

# Modernization via Augmentation

Improve, don't replace

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Who do we think we are?

- Roundtable TSMS
  - Software Configuration Management for OpenEdge
- Roundtable Team
  - Basic version control built for Eclipse
- Roundtable Automation
  - CI/CD and DevOps enablement



# Modernization



What do these have in common?





Task: 0 <None> Views: Module

- Workspaces
  - Jira-Client
  - Jira-Server
  - QADevel
    - adm2
    - gzip
    - pureabltv
    - rtb
    - rtb-adm2
    - rtb-client
      - client-adecomm
      - client-adeweb
      - client-base
        - GUI
        - Include
        - Lib
        - Procedures
        - Reports
        - Schema
        - SmartBrowse
        - SmartField
        - SmartFrame
        - SmartObject
        - SmartViewer
        - Tools
      - client-images
      - client-jira
      - client-root
      - client-util
    - rtb-common
    - rtb-server
  - Schema
  - Srv11.8
  - Srv11.8-Unix
  - Srv12
  - Srv12-Unix
  - Team-1.x
  - unixdevel
  - UsersGuide
  - Win11.7

Group	Object	Type	Product Module	Version	Status	Share	
GUI	rtb_about.w	PCODE	client-base	040000	C	Central	'About Roundtable' dialog
GUI	rtb_alparts.w	PCODE	client-base	010500	C	Central	Alias Object Parts Dialog
GUI	rtb_asdbwam.w	PCODE	client-base	010300	C	Central	PDBASE Assignment Warning dialog
GUI	rtb_assigndbfile.w	PCODE	client-base	010600	C	Central	Assign PFIELD object to a db
GUI	rtb_assignfield.w	PCODE	client-base	010900	C	Central	Assign a PFIELD object to a table
GUI	rtb_assignobj.w	PCODE	client-base	060000	C	Central	Object Assignment Window
GUI	rtb_assignschema.w	PCODE	client-base	020200	C	Central	Assign Schema Window
GUI	rtb_aswsupld.w	PCODE	client-base	050200	C	Central	AppServer/WebSpeed Upload window
GUI	rtb_backup.w	PCODE	client-base	010100	C	Central	Backup Browser
GUI	rtb_bldnames.w	PCODE	client-base	010200	C	Central	Build Names Table dialog
GUI	rtb_changesubtype.w	PCODE	client-base	010300	C	Central	Change Object Subtype Dialog
GUI	rtb_chkinobj.w	PCODE	client-base	040200	C	Central	Object check-in dialog
GUI	rtb_chkoutobj.w	PCODE	client-base	050100	C	Central	Object Check-out Dialog
GUI	rtb_compile.w	PCODE	client-base	040000	C	Central	Compile window
GUI	rtb_custvar.w	PCODE	client-base	040101	C	Central	Custom variant dialog
GUI	rtb_dbalias.w	PCODE	client-base	010700	C	Central	Database aliases maintenance dialog
GUI	rtb_dbbase.w	PCODE	client-base	020000	C	Central	Database Features dialog
GUI	rtb_dbparam.w	PCODE	client-base	010000	C	Central	Dbase Properties SmartDialog
GUI	rtb_dbparamserver.w	PCODE	client-base	010100	C	Central	Server DB Parameters Dialog
GUI	rtb_delobj.w	PCODE	client-base	080000	C	Central	Delete object dialog
GUI	rtb_delws.w	PCODE	client-base	010400	C	Central	Delete a workspace
GUI	rtb_deploy.w	PCODE	client-base	020300	C	Central	Workspace Deployments Window
GUI	rtb_desk.w	PCODE	client-base	153000	C	Central	Roundtable Tabletop
GUI	rtb_diff.w	PCODE	client-base	050100	C	Central	Visual Difference Selection
GUI	rtb_eventlkup.w	PCODE	client-base	010200	C	Central	Event Lookup by Event or Release
GUI	rtb_file.w	PCODE	client-base	010000	C	Central	Table Properties SmartDialog
GUI	rtb_fileopen.w	PCODE	client-base	010502	C	Central	File Open instructions/buttons
GUI	rtb_filtreg.w	PCODE	client-base	010300	C	Central	Table triggers dialog
GUI	rtb_findobj.w	PCODE	client-base	010800	C	Central	Find object dialog
GUI	rtb_fllddef.w	PCODE	client-base	010000	C	Central	Field Properties SmartDialog
GUI	rtb_gets.w	PCODE	client-base	010800	C	Central	String prompt dialog
GUI	rtb_groups.w	PCODE	client-base	030000	C	Central	Security Groups Maintenance
GUI	rtb_grpchkout.w	PCODE	client-base	030300	C	Central	Group Check-out Window
GUI	rtb_grpdelete.w	PCODE	client-base	030200	C	Central	Multiple Object Deletion
GUI	rtb_hist.w	PCODE	client-base	030300	C	Central	Workspace History Window
GUI	rtb_impfilter.w	PCODE	client-base	010000	C	Central	Import filter selection dialog
GUI	rtb_impnotes.w	PCODE	client-base	010400	C	Central	Import version notes window
GUI	rtb_import.w	PCODE	client-base	050100	C	Central	Workspace Import Window



