



Disruptive forces

Five companies that are shaking up technology markets.

Once in a while, a new company bursts into a mature, stable market and redraws the technology landscape, sending the often-oversized incumbents running for their lives – or at least their acquisition advisors.

These disruptors mount a challenge so strong, so unexpected that long-held business models crumble as multi-billion corporations find themselves struggling to respond to tiny upstarts whose flexibility and unique technology they are ill-equipped to match.

These new companies should be viewed differently from other start-ups where the risk of early adoption might be high; instead, the magnitude of the shift is such that not adopting the technology or service is the riskier tactic, as early users can take advantage of huge efficiencies or clear competitive edge. Think of Oracle, Netscape, Dell, EMC, Research in Motion and Linux in previous eras: while these companies have already made their momentous impacts on enterprise IT, the class of 2006 are another set of young companies that IT management cannot afford to ignore.



Free global Internet telephony

Telecoms companies have known disruptive change was coming in their industry for many years. But still none of them led it. To call voice-over-IP (VoIP) a revolution is for once an understatement of the case. But while giant telcos such as BT, AT&T and Deutsche Telecom scrambled to build out next-generation networks and new services, a small London and Estonia-based company with a pedigree in software for music piracy brought their nightmares to life.

Everyone now knows the story: Skype builds on the peer-to-peer technology developed by founder Niklas Zennström for the filesharing application KaZaA, to route

free voice and video packets over the Internet. And after employees introduce the application to their organisations by stealth it is taken up by the likes of road warriors making long-distance calls and managers wanting permanent links to offshore partners.

Even Internet giants MSN, AOL and Yahoo, who with their email and instant messaging networks already established were better placed to exploit VoIP than the telcos, looked like me-too players by the time their Internet telephony offerings came to market. Even Google was left standing.

The Skype plan for world domination was capped by its \$2.5 billion acquisition by online auction house eBay. That does not mean conversations will be limited to nervous bidders and virtual garage salesmen. Rather, observers note that eBay's community provides a solid platform for proving the value of the application of the technology.

Yet Skype is going through all the growing pains of a disruptive consumer technology producer crossing into the enterprise: a recent report by analysts at the Burton Group warns of its risks to security and regulatory compliance policies.

But as well as cheap long-distance calling, Burton Group's research found that Skype's unified communications service for both internal and external use, integrating voice, video, IM and presence, was driving uptake in the enterprise. And what uptake.

Since its launch in August 2003, Skype has been downloaded more than 182 million times. Around 60 million people are registered to use Skype's free services, and at any one time more than three million people are using Skype simultaneously somewhere. As with the Netscape browser before it, the question for IT management is not if to join the Skype revolution but when.

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NETEZZA

Open source-based data warehousing

Since the early 1990s, there has only been one name on the shortlist when the world's largest companies have gone shopping for a data warehousing engine big enough to enable them to conduct analyses on their vast stores of customer, supply chain and other data.

NCR's Teradata (even up against industry heavyweights IBM with its DB2 database and Oracle with its eponymous offering) has been the primary vehicle for extracting value from data at Wal-Mart, British Airways, Ford, Barclays Bank and scores of others from the Global 500. And they pay for the privilege: several million dollars up front and a million plus a year in upgrades and services is not atypical – a fee level that generates very healthy margins for the NCR business unit.

Netezza changed those dynamics when it started shipping its Performance Server in

2003. Taking advantage of the lower barrier to entry provided by commodity storage hardware and open source databases and operating environments, the Massachusetts-based company has built a data warehouse 'appliance' that makes Teradata's price list look like it is stuck in the mainframe era.

Architecturally, the Netezza appliances do not appear too dissimilar to the Teradata machines. The performance necessary to execute complex queries against vast datasets is delivered by splitting the inquiry across multiple chips.

But while the technology for managing that parallel analysis is devised by Netezza, much of the remaining underlying systems software is free – helping the company to undercut the competition: it uses the Red Hat Linux open source operating system and a version of the Postgres open source relational database management system that has been highly customised for its target hardware.

