Cooperative Processing Data Bases
Juzar Hasta, Gupta Technologies Inc.

Abstract

This presentation will be about cooperative processing for the 90's using client-server technology; concepts of downsizing from mainframes and minicomputers to workstations on a LAN will be the main theme.
Graphical Front-Ends for SQL Back-Ends

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Traditional Online Applications

DBMS
Micro, Mini or mainframe

Application Programs

DumbTerminals
Cooperative Processing Applications

SQL DBMS

Minicomputer

Local or Wide Area Networks

Application Programs

Superserver

SQL DBMS

Mainframe

Application Programs

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SQL Cooperative Processing

When application programs run on PC workstations but transparently access SQL databases which reside on mainframes, minis, or micro based data servers.
Graphical Front-Ends for SQL Back-Ends

What makes an application graphical?
Elements of a Graphical Application

- Bit Map Graphics
- Dialog Boxes
- Point Devices
- Windows & Scroll Bars
- Color & Fonts
- Text & Graphics
Graphical Programming for SQL

- Visual display of code
- Point & click drawing of objects
- Events & messages
- Procedural actions
- Explicit SQL coding
- Reusable functions
- Animated debugging
Graphical Front-Ends for SQL Back-Ends

Graphical programming for Windows and OS/2 PM
End-User Graphical Tools

- Primarily for decision support
- Ad-hoc query and reporting
- SQL must be invisible
- Integration with spreadsheets/WP
- Easy application generation
## PC DBMS Software in the Nineties

<table>
<thead>
<tr>
<th>Software</th>
<th>Benefits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Graphical PC tools for SQL databases</td>
<td>Improved people productivity</td>
</tr>
<tr>
<td>PC LAN client/server SQL systems</td>
<td>Downsize from minis and mainframes</td>
</tr>
<tr>
<td>Enterprise-wide PC to SQL cooperative processing</td>
<td>True integration of PCs into corporate data processing</td>
</tr>
</tbody>
</table>
Future of Graphical Interfaces

- Most PCs will go graphical within 3 to 5 years.
- Windows and OS/2 PM will be the dominant graphical environments.
- Graphical Front-Ends will drive Cooperative-Processing applications.
- Programmer tools will become more sophisticated, yet simpler.
- End-User tools will become more powerful.
The Significance of SQL

- SQL makes it possible to develop LAN database servers.
- SQL enables development of engine-independent application tools.
- SQL provides unified access to micro, mini, and mainframe databases.
We Open Windows to SQL

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PC to DB2 Connectivity with SQLNetwork
SQLNetwork for Oracle

VAX or other platforms

Oracle

DecNet or TCP/IP

Oracle Server

OS/2 clients

SQL*Net

SQLRouter/Oracle Application

Windows clients

SQL*Net

SQLGateway/Oracle

SQLGateway/Oracle

SQLGateway/Oracle

SQLNet

SQLNet

C or COBOL

SQLWindows

SQLVision

SQLWindows

SQLGateway/Oracle

SQLGateway/Oracle

SQLGateway/Oracle

SQLNet

SQLNet

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<table>
<thead>
<tr>
<th>Property V:</th>
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</thead>
<tbody>
<tr>
<td>Bedrooms:</td>
<td>Baths:</td>
</tr>
<tr>
<td>Listed:</td>
<td>Age:</td>
</tr>
</tbody>
</table>

**Broker:**

**Agent:**

**Listed:** Thru:

**Database/Query Status**

- DEMO
- DB2DEMO
Title: Estimate Prices
Window Location and Size
Visible? Yes
Keyboard Accelerator: (none)

Make: Plymouth
Model: Oasis
List Price: $20,000.00
Our Price: $15,000.00

Fast Car Auto Brokers
**Form Window: frmMain**
- **Title:** Fast Car Auto Brokers
- **Icon File:** (none)
- **Display Settings**
  - **Data Field:** fldCarMake
    - **Background Text:** Make:
  - **Data Field:** fldModel
    - **Background Text:** Model:
  - **Data Field:** fldListPrice
    - **Background Text:** List Price:
  - **Data Field:** fldOurPrice
    - **Background Text:** Our Price:
- **Data**
  - **Maximum Data Length:** Dynamic
  - **Data Type:** Number
  - **Editable?** Yes

**Display Settings**
- **Window Location and Size**
- **Visible?** Yes
- **Border?** Yes
- **Format:** Currency
- **Country:** Default

**Message Actions**
Pushbutton: pbPrice
> Title: Estimate Prices
> Window Location and Size
> Visible: Yes
> Keyboard Accelerator: [none]
> Message Actions
> On SAM Click
> - If (SallisNull (fldListPrice))
>     - Call SaliMessageBox
>     - 'Please enter a price!'
>     - 'Fast Car', Button 'Ok'
> Else
>     - Set fldOurPrice = fldListPrice
> Pushbutton: pbCancel
> Window Variables

Please enter a price!

List Price: 
Our Price: 

Submit
Cancel
**Application Description: SQLWindows vers**
- **Design-time Settings**
- **Global Declarations**
- **Form Window: frmMain**
  - **Title**: Fast Car Auto Brokers
  - **Icon File**: (none)
  - **Display Settings**
  - **Menu**
  - **Contents**
    - **Data Field**: fldCarMake
      - **Data**
      - **Display Settings**
      - **Message Actions**
    - **Background Text**: Make:
      - **Window Location and Size**
      - **Visible? Yes**
      - **Justify: Left**
    - **Background Text**: Model:
      - **Window Location and Size**
      - **Visible? Yes**
      - **Justify: Left**
  - **Window Variables**
  - **Message Actions**
  - **Dialog Box**: dlgAbout
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</thead>
<tbody>
<tr>
<td>Beds: 4</td>
<td>Baths: 2</td>
</tr>
<tr>
<td>Age: 20</td>
<td></td>
</tr>
</tbody>
</table>

**Description:**

**2419 Lark Lane**

**Broker:** Houlihan Lawrence  
**Agent:** William Betts  
**Listed:** 10/14/88  
**Thru:** 12/14/89  
**Asking Price:** $1,200,000.00