

Everything Elastic

Accenture Technology Vision 2009

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What if?


What if your business capabilities could stretch, change and expand at will?

What if your workforce is no longer a defined group of people and skills but can include a wide range of talent—the occasional expert from far away who can solve a difficult problem or a hundred new employees quickly brought on board to meet a sudden business spurt?

What if your business processes no longer reflected only what you do inside your company but can gracefully include and integrate constantly changing processes—yours as well as those of your suppliers, clients and other business partners?

Accenture envisions a time, not long from now, when business capabilities may essentially be “elastic,” capable of flexing to adjust to any level of economic volatility and able to catapult your organization to unprecedented levels of performance.

An “everything elastic” business will be able to innovate far more effectively by augmenting its research and development (R&D) efforts with input from any and all employees, researchers from universities, its customers and even the public at large. The organization's IT capabilities will no longer be limited to the hardware and software located in the data centers but can be sourced dynamically from a range of providers in different geographies to suit local conditions and markets.



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The trends that encourage elasticity

Elements of the elastic business already are starting to take shape. More and more high-performance businesses are thinking (and acting) in terms of the capabilities of fluid, rapid-response networks rather than in the context of long-standing relationships with discrete sets of traditional entities or of conventional operating models.

Now, though, Accenture expects that elastic business capabilities will proliferate. The new era of elasticity is being ushered in by several important technology trends. First, the Internet is rapidly becoming the locus of more and more IT-based business capabilities. Related to that trend, two very distinct types of collaboration technologies—one supporting effective, targeted, point-to-point collaboration and the

other supporting diffuse, open and community-based collaboration—are converging and redefining how we work.

At the same time, technologies for extracting intelligence from data are maturing, adding urgency to all aspects of data management. And mobile devices are beginning to eclipse personal computers as the electronic channel for businesses and consumers. Meanwhile, netbooks are a surprising market success, and smart phones, accessing rapidly expanding 3G networks, are becoming more and more capable.

Four technology trends to watch

So how do these trends relate to the technology environment that business and IT leaders will confront over the next five years? Accenture has identified four important opportunities:

Trend 1

Internet computing

What's currently called cloud computing represents a major shift away from the current IT paradigm in terms of technology, applications and business models. This new paradigm enables technical capabilities—hardware, software and storage—to be sourced through the Internet across company firewalls and national boundaries. As such sourcing options proliferate, organizations will be able to create new best-of-breed business applications that are uniquely suited to their needs rather than depending on "cookie cutter" processes provided by large, monolithic software packages. Moreover, the new capabilities can be bought as services (rather than products) in a pay-as-you-go model.

Internet computing is enabled by a plethora of seemingly unrelated technologies. Infrastructure virtualization and multitenancy architectures enable

hardware and software providers to achieve economies of scale. Emerging standards—"Web services" and Representational State Transfer (REST)—enable software components running anywhere on the Internet to interact with each other. Rich internet applications enable internet-based applications to provide the same level of interactivity as local, client-based applications and to also support intermittent connectivity through caching. Internet-level caching technologies (such as Akamai's) eliminate some of the performance problems associated with remote applications.

To cap it all, development environments such as Microsoft Azure and Google App Engine as well as integrated "markets" for hosted software (force.com, for example) are dramatically lowering

the barriers for software developers to develop and sell software as a service through the Internet.

The implications for business and IT managers are intriguing:

- Companies are no longer limited by their internal (and usually fixed) technical and business capabilities, whether they are hardware, software or business processes.
- IT leaders can quickly add computing capacity as needed.
- Business processes can be easily shared and integrated with business partners.
- Entry into emerging markets is streamlined with shorter lead times, fewer fixed costs and easier interaction with local partners.

Trend 2

Data and decisions

Sophisticated use of data in decision making is more an exception than a rule in most companies in spite of large databases and even larger data warehouses. The reasons are many: uncorrelated data silos from different systems across different departments, a mishmash of business processes inherited from different companies through mergers and acquisitions, the difficulty in accessing data from back-end systems, the time lag between data acquisition and use, the difficulty in changing business processes that are deeply embedded in IT systems, and so on.

