

From Concept to Solution

*Integrating UML 2.1 into
Visual Studio Team System*

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The SparxSystems logo is centered in the lower half of the slide. It features the word "SPARX" in a large, bold, white, italicized sans-serif font. A stylized orange and white swoosh underline is positioned beneath the "A" and "R". Below this, the word "SYSTEMS" is written in a smaller, orange, italicized sans-serif font. The background of the slide is a blue-tinted photograph of three business professionals in an office setting, looking at documents and a laptop.

SPARX
SYSTEMS

Presentation Overview

- **Introducing Sparx Systems**
- **Team-based UML tools:**
 - Sparx Systems and Enterprise Architect
 - MDG Integration for Visual Studio 2005/2008
- **Demonstration:**
 - MDG Integration for Visual Studio 2005

Sparx Systems at a glance...

Software Development Excellence

- Developer of Enterprise Architect
- OMG Contributor
- Consensus Software Quality Award 2005
- Jolt Productivity Award 2006

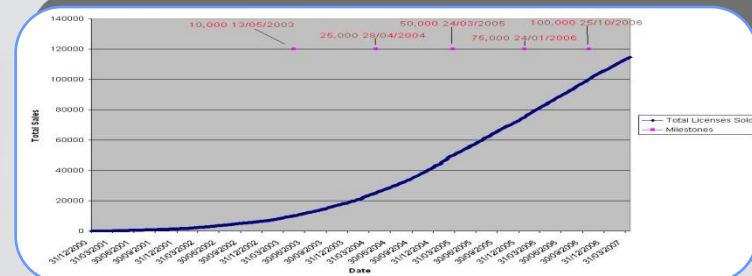
Loyal Customer Base

- 130,000+ Endusers
- 75% top 100 global firms use EA
- 200 Technology & Training Partners globally
- Strong presence in Japan, America, Europe

Company Strength

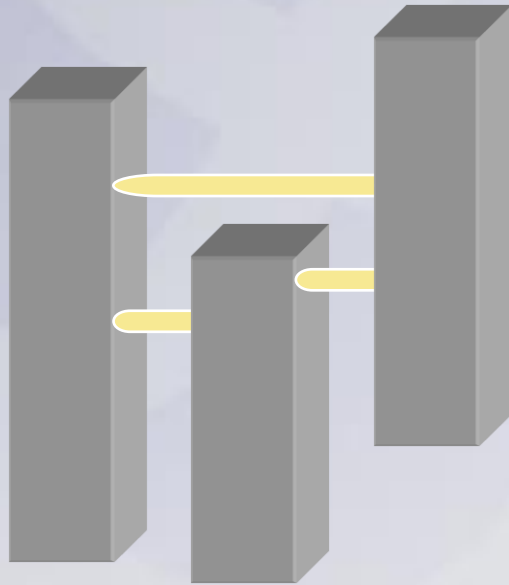
- Privately owned
- Debt free
- Cash flow in excess of operating expenses
- 160 man years in product development

Product History



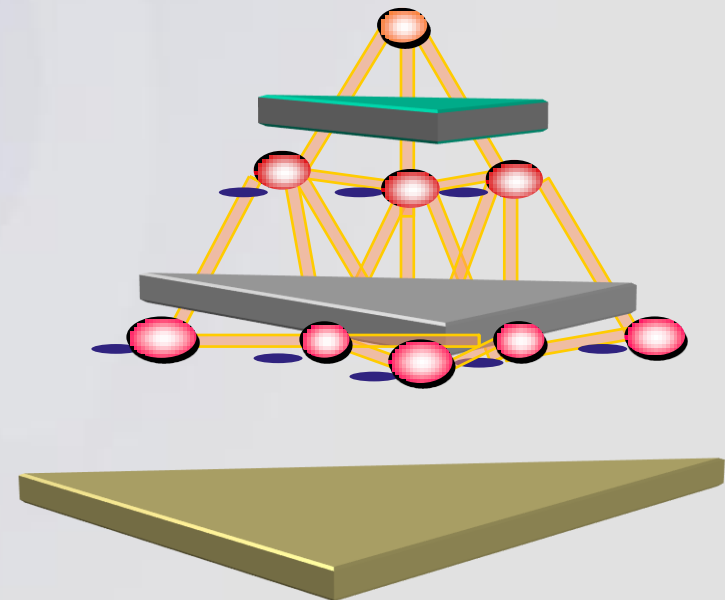
We enable organizations to transform

From this.....



