NEW ARCHITECTURE OR JUST NEW HYPE?

Richard Waters looks at the Next Big Thing in corporate technology.

Depending on whom you listen to, it could be the most important shift in corporate computing since the advent of the Internet – or it could be just the latest excuse for technology companies to hype their products in a dismal market.

"We believe it's the Next Big Thing," says Henning Kagermann, chairman of SAP, Europe's biggest software company. "It's the new fashion statement," counters Mark Barrenechea, chief technology officer of Computer Associates. "I'm sceptical." The "it" in question goes by the ungainly name of "service-oriented architecture", or SOA for short. According to the big software companies, its impact on computing will be as big as the client-server revolution of the early 1990s, or the arrival of web-based applications with the Internet.

"Every five or 10 years, we see this in the industry," says John Wookey, the executive in charge of Oracle's Project Fusion, the giant effort to re-engineer all of the software applications inherited as a result of that company's various acquisitions. For those with ambitions to dominate the next phase of corporate software – SAP, Oracle, IBM and Microsoft – it represents an important turning-point. "When these transitions occur you have your best opportunity to change the competitive landscape," adds Mr Wookey. Yet for customers, the benefits and costs of this next transformation in the underlying computing architecture are still hard to ascertain.

Bruce Richardson, chief research officer at AMR Research, draws attention to the unexpected costs that came with the rise of client-server computing: the soaring hardware and software expenses, the difficulty of supporting such a wide array of machines, and the cost of dealing with security flaws. "That ended up being a huge bill," he notes. It is hardly surprising that enterprise software companies – those that create the heavy-duty software that big corporations and governments use to run their operations – are so eager to latch on

to the next big thing. An industry still in its infancy is facing potential disruptive upheaval. New licensing models and ways of delivering software, along with open-source approaches to development and distribution, are turning the young software industry on its head. At the same time, the maturity of existing applications and the technology platform on which they run has left the best-established enterprise software companies stuck in a period of slow growth.

That is fertile soil for extravagant marketing claims to take root. Even if SOA risks being over-hyped, however, it still seems likely to represent an important step forward for today's often monolithic corporate IT systems. By harnessing industry-wide technology standards that have been in development since the late 1990s, it promises at least a partial answer to one of the biggest drawbacks of the current computing base: a lack of flexibility that has driven up the cost of software development and forced companies to design their business processes around the needs of their IT systems, rather than the other way around.

Software executives say that the inability to redesign IT systems rapidly to support new business processes, and to link those systems to customers and suppliers, was one of the main reasons for the failure of one of the great early promises of the Internet – seamless "B2B", or business-to-business, commerce. "It's what killed the original [B2B] marketplaces," says Shai Agassi, who heads SAP's product and technology development. SAP is certainly further ahead than others in the race to build a more flexible computing platform. While Oracle and Microsoft are busy trying to create coherent packages of software applications from the corporate acquisitions they have made, SAP is halfway through a revamp of its technology that could give it a lead of two years or more.

"If they're right, it will be a huge thing for them," says Charles Di Bona, software analyst at Sanford C Bernstein. Underlying the arrival of SOA has been the spread of so-called web services standards – such as the mark-up language XML and communications protocol SOAP – that make it easier for machines to exchange data automatically. This holds the promise of automating business processes that run across different IT systems, whether inside

SERVICE PROVIDER ← SERVICE REQUEST → SERVICE CONSUMER / SERVICE RESPONSE
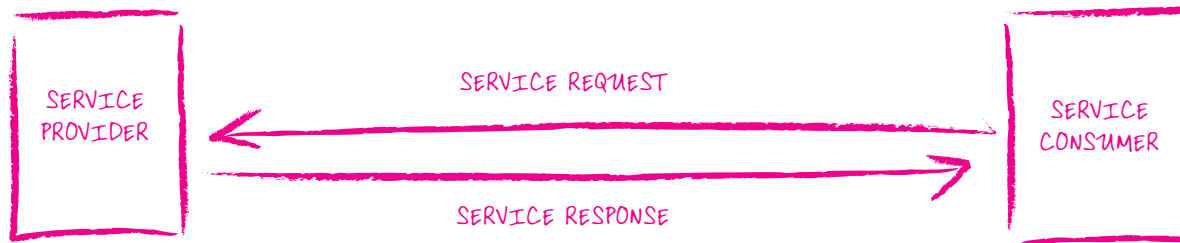
a single company or spanning several business partners: a customer placing an order in one system could automatically trigger production requests in another and an invoice in a third. Breaking down the different steps in a business process in this way, and making them available to be recombined quickly to suit particular business needs, is the ultimate goal of SOA. Each step in the process becomes a service, a single reusable component that is "exposed" through a standard interface.

