

# Advanced Programming With Notes/Domino COM Classes

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# Agenda

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- **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**

# Speaker Introduction

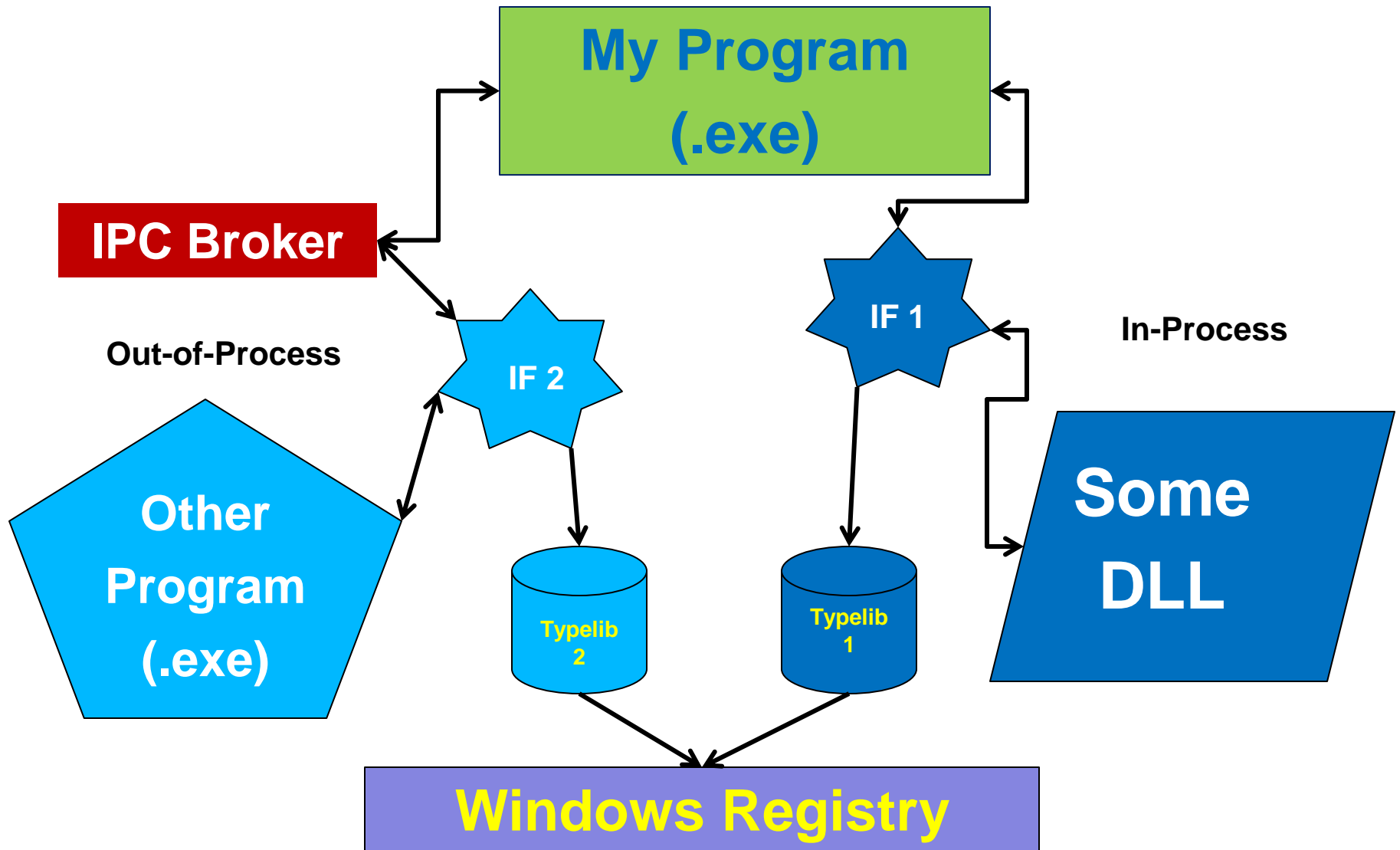
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- **I am not the actor of the same name (and we are not related)**
- **12+ years as a Lotus/Iris/IBM developer (1-2-3, Notes/Domino)**
  - **Wrote the original LotusScript/Java back-end classes (Notes v4.0)**
  - **Notes/SAP integration (v7.x, 2006)**
- **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**

