

## DEV-32: Building a resilient Retail System using WebClient, SonicMQ, and ProDataSets

Brian Preece and Romin Sanai



DEV-32: Using the Advanced GUI, Structured Error Handling and SonicMQ® to build a Semi-Disconnected Point of Sale

VISIONARY SOLUTIONS bcp

Brian C. Preece and Romin Sanai  
Business Computer Projects

Exchange 08

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### Who are BCP?

- Major supplier in Europe of Food Wholesale, Retail and Cash and Carry systems
- Users: Spar, NAAFI, Pets at Home, BWG, Musgrave, ADM, Morrisons, BFG etc...
- Area: UK and EU
- 1<sup>st</sup> "Extranet" - Late 1970s Telspar
- 1<sup>st</sup> Scanning in convenience stores in UK
- Early adopter of SonicMQ with our AIMS wholesale/ retail messaging hub
- Continuous innovators

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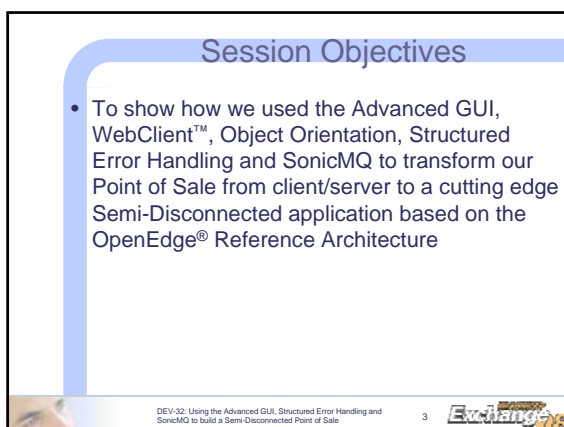
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### Session Objectives

- To show how we used the Advanced GUI, WebClient™, Object Orientation, Structured Error Handling and SonicMQ to transform our Point of Sale from client/server to a cutting edge Semi-Disconnected application based on the OpenEdge® Reference Architecture

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### Agenda

- The Convenience Store challenge: Resilience combined with easy deployment
- A new semi-disconnected Architecture for Retail
- Live Demonstration
- Implementing the semi-disconnected model using the WebClient
- Developing with the new Advanced GUI
- Object Orientation/ Structured Error Handling
- Conclusion

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### The C-Store Challenge

- Many small stores and no IT expertise in the store
- Fixes and new features need to be rolled out as fast as possible
- **But** visiting each store is very expensive
- **MUST BE RESILIENT** - the store must continue to trade as long as one till still works
- Even if:
  - no back office
  - no AppServer™
  - no comms

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### Changes to Business Model

- Independent stores coalescing into chains
- Wholesalers buying retail stores and running as multiple chain
- Hence desire for
  - Centralised control
  - Centralised data management
  - Centralised data analysis

