A New Telecommunication Service Provision Model

Shane Dye, Jan Audestad, Leen Stougie, Asgeir Tomasgard, Marteen van der Vlerk and Stein W. Wallace
Department of Management
University of Canterbury
Christchurch, New Zealand
s.dye@mang.canterbury.ac.nz

Abstract

The purpose of this talk is to describe a service provision model for telecommunication networks with distributed processing. One of the main advantages of the technological framework is its inherent flexibility, which enables dynamical planning. When we present the models, emphasis is placed on the shift of focus towards processing. Several factors are important in the technological push that has opened the possibilities for distributed processing in telecommunication networks. Examples of technological factors are digital technology, modern high-speed network architectures like B-ISDN, packet switched data transmission concepts like ATM and fibre optic cables. This allows for provision of more and more complex services. In addition, several standardization initiatives for distributed telecommunication architectures have been developed, for instance, the {\em Telecommunications Information Networking Architecture Consortium\/} (TINA-C) scheduled to be completed in 1997.

One of the main differences between new networks based on distributed processing and traditional telecommunication networks is the increased flexibility in resource allocation. One impact of the above developments is that an enormous number of {\em services\/} can be provided on a telecommunication network. Services capable of processing information are offered through {\em computing nodes\/} by software applications running on these nodes. While traditional services tend to be transportation oriented, we believe that the extensive growth in newer services will come from those requiring more resources of the computing nodes. At the same time the investment cost of transportation capacities has decreased. This means that the limited resources in these networks will often be the computing resources, such as the processing capacity at the network nodes.

Another development is that deregulation all over the world introduces competition in telecom markets. New players enter the telecommunications scene and the roles of old players change. For example, the difference between distributed computer networks and telecommunication networks are disappearing.