- 'About Roundtable' dialog
- Alias Object Parts Dialog
- PDBASE Assignment Warning dialog
- Assign PFIELD object to a db
- Assign a PFIELD object to a table
- Object Assignment Window
- Assign Schema Window
- AppServer/WebSpeed Upload window
- Backup Browser
- Build Names Table dialog
- Change Object Subtype Dialog
- Object check-in dialog
- Object Check-out Dialog
- Compile window
- Custom variant dialog
- Database aliases maintenance dialog
- Database Features dialog
- Dbase Properties SmartDialog
- Server DB Parameters Dialog
- Delete object dialog
- Delete a workspace
- Workspace Deployments Window
- Roundtable Tabletop
- Visual Difference Selection
- Event Lookup by Event or Release
- Table Properties SmartDialog
- File Open instructions/buttons
- Table triggers dialog
- Find object dialog
- Field Properties SmartDialog
- String prompt dialog
- Security Groups Maintenance
- Group Check-out Window
- Multiple Object Deletion
- Workspace History Window
- Import filter selection dialog
- Import version notes window
- Workspace Import Window

Workspace: QADevel

Task: 0

User: jeff



# Java

The screenshot shows the Progress Developer Studio IDE interface with the following components:

- Project Browser (Left):** Displays the project structure for 'rtbapp - OADevel', including sub-projects like 'rtb-server' and 'rtb-client'.
- Code Editor (Center):** Shows the source code for 'IssueQuery (01.00.00).cls'. The code defines variables for field lists, constructs a complex SQL query string 'cJql', and implements a 'fetchIssues' method that uses 'ttIssue' to retrieve data. It uses 'AS' for variable declarations and 'JSON\_OBJECT' for creating JSON objects.
- Outline (Top Right):** Lists project elements such as 'USING Decla', 'Includes', 'Properties', 'TempTables', and 'Methods'.
- Properties (Middle Right):** A table showing configuration properties. The visible portion is as follows:

Property	Value
Config	
Binary	No
Compile Parameters	No
Compiles	Yes
Deploy	Yes
Encrypt Devel	No
Encrypt Query	No
Encrypt Runtime	No
Encrypt Source	No
Object Copy	No
Override	No
Runnable	No
Save r-code	Yes
WRX Name	
WRX Path	
Object	
Description	

- RTB Tasks (Bottom Left):** Lists current tasks such as '4477 - Tabletop - Expand Formatting' and '4474 - Utilities - Jira Integration Components'.
- RTB Compile Results (Bottom Middle):** A table with columns 'Object', 'Line', 'Compiled On', and 'Result'.
- RTB XRef (Bottom Right):** Shows a cross-reference list for 'IssueQuery.cls (01.00.00) (OADevel)', including 'CLASS', 'CONSTRUCTOR', 'DATA-MEMBER', 'INCLD', 'METHOD', 'PROPERTY', 'SUBCLASS', and 'XCLASS'.





Web

### Versions

▼ 8 Versions

**rtb\_u\_obj.w**

Objects update SDO  
server-base

**07.01.00 - Complete**

Modify 'rtb\_get\_changed\_objects' for Product Module support.

**rtb\_ttchangefinder.i**

Change Finder Temp-Table Deinition  
server-base

**01.00.00 - Complete**

Created.

**rtb\_s\_obj.p**

Objects super procedure  
server-base

**12.04.00 - Complete**

- \* Add rtb\_ttchangefinder include reference.
- \* Add private procedure 'get\_changed\_objects'.
- \* Rewrite 'rtb\_get\_changed\_objects'.
- \* Rewrite 'rtb\_remove\_delete\_objects' to use static temp-table.

