

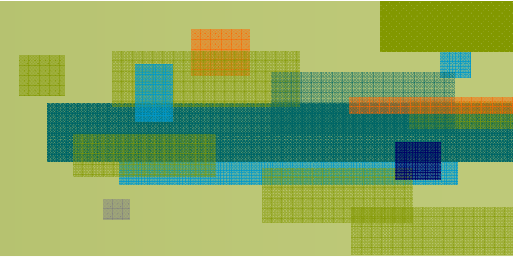
A man with dark hair and glasses, wearing a light-colored button-down shirt, and a woman with dark hair, wearing a light-colored blazer over a red top, are looking at a small mobile device held by the woman. They are standing in front of a textured, light-colored wall. The Sybase logo is in the top left corner. The bottom of the image features a decorative pattern of overlapping colored squares in shades of blue, green, and orange.

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# Leverage Composite UI Design Patterns to generate ADO.NET Applications faster

Alex Pratt  
Sr Systems Consultant  
[apratt@sybase.com](mailto:apratt@sybase.com)

# Aim of this session?



**The Composite UI Application Block (CAB)** helps you build complex user interface applications that run in Windows. It provides an architecture and implementation that **assists with building applications** by using the common patterns found in line-of-business client applications. The current version of the Composite UI Application Block is aimed at **Windows Forms applications that run with the Microsoft .NET Framework 2.0.**

**PowerDesigner** can automatically generate UI files based on CAB according to the persistent framework you select, such as NHibernate or **ADO.NET**. With persistent classes, DAL, BLL and UI files based on CAB generated by PowerDesigner, you can **quickly build Windows application without writing repetitive code.**

Using this Windows application, you can test persistent objects with your own data. You can also **improve** the generated files and change the layout **as you like in Visual Studio .NET 2005.**

# Agenda

**Who is Sybase?**

**What is Sybase PowerDesigner?**

**Walkthrough from Requirements to Code.**

**What is the Composite UI Application Block?**

**CAB Walkthrough.**

**Demo PowerDesigner and CAB together.**

**Conclusion**

**Additional Resources.**



# Who Is Sybase?



Sybase is the largest enterprise software and services company exclusively focused on managing and mobilizing information.

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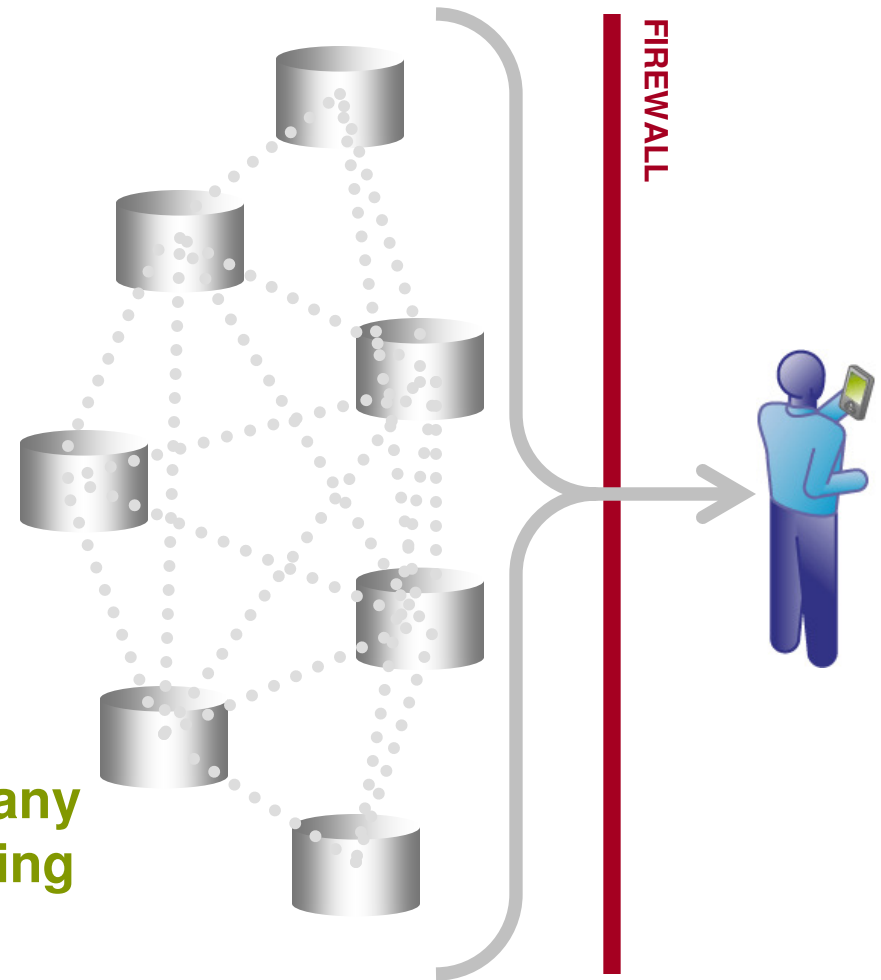
- **Delivers mission critical solutions** to the most demanding industries including financial services, telecommunications and government
- **Focus on innovation** – 105 patents awarded in data management and mobility; 166 patents pending
- **90 of the Fortune 100** rely on Sybase
- **Heritage in enterprise software** – since 1984
- **~4,000 employees** in 60 countries, and growing