Who likes the sound of that – and the price tag that promises to be half that of traditional offerings and between 10 and 50

times the performance? Among the list of enthusiasts are Amazon.com, which uses Netezza for click analysis; Debenhams, which wants to shift through trading data from its 120 retail stores; Carphone Warehouse, where the focus is on predicting churn and other customer dynamics; and Orange UK, which uses the technology for real-time analytics. In fact, during 2005, Netezza doubled its client roster to 50 – almost all big name users. That would suggest the privately held company's revenues are at around \$100 million.

With those kinds of customers in their sights, a handful of Netezza lookalikes have sprung up, disturbing the status quo even further. And not just start-ups such as DATAlegro and Calpont.

Hewlett-Packard is known to be field-testing a data warehouse appliance that draws on its Tandem Computer heritage, namely its NonStop hardware and NonStopSQL database system.

As that flurry of activity indicates, the cosy world of high-end data warehouses is now a lot less comfortable for the likes of Teradata, Oracle and IBM.



Open source infrastructure software

The open source revolution in platform software was slower than many predicted. The Linux operating system had to prove itself on so many fronts – multi-processing, security, development and support model – before it was truly accepted in the enterprise. But now the floodgates are open.

Organisations such as JBoss, MySQL, Eclipse and others are emblematic of open source's creeping disruption of the software establishment.

MySQL, along with fellow databases Ingres, Firebird, Postgres and Berkeley DB, have plunged into a \$15 billion market dominated by IBM, Microsoft and Oracle, and triggered those giants of IT to look at introducing free versions of their core products. A measure of how seriously they take the threat came in February when Oracle bought Sleepycat Software, maker of Berkeley DB, an open source-based embedded database said to be deployed in 200 million units.

The story surrounding the Eclipse software development environment is not so dissimilar. The open source platform has now become so well established it has forced incumbents out of the area – witness Borland's decision to divest itself of its own tools after two decades as a leader in the market.

But while even these open source success stories are still perceived by some as, at best, a good-enough copy of leading commercial software, one company has brought a threatening air of professionalism to proceedings. JBoss's J2EE application server and related middleware is both technically advanced and very well supported; indeed, analysts say they struggle to find dissatisfied customers.

Companies shouting loud about how they have taken advantage of JBoss's dramatically lower middleware costs include Continental Airlines, Starwood Hotels, BetFair, the European Bank and MCI.

Oracle, with its also-ran application server, is not amused. And early 2006's most persistent rumour has been an imminent move by Oracle to acquire JBoss as part of its sudden and wider open source spending spree.

IBM, which rivals Oracle on several fronts, has acted as godfather to the open source 'movement' for several years now, with many of its developers contributing code on IBM's time. But with its May 2005 acquisition of Gluecode, a lesser-known open source middleware provider, IBM is using its patronage to prevent JBoss's dominance of that market. In doing so, it too signalled the seriousness with which it views JBoss as competition to the mighty IBM WebSphere middleware suite.

The incumbents' struggle is not just against commoditisation and revenue depletion, but for the hearts and minds of developers, who cherish the ability to tinker with open source.

That goodwill is yet to be monetised; JBoss may seek acquisition as much as rivals wish its demise. But as JBoss pushes open source up the software stack, so its disruptive influence rises – with customers the chief beneficiaries.

At only seven years old and with total downloads hovering around 10 million, JBoss is already punching well beyond its weight. The question is, will its disruptive influence be contained through acquisition before it reaches its true fighting weight?



Platform for web-delivered applications

CIOs love it because there is no application implementation, maintenance or support; finance directors love it because there are no up-front software licence fees and no need to buy servers to host applications and databases; but, most importantly, users like it – and sign up for it – for its web applications look and feel, and (like the BlackBerry) for its independence from many of the controls of the IT department.

Salesforce.com's applications platform has become the most lauded product to hit the enterprise software sector since SAP R/3 singlehandedly established the enterprise resource planning market.

Yet the message from the company is adamantly, "No software".