**rtb\_obj.i**

Common functions for rtb\_object SDOs  
server-base

**02.09.00 - Complete**

- \* Add 'fnRtbSelectWorkspacePmodGroupType' and 'fnRtbSelectWorkspacePmodTyne' for

**rtb\_grpchkout.w**

Group Check-out Window  
client-base

**03.02.00 - Complete**

Resize and clean up a bit.

**rtb\_fr\_grpchk2.w**

Group checkout options  
client-base

**02.03.00 - Complete**

Resize and clean up a bit.



# Future-proof?





# Newer is not Always Better

- Focus on business needs - not perception
- Review existing software and processes
- Consider total cost of ownership



# Modernization Choices

- Rewrite
  - Migrate the coding to a more recent development language or framework
- Replace
  - Throw away the old system, replacing it with a new one
- Reuse\*
  - Find a way to leverage the legacy system to satisfy new requirements



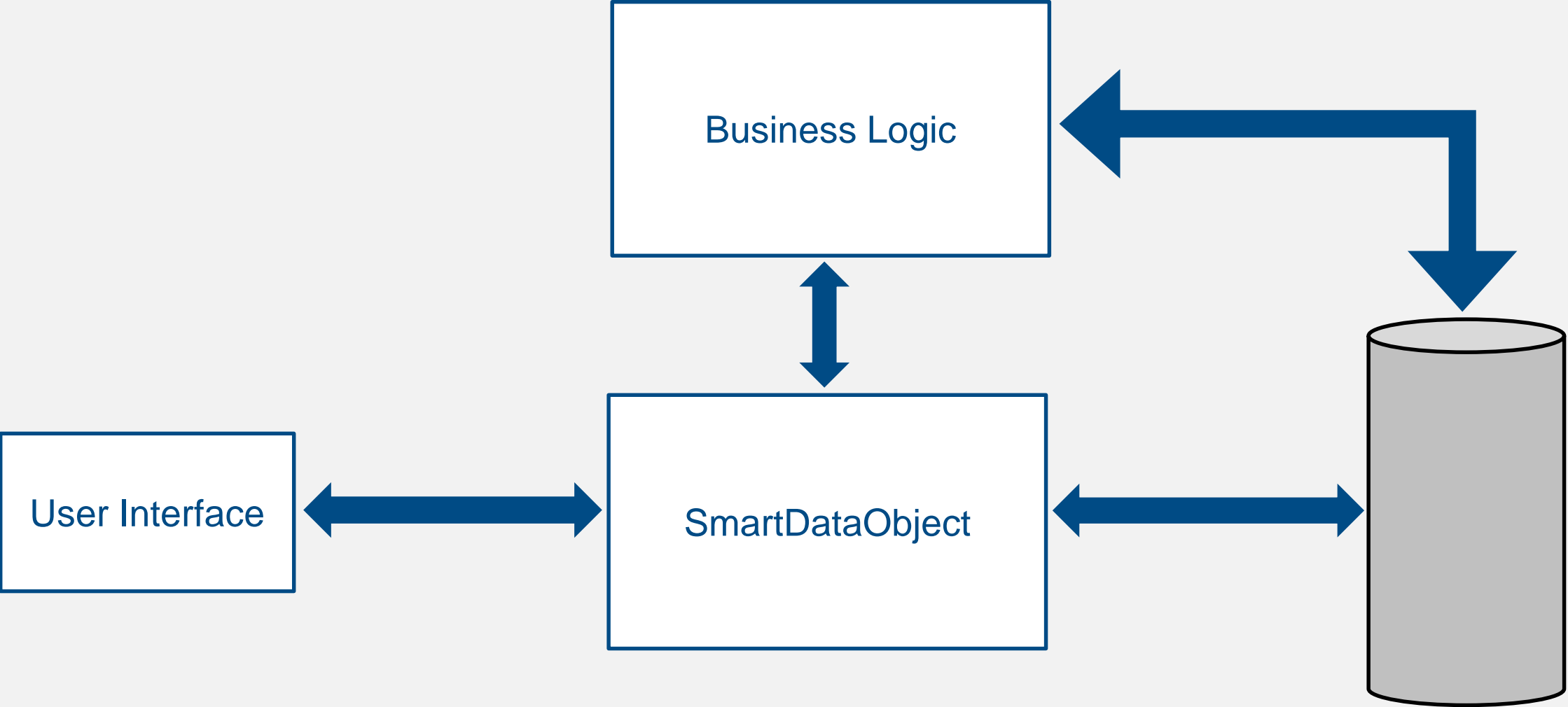
# **augment**

*intransitive verb*

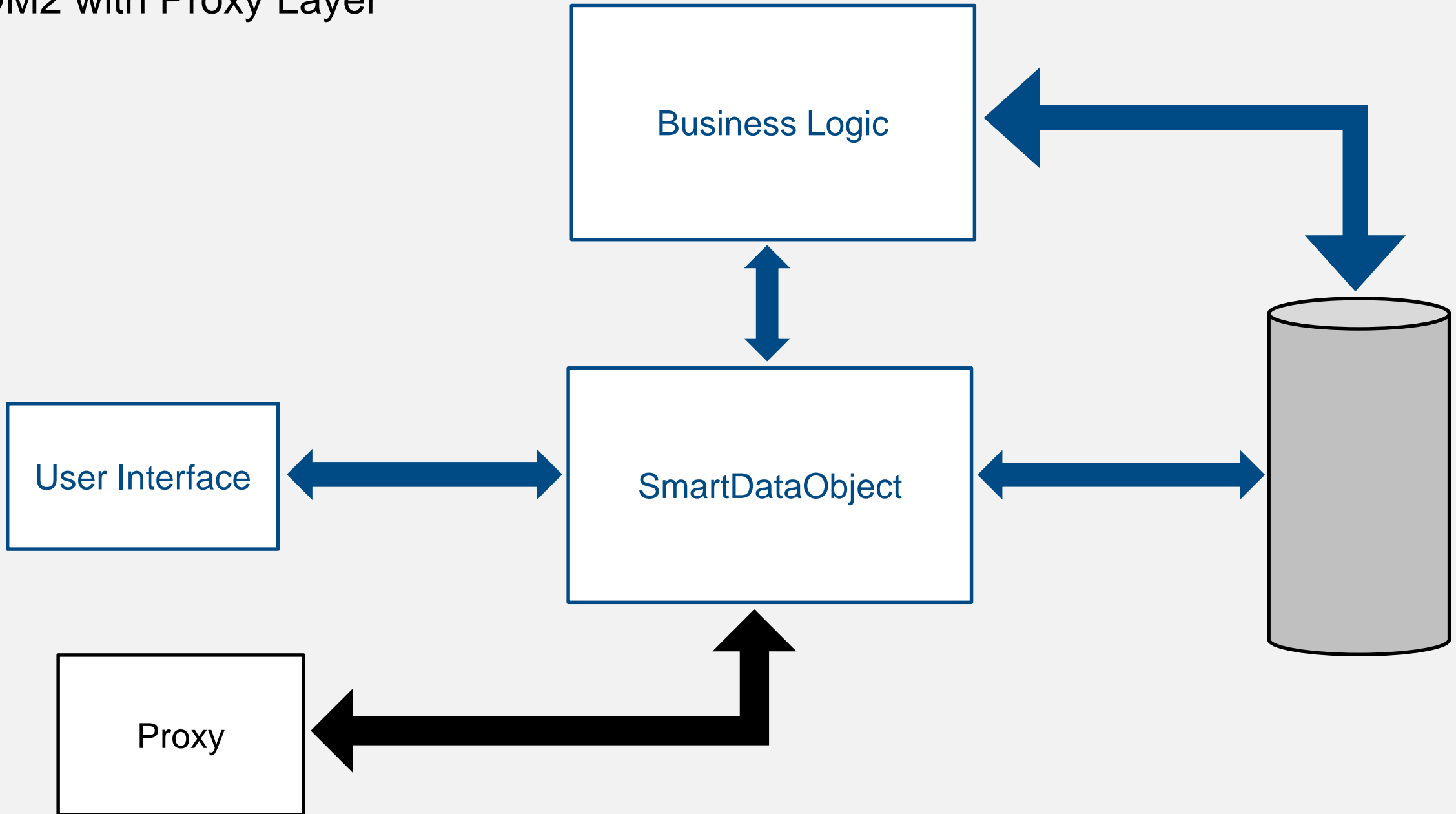
To make (something already developed or well under way) greater