Sybase Confidential

# The Enterprise Challenge

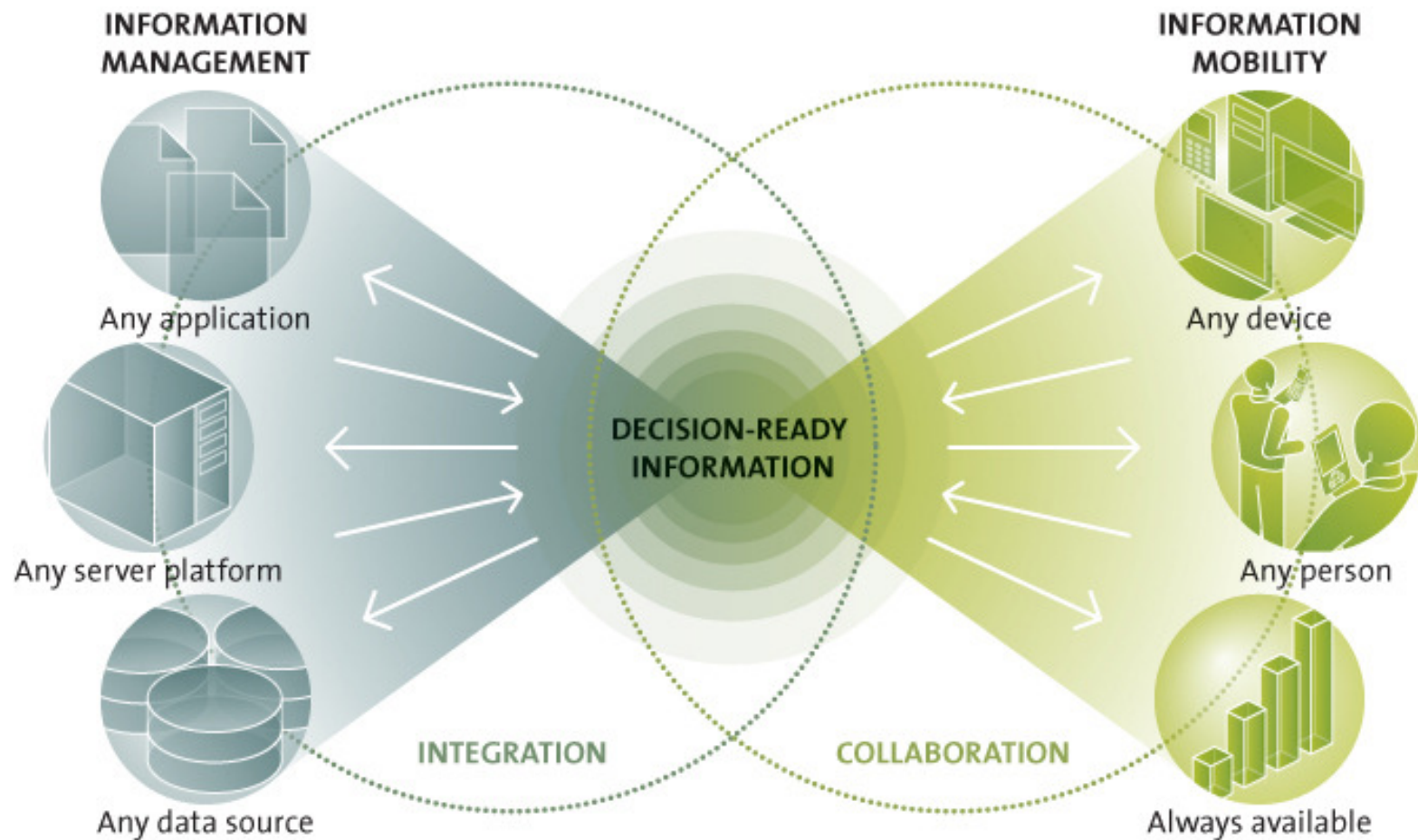
*Real-time access to data distributed across the organization*

- Data volumes are **growing exponentially**
- Users require **real-time access** to their information
- Information is **distributed** — decoupled from applications
- Information must be **securely delivered** to the point of action
- Need to support interacting with **any customer, anytime, anywhere, using any device**



# Unwired Enterprise Vision

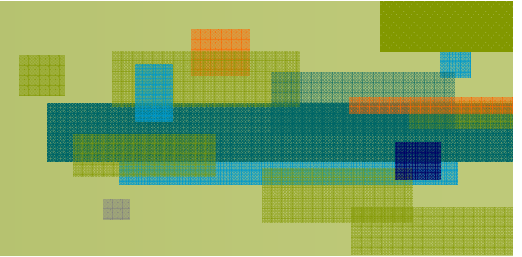
*Information Anywhere, Anytime*



# Information Management Leadership

- **Visionary Quadrant** in Data Warehouse DBMS Magic Quadrant - Sybase IQ
- **Leadership Quadrant** in Modeling Magic Quadrant - PowerDesigner
- Leading database vendor to such key segments as **Capital Markets and Telecommunications**
- **Linux World award** for best database – ASE
- **New transaction processing performance record** on the leading TPC-C benchmark – ASE on Linux
- **TPC-H price performance leader** – Sybase IQ
- **50,000+ customers; 90 of the Fortune 100**

# Information Mobility Leadership



- **#1 in world for mobile device management software for 5th consecutive year**
- **Leadership Quadrant** in Multi-channel Access Gateway Magic Quadrant
- **Visionary Quadrant** in Enterprise Wireless E-Mail Market Magic Quadrant
- Global leader in messaging, with **700+ Mobile Operator** connections
- Process **60% of inter-operator SMS domestic traffic** and **50% of inter-operator MMS domestic traffic**
- **20,000+ mobility customers**; 81 of the Fortune 100



A man with dark hair and glasses, wearing a light-colored button-down shirt, and a woman with dark hair, wearing a light-colored blazer over a red collared shirt, are standing in front of a textured, light-colored wall. The woman is holding a small, silver mobile device, and both are looking at it with interest. The man's hands are visible at the bottom of the frame, resting on a surface.

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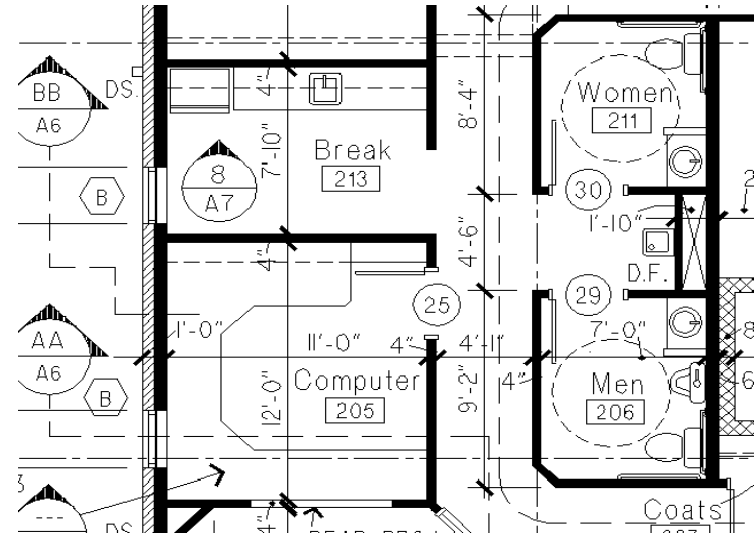
## What is Sybase PowerDesigner?

