Microsoft Database Strategy

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Agenda

Developer thinking and trends

Microsoft database product family

Strategic directions and enabling technologies

Drill into specific development objectives

Microsoft database product family strategy

The Evolution of the Solution Developer

## Microsoft's 1993 Developer Survey

### Objectives - to find out:
Who is developing
How are they developing
What they are developing

"End users can effectively create applications that can be used by others"

Neutral
17%

Disagree
32%

Agree
51%

"High-level, high-productivity tools can be as flexible and efficient as low-level coding"

Neutral
28%

Disagree
28%

Agree
44%
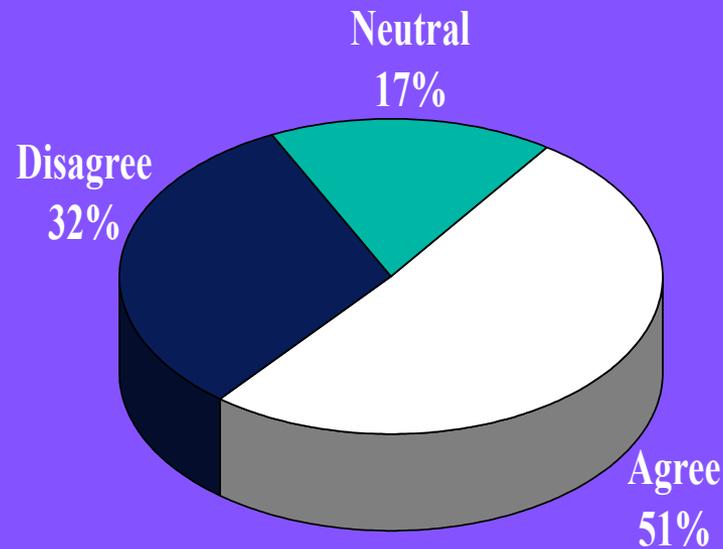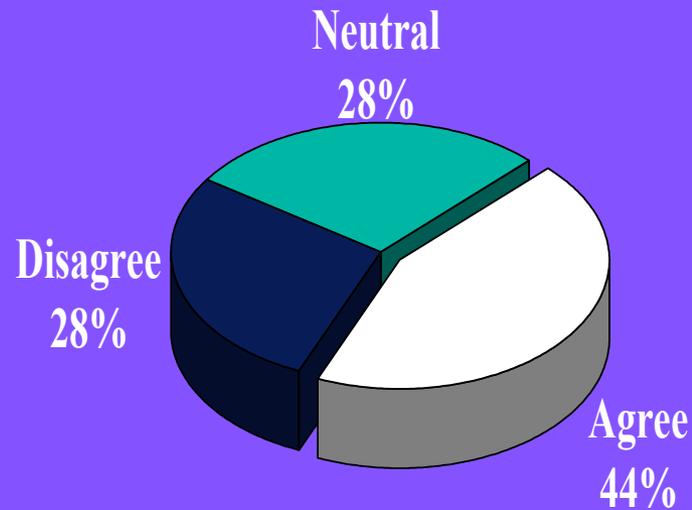
Microsoft Developer Survey, 1993

"Client-server architecture can be a reliable replacement for mainframes and minis"

