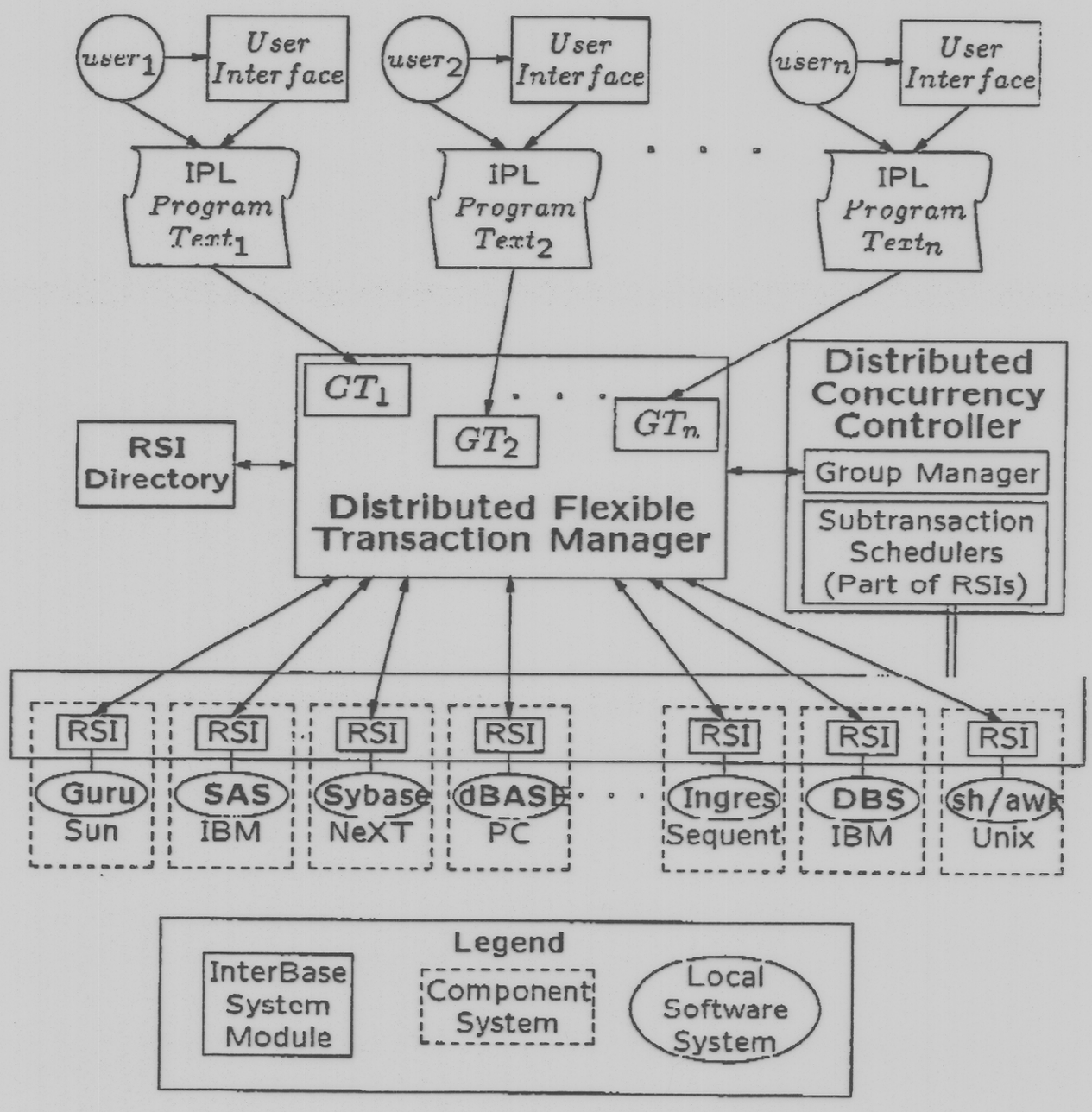
The InterBase System

Integrates pre-existing systems over a distributed, autonomous, and heterogeneous environment to support global applications without violating local autonomy.

Main Features of InterBase

- IPL (InterBase Parallel Language) interpreter
- Initial Graphical User-Interface
- Flex transactions
- Semantic based commitment protocol
- Group algorithm for concurrency control based on quasi-serializability
- Remote Software Interfaces (RSIs) for Guru, Sybase, Ingres, dBASEIV, DBS, SAS, and UNIX tools Shell and AWK

InterBase System Architecture



The Approach

- The InterBase Parallel Language (IPL) is developed to support a Flexible Transaction Model.
- Remote System Interfaces (RSIs) are designed to provide a uniform system level interface to IPL programs and their interpreter, and deal with heterogeneity of local software systems.
- The Distributed Flexible Transaction Manager (DFTM) is developed to interpret and to execute IPL programs, and to coordinate their executions.
- A Distributed Concurrency Controller (DCC) based on Quasi Serializability is developed to manage parallel read/write accesses of concurrent executions of IPL programs.
- A semantic-based commitment protocol is designed to support global commitment of IPL programs.
- A prototype is implemented to demonstrate the feasibility of our approach.

