

Collaborative and Social: The Real Potential Behind the Cloud

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Cloud computing is one of the hottest topics in IT today. Only a few experts understand exactly what it is, and even fewer recognize what a great opportunity it represents in the new business model for work organization.

Consumerization—this neologism is one of the biggest challenges facing the computer industry and corporate IT departments in all industries, in the opinion of Gartner, Inc. Each year, the US-based information technology research and advisory company publishes the top 10 strategic technologies. While past lists included such topics as business process management and integration platforms, now we see terms that are familiar from the personal use of computer technology: mobile applications and tablets, social computing, video, advanced analytics, context-aware computing, and the top-ranked cloud computing. Market researchers put all of these under the category of consumerization, which means that fast-spreading devices and services from the private sector are finding their way into the workplace.

This is quite likely the biggest change ever in corporate IT. Consumerization will bring more change with it than did the introduction of personal computers into the workplace, and before that the associated conversion from a mainframe-based infrastructure to more local and flexible client/server architectures in the 80s and 90s. It was this change that motivated the rise of SAP, Oracle, and Sun, not to mention Microsoft with its years-long quasi-monopolistic position in the market for PC operating systems and office software.

Current discussion focuses on the technological developments of cloud computing. The spotlight is on usage-based billing of IT services (also known as “software as a service”) and procuring data, programs, and services via the Internet, or “from the cloud.” A company’s data and programs are stored, organized, and

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managed outside the company. Experts portray this model as a major opportunity to save costs, while skeptics focus on the risks associated with virtualization and data backup.

Cloud computing however, is much more. The great thing about cloud computing and all its services is that the technology for managing the programs and data storage remains completely invisible to consumers. The “how” and “where,” along with the scaling issues of the IT infrastructure, are of no concern to them. They have virtually limitless access to transparent resources, which are turned on and off in the provider’s data center, depending on demand. In other words, in what is probably the most challenging market environment—business with private clients—services are available everywhere around the clock, and good performance is standard. This is regardless of how many users are currently active or newly invited to participate! Anyone familiar with the amount of money and effort involved in an IT department shoving 200 additional users into an application system in a business environment has a great deal of respect for such quality service.

Some of the best known examples for providers of cloud services include Google, Facebook, Amazon, and Apple. These monopolists of consumer IT have organized their IT infrastructure based on the principle of cloud computing, radically changing the way we work, communicate, and act.

Let’s take a look at Facebook, for example. In mid-2011, the social media platform claimed to have over 670 million registered members worldwide; in Germany alone there are 20 million users. The company’s recipe for success is collaboration and participation. Instead of working in an anonymous Web with search engines and e-mail systems, users receive their own personal content summary (“news feed”) from a stream of information sources. In return, they designate friends, reveal preferences, become a “friend” or “fan” of something or someone, and supply their social networks with content.

Google and Amazon focused their services consistently on consumers and their needs, even before Facebook. A Web-enabled smart phone or a PC with Internet access is all a user needs to take advantage of an impressive array of innovative cooperation and collaboration services. Google, for example, offers e-mail, word processing, and spreadsheet programs. The Amazon Cloud Drive is an online hard drive that allows you to store e.g. all your MP3s and access them from any device. Smaller companies and startups are also getting in on the act: Dropbox, based in San Francisco, is another cloud-based file-syncing service that allows users to access and share files from any device.

The new generation starting their careers now takes such high-quality service for granted. Young employees have little understanding for organizational barriers and technical limitations. They are used to being always on and always connected in their personal lives and expect their professional lives to be the same. If they find company-issued devices to be too cumbersome, they don’t hesitate to use their personal smart phones, tablet computers, or netbooks. They also use Facebook, Twitter, and other social networking sites to interact and consult with colleagues.

The experiences they have as consumers are a benchmark for them in terms of user friendliness and ease of access, which they use to judge IT services in their professional environments.

1 Consumer Segment Sets the Tone for IT Development

In plain language, this means that the boundaries between personal lives and work are becoming increasingly blurred. The term “consumerization” means that new ideas and innovations arise in the IT world today for the consumer segment rather than specifically for professional use, as in the past. This paradigm shift engages today’s CIOs, most of whom came of age in the era of powerful enterprise resource planning (ERP) systems and spent most of their time on integrating and building a secure IT infrastructure.