# WHY MODELING?

## WOULD YOU BUILD A HOUSE WITHOUT A BLUEPRINT?

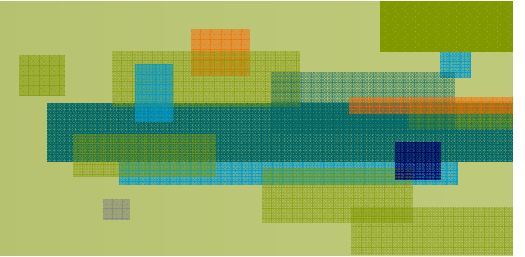


**The Architect validates the concept with the client. From these drawings, a technical diagram will be derived.**



**The Contractors will take this blueprint and optimize it based on technical considerations – linked to the Architectural View.**

# Same Patterns for Software



## Different Roles

- Business or end-users, IT Directors, Project Leaders, Developers, DBAs, etc

## Different Terms

- Information, Business names, Business rules, Tables, Indexes, Referential Integrity, EJB, etc

## Same alignment/synchronization issues

## Same change management/impact analysis needs

***“For Software the problem is worse.  
Many Software Applications have no design documentation at all.  
At least houses usually have some sort of blueprint available”  
– Dimitri Volkman, Product Line Director, Sybase, Inc.***



# Modeling's Value



## Control: Easier Management

- Understand what your systems should do and document it
- Commit different parties rather than involve different parties

## Agility – the ability to react to change

- Ease change management because of impact analysis
- Facilitates re-use

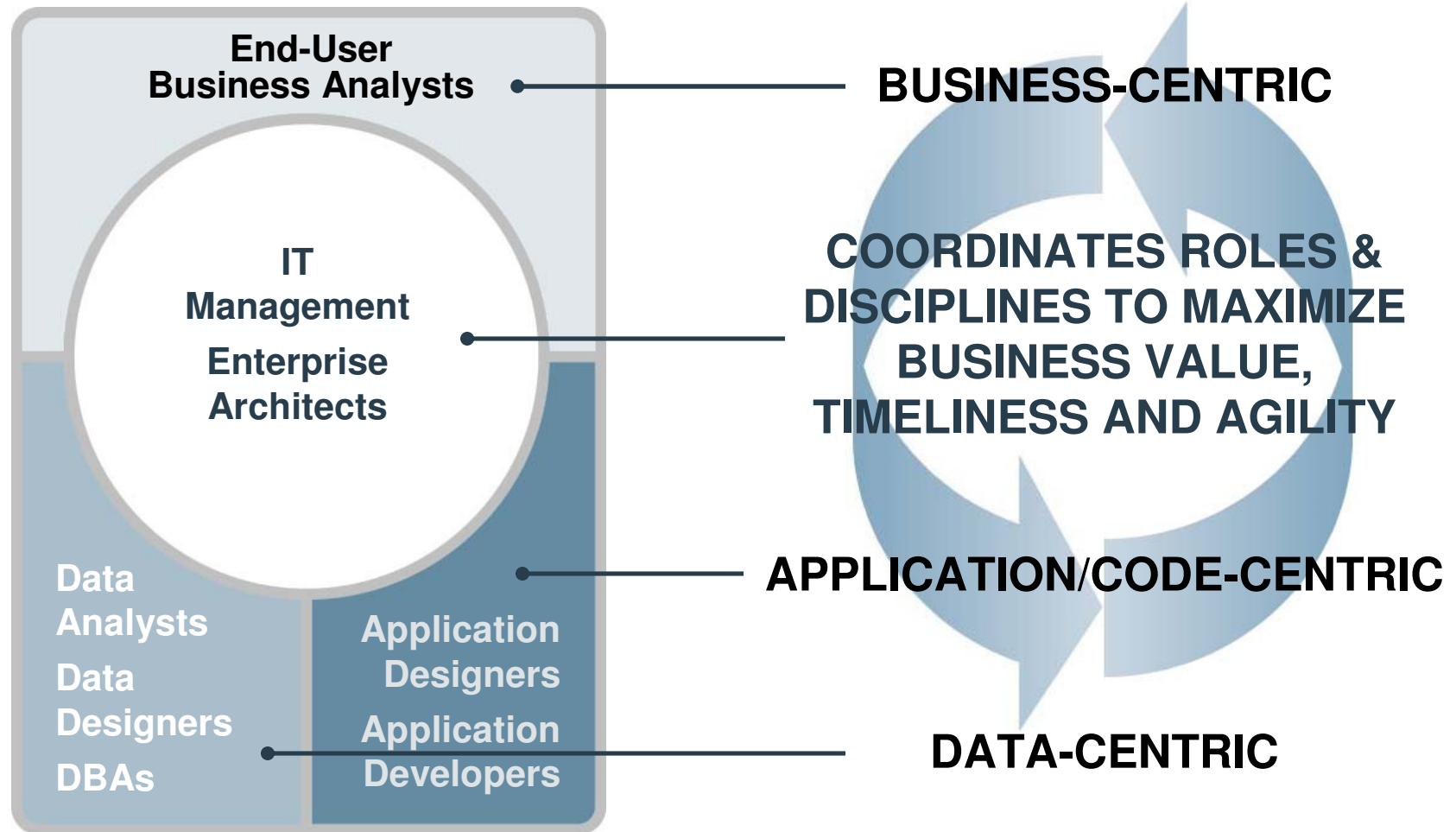
## Productivity

- Code generation can be automated if you have enough information (meta data)