Neutral
22%

Disagree
14%

Agree
64%

Microsoft Database Product Family

DB/2 IMS AS/400

SNA Server for Windows NT

ODS Gateway

SQL Server

Windows NT Advanced Server

Visual C++

Visual Basic

Excel

FoxPro

Access
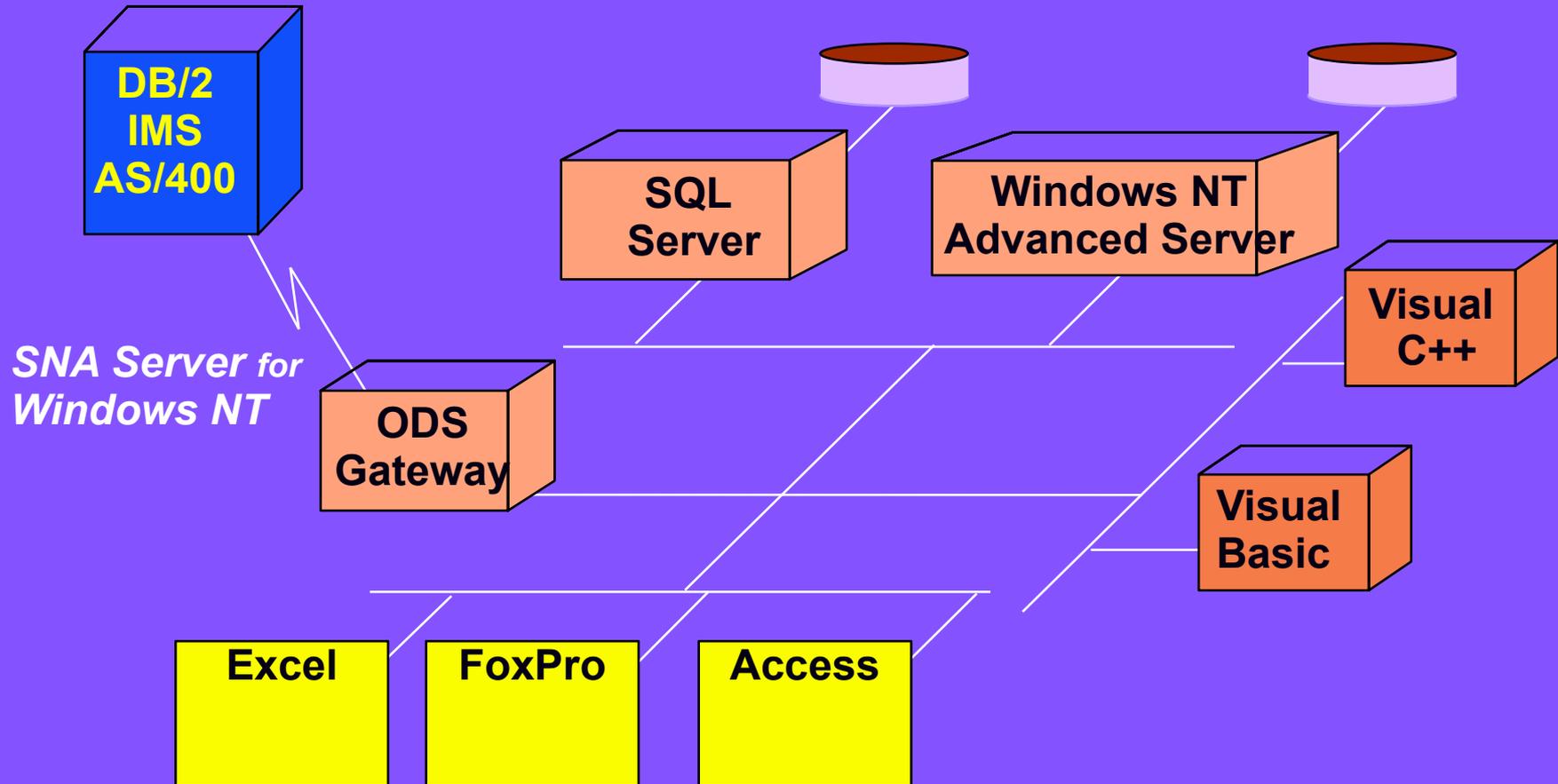
Database Development Tools