# ADM2 Communication



# ADM2 with Proxy Layer



# Build It

- Define your model
- Build integration points
- Build proxy layer
- Expand



# Build It

- Define your model
  - RowObject temp-table

```
DEFINE TEMP-TABLE ttCustomer  
  {pug/sdoCustomer.i}  
  {src/adm2/robjflds.i}.
```



# Build It

- Identify integration points
  - serverSendRows
  - serverCommit





# Build it

- Identify integration points
  - serverSendRows

```
RUN serverSendRows IN phSdo  
  (INPUT ?,  
   INPUT pcRowIdent,  
   INPUT (IF pcRowIdent <> "FIRST":U AND pcRowIdent <> "LAST":U THEN  
         TRUE  
         ELSE  
         FALSE),  
   INPUT piRowsToReturn,  
   OUTPUT iRowsRet,  
   OUTPUT TABLE-HANDLE phTT).
```

# Build it

- Identify integration points
  - serverCommit

```
RUN serverCommit IN hSdo  
  (INPUT-OUTPUT TABLE-HANDLE hRowObjUpd,  
   OUTPUT cMessages,  
   OUTPUT cUndoIds).
```

# Build It

- Build proxy layer
  - Generic proxy to fetch data
  - Generic proxy to update data



```
/* getRowObject.p */
```

```
DEFINE INPUT-OUTPUT PARAMETER pcRowIdent AS CHARACTER NO-UNDO.  
DEFINE INPUT PARAMETER piRowsToReturn AS INTEGER NO-UNDO.  
DEFINE INPUT PARAMETER phSdo AS HANDLE NO-UNDO.  
DEFINE INPUT PARAMETER phTT AS HANDLE NO-UNDO.  
  
DEFINE VARIABLE hRowObj AS HANDLE NO-UNDO. /* RowObject temp table */  
DEFINE VARIABLE hRowObjQry AS HANDLE NO-UNDO. /* RowObject temp table query */  
DEFINE VARIABLE iRowsRet AS INTEGER NO-UNDO.
```

```
RUN serverSendRows IN phSdo
```

```
(INPUT ?, /* ? = use the 2nd parameter as starting point */
```

```
INPUT pcRowIdent,
```

```
INPUT (IF pcRowIdent <> "FIRST":U AND pcRowIdent <> "LAST":U THEN
```

```
TRUE
```

```
ELSE
```

```
FALSE),
```

```
INPUT piRowsToReturn,
```

```
OUTPUT iRowsRet,
```

```
OUTPUT TABLE-HANDLE phTT).
```

```
IF piRowsToReturn GT 0 THEN DO:
```

```
IF iRowsRet LT piRowsToReturn THEN
```

```
pcRowIdent = "".
```

```
ELSE DO:
```

```
phTT:DEFAULT-BUFFER-HANDLE:FIND-LAST().
```

```
pcRowIdent = phTT:DEFAULT-BUFFER-HANDLE:BUFFER-FIELD("rowIdent"):BUFFER-VALUE.
```

```
END.
```

```
END.
```

```
ELSE
```

```
pcRowIdent = "".
```

```
RETURN.
```

```
/* setRowObject.p */
```

```
DEFINE INPUT PARAMETER pcSdo AS CHARACTER NO-UNDO.  
DEFINE INPUT PARAMETER phTT AS HANDLE NO-UNDO.
```

```
FUNCTION getRowMod RETURNS CHARACTER PRIVATE ( ) FORWARD.
```

```
DEFINE VARIABLE cMessages AS CHARACTER NO-UNDO.  
DEFINE VARIABLE cUndoIds AS CHARACTER NO-UNDO.  
DEFINE VARIABLE hSdo AS HANDLE NO-UNDO.  
DEFINE VARIABLE hRowObjUpd AS HANDLE NO-UNDO.  
DEFINE VARIABLE lSuccess AS LOGICAL NO-UNDO INITIAL TRUE.  
DEFINE VARIABLE lAdd AS LOGICAL NO-UNDO INITIAL NO.
```

```
$UPDATE-ROW:  
DO ON ERROR UNDO, LEAVE:
```

```
RUN create_update_record.
```

```
RUN VALUE(pcSdo) PERSISTENT SET hSdo.
```

```
RUN serverCommit IN hSdo(INPUT-OUTPUT TABLE-HANDLE hRowObjUpd, OUTPUT cMessages, OUTPUT cUndoIds).
```

```
IF cMessages <> "" THEN  
LEAVE $UPDATE-ROW.
```

```
IF getRowMod() = "A":U THEN  
RUN update_rowident.
```

```
END. /* $UPDATE-ROW */
```

