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FROM NETWORK MANAGEMENT TO SERVICE MANAGEMENT – A CHALLENGE TO TELECOM SERVICE PROVIDERS

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Abstract. *Telecom service providers are facing tremendous challenges today as their customers' demand for service quality increases. To meet the challenge service providers must shift their focus from managing the networks to managing the services. Traditionally network management systems are developed based on ITU-T's TMN model. With the network evolves from voice-centric to integrated services such as WIMAX, and IMS, service management to measure customer experience becomes essential. The next generation service management systems will be based on TMF's eTOM model and may require Service Oriented Architecture (SOA) to provide an integration technology based on the concept that a service is a sequence of components to implement business processes. This paper discusses the deficiencies of traditional network management, challenges of the evolution from network management to service management, and the use of SOA concept to solve the complex system integration problems associated with the deployment of a large number of network operation and business support systems.*
Keywords: TMN, eTOM, Telecom network management, Telecom service management

1. **Introduction.** With the rapid development of new telecommunications services, telecom service providers worldwide are facing an increasingly competitive environment. Their customers are demanding, not only the telecommunications services they want, but also very high quality services. Consequently, service providers must pay great attention to the management of their network and services in order to satisfy customers' demand for service quality. As a result, more and more telecom service providers have recognized the importance of network management and service management, and their willingness to invest in the related resources (technologies, support systems, staff skills, etc.) is also increasing. This is a significant phenomenon in worldwide telecommunications development in recent years.

In order to help the service providers to develop effective network management strategies, the telecommunications standard organizations have contributed significant effort to specify guidelines and recommendations in this area. For example, in the late 1980's the International Telecommunications Union (ITU) recommended a Telecommunication Management Network (TMN) model which classifies network management into five different layers: Network Element Layer, Element Management Layer, Network Management Layer, Service Management Layer, and Business Management Layer [1]. These layers together support the following network management functions: Fault Management, Configuration Management, Accounting Management, Performance Management, and Security Management (referred to as FCAPS in short [2]). This TMN model has been widely adopted by telecom service providers to develop their network management capabilities. Figure 1 illustrates the TMN layers and the FCAPS concept.