# 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

# 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”

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- **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

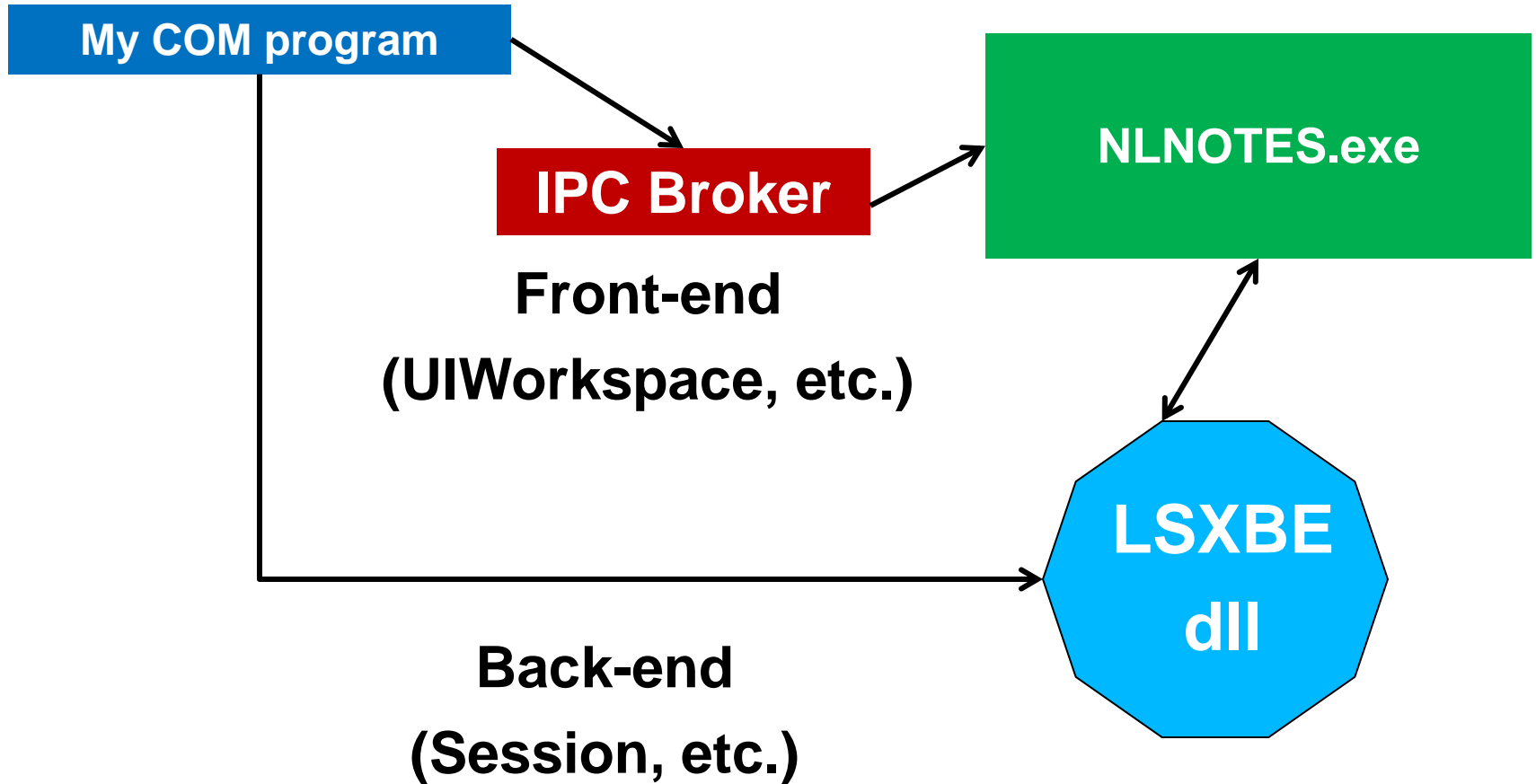
# Front-end and Back-end COM

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- **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**



# Front-end / Back-end COM libs



# COM Consumers

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- **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**

# Why Do This: Use Cases

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- 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)

## Demo 3: Front-end COM in C++

# Summary

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- **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**

# References

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- **“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>

# Questions



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