Power For Every Type of Developer

Visual C/C++

Visual Basic

Microsoft FoxPro

Microsoft Access

Excel

SQL Server
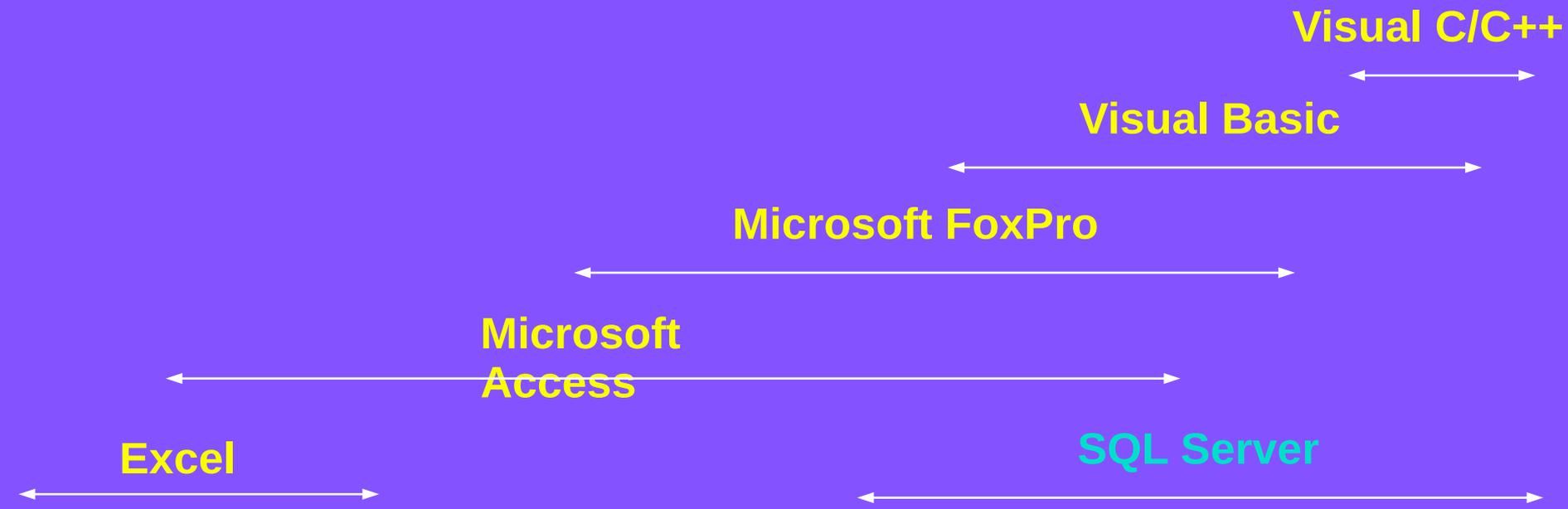
List Management	Ad-Hoc Queries	Departmental Solutions	Line of Business Apps
Data Analysis	Reporting	Decision Support	Business Objects