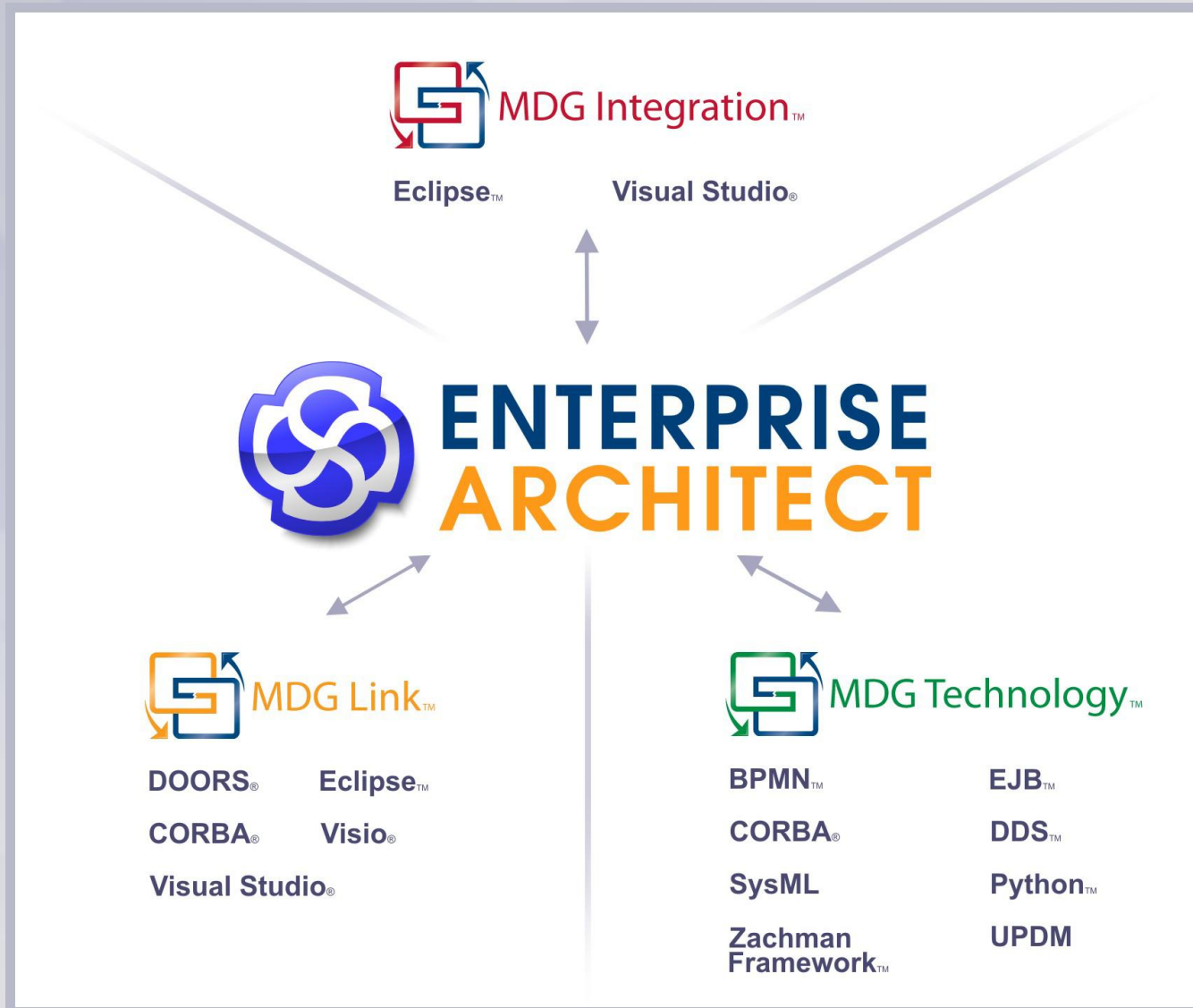
Bridged Monolith

To this.....



**Network of Service Provision
and Service Utilization**

The Sparx Systems Product Range



The Sparx Systems Product Range

- **Enterprise Architect 7.0:**
 - Sparx Systems flagship product
 - Considered worldwide among the most powerful UML tools
 - More than just UML modeling!
- **Model Driven Generator (MDG) products:**
 - MDG Integration: Empowers IDEs with UML tools
 - MDG Link: Connects models to Visual Studio.NET and Eclipse
 - MDG Technologies: Support BPMN, SysML and more
- **3rd party add-in products**
 - RaQuest (Sparx Systems Japan)
 - Screen Architect (Catch Ltd)
 - Many others...

Team Tools: Enterprise Architect

- **UML 2 modeling platform:**
 - Supports all 13 UML 2 diagrams
 - Customization framework for Domain Specific Modeling (UML profiles, patterns, templates)
 - Extensible Meta-data Interchange (XMI) for interoperability and model serialization

Team Tools: Enterprise Architect

- **Modeling Support across SDLC**
 - Visual Requirements Modeling
 - Customizable Reporting engine
 - Code Engineering Framework
 - Deployment and Test specification

Team Tools: Enterprise Architect

- **Support for multiple, concurrent users:**
 - Scalable database driven repository
 - Version Control with TFS integration
 - Security and Locking mechanism

Team Tools: Enterprise Architect

Class Model

This Class diagram represents the MDA transform generated from the Abstract Class model PIM. For more information on MDA transforms see:

- MDA Transforms