So, what's new? Quite a bit, as it turns out. First: A major impediment to accessing data from big, complex enterprise systems is being solved by standards such as Web services and REST that are widely supported by technology vendors. Second: Several major technology platform vendors have acquired an analytics/business intelligence company recently, suggesting much tighter integration between the data held by the platform and the intelligence needed to analyze it. Third: New technologies such as mashups are enabling users to access and manipulate live data from multiple sources to suit their particular job needs rather than depending on standard and usually out-of-date reports.

Fourth: A variety of sophisticated data visualization tools have recently entered the market. The tools are integrated into popular business intelligence software; some support collaborative data visualization for multiple users. Fifth: Business process management (where business processes are formally described and executed through orchestration) is gradually maturing and has promise for automating the adaptation of business processes in response to patterns detected in data.



Sixth: There is a dramatic increase in the amount of public information being generated by individuals. Data is flowing from current employees and potential hires, from staff at customers and competitors, from suppliers and from many other stakeholders—data in blogs, social networks and content-sharing sites that are waiting to be mined.

Taken together, all of these advances lead to an interesting conundrum:

- Soon, analytics will become a non-differentiating "utility" available to everyone. The real advantage will be found in what goes into the analytics engine and how that output impacts decisions that are made.

- Master data management (MDM) will play a much bigger role, integrating data from multiple systems and ensuring consistent data semantics, a standards-based approach to data access, a policy of enabling end-user access to corporate data and a gradual ramp-up of business process management to separate business processes from IT systems.
- Companies with a comprehensive approach to data governance may have advantages over those that do not. Accenture has determined several categories of governance that will help to separate tomorrow's high-performance businesses from their average industry peers.

Trend 3

Mobile is the new e

Two distinct factors—the speed of innovation and the extent of world-wide penetration—support predictions that mobile devices will augment and in many cases supplant personal computers as the new e-business channel for employees and customers.

First, innovation in mobile devices continues at breakneck speed: Today's high-end devices run on 800 MHz processors, have storage capacities as high as 32GB with touch-sensitive or OLED screens, Wi-Fi connectivity, near-field communications (NFC) for interacting with the environment, 3G network speeds of up to 384Kbps, GPS-based location identification, motion sensors and accelerometers, 8-megapixel cameras and a wide range of audio and video entertainment features.

They are also becoming full-fledged "platforms" capable of running a wide range of third-party applications. And several devices—notably the G1 phone from Google—offer open source platforms that promise to expand the potential application universe dramatically.

Second: The extent and depth of mobile device penetration worldwide is staggering. Nearly 4 billion people—60 percent of all those alive today—are mobile customers, with more than half a billion new customers added in 2008 alone. Interestingly, 75 percent of all subscribers are located in

emerging markets, and the mobile phone is their sole means of electronic communication. Nearly all of the devices have Short Message Service (SMS) texting capability and an increasing number (although no reliable figures exist) have rudimentary Internet connectivity. Estimates suggest that by 2013, nearly 70 percent of mobile phones in developed nations will support an Internet browser and near-field communications.

Of course, from the standpoint of a dyed-in-the-wool corporate IT traditionalist, mobile devices are an unnecessary nuisance—a source not only of platform proliferation and demands by employees for multiple levels of access and support but a worrying “hole” in the organization’s security network. However, Accenture has pinpointed the technologies that are emerging to respond to such security concerns and that are moving smart phones closer to a single browser-based interface.

Accenture has also begun to chronicle an array of business benefits offered by mobile devices. Just a few hints of the potential:

- In the developed world, mobile phones will augment e-commerce activity, reduce payment transaction costs and provide new levels of customer support.

- In the emerging world, pure texting from mobile phones is starting to be used in creative ways, the most notable one being the M-PESA money transfer system widely used in Kenya.
- As smartphone penetration increases among corporate employees, it will become easier to create a single browser-based interface.
- New technology will allow mobile devices to be controlled remotely, including remote monitoring and security.

Trend 4

Convergence of the 4C's— communication, collaboration, communities and content

Companies and individuals currently have a wide range of options for communication and collaboration from e-mail to voice-over-IP to high-end telepresence, social networks, wikis and blogs. Until recently, these options have been point solutions to resolve specific communication needs. Fortunately, different combinations of these technologies are gradually beginning to converge.

The 4 C's convergence is significant for these reasons:

- Given the aging Western workforce and global war for talent, companies now have many different technological options to enable them to rethink their workforces and work practices.
- It is vital to strive for higher productivity by reducing time spent commuting, for example.
- With innovation at a premium, more and more fresh thinking will come from outside the company including customers, suppliers and others.
- An elastic workforce will demand new approaches to human resources management.