This generation of IT executives has struggled in recent years, especially with pressure to cut costs and improve efficiency. It’s no wonder that their approach to cloud computing focuses primarily on tactical considerations. They connect it with the hope that they can cut operating costs or accelerate the introduction of software-based projects. They also see the appeal in the fact that the business application services can be obtained from the cloud as needed and are billed according to actual usage only.

Analyzing the evolution of corporate IT helps assess the dimensions of cloud computing. A technical innovation always develops its true potential first in conjunction with new business organization models. If one of the two elements is missing, the innovation remains a theoretical construct without practical value. The history of corporate IT is rife with examples of this relationship. Replacing mainframes with the client/server model as the dominant computer architecture can be attributed in part to management’s desire to establish divisional or business unit-oriented organizational structures with integrated processes. The triumph of the Internet as a communications infrastructure for businesses is also a result of the division of labor in a globalized economy.

2 Stages of Development for Enterprise Applications

The development of enterprise application software is an impressive reflection of the interplay between technical and organizational progress. For example, the pioneering work of the American consultants Michael Hammer and James Champy on business process reengineering radically changed the perspective on enterprises and their structures and processes. The central idea behind it is that business processes must be rethought from beginning to end in order to eliminate extra costs and wasted time from operations. Finally, one business process combines the basic

production factors of labor, land, capital, and information technology with value-added services.

The increased attention to processes has been consistently furthered in the design of highly integrated information systems called enterprise resource planning (ERP) systems. The client/server architecture and the relational database model contributed the necessary technological framework. The boundaries between enterprises that were seen as elemental were made obsolete around the turn of the millennium by the Internet, with its extensive networking and integration capabilities. Furthermore, the companies had to pay for the high degree of integration with a loss of flexibility and agility. The development of customer relationships and the expansion of the value-added chain to include business partners took place in part because of new Internet-compatible application systems integrated into the existing software landscape with the involvement of an additional layer of software (EAI, enterprise application integration).

Companies that entered into a long-term partnership with a leading ERP provider, such as SAP or Oracle, out of a desire to have the most comprehensive support possible for business processes repeatedly come up against this fundamental issue. By providing support for processes all along the services and supply chain, standard programs promise maximum efficiency compared to a combination of special solutions from different providers, but they tend to be inflexible. Against the backdrop of economic momentum that requires ad hoc decisions and a high degree of adaptability in the face of global competition, these systems are more and more troublesome.

Standard application software can be configured for new business processes just to a limited extent, because application function and process control are tightly interwoven with each other. It is time-consuming and expensive for IT specialists to customize the existing software by making any process changes or integrating additional application logic. A high degree of integration has its advantages, but it comes at a cost for companies who lose the agility and flexibility needed in today's dynamic business world. It makes sense to use standard software in areas where processes undergo few changes and/or where competition is not a factor, such as accounting. This does not apply, however, in areas critical to maintaining a competitive advantage, such as marketing, sales, and development, which are subject to constantly changing demands.

In the past, the rigid structures of IT applications have often thwarted creativity in business rather than promoting it. Nowadays solutions are developed using modern software concepts based on comprehensive business process management (BPM) and service-oriented architectures (SOA). The software is separated into services that can be assembled via a process platform as needed without anyone having to manually change the application's code. Separating processing and logic from the application system promises greater agility and flexibility for process configuration, control, and optimization.

3 The Cloud and Processes

Cloud computing will accelerate the BPM and SOA initiatives. Following the model of social networks, it replaces the previous application-centric software design with user-centric process and software development. As a sort of Facebook for processes, cloud-enabled BPM brings business experts and IT specialists together as part of the collaborative model-to-execute approach across organizational and geographic boundaries to work together on improving process models. Operating and IT departments are working in close coordination to develop a common vision for process improvement. Colleagues can be invited to participate short-term, no matter their location. Changes made by one participant are immediately transparent to all participants.

Extreme collaboration—as Gartner calls the new forms of cooperation and collaboration—brings together more people, more expertise, and more information in order to implement business improvements and product innovations. Equipping employees with mobile devices ensures that coordination and decision making take place in real time. Anyone can join in or leave the interaction, at will.

