

Advanced Programming With Notes/Domino COM Classes

EntwicklerCamp, March, 2010

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Agenda

- Speaker intro
- COM and OLE
- Notes “front-end” and “back-end” objects
- Where can you use Notes COM/OLE classes?
 - Vb.net
 - C#
 - C++
- Why?
- Demos and samples
- Q & A

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Speaker Introduction

- 15+ years as a Lotus/Iris/IBM developer (1-2-3, Notes/Domino)
 - Wrote the original LotusScript/Java back-end classes (Notes v4.0)
 - Notes/SAP integration (v7.x, 2006)
- 9+ years as an independent consultant/developer/author
 - Frequent speaker at LUGs and Lotusphere
 - Many trade journal articles
 - Expertise in N/D programmability, plugins, J2ee, system integration, messaging, appdev in general

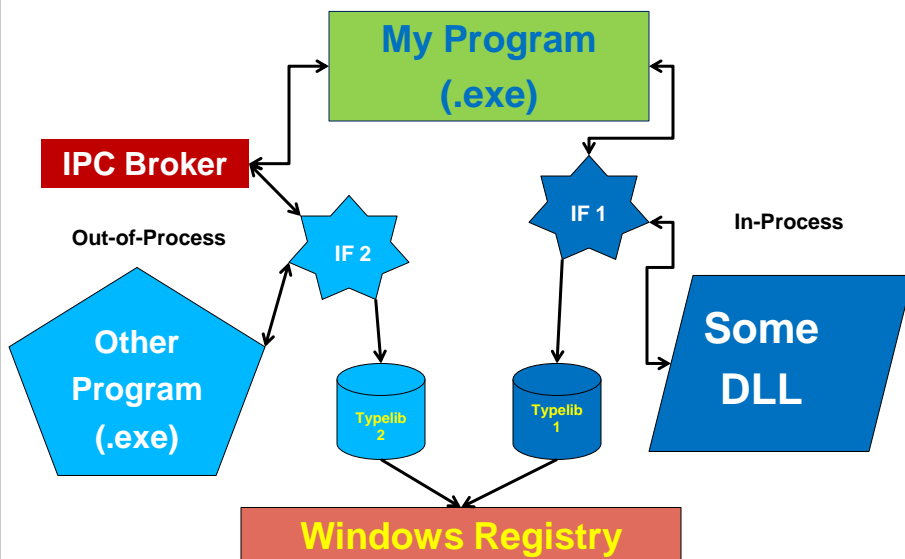
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COM – Component Object Model

- A way to provide “interfaces” for other code to use
 - Kind of like Web Services, for Windows programs
- “Provider” (“server”):
 - Create a component in c++ or a .NET language,
 - Describe the interface in IDL (interface definition language),
 - Compile IDL to a “type library”, register it under some ID and/or name
 - COM objects can be DLL or EXE (“in-proc”, “out-of-proc”)
- “Consumer” (“client”):
 - Use Visual Studio (it generates a lot of code for you)
 - Get an instance of the root object (by ID or name, or...)
 - Use it to get other objects

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COM, the Big Picture



COM and OLE

- Object Linking and Embedding
 - Very UI-oriented
 - Standards and practices for putting “live” objects into composite “documents”
- ALL based on COM objects
 - Container (e.g., Word or Notes) supplies embedding interfaces (pre-defined) to the contained object (picture, Visio, something)
 - Persistent storage, access to menu, location, etc. etc.
 - Embedded object provides pre-defined interfaces to the container (launch, quiesce, open, save...)
- We’re not going to do much with OLE in this session
 - (too much typing...)

Notes “Front-end” and “Back-end”

- Front-end is UI
 - NotesUIWorkspace, NotesUIDatabase, etc.
 - Can only operate in the context of a running Notes Client
 - (otherwise there’s no UI!)
 - No equivalent in Java, LotusScript and COM only
- Back-end classes have no UI
 - NotesSession, NotesDatabase, etc.
 - Can run either in Client or in Server
 - Java, LotusScript, COM, CORBA

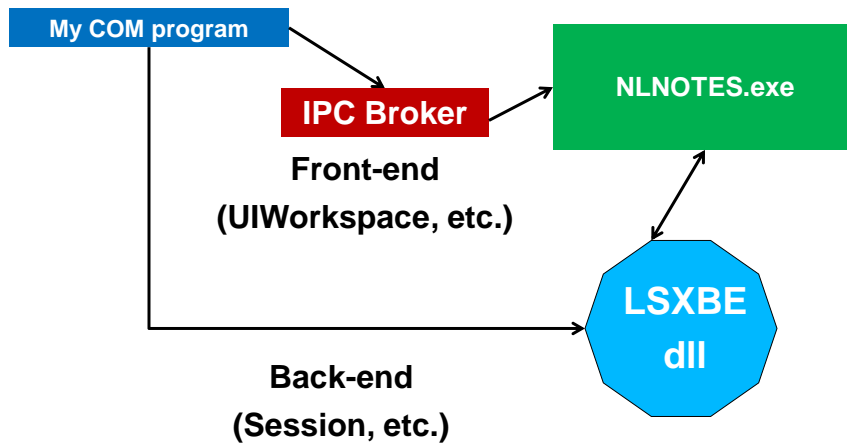
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Front-end and Back-end COM

- BOTH sets of classes are available to COM-consuming programs
- Each one has it’s own “typelib”
 - Front-end classes launch the Notes Client, “out-of-proc”
 - “Lotus Notes Automation Classes” library
 - Back-end classes load the LSXBE DLL “in-proc”
 - “Lotus Domino Objects” library

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Front-end / Back-end COM libs



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COM Consumers

- Use Visual Studio.net!
 - 2005, 2008 (2003 works, but not as well)
- CLR languages (VB.net, C#)
 - Easy!
- C++ - some tricks required

Demo 1: Front-end with CLR

Demo 2: Back-end with CLR

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Why Do This: Use Cases

- You want to write a standalone program (.exe) that uses Notes objects, and you don't want to write Java
- You want to write a standalone program (.exe) that uses front-end objects (not an option with Java)
- You're writing an Extension Manager plugin or Server Addin (or anything that requires C/C++) and want to use higher-level objects than you get in Notes CAPI
- You are writing something that requires .NET (ASPX, Web part, whatever)

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More Demo

Demo 3: Front-end COM in C++
(launch new Memo form in mail db)

Demo 4: Back-end COM in C++
(export dxi from a data document)

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Summary

- COM is difficult to explain thoroughly
 - But pretty easy to use
 - If you get the right tools (Visual Studio!)
- COM gives you access to both Front- and Back-end objects from “outside” the product
- CLR languages (C#, VB.net) are the easiest to use
- C++ also possible, requires a bit of extra work

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References

- “Essential COM” by Don Box (1988)
 - The best and most thorough reference on all things COM
- “COM Together” – Lotus Redbook, 2000
 - <http://www.redbooks.ibm.com/abstracts/sg245670.html?Open>
- “In Theory” blog – couple of articles on using COM and C# with Notes CAPI
 - <http://www.bobzblog.com>

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Questions



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