



# Distributing software in a low bandwidth environment

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# Introduction

Simon Prinsloo

Vidisolve in Pretoria

Working with Progress since v.7 in 1996

Worked on various commercial systems

Mostly focused on CASE tools and implementing new functionality in legacy projects



# Agenda

Background

The Problem

Strategy

Solution

Result

Questions



# The company

- South African company
- Automotive industry
- V3X has two versions – TTY & GUI
  - Stable and mostly mature
- Evolve - Newer GUI system
  - Intended to replace V3X
  - Constantly changing
- Some sites in the rest of Africa



# The software - Evolve

- Multi-tier system
- Proprietary framework
  - Only r-code
- Difficult to maintain
- Many functions performs badly
- OpenEdge 10.2B



# The project objectives

- Modernise Evolve
- Eliminate proprietary framework
- Update technology stack
- Make Evolve OERA compliant
- Incremental change – Start at pain points
- No retraining of users



# The environment

- Data centre customers
  - 37 active sites
  - More than 850 users
  - One machine
  - Single set of r-code
- In-house customers
  - 8 Sites
  - More than 750 users



# The environment

- End-user sites serviced by data centre
  - As small as 5 users
  - As large as 100+ users
  - Mostly 15 to 30 users
- End-user bandwidth
  - Few has fibre
  - Most use ADSL
  - Most has 4 Mbps downstream and 1 Mbps up





# The environment

- End-user machines
  - Generally low specs
  - Many still run Windows XP
  - Some are on Windows Server 2003/2008
  - The rest are on Windows Vista, 7, 8 or 8.1
- On some sites, users have no Admin Access



# The environment

- Two large in-house customers
  - Close to 300 users each
  - Geographically distributed



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# The problem

- Install Web-client 11.5 – 45MB
- Install Evolve 2.0 – 130MB
- .Net 4.0 and XP sp 3 are minimum requirements
- Data centre – All or nothing
  - More than 850 users hits the server at start of business
  - All vehicles to be services are checked in early morning
  - 6:30am-8:00am has extreme volumes of real time activity



# The problem

- Traditional Web-Client rollout from the datacentre
  - Each user will need to download 175 MB
  - We may need to push more than 145 GB at once
    - End-user infrastructure can't handle the load
    - Our infrastructure would most likely not cope with the load
    - All of this happens at the most critical time of the business day
- No site visits will be possible



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# Strategy

- Well in advance of go-live
  - Ensure that .Net 4.0 is installed
  - Install WebClient 11.5
  - Install a fairly mature version of Evolve 2.0
  - Use temporary Evolve 2.0 start up routine
    - Inform the user to use Evolve 1.0
    - Terminate the session
  - Ship once CD with this to each site



# Strategy

- On go-live
  - Replace Evolve 1.0 start up routine
    - Informs the user to use Evolve 2.0 icon
    - Terminate the session
  - Apply small incremental update to Evolve 2.0
    - The permanent start up routine
    - Development of the last few weeks





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# The Background Downloader

## Short term requirements

- Pre-download and install large packages to customer's PC well in advance of the time the package will be required.
- The ability to trigger an event or action on the client PC, like starting an installer and sending parameters to it.
- Controlled by a Json file on the AppServer – Located in the customer's private directory (First in PROPATH).
- Logging and reporting of actions and progress.



# The Background Downloader

## Additional long term requirements

- A System Tray based service that can manage the work independent of the OpenEdge application.
- Resolve privacy issues involved in using Belarc Advisor or similar software, so that we can properly catalog what is out there.



# What needed to be done?

- On Windows XP
  - Check that service pack 3 is installed
  - Install BITS
- Ensure that .Net 4.0 is installed
- Download WebClient 11.5.1 installer
- Install WebClient 11.5.1
- Download Evolve 2.0
- Install Evolve 2.0
- Report on progress and errors