# Build It

- Build proxy layer
  - Build wrapper procedures for business logic data models



```
/* GetCustomer.p - Fetch the Customer by name. */
```

```
DEFINE INPUT PARAMETER pcName AS CHARACTER NO-UNDO.  
DEFINE OUTPUT PARAMETER TABLE-HANDLE phTT.
```

```
DEFINE VARIABLE cRowIdent AS CHARACTER NO-UNDO INITIAL "FIRST".  
DEFINE VARIABLE hSdo AS HANDLE NO-UNDO.
```

```
DEFINE TEMP-TABLE ttCustomer  
{pug/sdoCustomer.i}  
{src/adm2/robjflds.i}.
```

```
phTT = TEMP-TABLE ttCustomer:HANDLE.
```

```
IF pcName = "" THEN DO: /* If no name is given, return an empty record. */  
  CREATE ttCustomer.  
  RETURN.  
END.
```

```
RUN pug/sdoCustomer.w PERSISTENT SET hSdo. /* Start SDO */
```

```
DYNAMIC-FUNCTION('selectName':U IN hSdo, pcName). /* Set Query */
```

```
RUN pug/getRowObject.p (INPUT-OUTPUT cRowIdent, 0, hSdo, phTT). /* Fetch data into our temp-table */
```

```
RETURN.
```

```
FINALLY:  
  RUN destroyObject IN hSdo NO-ERROR.  
  DELETE OBJECT phTT NO-ERROR.  
END FINALLY.
```