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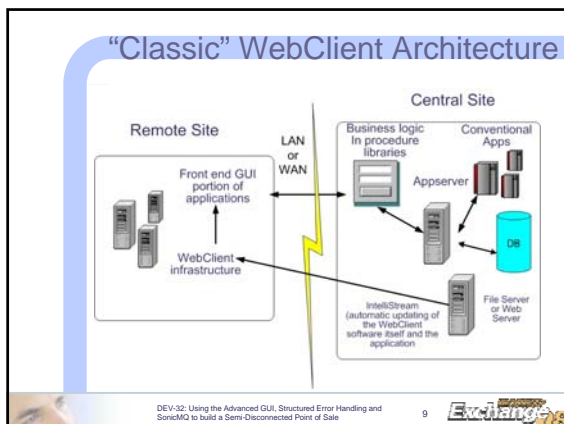
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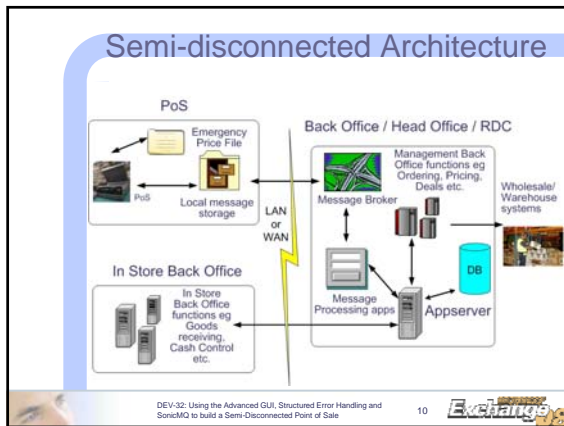
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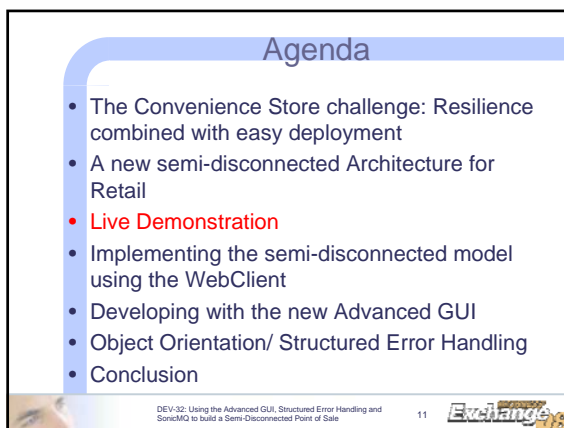
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### Basic WebClient features

- Just an OpenEdge client that can't access a database directly
  - Can use temp-tables and ProDataSets
  - Can use XML
  - Can use SonicMQ integration
  - Can use any standard OpenEdge GUI widget
  - Can interface with .NET™ controls
  - Can use the Advanced GUI
  - Can interface to any peripheral that a normal OpenEdge client can interface to

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### SonicMQ "Client Connect"

- Previously, needed to run SonicMQ Adapter using the OpenEdge Admin Server
- Now the adapter is built into the Progress® client

```
/* Old "brokerConnect" model (i.e. via adapter)*/  
RUN jms/pubsubsession.p PERSISTENT SET  
hSession (" -H localhost -S 5162").  
  
/* Connect via ClientConnect model */  
RUN jms/pubsubsession.p PERSISTENT SET  
hSession (" -SMQConnect ").
```

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### SonicMQ Local Persistence

- New in OpenEdge 10
- Previously, only Sonic™ brokers could persist messages
- Now, can define a local location for persistence
- If the client cannot contact the broker or loses contact while working, messages are stored locally until connection is re-made
- Cannot receive messages when enabled

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### Setting up local persistence

```
RUN setLocalStoreDirectory in  
hSession("c:\sonic\mq6.1\local").  
RUN setLocalStoreSize in hSession(5000).  
RUN setReconnectTimeout in hSession(600).  
RUN setReconnectInterval in hSession(10).  
RUN setClientPersistence in  
hSession(TRUE).
```

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### Converting ProDataSets to XML

- Declare a longchar variable  
`DEFINE VARIABLE lcXML AS LONGCHAR NO-UNDO.`
- Fill the ProDataSet™  
`RUN PDSFill IN hProcHandle(1, OUTPUT DATASET dProducts).`
- Convert to XML  
`lOK = hDS:WRITE-XML("LONGCHAR", lcXML, TRUE, ?, ?,  
?, ?).`



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### Converting ProDataSets

- Can convert to mem-pointer, file, stream etc.
- Also works for temp tables
- Reading ProDataSets and Temp-Tables is just as easy
- Very fast – 12MB in 15 seconds!
- Also new Sonic message types for temp-tables and ProDataSets
- Transferred as XML so that non-Progress JMS clients can send and receive them

