Chapter 11

A Telecommunications Model for Managing Complexity of Voice and Data Networks and Services

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ABSTRACT

The telecommunications industry (TI) is challenged by a significant increase in the complexity of information transfer due to a recent proliferation of data mining technologies, techniques and applications. As the result, TI is facing a fundamental paradigm shift, with the convergence of voice and data services as well as ever expanding technologies to its users. This technological movement towards a convergence of telephony and computer technologies, web-based networks, and wired and wireless services is creating areas of tremendous opportunities. These areas of opportunity are for continuous quality improvements and applications of the voice and data convergence mining techniques and their implementations. The TI’s implementation of the data mining algorithms reduces information overload, increases data integrity and accuracy, and effectively manages its global networks.

INTRODUCTION

The systems design and development (SDD) are now facing a challenge regarding how to integrate more modern packet-based systems with other
outdated networks in existence. Modern telecommunications industry (TI) service providers are demanding consolidation of their capabilities under one global network or as part of a packet-based system. This integration improves users’ product and service applications and their programmability across the networks. The proposed converged model (CM) has improved network service integration by implementing modern data mining technologies, information filtering, and deploying packet-based voice and data systems independent of more outdated circuit-based voice telephony (Chatzipapadopoulos & Perdikeas, 2000; Guston, 2000).

Figure 1: Model’s architecture integration in a TI environment

API—Application programming interface  
ATM—Asynchronous transfer mode  
DLC—Digital loop carrier  
OSS—Operations support system  
SS7—Signaling system  
XDSL—Any of various digital subscriber lines, xDSL, modems, trunks, DSL, cable, wireless  
IP—Internet protocol  
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