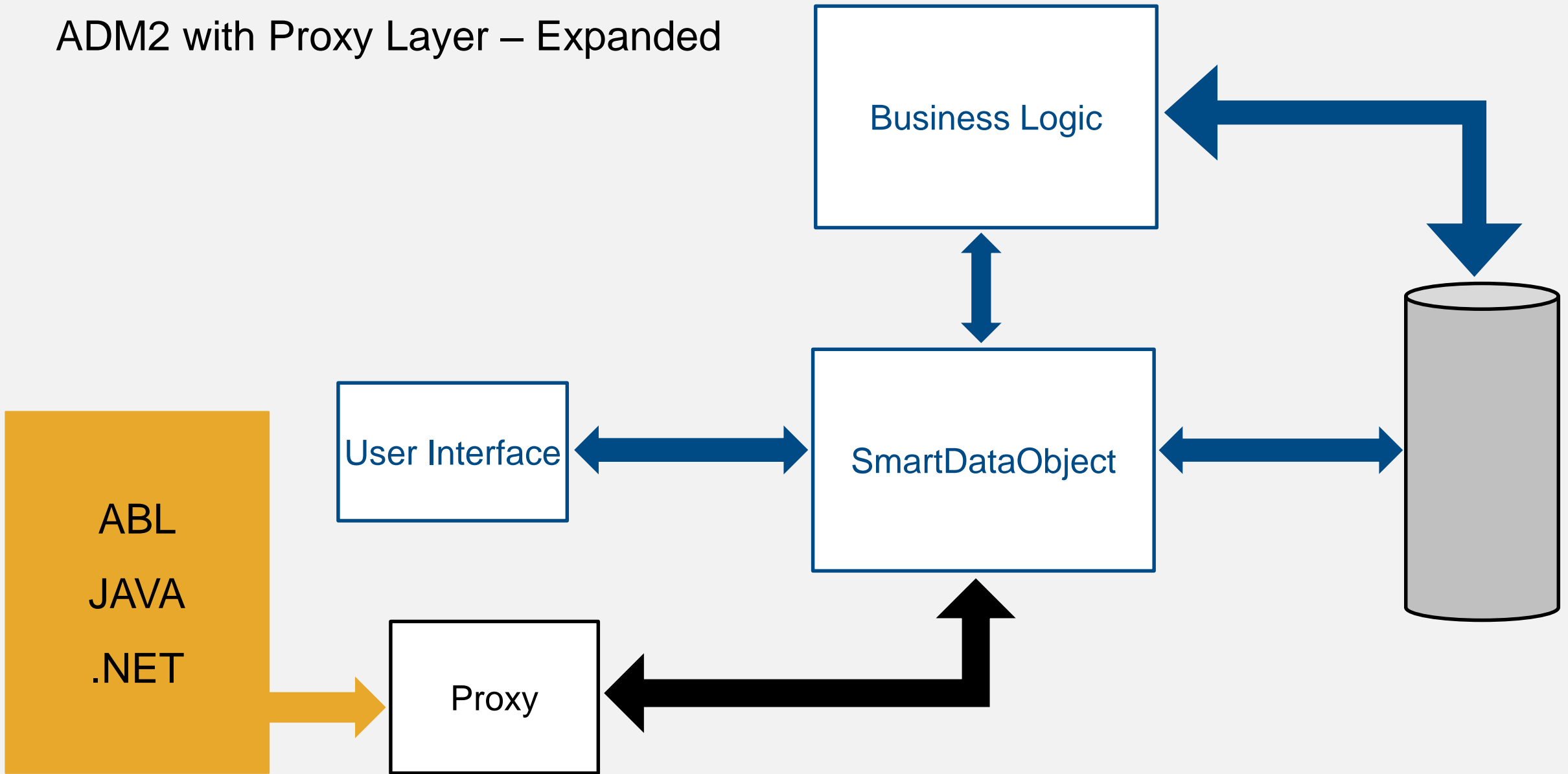
# Build It

- Expand
  - ABL Clients
  - OOABL Wrappers
- Open Client with ProxyGen
  - Java
  - .Net





# ADM2 with Proxy Layer – Expanded



```
/* GetCustomerSample.p */
```

```
DEFINE TEMP-TABLE ttCustomer  
  {pug/sdoCustomer.i}  
  {src/adm2/robjflds.i}.
```

```
RUN pug/GetCustomer.p ("Roundtable Software", OUTPUT TABLE ttCustomer).
```

```
FIND FIRST ttCustomer.
```

```
DISPLAY
```

```
  ttCustomer.Name      FORMAT "x(50)" LABEL "Customer" SKIP  
  ttCustomer:State    LABEL "State"     SKIP  
  ttCustomer:SalesRep FORMAT "x(50)" LABEL "Sales Rep"  
  WITH FRAME A SIDE-LABELS TITLE "Customer Rep".
```

```
RETURN.
```

```
/* DeleteCustomerSample.p */
```

```
DEFINE VARIABLE cError AS CHARACTER NO-UNDO.
```

```
DEFINE TEMP-TABLE ttCustomer
```

```
{pug/sdoCustomer.i}
```

```
{src/adm2/robjflds.i}.
```

```
RUN pug/GetCustomer.p ("Roundtable Software", OUTPUT TABLE ttCustomer).
```

```
FIND FIRST ttCustomer.
```

```
ttCustomer.RowMod = "D".
```

```
RUN pug/SetCustomer.p (INPUT-OUTPUT TABLE ttCustomer, OUTPUT cError).
```

```
IF cError <> "" THEN
```

```
    MESSAGE cError VIEW-AS ALERT-BOX ERROR.
```

```
/* Using ABL Class Wrapper */
```

```
ROUTINE-LEVEL ON ERROR UNDO, THROW.
```

```
USING Progress.Lang.*.
```

```
USING pug.*.
```

```
DEFINE VARIABLE customer AS CLASS Customer NO-UNDO.
```

```
customer = NEW Customer("Roundtable Software").
```

```
DISPLAY
```

```
customer:Name      FORMAT "x(50)" LABEL "Customer" SKIP
```

```
customer:State     LABEL "State"      SKIP
```

```
customer:SalesRep  FORMAT "x(50)" LABEL "Sales Rep"
```