		Personal Productivity	

Microsoft Databases: Today

FoxPro 2.5	Access 1.1	VB 3.0

FoxPro	Access Basic	Visual Basic

FoxPro ISAM	Access Engine (JET)	Foreign ISAM Data

ODBC

SQL Engines
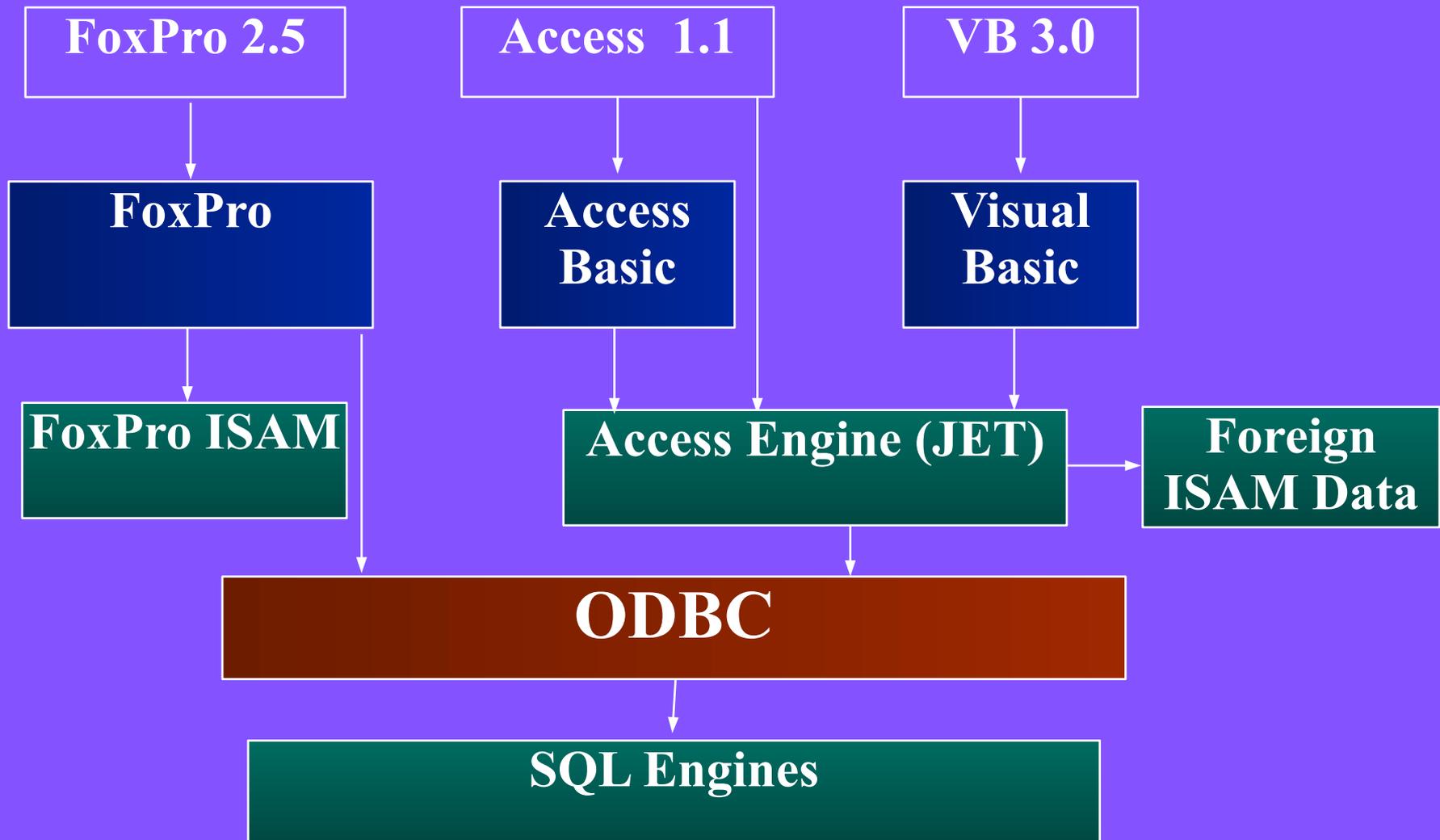
Microsoft Databases: Long Term