***“Agility is the combination of Speed and Accuracy.  
Speed alone is not enough”***

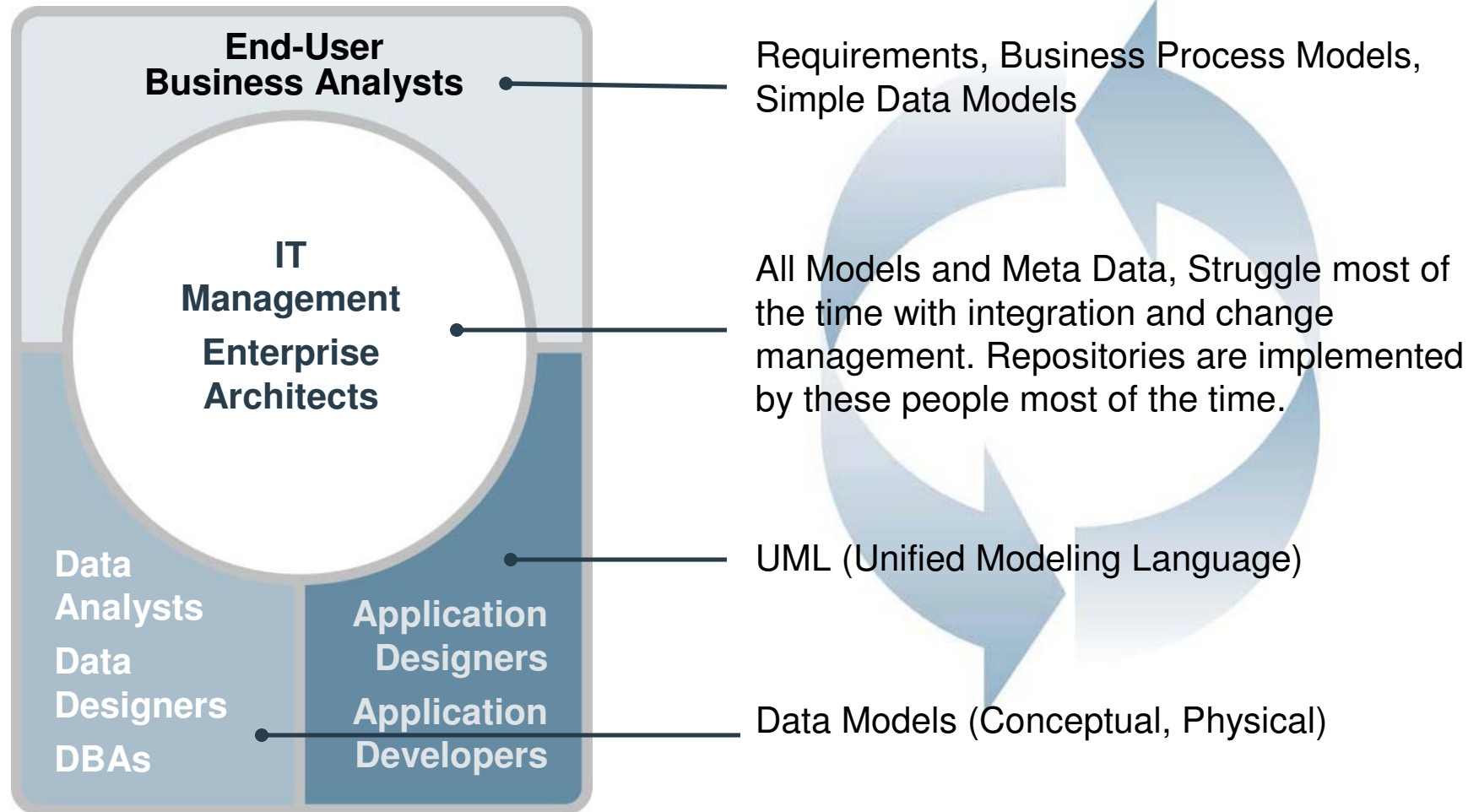
***– David Dichmann, Sr. Product Manager, Sybase, Inc.***

# Challenge Aligning Business & IT

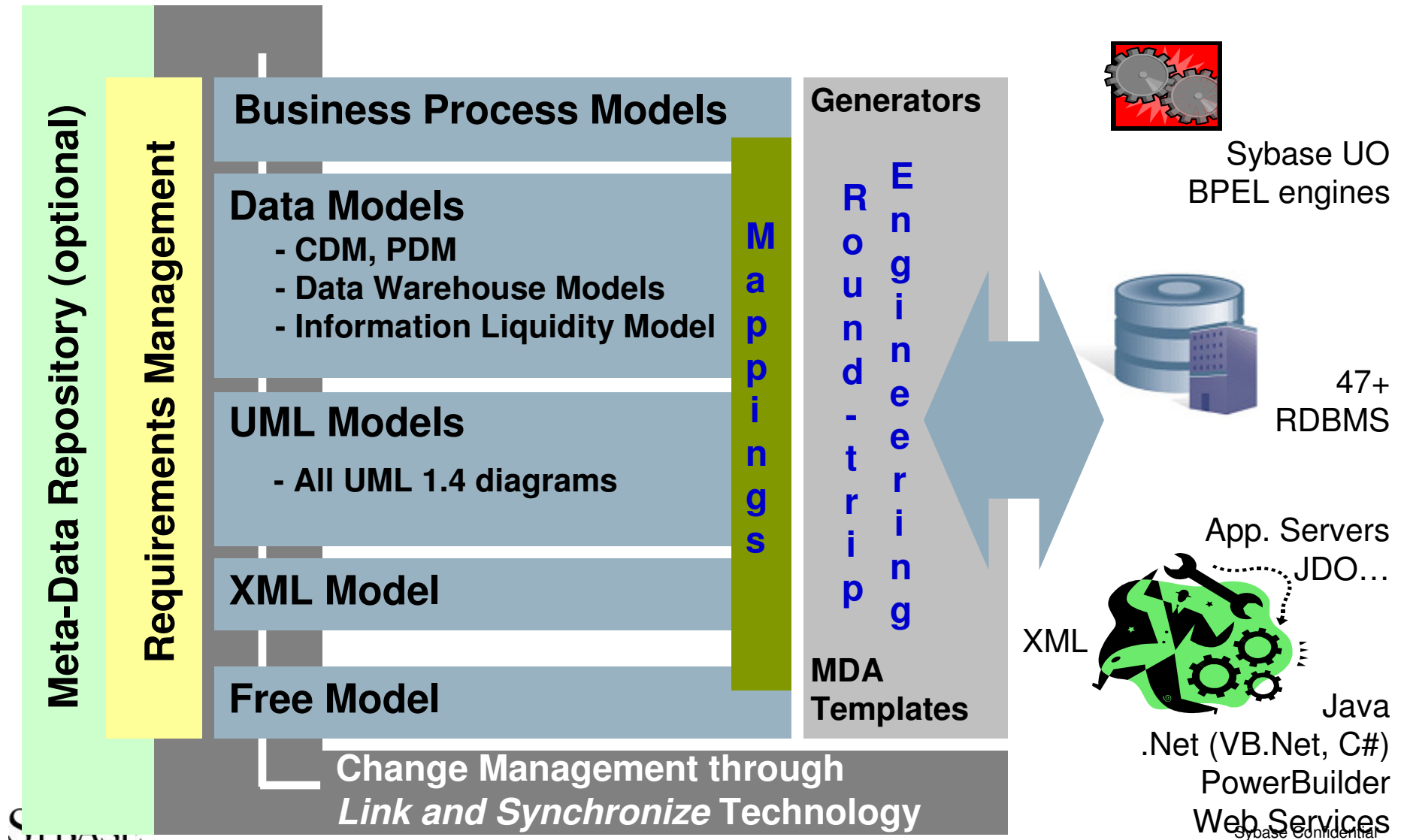
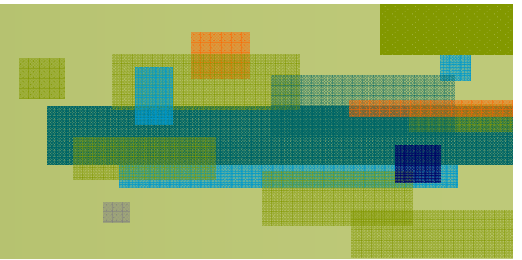