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### Code View



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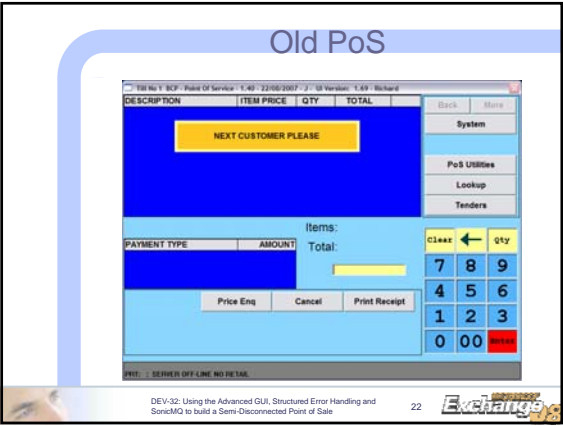
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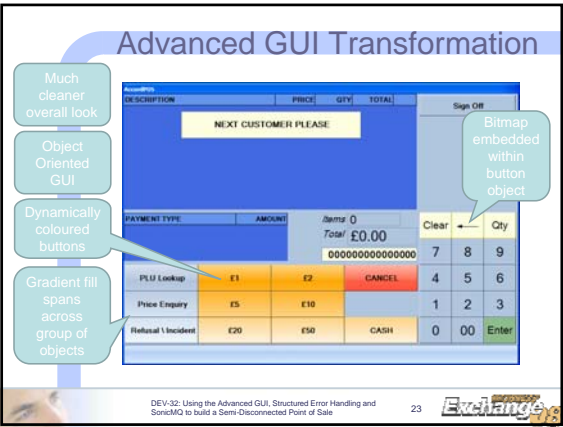
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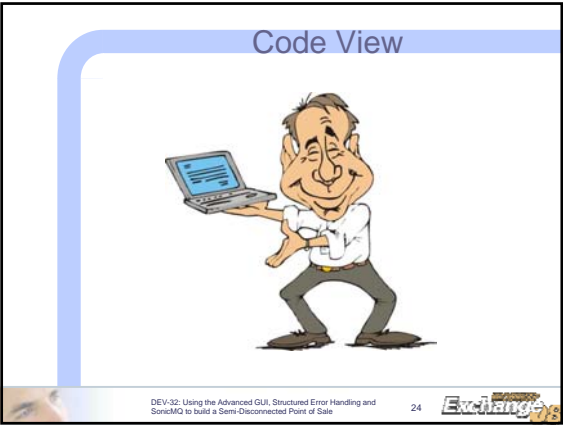
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### Object Orientation benefits

- “Early binding”
- Enforces modular design concepts
- Encourages reusable code
- Easier to maintain code
- Encourages consistent functional interfaces
- Extensibility of classes
- Better “unit” testing
- Fits the way the real world works
- Natural architecture of .NET!

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### Structured Error Handling

- Removes error handling from main line code
- Collects error handling into discrete places
- Extensibility allows for user defined error types
- Hierarchical error handling