The smaller each of these software components, the more flexibility users will have to build IT systems that fit their particular needs. SAP has created 300 services so far; that number will rise to 3,000 by the end of this year, says Mr Agassi. Through NetWeaver, the set of "middleware" tools that provide the glue, it has also finalised much of the platform to deliver this new set of services. The full "business process platform" will be complete by the end of next year, SAP says. "The factory is running – we have all the tools ready now," says Peter Graf, head of solution marketing at SAP. To get customers to start experimenting with the new technology, he adds, "we need to come up with killer apps." The first full-scale demonstration will come from a project known as Mendecino, under which SAP and Microsoft have been working to integrate their "back-end" and "front-end" systems and which is due to be released in the middle of this year.

By linking them to the widely used components of Microsoft's Office desktop software, SAP's corporate applications will become easier to use, says Mr Graf: for instance, when a worker enters a holiday in his or her Outlook calendar, it could automatically trigger an approval request to a manager and cross-check with a system that records holiday entitlements. While such demonstrations may start to show the potential of SOA, however, the real power of this architectural shift is likely to depend on a much broader ecosystem of software developers and corporate users. "People want to extend their business processes to get closer to customers," says Mr Richardson at AMR. To do that through the "loosely coupled" IT systems promised by SOA will require wider adoption of the new technology architecture. A number of potential drawbacks stand in the way.

Along with uncertainty about the ultimate cost, points out Mr Richardson, is concern about security: what safeguards will companies need before they are willing to let valuable corporate data travel outside their own IT systems, or before they open up their own networks to code developed elsewhere? A further question is whether SOA can fulfil one of its most important promises: that the technology platforms being created by SAP and others will stimulate a wave of innovation in the software industry, as developers rush to create new and better applications, many of them suited to the specific needs of particular industries or small groups of companies. That depends partly on whether companies such as SAP can create true technology "ecosystems" around their platforms, much as Microsoft's success in desktop software depended on its ability to draw developers to its desktop software platform.

"We were told three years ago that we didn't know how to partner," says Mr Agassi at SAP, before dismissing such criticism as "quite funny", given what he says was the success of its earlier software applications in attracting developers. "We are more open than we have ever been, we are more standards-based than we have ever been," he adds – a claim that is contested by Oracle, which has tried to make capital from the fact that its German rival's underlying technology still depends on a proprietary computing language, ABAP.

However, even if the future SOA-enabled platforms succeed in stimulating a new generation of more flexible corporate software, one other overriding issue remains: rivals such as SAP and Oracle will see little to gain from linking their rival platforms to each other. Full inter-operability will remain just a dream. "To make SOA real, you have to have a process start in one system and end in another, with no testing or certification needed," says Mr Barrenechea at Computer Associates – even if those systems are rivals ones from SAP and Oracle.

The software giants, he says, "have to be motivated to make it work." According to Mr Agassi, companies will eventually "have to choose" which of the platforms they want to use as the backbone for their businesses. The web services standards may create a level of inter-operability between these different backbones, but each will still use its own

"semantics", or way of defining business information, to make it comprehensible to other, connected systems. Like a common telephone network, the standards should make it easier to create connections, but they can do nothing if the people on either end of the line are talking a different language.

If different companies in the same industry, or different business partners, adopt different software platforms, there will still be a need for the expensive manual work to link the systems together. "You will have to spend the same amount of money on systems integrators that you spend today," says Mr Graf.

Despite that, the new service-oriented technology should still represent a leap forward from today's monolithic IT systems. Even the sceptics concede that the gains could be substantial. It should lead to "better [software] components and better interfaces – which equals better inter-operability," says Mr Barrenechea. As with any sales pitch from the technology industry, however, it is as well to be wary of the hype. ●

© Financial Times, Digital Business