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Implementation of Tina service subscription information management using OBDMS

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2006-03-13
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Implementation of TINA Service Subscription Information Management using ODBMS

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A project report submitted to the Faculty of Engineering, University of the Witwatersrand, Johannesburg, in partial fulfilment of the requirements for the degree of Master of Science in Engineering.
Johannesburg, January 2001

Declaration

I declare that this project report is my own, unaided work, except where otherwise acknowledged. It is being submitted for the degree of Master of Science in Engineering in the University of the Witwatersrand, Johannesburg. It has not been submitted before for any degree or examination in any other university.
Signed this day of 20
Jimmy C.K. Lee.

Abstract

The next generation telecommunication networks will offer users a range of services. These future telecommunication services are envisaged to be tailored services that are customizable in order to satisfy specific requirements of a variety of customers. Service subscribers and users should be offered some direct control in managing their services. Customization in a multi-service environment introduces the requirement for multiple service profiles for each user. Having user service profiles enable universal service access. The current telecommunication service subscription model is no longer viable for the next generation or TINA-based services. This work proposes a subscription and service information management system that is integrated into the existing TINA-structured platform in the South African TINA (SATINA) Trial. The system developed here realizes the object-oriented TINA subscription information management model. The information model defines all the information and relationships required to handle users, subscribers and the subscription life cycle. The project employs the emerging Object Database Management System (ODBMS) to manage the object oriented telecommunication subscription data. ODBMS provides a powerful and efficient way to managed these object oriented information as information and the relationships are stored as they are used in the application. The proposed subscription and service information management system is a distributed application based on the widely used three-tier architecture model. The three-tier model enables distributed access to the centrally managed subscription and service information regardless of the implementation adopted. Visual modeling technique is used to develop the application and convey the design principles. Application of the subscription and service information management system in the service provider domain is demonstrated by the domain administrator's usage of the system's graphical management console. The integration of the information management system and the SATINA Trial's service platform is indicated through the usage of the TINA compliant Online Subscription service.

Acknowledgements

This work was performed under the Centre for Telecommunications Access and Services at the University of the Witwatersrand. The centre is funded by Telkom SA Limited, Siemens Telecommunications and the Department of Trade and Industry's THRIP programme. This financial support is much appreciated.
I would like to thank my supervisor, Prof. Hu Hanrahan, for his guidance and support throughout the duration of the research project. Thanks also go to R. Achterberg, C. Ip, B. Lai and S. Mohapi for their help and advice. A further note of thanks goes to Wits Writing Centre (Anisa Kajee and Liz Trew) for their assistance during the process of writing this report.

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Acronym

DBMS Database Management System
GUI Graphical User Interface
IDL Interface Definition Language
JDBC Java Open Database Connectivity
ODBMS Object Database Management System
ODBC Open Database Connectivity
OID Object Identifier
OMG Object Management Group
OO Object Oriented
ORB Object Request Broker
ORDBMS Object Relational Database Management System
PA Provider Agent
POA Portable Object Adapter
RDBMS Relational Database Management System
RFP Request For Proposal
SAE Subscription Assignment Entity
SAG Subscription Assignment Group
SF Service Factory
SLCM Service Life Cycle Management
SATINA South African TINA Trial
SQL Structured Query Language
SSM Service Session Manager
SSUAP Service Session User Application
SUBS Subscription Management
UA User Agent
UML Unified Modeling Language