FBASE

A Federated Object-Oriented Database System

Goal: Provide a powerful and flexible approach to systems integration.

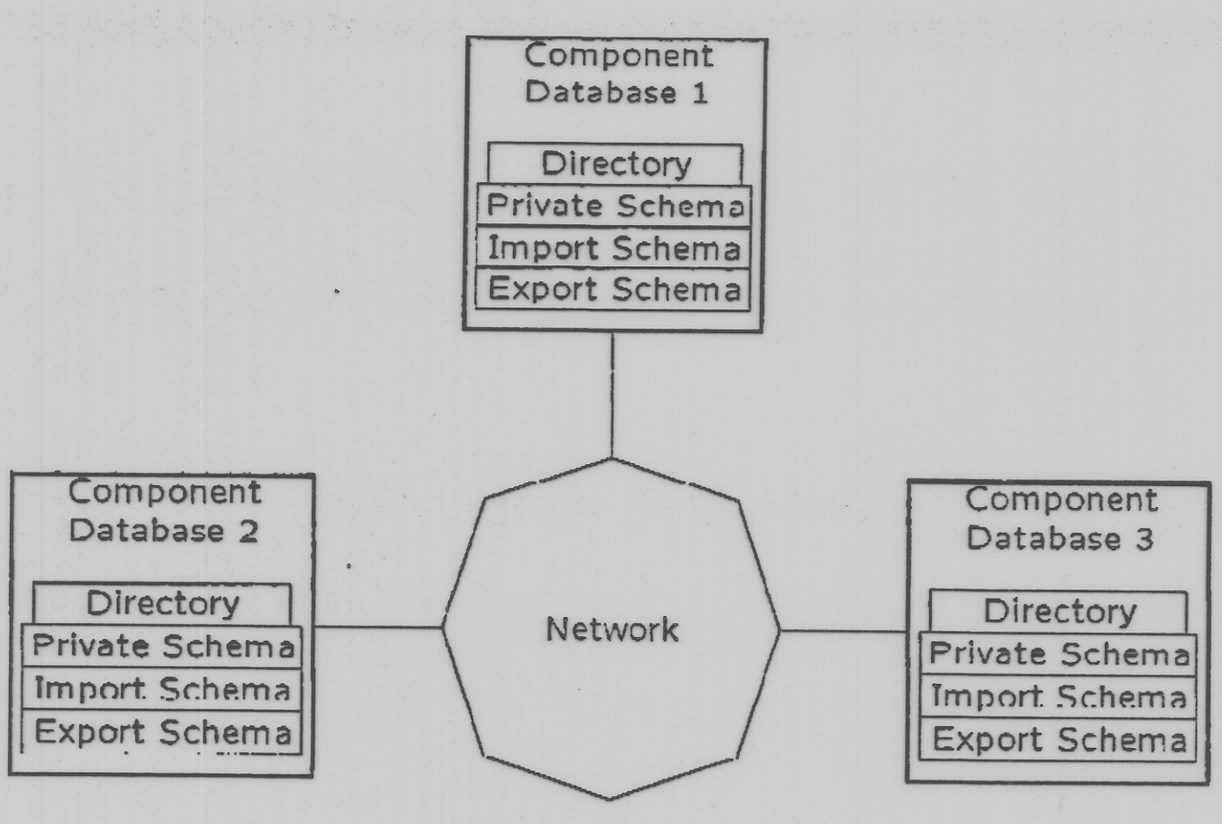
FBASE Components

1. **The Federation Architecture:** the conventions, protocols, and global query language used in the federation and assumptions made.

