

# Notes on Third Generation Database Access

## Overview

- Interoperability will explode
- Proprietary DBMS APIs will devolve
- Client/Server evolution will ultimately cause inversion of Mainframe ↔ Workstation relationship

— Wayne Dugane —

# Genesis

- Jim Gray / Scott Neuman Paper  
"RDA vs DRDA as an Interoperability Solution"
- Two Data Points
  - DataQuest Middleware Interop 12/94
    - 34% of market = Sybase
    - 18% (and growing) = DRDA
    - ...
    - 0% = RDA
  - Jim's new employer
    - SQL Server = Server Makes Right
    - Copy of DRDA with every SNA Save

# Interoperability will Explode

## N by N Gateway Interop Problem

### Pros

- Every corporation has 5 different DBMS's
- Workgroup + LAN based departmental DBMS servers are exploding
  - 30% CAGR Unix
  - 70% CAGR PC's

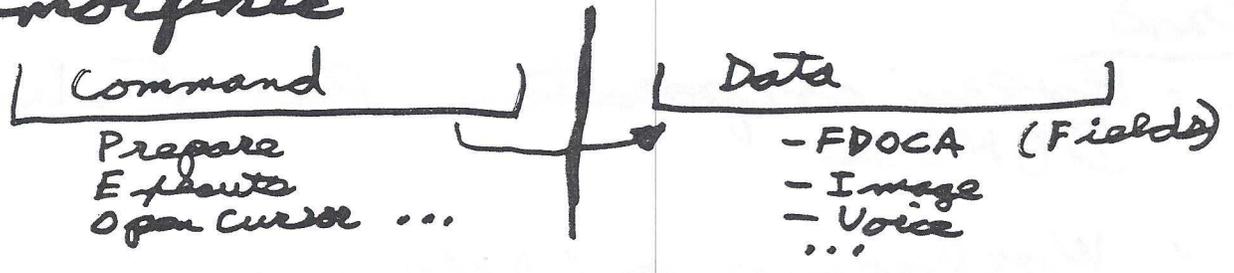
Most of these need to talk to other depts or corporate DBMS's

### Issues

- Most of vendors wire interop protocols are unpublished (Sybase, Oracle, ...)
- Licensing gamemanship vis-a-vis gateway to gateway (Sybase Open Server, Oracle Xparant GW)
- 5+ Protocols under Windows is a mess
- LCD interop doesn't work for real apps
- Multi Tier gateways are a nightmare to maintain

# Why DRDA is Great

- OOB Oriented Architecture
- Polymorphic



- Fully self describing datastream
  - Required for Plug and Play
- Very efficient and excellent performance
  - Within  $\pm 10\%$  of Sybase TDS
  - 2+ times faster than SQLNET
- Superset of existing vendor's protocols
  - Static & Dynamic SQL
  - Stored Procedures
  - 2PC
  - TCP & SNA
  - "Pass Thru" capabilities
- Easy to convert Mainframe DB2 apps into distributed clients

**Proprietary Client DBMS  
APIs will Devolve**

N x N Client DBMS API Problem

Plethora of Client APIs (3GL)

- DB-LIB, OCI, CT-LIB, ...
- Hundreds of Tool + Component Vendors need API support:
  - Powerbuilder
  - Visual Basic
  - Delphi
  - VBX/OLEX builders
  - ...

ODBC is winning (3GL)

- Performance is within 5% of "Native"
- ~~XOpen~~ CLI = ODBC V.1
- ID becoming ubiquitous
  - PC
  - Unix
  - CICS/MVS

**BUT**

The battleground is changing

- 1990            90% CSI apps = 3GL  
                   10%        "        = 4GL

- 1994            80% CSI apps = 4GL  
                   20%        "        = 3GL

New battleground = 4GLs, Frameworks

# Client/Server Evolution/Inversion

## • Computerworld/PC Week Myths

- Mainframe apps = Maintenance only } = BUNK!
- No major CSI development on Host
- 2 MLOCs new development under CICS
- 8 MLOCs changed (3270 → CSI)

## • Mainframes will become clients to LAN DBMSes

- Large portions of operational data are moving to LAN
- Most of DASD will be out on the LAN
- LAN DBMSes + PC Hardware are becoming as reliable or more reliable than DB2/MVS was 10 years ago

- TMD will start moving out to the LAN to be near the Database

## Summary

- ODBC/XOPEN CLI won the 3GL wars  
4GL wars are just beginning OLE/DSOM/...
- DRDA will ultimately win the interop war
  - Have to build it for Host interop anyway
  - $N \times N$  gateway complexity + maintenance
- Jim will stop worrying about canonical plumbing
- CICS needs to "functionally stabilize" and then remove 3270 support, and replace it with strong CSI support