Shared User Objects (forms, reports, queries)

Xbase

VB VBA

C/C++

Unified Engine

ODBC

ISAM Data

Document Data

SQL Data
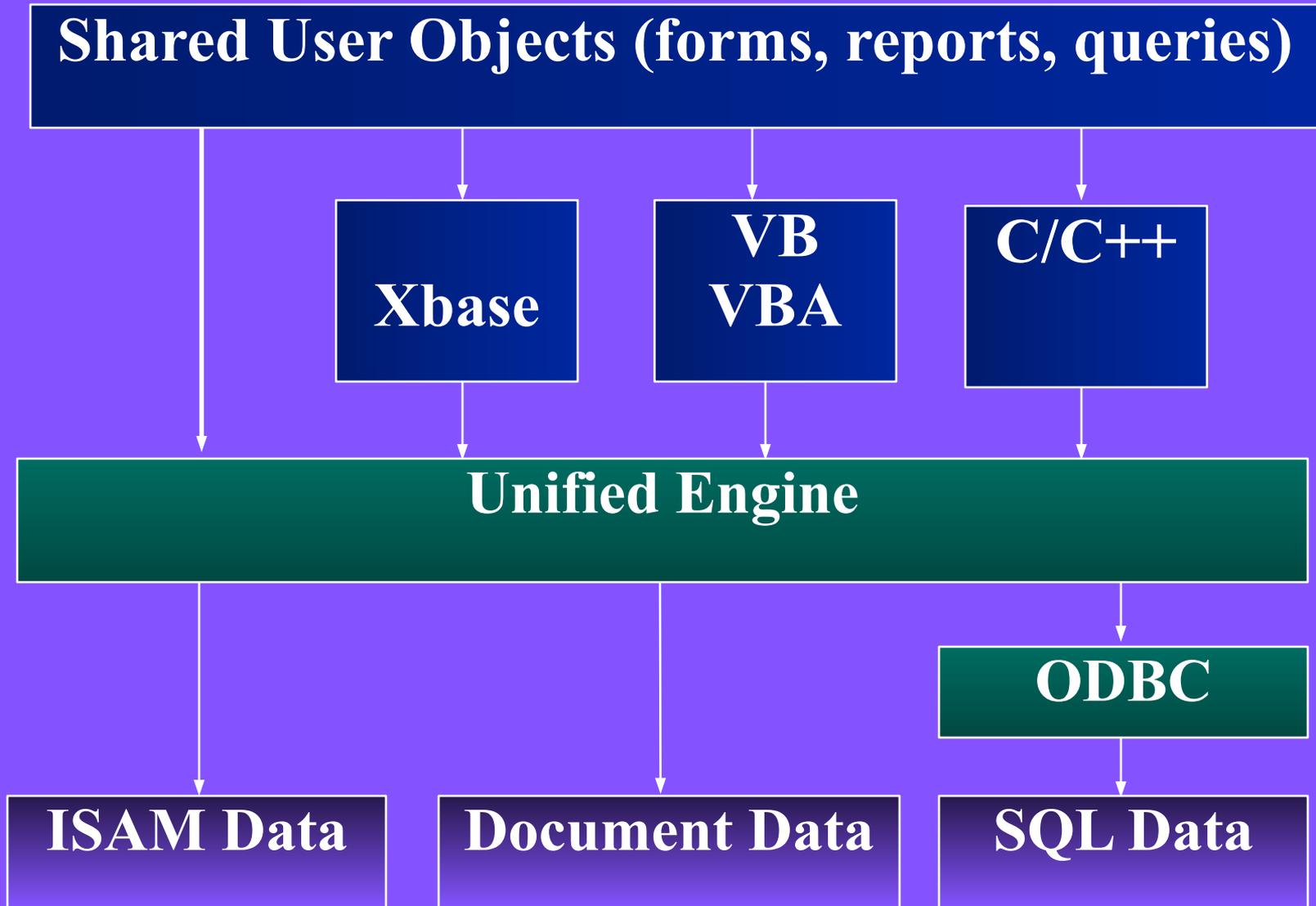
Key Enabling Technologies

Data Access Engine

WOSA

    ODBC

    MAPI

    TAPI

OLE

Cairo

Database Development Objectives

Four key components to a database development environment:

- **Great data access tools**
- **Complete development environment**
- **Scalable database**
- **Database management tools**

Great Data Access Tools

Design Goal: Make databases as easy to

use as spreadsheets

- **Wizards for users and developers**
- **Simplify database design**
- **Paradigm shift in how to view database data**
  - **Spreadsheet**
  - **Outline**
- **Automated data choreography**

Data Choreography

Design Goal: **Automate the interaction between an application's data sources and it's user interface.**

Manage connections

Intelligent data retrieval

Local data caching

Binding data to UI

Data retrieval and display

Visual data navigation

Integrity and validation

Transaction update logic

Complete Development Environment

Design Goal: Provide the tools and functionality required by high end developers

Integration with CASE tools

Integration with repository based data

Integration with code control systems

All tools become client/server tools

Open interfaces through OLE automation

Scalable Database

Design Goal: Provide low end ease of use and high end server functionality

- **Upsizing applications do not need software redesign**
- **Integrate tightly with NT/Cairo for name services, security**
- **Expose OLE object extensions for programmability, administration**
- **Server management tools**
  - **Hermes**
  - **Simplify distributed processing administration burden**

Product Drilldown
Jet Database Engine

More than a database

Relational database engine

> **Tables/Queries**
>
> **Referential Integrity**
>
> **Security**
>
> **Utilities**

Transparent & dynamic data access

Heterogeneous query processing and execution
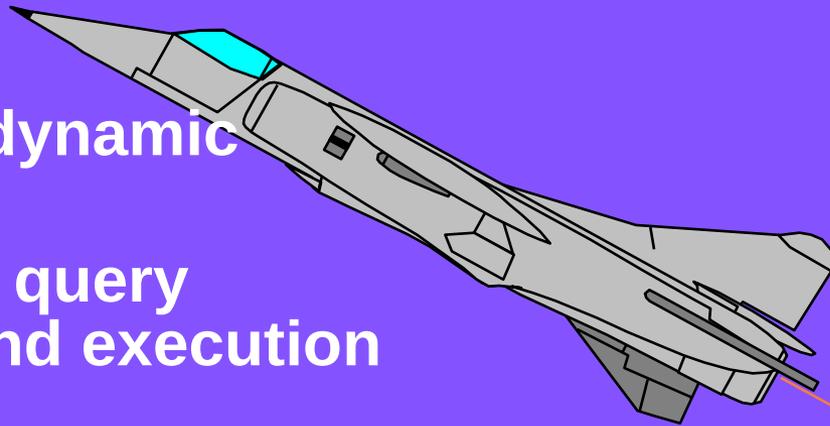
Accessing Jet Functionality