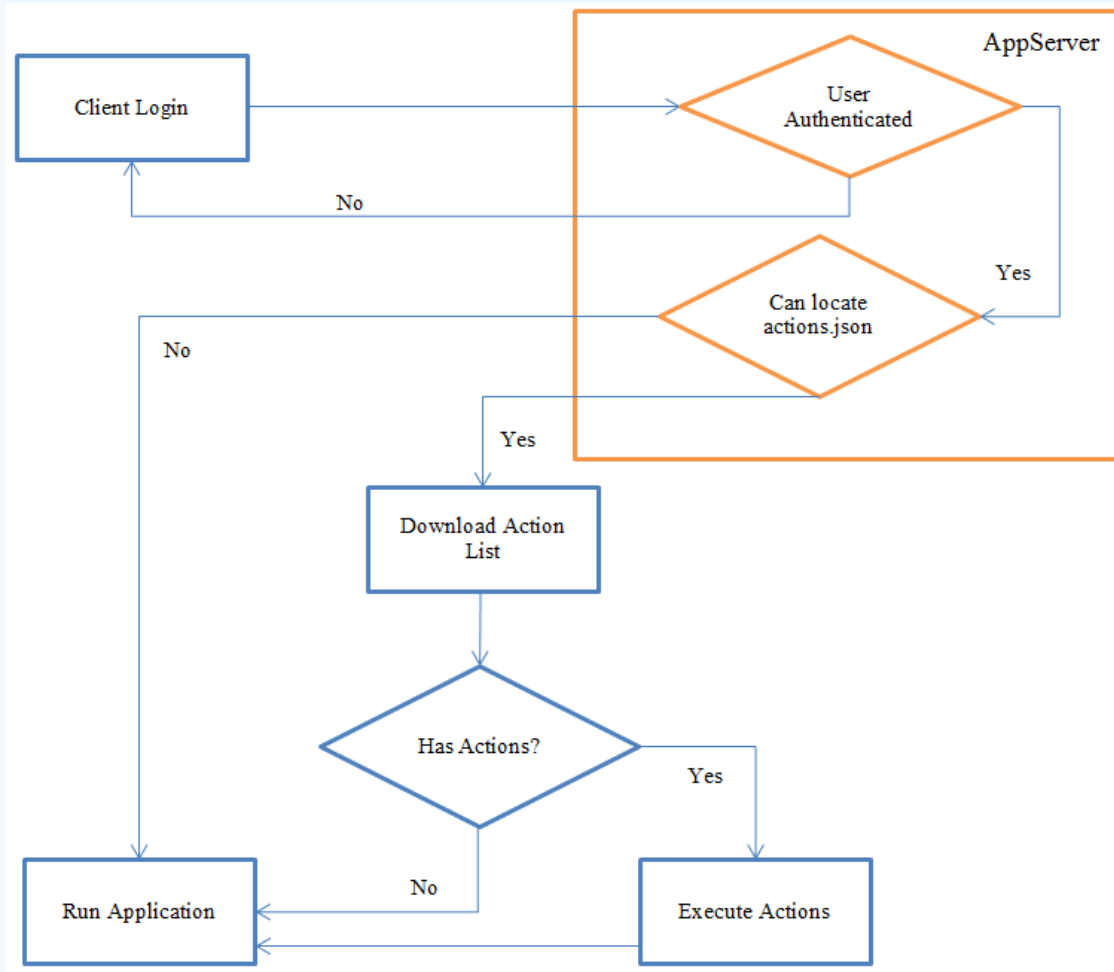


# Implementation

- More than just a downloader
- Read a list of commands from the AppServer
- Execute the commands based on parameters
- Potentially interact with the user
- Cater for differences in operating systems
- Report progress to the AppServer



# The process



# Actions catered for

- Download (file from AppServer)
- Upload (file to AppServer)
- Merge (replace placeholders in a file with data)
- RunProgram (OpenEdge program)
- OSExecute (an OS batch file or exe)
- RegistrySetting (set a registry key)
- ConfirmUNCPath (check if user has access)
- ConfirmURLPath (check if user has access)
- CheckRegistryExists



# Preparation

- Find an XP Compatible version of bitsadmin.exe
- Create BITS Admin scripts
- Create other batch files
- Setup tasks and write it to a Json file
- Copy the task file into AppServer Propath
- Release the “downloader”





# Example 1

```
{
  "SequenceNumber": 4,
  "ActionName": "RS_PreRelease_Task04",
  "ActionType": "OSExecute",
  "ParameterData": {"OSCommand": [{"CommandToExecute": "RSDownloadScriptClient.cmd",
    "CommandLineParameters": "",
    "RunSilent": true,
    "WaitForCompletion": false,
    "RunAsAdministrator": false
  }]},
  "ParentTaskName": "RS_PreRelease_Task03",
  "ActiveFromDate": null,
  "ToBeCompletedByDate": null,
  "ManualActionNotes": "",
  "AlwaysRun": false,
  "PreExecutionMessage": "",
  "PostExecuteMessageSuccess": "<b>Do not turn off your computer...</b><br>We have
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# Example 2

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{
  "SequenceNumber": 5,
  "ActionName": "RS_PreRelease_Task05",
  "ActionType": "OSExecute",
  "ParameterData": {"OSCommand": [{"CommandToExecute": "C:\\\\TEMP\\\\AutomatedInstalls\\\\WebClient\\\\Web1151.exe",
    "CommandLineParameters": "",
    "RunSilent": true,
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# Pitfalls

- BITSAdmin is a service – can be stopped
- Administrative access differences
  - Version of Windows
  - UAC levels
- Antivirus software and firewalls
- Users ignore messages and instructions
- Infrequent logins by users



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# The cut-over

- Two beta sites – In-house customers
- Some in-house customers delayed cut over
- On the big day
  - Users: 1200
  - Problems: 240
- Success rate was 80%
- We hoped for at least 85% - 90%



# Failure reasons

- Mostly anti-virus software
  - Deleted the WebClient
  - Deleted the application
  - Deleted both
- Some machines were missing .Net 4.0
- UAC prevented installation
- Users cancelled UAC prompts
- In rare cases, the software was not downloaded at all



# Questions?



# Feedback welcome

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