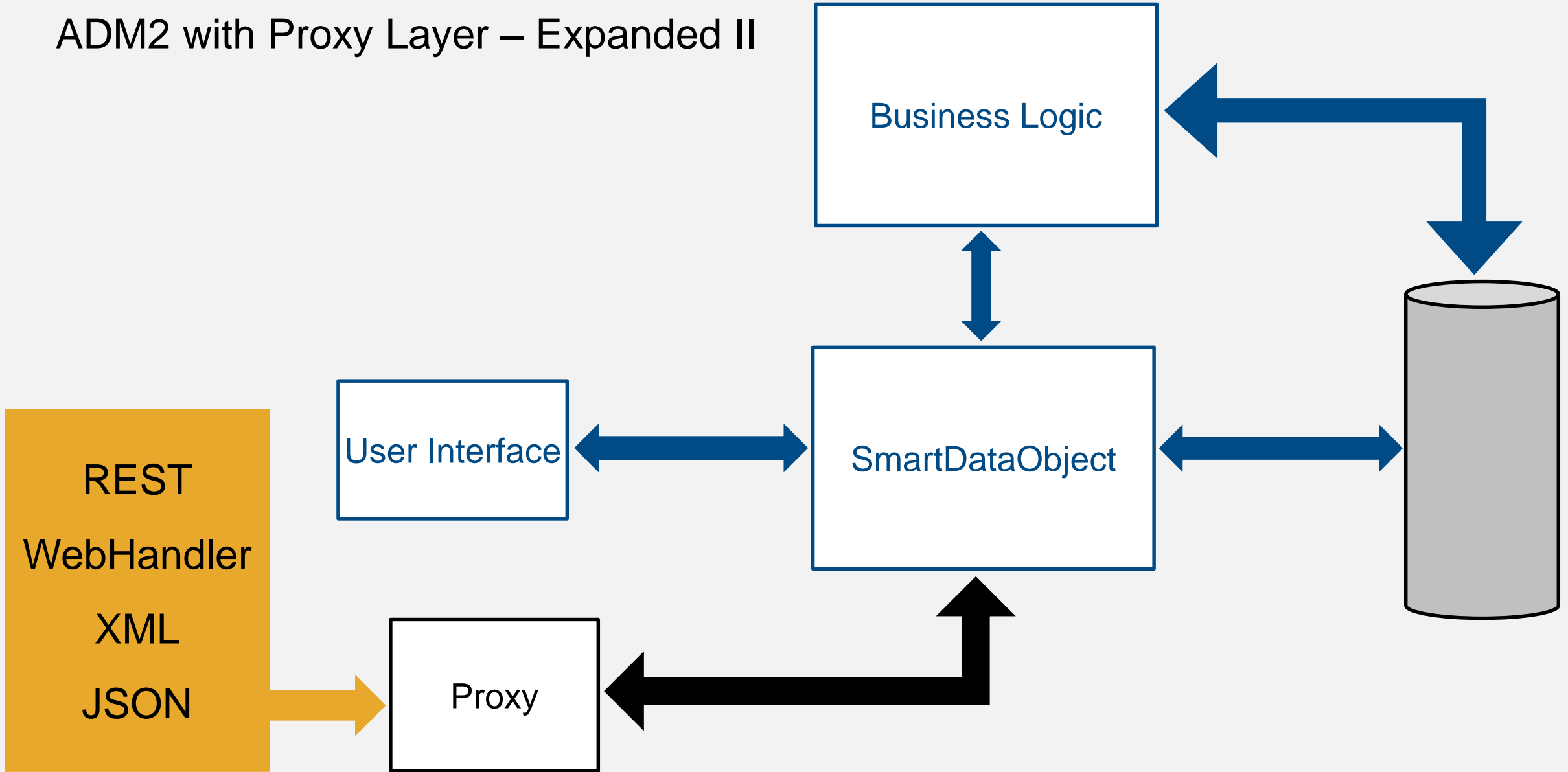
```
WITH FRAME A SIDE-LABELS TITLE "Customer Rep".
```

```
FINALLY:
```

```
DELETE OBJECT customer NO-ERROR.
```

```
END FINALLY.
```

# ADM2 with Proxy Layer – Expanded II



# Expand II

- REST Service
- WebHandler
- Transform data as required



<https://app.sports9000.com/customer/123>

```
/* Web Handler */
```

```
METHOD OVERRIDE PROTECTED INTEGER HandleGet (poRequest AS OpenEdge.Web.IWebRequest):
```

```
...
```

```
ASSIGN
```

```
oResponse          = NEW OpenEdge.Web.WebResponse()
```

```
oMsgBody           = NEW JsonObject()
```

```
oRecord            = NEW JsonObject()
```

```
oResponse:Entity = oMsgBody.
```

```
cCustomer = poRequest:GetPathParameter("customer-id").
```

```
RUN pug/GetCustomer.p (cCustomer, OUTPUT TABLE-HANDLE hTT).
```

```
hTT:WRITE-JSON("JsonObject", oRecord, TRUE).
```

```
oMsgBody:Add('data', oRecord).
```

```
oWriter = NEW WebResponseWriter(oResponse).
```

```
...
```

```
END METHOD.
```



## Sample Code

```
ftp://ftp.roundtable-software.com/public
```



# Questions?



**PUGCHALLENGE** ▶  
AMERICAS