Jet Components

Access

VB 3.0

Data Access Objects

Jet API

Query Manager

ISAM Manager

Remote Manager

Paradox	dBase Fox	Btrieve	Jet ISAM

ODBC Driver Manager

O D B C

DB | **DBF** | **DDF** | **MDB**

SQL Svr Driver

Other Drivers

Database Servers
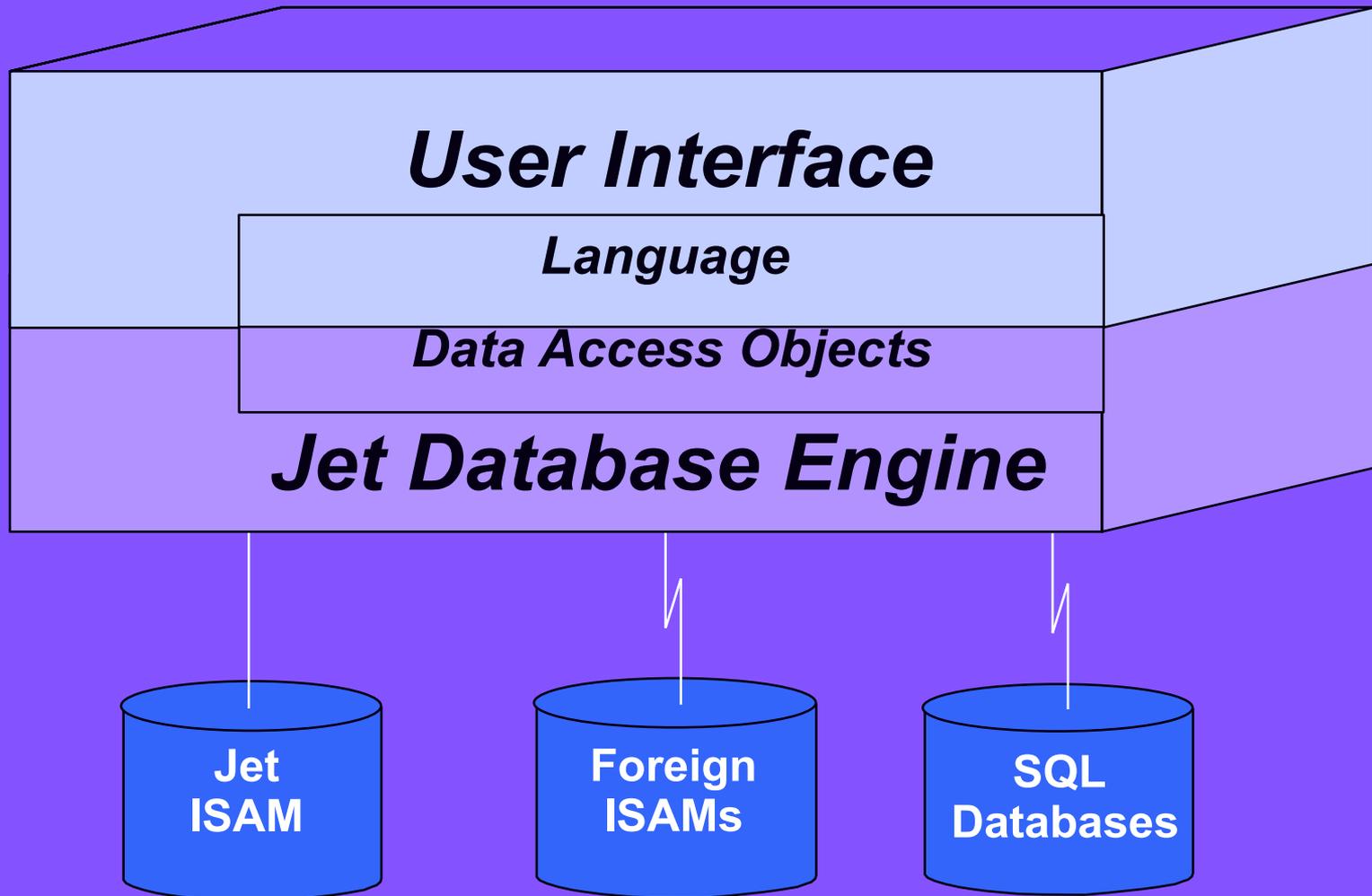
Data Access Objects
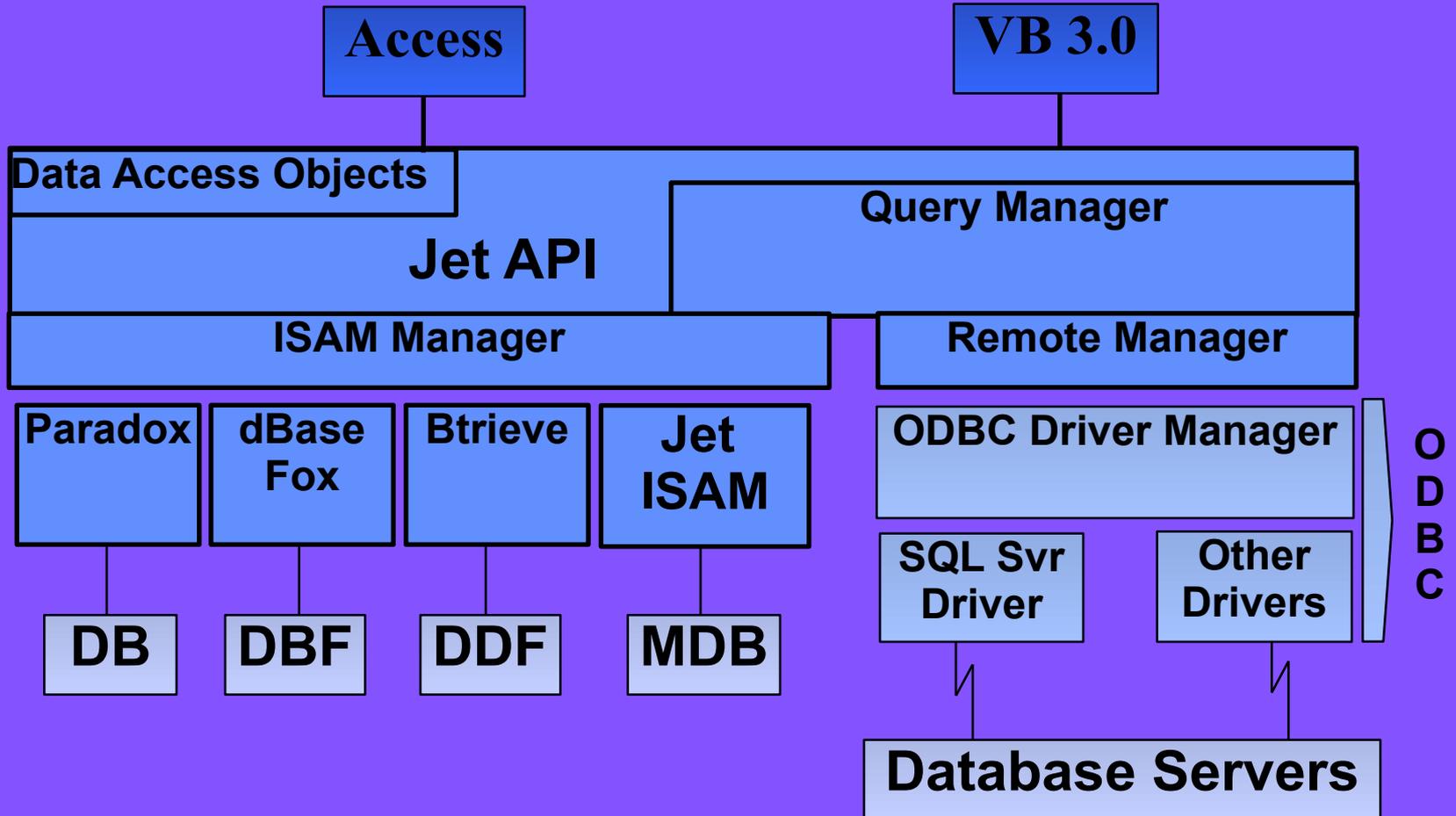
Acce