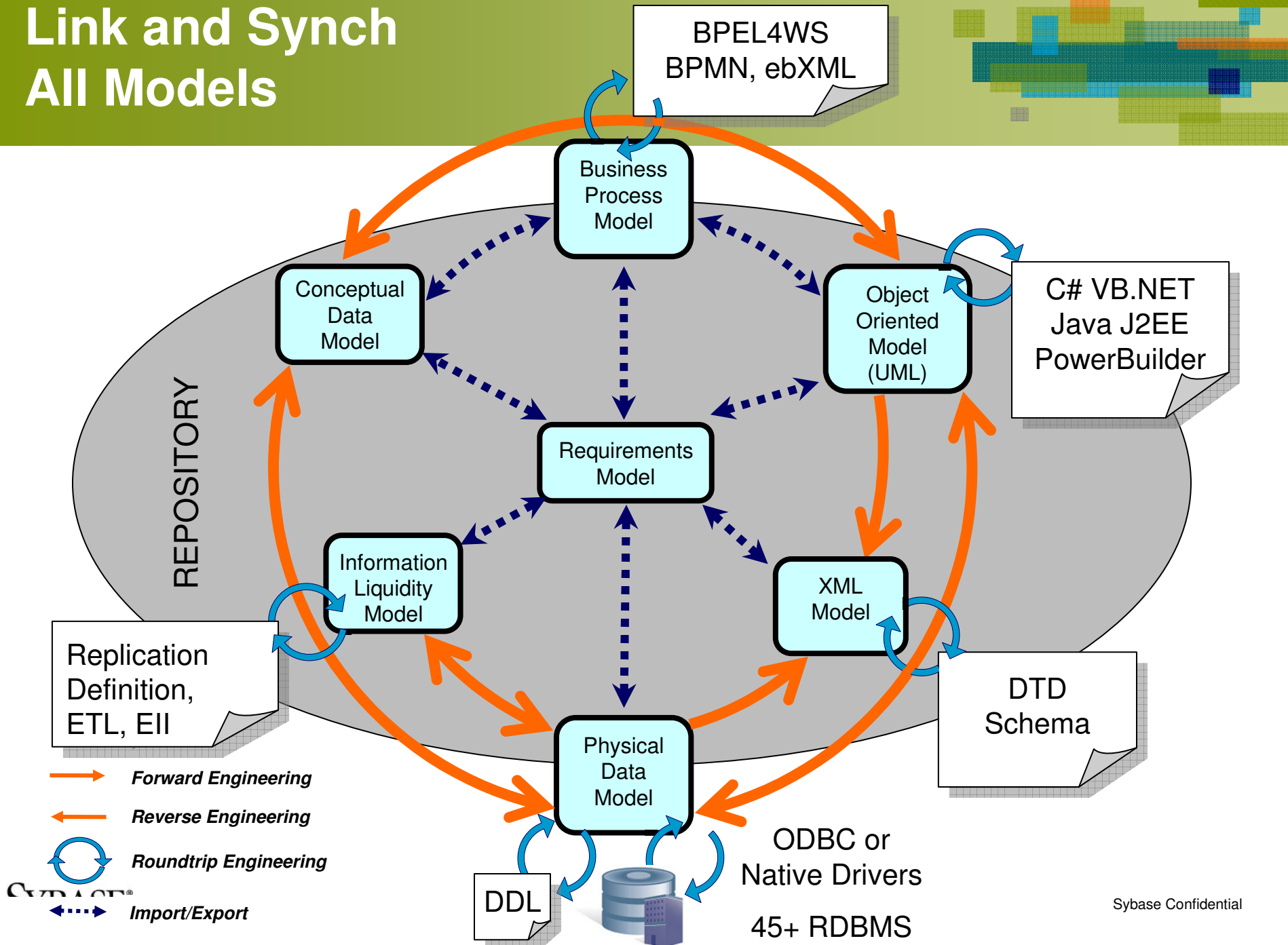
# Modeling Techniques used by Different Roles