Its radical subscription charging model, through which companies only pay for what they need and can provision users for Salesforce applications in a matter of minutes, is something many of the existing giants of software would love to move to. But their dependence on big software licence payments and customer-hosted systems is simply too great.

Salesforce's initial disruption was in the customer relationship management (CRM) sector. Companies such as CRM market leader Siebel initially dismissed the new 'software-as-a-service' model as impractical and lacking in depth. But as Salesforce's subscription levels rose, all the major CRM vendors have had to follow suit – sometimes with uncomfortable results.

However, having proved the concept with CRM, Salesforce's bombastic CEO, Marc Benioff, has gone in search of a much larger goal. He wants to establish Salesforce's technology as a web operating system, a platform not just for CRM but for third-party software companies to leverage as the basis for their delivery of software as a service.

Who does that threaten? Just from their responses, Microsoft, Sage, Oracle and SAP. And those companies – as well as most of their competitors – have launched or are planning a whole array of online application services to complement their traditional software offerings.

But they have a lot of catching up to do already. Salesforce boasts it has 400,000



Low-cost, flexible storage systems

This would perhaps be a long shot if you did not know whose money is behind it.

In 'stealth mode' for four years, Pillar Data Systems sprung onto the enterprise storage market in June 2005 with a product that undercuts the established competition by as much as a factor of five while providing much greater flexibility in how storage systems can be configured.

The funding – all \$150 million of it (so far) – comes from Larry Ellison, and is a transparent play by the Oracle founder and CEO to challenge the giants of this sector, EMC, IBM, Hitachi Data Systems and Network Appliance.

Pillar's systems take advantage of commodity serial ATA disk drives on a large scale – the same devices found in desktop PCs. These may not run as fast as some specialist storage units, but the company's software boosts the performance of the overall system by taking the traditional idea of hierarchical storage management right down to the disk level. That means its 'policy manager' writes important data to the outside diameters of a disk where larger volumes of data can be stored and retrieved more quickly; less critical data – such as email – is written closer to the centre of the platter and so on.

subscribers at over 20,000 companies worldwide, including bluechip customers such as ADP, Expedia, Nokia, Dow Jones and Daiwa Securities. At this stage the demand is for web-based software that can manage their sales, marketing, customer support and call centre services.

That has been enough to turn the CRM software sector on its head. Now Benioff thinks Salesforce can shake up any number of sectors, and this time, rather than a Microsoft, IBM, Oracle, SAP or any other market incumbent providing the underlying platform, he feels his company is one of the few capable of doing so, unencumbered by any software-centric baggage. ☺

Moreover, Pillar has architected the system so that it can be configured and reconfigured as either of the two main storage approaches – so it can be set up as a storage area network, a network attached storage device, or both.

Those breakthroughs came from some of the storage world's best developers. Since July 2001, Pillar CEO Mike Workman, a 20-year veteran of storage who previously led worldwide storage development at IBM, has had free reign to recruit talent from across the sector. That meant that, by launch date, Pillar had built a staff of 400, 70% working in R&D.

Their efforts are certainly receiving high plaudits from early customers. New York legal firm, Thacher Proffitt & Wood, compares the complexity of its \$500,000 EMC systems, which took four months to fully deploy, with its Pillar configuration of twice the capacity (12 terabytes) which was up and running within two days.

The CTO at another customer, advertising analysis group I/Pro, is also confident about Pillar's staying power. "They've got more money than God. That means limited risk," Christopher Butler told *Forbes* magazine. He intends to replace all of his Sun and NetApp kit with Pillar systems.

Workman, whose quirky hobby is building 'aerial shells', is well aware that crafting a major storage company from "a clean sheet of paper without having to worry about protecting the high gross margins typical of an existing storage vendor" presents a rare opportunity to radically redraw the competitive landscape. Ellison too will be expecting to see some pyrotechnics.

Information Age Web Links

- www.12manage.com/methods_christensen_disruptive_innovation.html
- www.information-age.com/article/2005/october/the_platform_in_the_cloud
- www.information-age.com/article/2005/september/an_issue_of_price...
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