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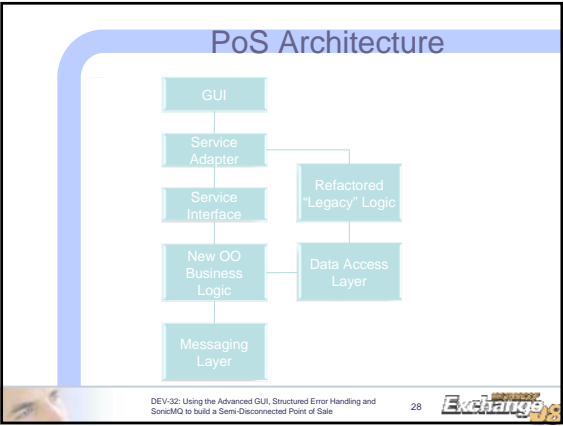
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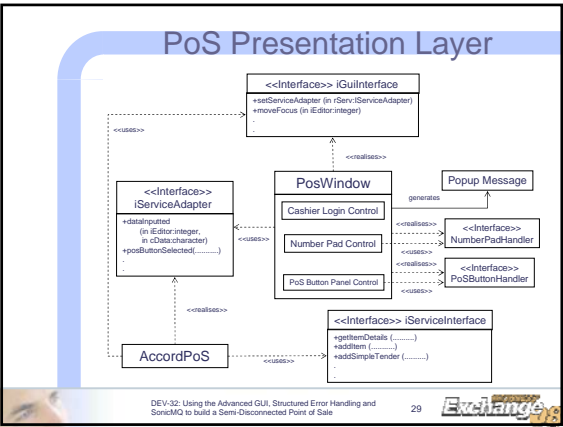
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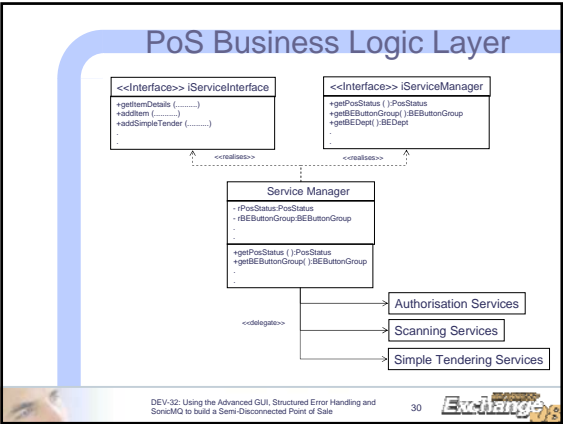
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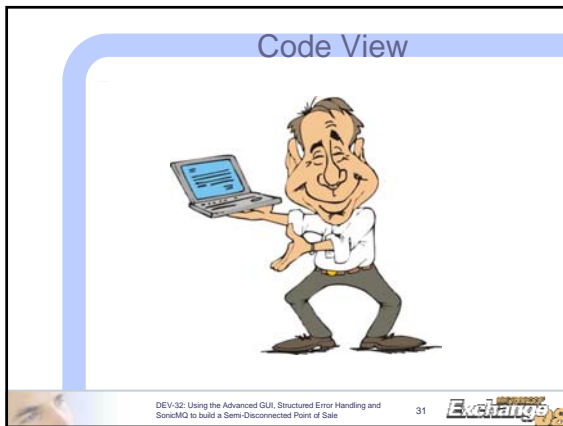
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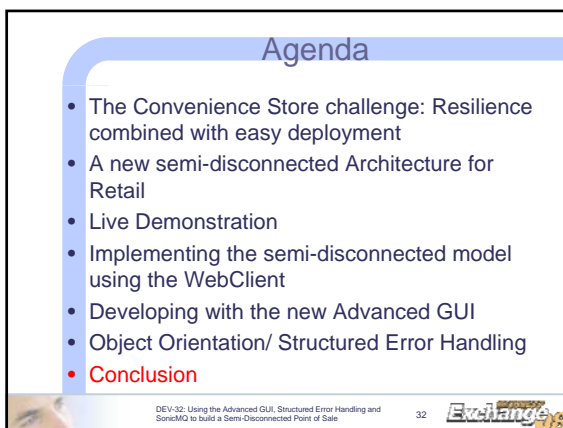
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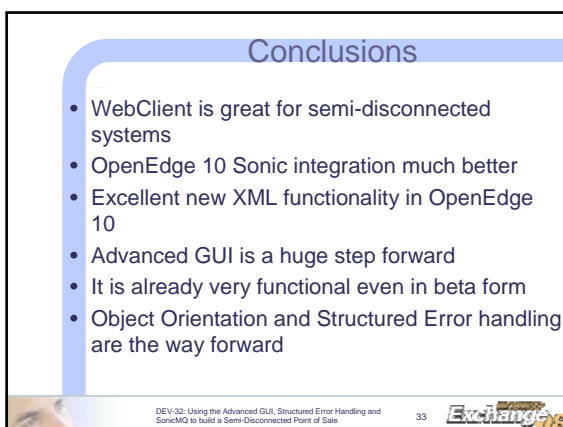
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### Useful Complementary Sessions

- DEV-6: Introduction to the OpenEdge Advanced GUI
- DEV-8: Structured Error Handling in the ABL
- DEV-16: Leveraging the Power of Advanced GUI
- DEV- 22: Catch Me If You Can - Practical Structured Error Handling
- DEV-29: A Deep Dive into Developing with the Advanced GUI

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### Questions



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### Thank you for your time!

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[www.bcpsoftware.com](http://www.bcpsoftware.com)

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