SUITABILITY OF TINA FOR VDT AND INTERACTIVE SERVICES

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ABSTRACT

The Broadband and Multimedia are changing our life style. It provides the opportunity for scanning 500 channels, Video-On-Demand (VOD) in real-time, interactive games, home shopping, distance learning, telecommuting, etc. The national information infrastructure, regional information highways, and other broadband initiatives have created the need for new service architecture. The Broadband development can be revolutionized by a flexible operations and network architecture.

The Telecommunication Information Networking Architecture (TINA) is an open architecture unifying the Telecommunication Management Network (TMN) and the Intelligent Network (IN) architectures together. It provides more flexibility in application interoperability, and facilitates a faster application development. The Information Superhighway is considered as highway of Broadband Communications Networks with ramps connecting different service/shopping centers of Information Providers. The Video Dial Tone (VDT) and Interactive services are based on Integrated Broadband Communications Network. The VDT and Interactive Services have both Service and Management oriented features and functionalities. The TINA having both capabilities TMN (to support Management aspect) and IN (to support Service aspect) is most suitable for the VDT and Interactive services.

INTRODUCTION

The Subscribers/Customers wish to have complete control over what they want to receive and when they want to receive; and as a result the Video-On-Demand (VOD) and Interactive Services are included in the services featuring Monthly subscription, A la carte subscription, Pay per view, and Near VOD. The migration of technology and application is driving...
the residential broadband market (i.e., NVOD & VOD movies/events, PPV/IPPV/EPPV, ITV/IMTV, Videogames, Interactive marketing/home shopping, Distance learning/education, ...) supported by Analog broadcast, Digital broadcast, and Digital switched services.

The architecture delivering Video Dial Tone (VDT) services comprises of the Video Services Platform (VSP), VDT Service Provider (VDT.SP), Video Information Provider (VIP), Video Information User (VIU), and Settop Box (STB)/Digital Entertainment Terminal (DET). The VIP provides televised broadcast or libraries of video, image, graphics, textual, and audio information to be accessed by the subscribers/customers interactively. The VSP connects various VIPs and the Subscribers/Customers. Interactive video services (i.e., VOD, Home shopping, ...) require on-demand and real-time delivery of video information to the Subscriber/Customer.

A combination of open management system and intelligent network seems to be the ideal solution for meeting the customers' future needs. Several standards are evolving and being adopted such as Common Management Information Protocol/Common Management Information Services (CMIP/CMIS), Distributed Management Environment/Distributed Computing Environment (DME/DCE), Systems Network Architecture (SNA), Simple Network Management Protocol (SNMP), etc.

The current network is viewed as inefficient and costly in managing services and technologies. The Advanced Intelligent Network (AIN) and Telecommunications Management Network (TMN) technologies address some of these problems but they do not provide a common network platform. The TINA provides an unified platform, supported by ATM, SONET, and ISDN. TINA also facilitates a multivendor environment.

DESCRIPTION OF TINA

The Telecommunication Information Network Architecture Consortium (TINA-C), a project group of about 40 companies, led by Bellcore is set up to establish specifications for an open platform for multivendor, broadband networks.

The TINA architecture consists of three layers:

a) Computing Layer: It provides a distributed-processing environment.

b) Network Resource Layer: It provides the bandwidth and hardware devices in the network for service provisioning, and

c) Service Architecture Layer: It provides the software components to provide services.

TINA is a combination of IN (a generic, service-oriented architecture) and TMN (a generic, management-oriented architecture). The TINA architecture is based on the Broadband communication and Distributed computing technologies for information networks to transport multimedia information and manage multimedia communication. It is viewed as an Open architecture for telecommunication services in the emerging Broadband, Multimedia, and Information Superhighway technologies.

The Distributed Processing and Object Oriented Software are the salient features of the TINA application to enable new services. All the network elements are structured as distributed/independent processing units connected over networks. The data and logic are defined as objects. The software building blocks facilitates its reusability in enhancing/developing new services.

The TMN principles recommend the use of independent management networks to manage telecommunications networks based on standard interfaces. TMN is envisioned as solution provider for complex problem of telecommunications networks and services pertaining to Operation, Administration, Maintenance & Provisioning (OAM&P) in open and multivendor environment. The TMN uses the concept of Functional Architecture based on Function Blocks and Reference Points. The Function Blocks are logical entities. The Reference Points represent the exchange of