# POWERDESIGNER 12.5 - ARCHITECTURE

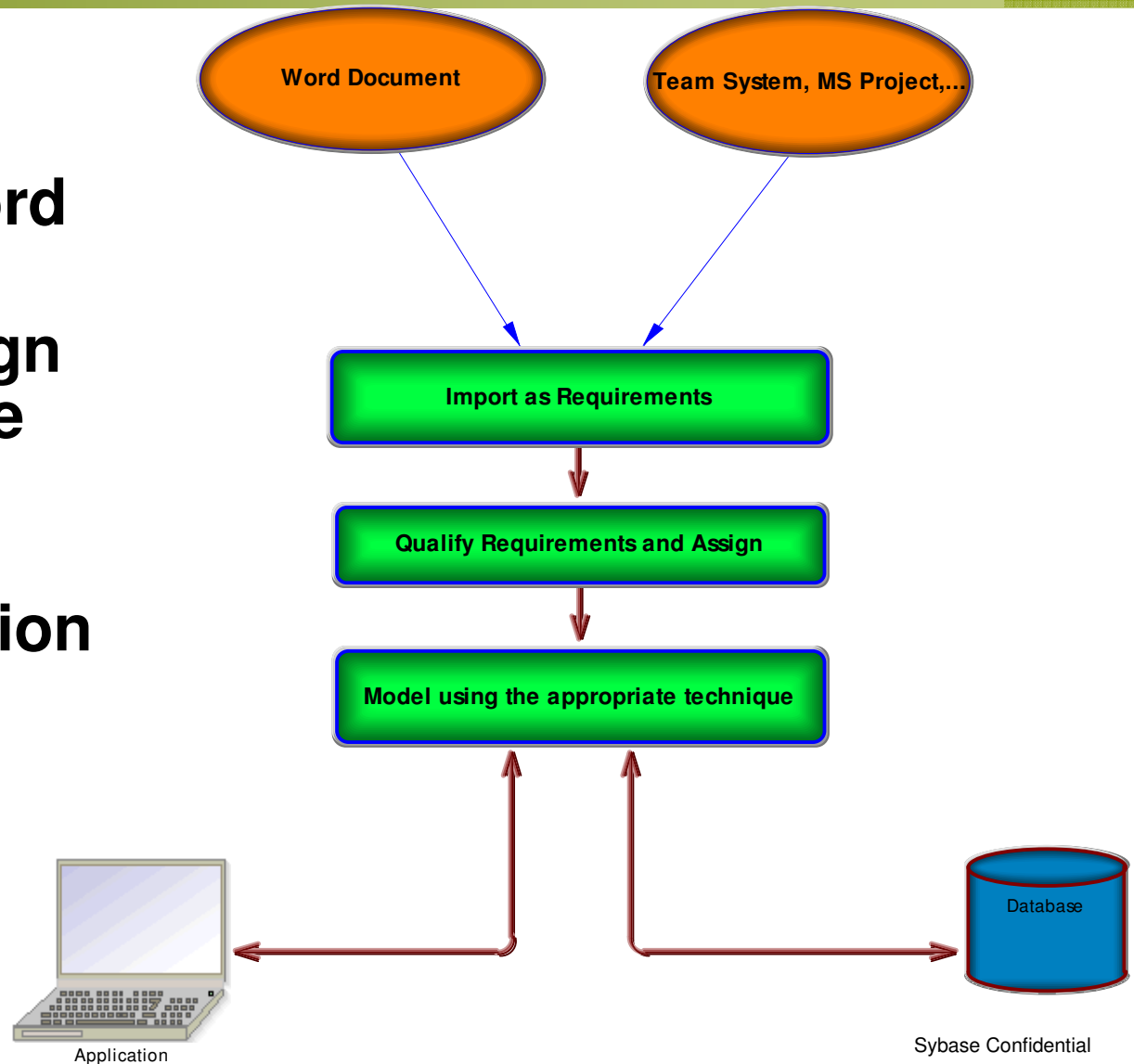


# Link and Synch All Models



# PowerDesigner Walkthrough

- Capture requirements: word or team system
- Qualify and assign to members of the project.
- CDM, PDM and database generation or reverse engineering
- Generating and Mapping OOM.







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# What is the Composite UI Application Block?



# A definition

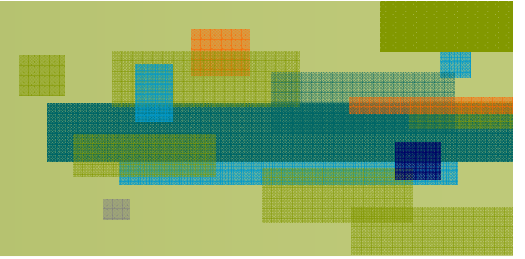
The Composite UI Application Block (or CAB) is an addition to Microsoft's .NET Framework for creating complex user interfaces made of loosely coupled components.

Developed by Microsoft's patterns & practices team, CAB is used exclusively for developing Windows Forms.

A derivative version of CAB exists in both the Web Client and Mobile Client Software Factories as well.

It encourages the developer to use either the Model-View-Controller or Model-View-Presenter architectural pattern, to encourage reuse of the individual User Controls (referred to in CAB as "SmartParts") by not coupling them with their underlying data elements or presentation code. It is part of the foundation of the Smart Client Software Factory, another patterns & practices deliverable.

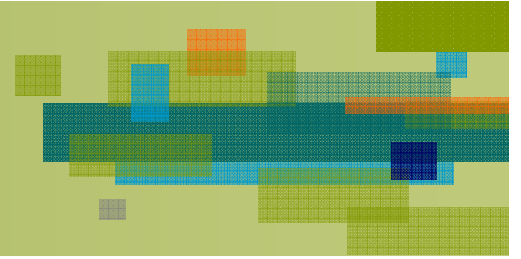
# CAB Overview



CAB is an application block created by the  
Microsoft patterns & practices group  
Helps implement common smart client user  
interface (UI) composition patterns  
Extensible application model  
Designed to support smart client line of business  
apps:

- **Online transaction processing (OLTP) front-ends**
- **Integration (or portal) scenarios**
- **UI intensive information worker applications**

# CAB Features



Flexible, interchangeable UI building blocks

Build complex UIs based on simpler parts  
("SmartParts" or "WinParts")

Similar concept to WebParts in SharePoint

Declarative pub/sub model

SmartParts, events, services, commands, modules

Attributes are used to an ultra-cool level

# CAB Example UI

**Contact Center Agent Desktop**

Assistance Phone Look Up Applications Help Status: On Call - Active

**Session Explorer - 2 Session(s)**

Sort By: Session - Customer Name

- John Smith - 555-0100
  - Billing
  - CRM
  - Current Promotions
  - Customer Alerts
- Brian Perry - 555-0101
  - Billing
  - CRM
  - Current Promotions

Help

Clicking a session will switch sessions and open the last application used for that session. Clicking an application will switch sessions and open that application.

**Current Workflow (Non-Forced)**

Workflow: Billing Query Done

**Workflow Steps:**

- ✓ Customer's Alerts
- ✓ Latest Promotions
- ✓ Billing Information
- Update Customer Information

Previous Next Cancel

Help

Workflow is a series of steps that assists an Agent in accomplishing a task, associated with a customer.

**Current Session:** John Smith - 555-0100

**Customer:** John Smith - 555-0100 **First Name:** John  
**Last Name:** Smith **Phone Number:**  
**Open Applications:** Billing, CRM, Current Promotions, **Current Application:** CRM

CRM Customer Alerts Current Promotions Customer Information Billing Ordering Knowledge Base

**Update Customer Profile**

Note: \* Indicates required field.

