ARCHITECTURE OF A MULTIDATABASE SYSTEM

BASHIR AHMAD AND SHAKEEL AHMAD

Computer Centre. Gomal University. D.I.Khan.

ABSTRACT

Multidatabase Systems (MDBS) aim to provide integrated access to data held at distributed and heterogeneous collections of autonomous database systems. This paper reviews current research into MDBS architectures, and defines a new architecture to provide a framework for further research into data model issues of MDBSs. The proposed architecture supports both relational and objectoriented (OO) component databases, which are integrated using a canonical OO data model upon the ODMG-93 standards. In particular, the new architecture attempts to optimize and accomodate the autonomy of the component databases.

1. INTRODUCTION

The basic aim of a multidatabase system (MDBS) is to integrate information from preexisting, heterogeneous local databases in a possible distributed environment, and to present users of the MDBS (global users) with transparent methods to use integrated data (global information) in the system. A key feature is the autonomy that individual databases retain to serve their existing customer set (local users) [1] without any change in the existing application proqrams and local DBMS code. The purpose of this paper is to define an MDBS architecture that will act as a framework for further research into specific data model issues relating to MDBSs. A particular aim is to provide an architectural framework within which the ODMG-93 standard object data model [15] can be extended to provide multidatabase support, with optimal autonomy for component databases.

Section 2 presents new MDBS architecture which will form the framework for further research into data model issues, referencing other MDBS architectures described in the research literature and used in commercial and experimental MDBSs.

Section 3 contains the 3-level architecture description of MDBS components specialized so as to support the component relational and OO databases, integrated within an ODMG-93-based multidatabase model.