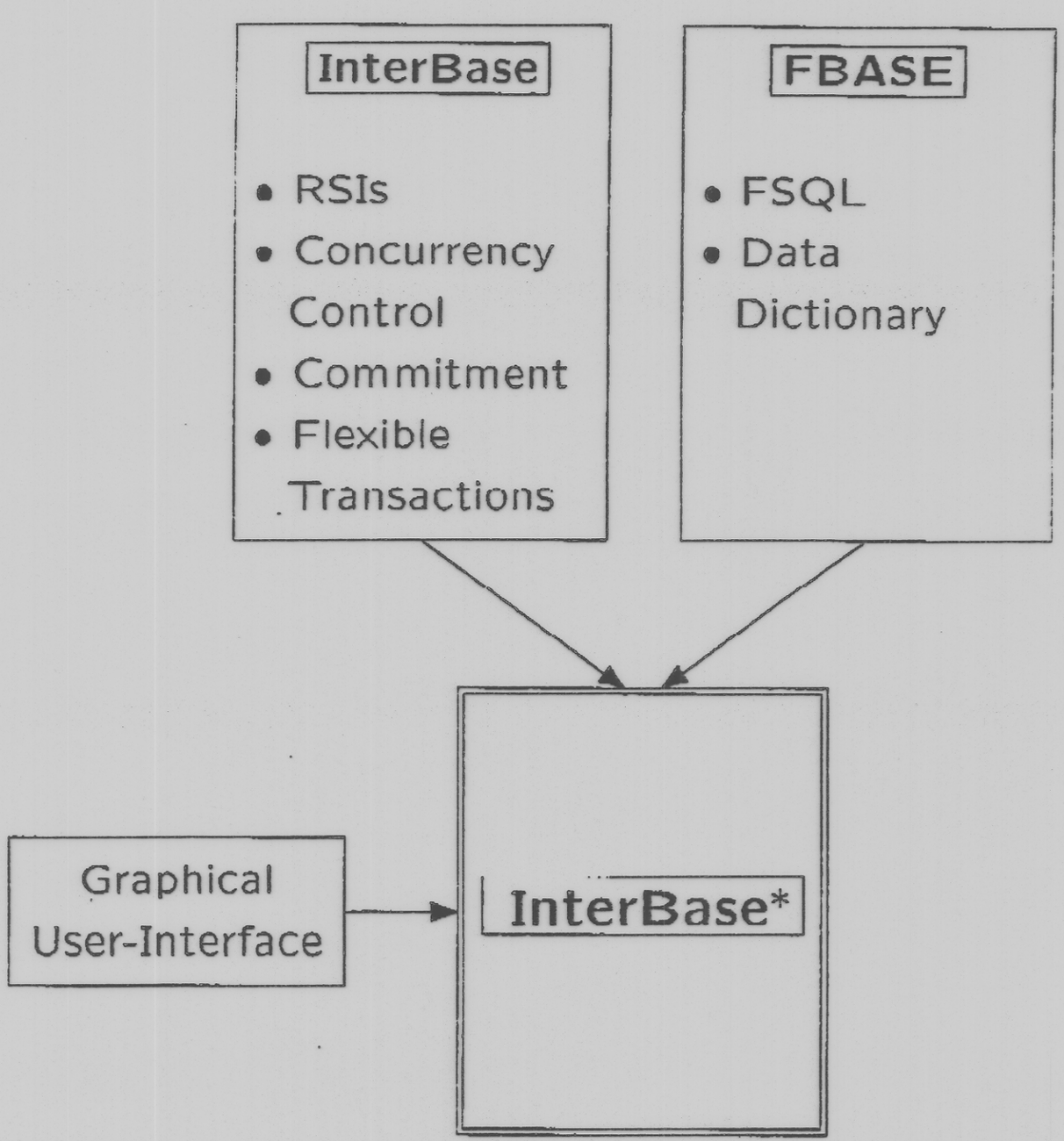
2. **The Prototype Component Database System:** a database system that uses the federation conventions, protocols, and query language.

3. **Heterogeneous Component System Servers:** servers that provide an interface between heterogeneous component database systems and the federation.