**Personal Details**

First Name: John Middle Initial: R  
Last Name: Smith Gender: ☒ Male ☐ Female

**Contact Details**

Address: North Avenue City: Seattle  
Zip Code: 98007 State: PENNSYLVANIA  
Email: Someone@example.com Date of Birth: 01/11/1968  
Contact Number1: 555-0100 Contact Number2:

**Billing Information**

Billing Address: North Avenue Billing State: PENNSYLVANIA  
Billing City: Seattle Billing Zip Code: 91222

**Bank/SSN Information**

On call with John Smith 555-0100 [Connected] Calls Waiting: 6 Avg Wait: 53 Longest Wait: 107 11:03 AM

start Contact Center Agen... Softphone for Testin... 11:03 AM

# CAB Example UI

Workspaces

SmartParts

**Contact Center Agent Desktop**

Current Session: John Smith

First Name: John  
Last Name: Smith  
Phone Number: (425) 555-4023  
Current Application: CRM

**Update Customer Profile**

Personal Details | Contact Details | Billing Info | Bank/SSN Info | Credit Card Info | Other Info

**Personal Information**

First Name: John Middle Name:   
Last Name: Smith Gender: ☒ Male ☐ Female

<TOR>

**Contact Details**

Address: 4567 Main St. City: Redmond  
Zip: 01234 State: WASHINGTON  
Email: johnsmith@acme.com Date of Birth:   
Contact No. 1: (425) 555-0123 Contact No. 2:   
<TOR>

**Billing Information**

Address: 4567 Main St. City: Redmond  
Zip Code: 01234 State: WASHINGTON  
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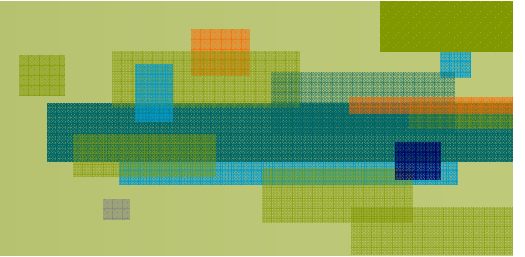
**Bank/SSN Information**

SSN: 123-45-6789 Driver's License/State ID: 123456  
Bank Name: Woodgrove Bank Bank Routing Number: 01234  
Mother's Maiden Name: Smith Bank Account No.: 012345678  
<TOR>

On call with John Smith (425) 555-0123 [Connected] Call Waiting 4 Avg Val 25 Longest Val 30 5:54 PM



# CAB Design



**SmartParts** – visual elements of an app

**Workspace** – container for SmartParts; Types: Window, Mdi, Tab, Deck, Zone

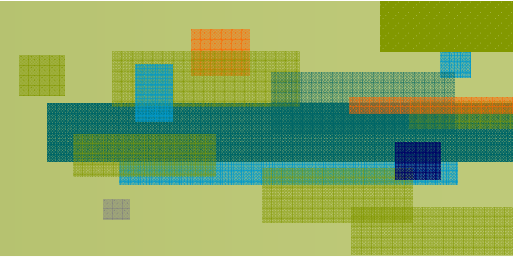
**WorkItem** – unit of work that completes a use case. Consists of visual aspect, business logic, controller, business entities, services and state

**Module** - set of WorkItems, SmartParts, controllers, business logic, etc. (.NET assembly)

**Module Services** – custom-built service registered using Service attribute; can be referenced by components in any WorkItem

**Foundation Services** – set of baked-in services available to all CAB apps

# UI Layout: Workspaces



Workspaces = flexible, dynamic views

Built on common interface (IComposableWorkspace)

“Fundamentally alter the UI without rewriting the population and transference of state information”

Translated: easily switch UI layouts without Advil

Why do we need this? My UI design is thorough and the users approved it...

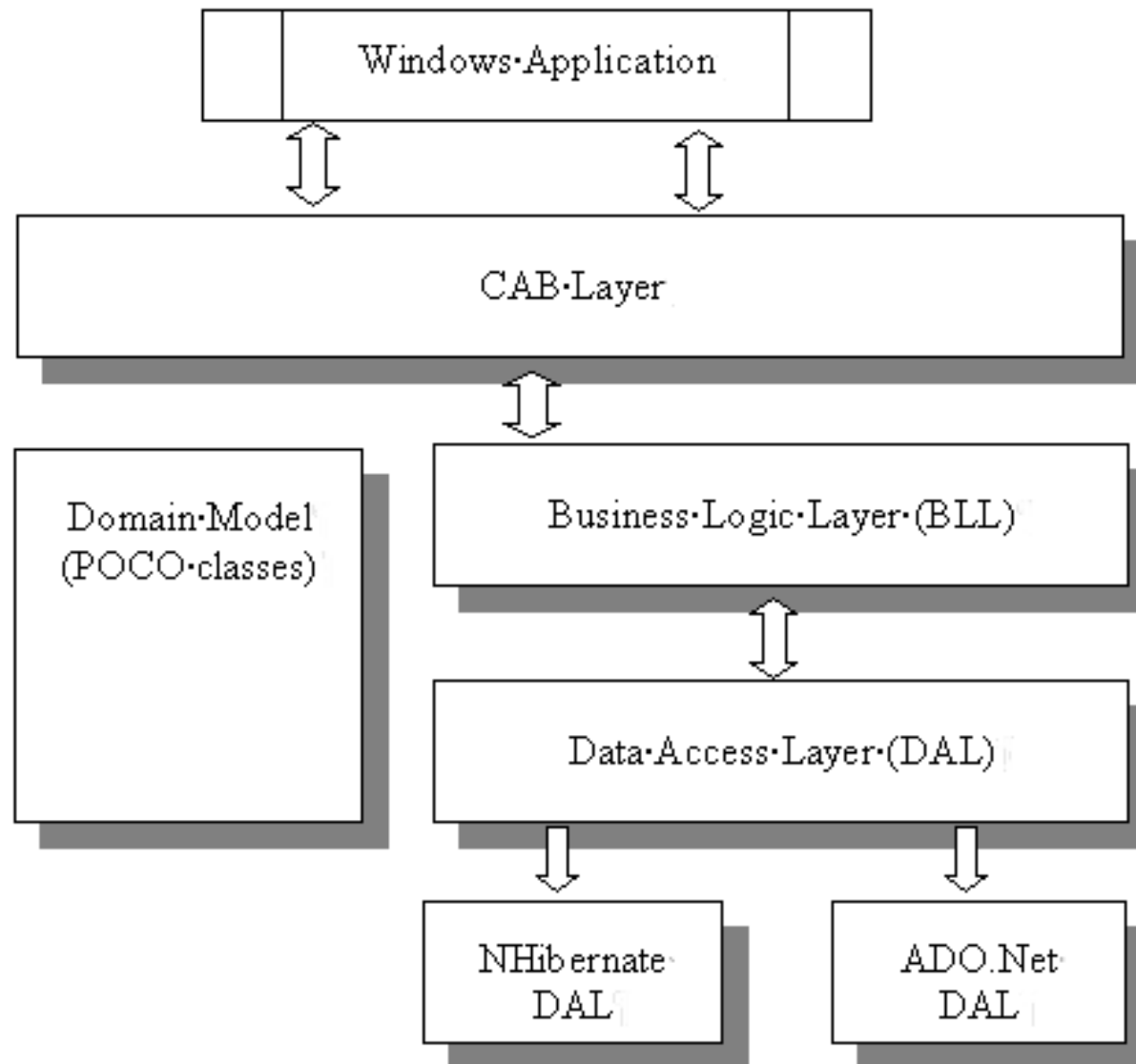
And user sign-off is permanent because users never change their minds. How useless is this feature?!

