Challenges and Perspectives for Web-Based Applications in Organizations

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INTRODUCTION

The last decade is characterized by the tempestuous evolution, growth, and dissemination of information and communication technologies in the economy and society. As a result, information and communication technologies have managed to open new broad horizons and markets for enterprises, whose installation and operation costs are rapidly amortizing through the proper usage of these technologies.

The most common systems used are cellular phones, stand-alone PCs (Personal Computers), networks of PCs, e-mail and EDI (Electronic Data Interchange), Personal Digital Assistants (PDAs), connection to the Internet, and corporate Web pages. In particular, the evolution in speed, operability, and access to the World Wide Web, and the penetration of e-commerce in conjunction with the internationalization of competition have set up new challenges as well as perspectives for enterprises: from small and medium sized to large ones. Even very small enterprises—with up to nine employees—have conceived the importance of Internet access, and a considerable percentage of them have access to the Web.

In today's worldwide environment, markets tend to become electronic, and national boundaries, as far as markets are concerned, tend to vanish. Buyers can find a product or service through the Internet at a lower price than that of a local market. Enterprises, on the other hand, can use the Internet in order to extend their customer basis and at the same time organize more efficiently the communication with their suppliers and partners. Thus, enterprises can reduce costs, increase productivity, and surpass the narrow geographical boundaries, enabling cooperation with partners from different places and countries. One memorable example is the company Amazon.com, which introduced the offering of books through its Web page, thus leaving behind the traditional bookstore. In addition, enterprises can use the new information and communication technologies so as to organize and coordinate the internal communication of their various departments as well as their structure more efficiently, taking into account factors like business mobility and distribution.

These demands have caused many companies to consider the convergence of voice, video, and data through IP- (Internet Protocol) centric solutions that include rich and streaming media together with various IP-based applications such as VoIP (Voice Over Internet Protocol), video, messaging, and collaboration as a way to lower costs and deliver product-enhancing applications to end users in a secure environment. However, it is not always easy for a company to keep pace with innovation due to financial restrictions and internal politics.

TODAY'S IT CHALLENGES

Today's CIOs (Chief Information Officers) face higher expectations. Some of the most significant challenges are the following (Pandora Networks, 2004).

Using Technology to Increase Productivity

New applications offer a standard, open platform providing for new communications features, such as voice services (Intelligent Call Routing [ICR], Unified Messaging [UM], etc.) and non voice services (Instant Messaging [IM], Web collaboration, conferencing, etc.). These features make users more productive by streamlining their communications and access to information. Moreover, Web-based administration provides for simpler management and quicker response of the technical staff to end users. The latter also have the possibility to manage their services.

Servicing an Increasingly Mobile and Distributed Workforce

As the workforce become less centralized and static, unified communications enable IT to deliver the same functionality to the remote office as the corporate headquarters. Mobile and distant users can access the same applications as their colleagues at the headquarters. They can also communicate with other users as if they were in the same location.

Delivering Revenue-Generating Applications and Features

Unified communications provide a foundation for future revenue-generating applications. For example, a new customer-support application will provide for a higher level of real-time customer interaction by enabling customers to have access to trained service engineers that can resolve problems with IP-based interaction tools. This improves customer service and enhances customer loyalty and long-term value. As another example, multimedia applications can enable collaboration, shortening project life cycles.

Reducing Costs

By managing one converged infrastructure, IT departments can reduce administrative and management complexity, therefore reducing all related costs. If an employee is moving, the same person that relocated the PC can also move the phone. Using a client-server architecture, end-user telephones be-

come plug and play. Convergence also offers the opportunity to introduce new applications that can be used to replace expensive metered services (e.g., IP conferencing could be used instead of conference calls).

Unifying All Communications Platforms

With unified communications, users can access corporate information from any device, regardless of the underlying platform. A common user often has five or six different communication services (e.g., phones, fax, e-mail, etc.), each performing the same basic function, that is, contacting the user. By reducing the number of contact methods from five or six to just one, unified communications reduces complexity, increases productivity and responsiveness, and enables collaboration.

Aligning IT and Business Processes

Convergence delivers an open and integrated communications platform that gives CIOs the opportunity to optimize existing business processes. For example, corporate directories could be integrated into IP phones and other collaboration tools, enabling end users to access all corporate information from multiple devices. As a result, the ability to reinvest business processes, drive down costs, and deliver value to the company is enhanced. Furthermore, optimization software tools and decision-support systems can be combined with Web-service technology to deliver distributed applications to users as remote services. Optimization models are considered as critical components for an organization's analytical IT systems as they are used to analyze and control critical business measures such as cost, profit, quality, and time. One can think of modeling and solver tools as the components offered by the provider with added infrastructure consisting of secure data storage and data communication, technical support on the usage of tools, management and consultancy for the development of user-specific models and applications, and some measure of the quality of the provided optimization services. Applications include sectors like finance, manufacturing and supply-chain management, energy and utilities, and environmental planning. The OPT (Optimization Service Provider; http://www.ospcraft.com/) and WEBOPT (Web-Enabled Optimiza-

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