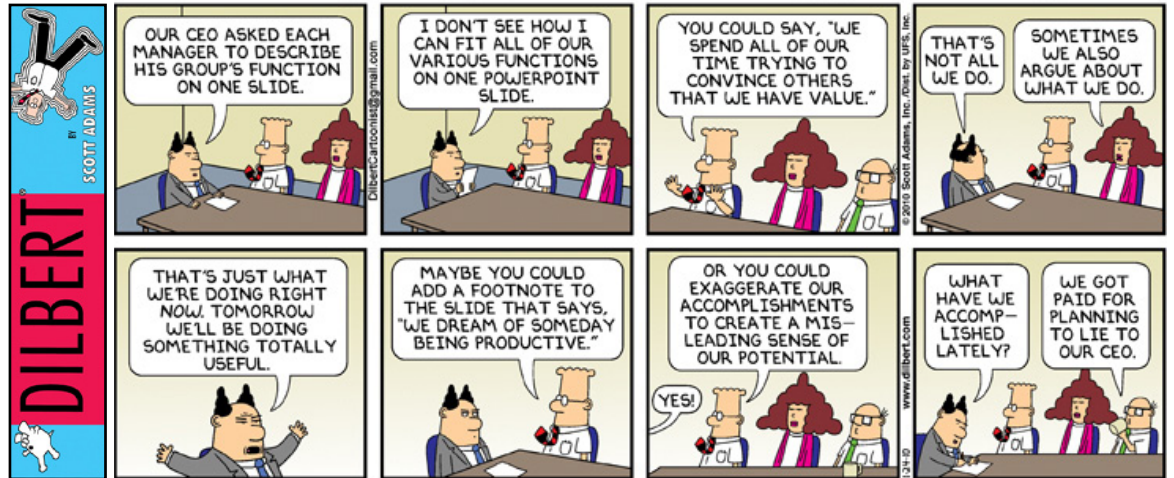


Heard something amusing or exasperating on the industry grapevine? E-mail **cw-downtime@computerweekly.com**

### Travel in eco style

Electric cars get a mixed reaction. Those wanting to hark back to hippier days, despite their current middle class existence, rave about the benefits they give while still providing a cool driving experience. Others take the Jeremy Clarkson approach of, well, no, we hate them.

Whether either group will be impressed with the latest advancement is anybody's guess.

Engineers from US-based Imperial Coach Builders have designed the world's first electric limousine. The staff took 10 months to build the car, which is essentially a customised version of a Nissan Leaf with an additional section in the middle for extra passengers.

Yes, it is much greener than other stretch automobiles, but the idea of a celebrity, or even a hen party, being seen dead in one of these reminds Downtime of the *Top Gear* episode when James May combines an Alfa Romeo with a Saab and takes Lemar to the Brit Awards – it's just painful.

### Careful where you aim your supercool spray-on batteries

How cool is this. Students at Rice University, Houston, have invented a spray-on battery.

The lithium-ion battery can be painted on virtually any surface. All you need to do is spray on each of the different components of a battery in layers, add a solar panel, and you've got yourself a power source.

"This means traditional packaging for batteries has given way to a much more flexible approach that allows all kinds of new design and integration possibilities for storage devices," said university boffins.

"There has been lot of interest in recent times in creating power sources with an improved form factor, and this is a big step in that direction."

For more details of the science behind this invention click here.

Just don't mistake the spray can for deodorant or you could end up with rechargeable armpits. ◼

**Read more on the Downtime blog**
computerweekly.com/downtime



## RBS customers will try anything to get their hands on some cash

You have to feel sorry for some of the victims of the technology crime that has been the RBS software upgrade debacle.

One RBS customer who got into a bit of trouble with the law was unable to meet his bail as a result of the technical glitch at the bank.

He had to spend a weekend in the slammer as a result.

While Downtime does not know what his crime was, we think bank robbery would be poetic justice.

RBS could continue to add to the prison population as pensioners turn to crime to pay bills when pension payments fail to be processed.

Could keeping money under the mattress be an appropriate solution for cash storage after all?

Daily news for IT professionals at **ComputerWeekly.com**