A man with dark hair and glasses, wearing a light-colored button-down shirt, and a woman with dark hair, wearing a light-colored blazer over a red collared shirt, are standing together and looking at a small mobile device held by the woman. The background is a textured, light-colored wall. The SYBASE logo is in the top left corner. A semi-transparent grey banner with white text is across the middle. The bottom of the image features a decorative pattern of overlapping colored squares in blue, orange, and green.

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## CAB and PowerDesigner Together

# Data Centric Application Structures








PowerDesigner can be used to generate all these layers:

**Domain Model** - contains persistent POCOs (Plain Old CLR Objects), which are similar to Java's POJOs. These act as information holders for the application and do not contain any business logic. A primary key class is generated for each persistent class in order to help the "find-by-primary-key" function, especially when the class has a composite primary identifier.

**Data Access Layer** - follows the standard DAO pattern, and provides typical CRUD methods for each class. This layer is divided into two parts, one of which contains interfaces for DAL, while the other contains the implementation for these interfaces, using ADO.NET technology to access databases.





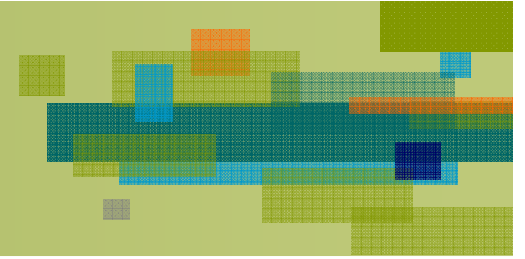
**The DAL Helper** provides common features used by all the DAL implementations, such as connection and transaction management, and the supply of SQL command parameters. Some common classes, such as Session, Criteria, and Exception, are also defined.

PowerDesigner supports two kinds of DAL implementation:

- ADO.NET
- Nhibernate

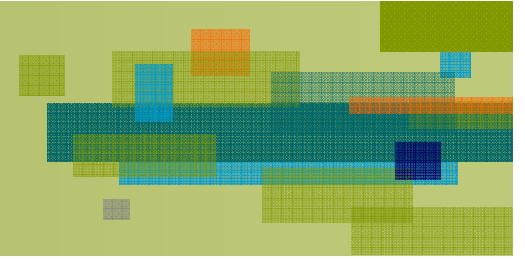
**Business Logic Layer** - contains the typical user-defined business logic. This is a wrapper for the DAL, exposing CRUD functionalities provided by the DAL underneath. You can customize this layer according to your needs.

# PowerDesigner O/R Mapping Introduction



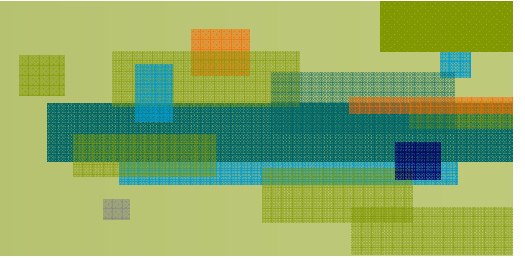
- **Hibernate/EJB**
- **NHibernate/ADO.Net**
- **ADO.Net CF (Lightweight O/R mapping Framework)**

# Data Centric Application



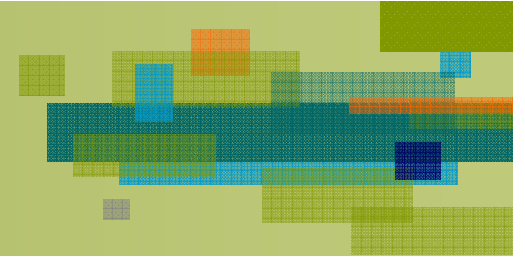
- **JSF (Java Server Faces)**
- **.Net Windows Application**
- **.Net CF(2.0) Mobile Application**

# .NET Support Objective



- Based on PowerDesigner's O/R Mapping functionality, to develop a typical data centric .NET
- Light weight O/R Mapping framework based on ADO.NET or NHibernate
- User interface based on Microsoft CAB.

# Installation and Configuration



## Required Installation

- Microsoft .NET framework v2.0
- CAB for C# or VB.NET
- CAB source code has to be compiled and Assemblies added to PowerDesigner Variables under CAB\_HOME



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**PowerDesigner and CAB in action.**



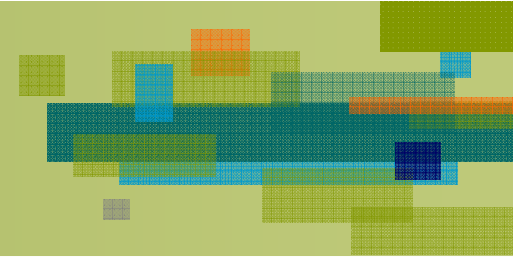
# Conclusion

## **CAB and PowerDesigner is a Great combination for:**

- Easy, extendable framework
- Prototyping
- Testing application to check validity of a Database model
- Can be easily tuned into a software factory tool

“The more you learn about Windows application development, the less you know -- yet it all seems so familiar.”

## Additional Information.



### **PowerDesigner info and evaluation:**

<http://www.sybase.com/products/modelingmetadata/powerdesigner>

### **Composite UI website:**

<http://msdn2.microsoft.com/en-us/library/aa480450.aspx>

### **Patterns and Practices: CAB from Craig E. Oaks, Prologic, Inc**

<http://www.pghtech.org/networks/informationssystem/files/dot.net/composite%20ui%20application%20block%20cab-codecamp.pdf>

### **Next Big thing: CAB for WPF**

<http://www.lab49.com/files/presentations/Lab49Presentation-Finexpo2007.pdf>