REAL-WORLD CLIENT/SERVER COMPUTING

Mark Streger - Principal
Information Management Consultants
703-893-3100

Introduction

What is Client/Server Computing
Issues Involved in Using VB
Development Methodologies
Application Management
Transaction Issues

Real-World Client/Server Computing

What is it

Evolutionary

Revolutionary

No Cookbook Approach

Accommodate Past While Enabling Future

What is Client/Server Computing

- Essential Attributes
  - Resource Sharing (database)
  - Database Transparency
  - Message Based
  - Scaleable
- Efficient Use of Resources
- Effective Use of Technology
- Mix and Match
- Desktop Enabling

WHY VB for Client/Server

Jack of All Trades
Momentum is Huge
Controls for Everything
But
- Team Development Issues
- Memory limitations
- Debugging Facilities Could be Better

VB was Data Blind..Now it Can See

Issues Involved in Using VB

- API Versus ODBC
- Functionality vs Conformance
- Generic SQL Processor
  - Select Statements
  - All Others
- Select Statement
  - Compile
  - Describe/Set Buffer
  - Execute
  - Fetch
- Return Data in standard format
- Dynamic Result Array

Generic SQL Processor

Advantages

- Error Handling localized
- Timeouts, Deadlocks - Retried
- Portable to any API
- Structured for Clipping into Grid

Disadvantages

- All data returned as Character
- Not Bound to a Control
- Parsing of Data takes cycles
- Some Overhead for singular Results

VB Client/Server Issues

- Volume of Data
  - Strange Results Can Occur
  - Memory Conditions can Hurt
- Data Structures
  - Where to Store Data
  - VB Limitations
  - Limitations of Controls
- Data Types
  - Mapping of Server Data Types
  - Embedded Characters

Development Methodologies

We Didn’t Get Here By Overplanning
Use JAD/RAD Whenever Possible
Inch Pebbles Instead of Milestones
Involves Key Users
Testing is Essential

Application Control

- Multiple Applications Using Similar Services
- Audit and Accountability
  - Who Used an Application
  - When Did They Use It
- Application Management
  - Application Availability
  - Graceful Warning and Shutdown
- Common Logon Service
  - Verify Authorization
  - Generates Audit Trail
  - Polls for Application Status

Application Control

- LogClient Form
  - Embedded into Each Managed Application
  - DDE links to Logon
  - Requests Authorization Info
  - Reacts to Status Changes
- Issues
  - How to Present Warnings
  - How to Gracefully Terminate an Application
- Application Distribution and Maintenance
  - Network launching

Client/Server Issues

Transaction Generation
Finite Lifespan
Burst Mode Approach
Commit/Rollback Frequency
Error Handling
    Avoid MessageBox for User Input

Avoid Holding the Lock(s)
    Can Cause Many Problems

Client/Server Issues

Application Performance
- What Is it
- What Affects It
- How Can Reality be Changed

Prototype SQL Statements

Server Requests Are Not Free
- Cache Results Where Possible
- Only Obtain Required Data

Tune The Environment

Client/Server Issues

- Data Modelling
  - Volume
  - Retrieval Predicates
- Data Integrity
  - Application Enforced
  - Database Enforced
- Multiple Updates of Same Row
  - Live With Exposure
  - Handle With TimeStamp Logic
- Concurrency vs Integrity
  - Commit Frequency
  - Classes of Data

Summary

- VB Good for Client/Server Development
- Application Lifespan has Shrunk
- System Takes on a Life of it's Own in the Real World
- Design Must Encompass the Entire System
- Expectations Can Be Extremely High

Questions