Requirements for TINA Platform towards Information Sharing Business

April 12 1999

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Long-term Trend of Telephone Business

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- Elimination of Backlog
- Nationwide Direct Dialing
- INS Concept

VI&P Vision
Nation-wide Multimedia Exp.
GMN Architecture and Layered Services

GMN Architecture

Applications

Layered Services

Applications Platform

Basic transport service

Authentication server

Intelligent platform service

Session manager

Multi-protocol transport service

Multi-Protocol Transport Middleware

Basic transport service

Network Service Middleware

Multi-protocol transport service

Applications Platform service

Information Sharing Platform

Customer Service Provider Network Carrier

Networking Platform

APIs

Components

Authentication/Mgmt

Plug & Play

Seamless Network and User software handling Safe and Reliable network environment

Directory Accounting

Call control

Access Control

Routing

Etc.

Mobility

Etc.
Emerging System Integration

Client Tier
- Browser
- Java applet
- Helper app.

Middleware Tier (Application Servers)
- DPE

Existing System Tier
- IN
- TMN

Information Base (Use Info., Contents, ….)

TINA Business Model

Native Computing and Communications Environment

Distributed Processing Environment

Connectivity Provider
- LNC
- CC
- CP

Broker
- Directory etc.

Retailer
- Navigation etc.
- SSM
- CSM

Service/Contents Provider
- TCSM
- TLA

Hardware Resource
Middleware in Enterprise Environment

Client Tier
- Consumer
  - WWW/Java
  - COM/CORBA

Middleware Tier (Application Servers)
- Retailer
  - Wrapper
  - CORBA/IN
  - CORBA/TMN

Existing System Tier
- Service/Content Provider
  - IN
  - TMN

TINA-related activities in NTT

- Ret interface standardization in OMG (in cooperation with Hitachi, GMD Fokus, DT)
  - to realize middleware tier for Telecom Bus.

- Networked Digital Library
  - to retail integrated View of existing Content databases

- IP management system
  - to integrate emerging Mgmt System with existing Mgmt systems keeping scalability

- DPE in Exchange system
  - to provide open Network Service Interfaces keeping Telecom-grade Availability
Requirements to DPE from Development related to Ret Interface

- Functional:
  - Support of Transactional characteristics in delivering User events to large-scale and distributed Customer Base
  - Event Channels Manageability to provide flexibility for System Deployment
  - Security services including secure communication, authentication, authorization, and access control

- Non-functional:
  - As of ordinary Information Systems

Networked Digital Libraries: - NetLibra -

- Library User (Retailer)
  - Bulletin board
  - Advanced Document Search across DLs
  - Librarian Assistance
  - Copyright Mgmt.
  - Charge Mgmt.
  - Network Mgmt.
  - System Mgmt.
  - Trader
  - CORBA™

- OO Digital Library (Service Provider)
  - Primary information DB (Full Text, Image Text etc.)
  - Secondary information DB (Bibliography, metadata etc)
  - Management DB (User data, log data etc)
  - Reference DB

- Existing Digital Library (Service Provider)
  - OPAC
  - Catalog DB
  - Search engine
  - Dictionary
  - Thesaurus
  - Prim. info. DB (Full Text, etc.)
  - Sec. info. DB (Bibliography, etc)
  - Mgmt DB (User data, etc)

OPAC: Online Public Access Catalog
Requirements to DPE from Networked Digital Library

- Functional:
  - Security, in particular interoperable Solutions across multiple Domains
  - Information Base Integration with standardized manner, e.g., Query and Meta-data mgmt.
  - Intelligent and reliable Resource Locator for the Federation among heterogeneous and distributed Digital Libraries

- Non-functional:
  - High availability

IP Network Mgmt system - MOAI -

(Multi-layered Operations system for Advanced IP networks)
System configured with set of independent software modules

- Operator GUI
- User GUI
- ISP/user collaborative NM
- Advanced services
- User NM
- ISP NM
- Common middleware
- Off-the-shelf middleware

ORB (independent of underlying platform)

Corresponding to OMG™ Object Services™

This project is tightly coupled with OMG™ activities
Requirements to DPE from IP Network Management system

- **Functional:**
  - Reliable and manageable notification service
  - Sophisticated Supports for Integrating Network Resource Information and Computational Design

- **Performance**
  - High availability, possibly fault tolerant as well
  - Scalability in ORB and other related Object Services and Domain Interface, especially in geographically-distributed Subsystems

RT DPE for Exchange system

- **ORB for external communication**
  - Full interoperability
  - (OMG CORBA Ver 2.2)
  - High performance adjustment
  - Relaxed interoperability

- **ORB for internal communication**
  - Inter-subsystem protocol
  - TCP/IP

To Other type of module or Operation System or Customer’s server WS

Module

- software component
- ORB for external communication
- ORB for inter-communication
- IDL
- Inter-subsystem protocol
- Common software platform

Module

- software component
- ORB for inter-communication
- IDL
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- Common software platform
Requirements to DPE from RT DPE for Exchange system

- **Non-functional:**
  - High performance: optimized implementation for multi-processor telecom node
  - The same grade of availability and reliability as telecom service system, e.g., IN

- **Functional:**
  - Flexibility for service system evolution and customization

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**Conclusion**

- Telecom Business is evolving towards Information Sharing
- Breakdown of TINA models to practical System Designing is needed
- Several Areas of Works are ongoing
- DPE plays key role for Telecom Business in deploying new Business in Flexible and Scalable manner