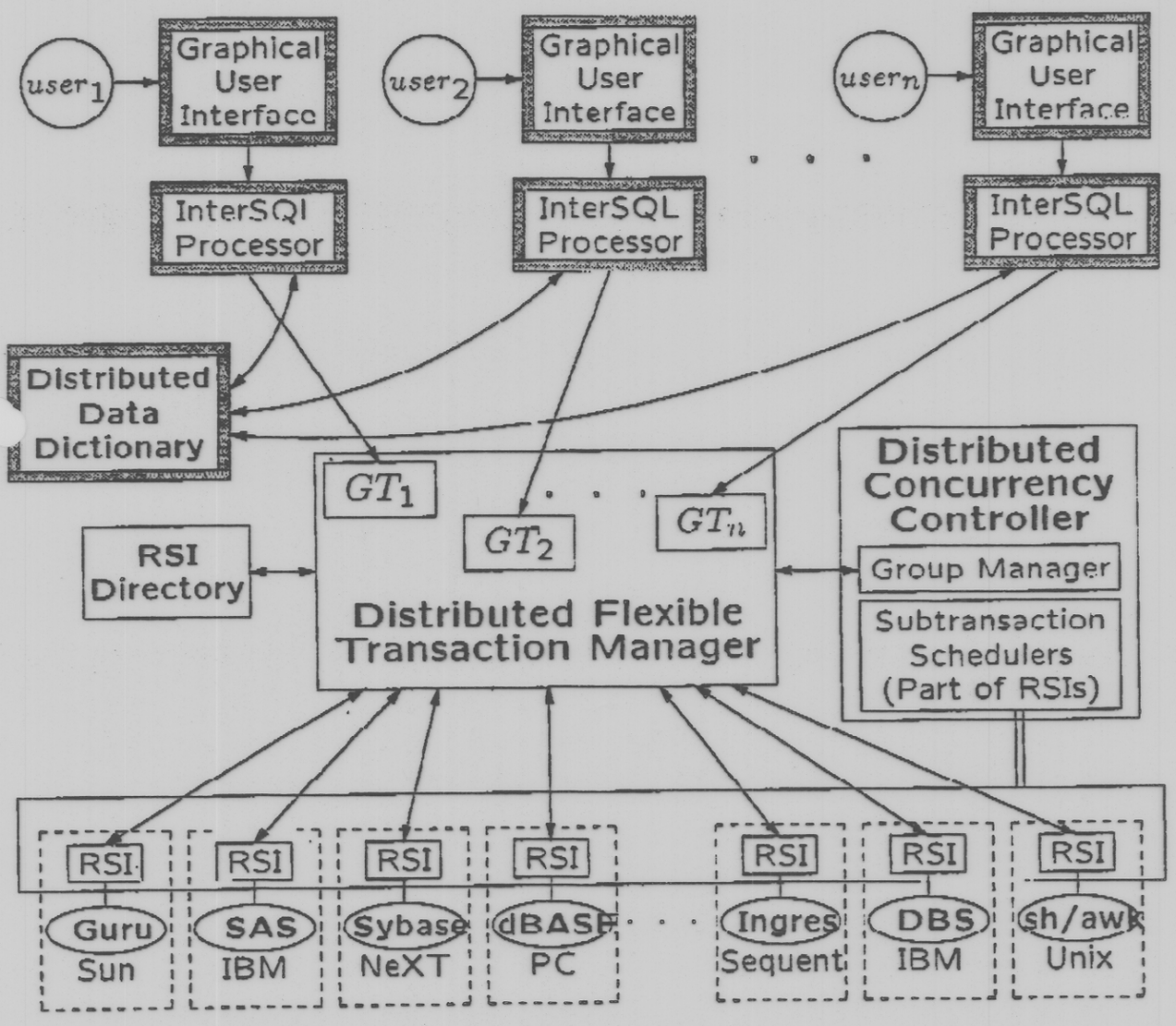
FBASE Federation Architecture



InterBase*



InterBase* System Architecture



The Pegasus Project

An Heterogeneous Information and Operation Management System

– Towards An Integrated Enterprise Computing Environment –

Ming-Chien Shan

Hewlett-Packard Laboratories

Enterprise Computing Environment

1. Efficient information access to multiple heterogeneous systems, including multimedia nad legacy applications.

2. Effective process management across multiple operational steps, reducing human intervention.

Administration
System Management
Information Integration Infrastructure
Legacy DBMS
Relational DBMS
Multimedia System
Legacy Information System
Business Process Infrastructure
Process Definition
Business Organization
Presentation
Service Infrastructure
Fax
Mail
Paper
Phone
...
End Users

Pegasus Architecture

End-users Applications .....

Domain Specific Information Services .....

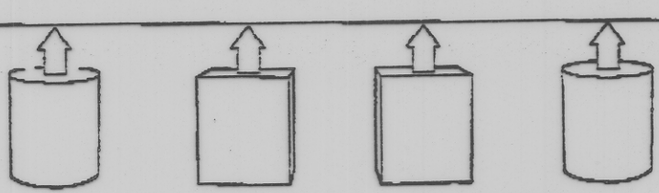
- Data caching
- Versioning
- Effective presentation
- Business modeling
- Information mining
- Query formulation

Basic Information Integration Services .....

- Schema mapping / integration
- Distributed query optimization
- Query language translation
- Directory management
- Business operation flow automation
- Distributed transaction coordination
- Event monitoring / constraints
- DCE/DME/CORBA integration

Directory and Local Data

Individual Data Storage / Access Services .....



Database System
- Relational
- IMS
- VSAM
- Object Oriented

Multimedia System
- Graphical image
- Video / audio
- Document retrieval

Legacy Systems and Applications
- IMS Applications
- UNIX Applications

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Pegasus Component Structure