Data Access Objects

High level, object-oriented
programming model
Jet interface for all DML and DDL
Shared code between Access
and VB

New features include:
Programmatic acce
users & groups
security
relationships
Object oriented model

DB　**DBF**　**DDF**　**MDB**

SQL Svr Driver

Other Drivers

**D
B
C**

Database Servers

Foreign ISAM Interface

Access

Data Access Objects

Jet API

ISAM Manager

Paradox	dBase Fox	Btrieve
DB	DBF	DDF

Native access to various PC
 database file formats
Dispatch layer that makes all data
 look like the Jet ISAM

Database Servers
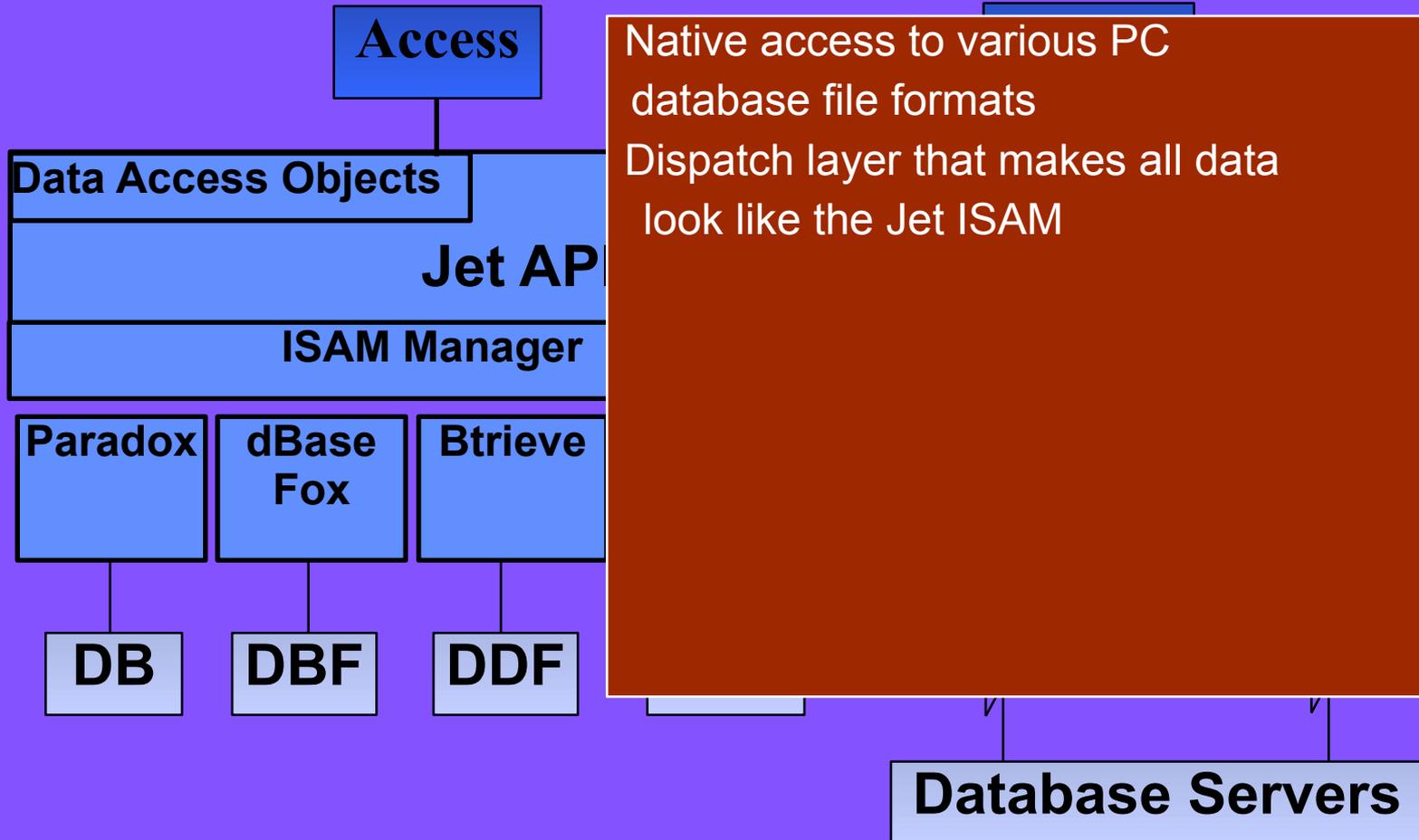
Query Manager Functions

Intelligent query optimization

Heterogeneous joins

Updateable joins

Query on query model

VB 3.0

Query Manager

Remote Manager

New features include:
  Great updateability on joined tables
  Optimizable distributed joins
  Many more operations are now sent to the server

DB **DBF** **DDF** **M**

SQL Databases look like the Jet ISAM

Connection manager

Intelligent SQL query generation

Automated retrieval and update

VB 3.0

...ery Manager

Remote Manager

...DBC Driver Manager

New features include:
Updateable server views
Support for trigger
generated primary keys
Less network traffic
Configurable connection
management

Jet ISAM

Access

VB 3.0

Data Access Objects

Query Manager

Jet API

ISAM Manager

Paradox	dBase Fox	Btrieve	Jet ISAM

ISAM data storage
Indexes

New features include:

Table level validation

Cascading updates & deletes

Rushmore optmization

Database Servers