Influencers affecting the pace of change

Accenture sees three factors that could significantly accelerate or decelerate the adoption of these trends by corporations and by individuals:

- **The Millennial Generation:** Loosely defined as those now between their mid-teens and late twenties, the Millennial Generation represents young people who have grown up in a milieu of e-mail, multi-player games, MP3 music, digital cameras, mobile phones, social networks and other trappings of the digital world.

The influence of this generation on the direction of information technology, particularly as it applies to the workforce, cannot be discounted. Accenture's

"Class of 2008" research on the millennials' tastes and behaviors suggests that they want choice in many of the technologies they use at work and are likely to routinely bypass corporate controls in terms of using online tools (if they are even aware of those controls). They will be quick to download open-source software if they deem it useful, and they have a more relaxed sense of privacy than do prior generations.

Specifically, the research revealed that in nearly every category of workplace technology, more than 20 percent of the young respondents believe employer-provided technologies did not meet expectations, while one-third of the younger millennials expect not only to use the computer of their choice once they are in the

workforce, but to access the applications they choose. Further, we found that one out of four millennials now in the workplace say that they write openly about themselves and friends online, and one in six say they have no secrets online.

Millennials' attitudes toward technology matter enormously for a blindingly obvious reason: they are rapidly becoming the new face of the US workforce. Their comfort with technology will force many corporate leaders to confront some discomfiting truths about their IT practices and policies. But for the farsighted, the millennials' ease with all things high tech will be an outstanding opportunity to outperform their competitors.



- **Cyber-security and IT risk:** Already, the security and availability of IT systems, networks and data assume critical significance in terms of ensuring business continuity. It is by no means a stretch to say that Internet computing increases security risks in many ways. However, it could be argued that risk is actually reduced because organizations can increasingly entrust their systems and data to providers for which managing IT is a core competence. Further, Internet computing can maintain multiple levels of redundancy and make a company's IT capabilities immune to local catastrophes. How companies perceive these risks will clearly influence the pace of adoption of these technologies. An isolated event such as a massive network failure, a deliberate cyber attack or government regulation could easily divert IT spending toward keeping anything and everything in-house, elasticity or not.

- **Climate change and sustainable development:** While the dramatic drop in energy prices in the latter half of 2008 has made energy conservation a lower priority than last year, at most companies, long-standing and widespread concern about global warming and climate change continue to influence policies and regulations. New European Union sustainability mandates have recently been signed into law, and the new US administration has a declared policy of energy independence. Meanwhile, China's government is allocating resources to combat climate change. As such, the concerns and regulations around sustainable development will surely affect the direction of IT—ranging from the push for more efficient data centers to smart power grids to wider use of IT systems to enable business processes such as logistics to become more environmentally friendly.

At many companies, it is still common for important decisions about IT to be made on the basis of historical precedent and the organization's legacy culture.

The assumptions that drive many of those decisions are rooted in the world of fixed organization structures and relationships, and reinforced by rigid ideas of technology's place in helping ensure high-performance businesses.

But now those assumptions must be rethought. It is no longer sufficient for business and IT leaders to look back to see what worked in the past. To properly prepare for tomorrow, they must also think in terms of "everything elastic"—and act to build highly flexible organizations by harnessing the powerful technology trends that we have described.



About Accenture Technology Labs

Accenture Technology Labs, the dedicated technology research and development (R&D) organization within Accenture, has been turning technology innovation into business results for more than 20 years. The Labs create the Accenture Technology Vision, a view of how technology will shape the future, and invent the next wave of cutting-edge business solutions. Working closely with Accenture's global network of specialists, Accenture Technology Labs helps clients innovate to achieve high performance. The Labs are located in Chicago, Illinois; San Jose, California; Sophia Antipolis, France; and Bangalore, India. For more information, please visit our website at www.accenture.com/accnturetechlabs.

About Accenture

Accenture is a global management consulting, technology services and outsourcing company. Combining unparalleled experience, comprehensive capabilities across all industries and business functions, and extensive research on the world's most successful companies, Accenture collaborates with clients to help them become high-performance businesses and governments. With more than 186,000 people serving clients in over 120 countries, the company generated net revenues of US\$23.39 billion for the fiscal year ended August 31, 2008. Its home page is www.accenture.com.

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