Potential areas of application for such new forms of cooperation can be identified in all layers and levels of a company's business. Manufacturing companies, for example, can now easily establish new innovation processes and invite customers or partners to participate. The Lego company demonstrates the positive effects that this type of participation, also called crowdsourcing, can have. After encountering some grumbling from the web community, the Danish company moved to appease its loyal customers. Interested Lego fans can now access a number of design tools, message boards, etc. to design their own models, publish the model designs for the Lego community, and jointly develop them. Lego is esteemed as a model of successful customer participation. Meanwhile, more and more companies are inviting their customers—or friends, as they are called in the parlance of social networking—to incorporate their ideas, opinions, and wishes into product development.

The new operating and business concepts from the world of social media also take process analysis and modeling out of the realm of specialists. Everything is already in the cloud. Managers do not have to draft a large-scale strategic project and wait for internal procurement and IT to establish the technical requirements. Staff and specialists start of their own accord. The situation is now very straightforward: "Let's write down the process flow and look for improvements." Ad hoc initiatives are started at any time and interested colleagues from around the world are invited, following the model of social networking. The lack of organizational and technological hurdles makes this an excellent, effortless way to gather, compare, and evaluate process designs, ideas, and concepts from the entire company, including the international departments.

With the help of cloud computing, even highly specialized niche providers can establish a collaborative platform on which they complete and refine their product range with the services of other specialists. The advantage of this type of

cooperation is that it lowers the entry threshold for new markets significantly. A company in the logistics sector, for instance, no longer must handle all the steps necessary for customs clearance, product tracking, and cold-chain control by itself; it rather can integrate the intelligent services of third parties from the cloud that help complete the logistics process, including all legal requirements.

4 The Cloud Enabled Process Platform

The various models for cooperation and collaboration that make up extreme collaboration form the organizational counterpart to cloud computing. Together they provide real business benefits.

Implementation follows on a process and integration platform that consistently separates process design and control from the application content and has the technical build in feature to fulfill all architectural requirements for operating in the cloud. This fully removes the traditional barriers between the operational and IT departments—one of the key issues in process improvement.

All parties involved in a process, such as the development of a new product, can interact at any time and make suggestions for improvement. This activates all of a company's expertise and, if necessary, that of its network (crowdsourcing). Performance data from monitoring the operational process indicators can be combined as part of collaborative dashboarding and supplemented with comments or explanations. When the market demands change or a new incident arises, ad hoc opinions can be collected from the different management levels and departments in order to jointly reach a decision.

Companies start by introducing a service-oriented architecture (SOA) and business process management (BPM) to achieve improved business and process performance. Daryl C. Plummer, Managing VP and Gartner Fellow, is convinced that extreme collaboration plays a crucial role in the transformation process and in increasing performance. "Cloud computing is speeding up this cooperation. BPM and SOA initiatives develop an even greater impact in that way," the analyst declared.

The combination of BPM, cloud computing, and extreme collaboration will launch a new phase in enterprise software, which again allows for greater customization and flexibility. Business processes are no longer mapped as completely as possible in ERP software; rather, they are controlled as individual process logic blocks outside of the applications. It is beside the point whether the application content is provided by a cloud service or is operating in the traditional system. It is more important that the old IT conflict between standardization and flexibility is resolved, maybe even permanently.

This development will certainly leave a mark for the role of the CIO and his or her IT department within a business organization. The associated consumerization of IT permanently eliminates the traditional position as the supreme ruler of

applications and data. The new options fulfill the desire of departmental employees to produce processes themselves, rather than passively waiting for the IT professionals to produce results. The user-centricity which has long been in demand is finally becoming a reality.

This means that CIOs must reinvent themselves and their departments. They can be at the forefront of development and actively support the transformation process. Incentive systems, such as subsidies on the purchase of selected mobile devices and social media contests for the best process design, can accelerate these developments while controlling and directing them. Even with all its advantages, the consumerization of IT is not free of risks. Control and governance are still urgently needed, probably more than ever. Consistency is essential for individual groups' production of processes that need to be combined into an overall process. Even more, it is a matter of a challenge whose controversy is revealed by the heated debate about privacy in social networks. CIOs must find intelligent answers to the question of how to strike a balance between openness, greater participation, and protection of in-house expertise.

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