Chapter 3
Virtual Enterprise Network Solutions and Monitoring as Support for Geographically Dispersed Business

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ABSTRACT

Transnational enterprises are assigning design and production around the world, but research is aimed to generate and support the enterprises' networks formation and operation as virtual enterprises through the setting-up of service-oriented workspace environments. We consider here a role-based authorization approach to service invocation as necessary in order to enhance and guarantee the integrity of the transactions that take place in the business environment of a virtual enterprise. The virtual enterprise network and the virtual team are the main concepts used in analyzing the network architecture for geographically dispersed enterprises as support for business development. Using this e-business oriented paradigm this chapter presents an enterprise network monitoring solution based on open source software (OSS) implemented in the PREMINV Research Center, at the University "Politehnica" of Bucharest.

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INTRODUCTION

To be competitive and to react faster to the market demands the enterprises need new information processing techniques, able to analyze the increasing amount of produced data, and innovative solutions in order to manage the computational resources with better flexibility, scalability, efficiency and smaller costs. Today, under the concept of a global economy, enterprises are assigning design and production environments around the world in different areas. The optimization of product benefit must be the focus of all network activities (Niemann, Tichkiewitch. & WestKämper, 2009). A serious issue of information exchange emerges as companies use traditional hardware and very distinct software appropriate to their field of expertise. All organizations use today Internet or Internet technologies to attract, retain and cultivate relationships with customers, streamline supply-chain, manufacturing, procurement systems and automate corporate processes to deliver the right products and services to customers quickly and cost-effectively, also to capture, explore, analyze, and automate corporate processes information on customers and company operations in order to provide better business decisions (Rosu, Dragoi & Guran, 2009); in some cases these technologies are also used to estimate the business risk (Rosu, Dragoi, Cotet & Rosu, 2010) – e.g. business partners evaluation. Development of ICT leaves much more freedom to the designers and consultants to accommodate organizations to other influences, both internal and external. For business, e-service is going to be a new way to save money, to revenue growth, and faster development model. For end-users, e-services increase productivity and simplify life, take advantage of more sophisticated and specialized services on as needed basis. At the level of production-dedicated enterprises, e-services are: business-to-business (supply-side), intra-business (internal-side), and business-to-customer (customer-side). New enterprise model architecture uses the Intranet/Internet/Extranet infrastructure and technologies (Dragoi, Cotet, Rosu & Rosu, 2007; Dragoi, Draghici, Rosu & Cotet, 2009).

The development of the digital economy will be the set of strategies and actions to contribute to driving the competitively of the country's productive sector by inserting it into the digital economy; which implies migrating from an economy with a scarce use of information technologies, to one where the use of these technologies is generalized in all economic, cultural and social activities (Ploder & Fink, 2007). The generalized use of IT generates increases in the productivity and competitiveness of the economic agents, in this way contributing to the generation of well being and greater opportunities for progress. Today, the *Challenge* in the world is of the change agents in the countries and through its technological and social components, has among one of its objectives, to accelerate the digital economy's development process in businesses, especially the micro, small and medium ones, for increasing the competitiveness of economy; as well as develop a digitalization culture in society, particularly in the consumers (Ash, 2008). As the e-economy evolves, we must reexamine our beliefs about what can be achieved. New ideas and consumer demand trigger new business opportunities which proliferate so rapidly that three months in the e-economy is considered the equivalent of a full year in a traditional business development cycle. More than two thirds of businesses now have a web presence which offers product or catalog information for customer convenience. However, few organizations have really taken the trouble to find out what their channel partners need in terms of rapid information deployment to better manage the supply chain. To grasp how the e-economy will affect your business, you need to think about how web technology is going to transform your relationship with your customers. During the next years, the supply chain model of the e-economy