This Class model can be forward engineered to the C# code. For more information on processes of code generation, reverse engineering of source code and synchronization between the source code and model - see:

- Code Engineering

Class Diagram Details:

- StockItem**:
 - Attributes: Author: string, catalogNumber: string, costPrice: number, listPrice: number, title: string
 - Property: + Author(): string, + CatalogNumber(): string, + CostPrice(): number, + ListPrice(): number, + Title(): string
 - Association: -item (to LineItem)
- LineItem**:
 - Attribute: quantity: int
 - Property: + Item(): StockItem, + Quantity(): int
- Order**:
 - Attributes: date: Date, deliveryInstructions: string, orderNumber: string
 - Operation: checkForOutstandingOrders(): void
 - Property: + Status(): OrderStatus, + LineItem(): LineItem, + Date(): Date, + DeliveryInstructions(): string, + OrderNumber(): string
 - Associations: -status (to OrderStatus), -account (to Account)
- ShoppingBasket**:
 - Attribute: shoppingBasketNumber: string
 - Operations: addLineItem(): void, createNewBasket(): void, deleteItem(): void, processOrder(): void
 - Property: + LineItem(): LineItem
 - Association: -basket (to LineItem)
- Account**:
 - Association: -account (to Order)
- Transaction**:
 - Association: -basket (to ShoppingBasket)

Project View: Implementation Model (PSM) > Implementation Model (PSM) > C# Model > C# Model - No Attributes > Account, Order, ShoppingBasket, StockItem, Transaction, <enumeration> OrderStatus, DDL, EJB Entity, Resource View

Properties:

Class Settings	
Name	Order
Scope	Public
Type	Class
Stereotype	
Alias	
Complexity	Easy
Version	1.0
Phase	1.0
Language	C#
Filename	C:\Temp\Order.cs

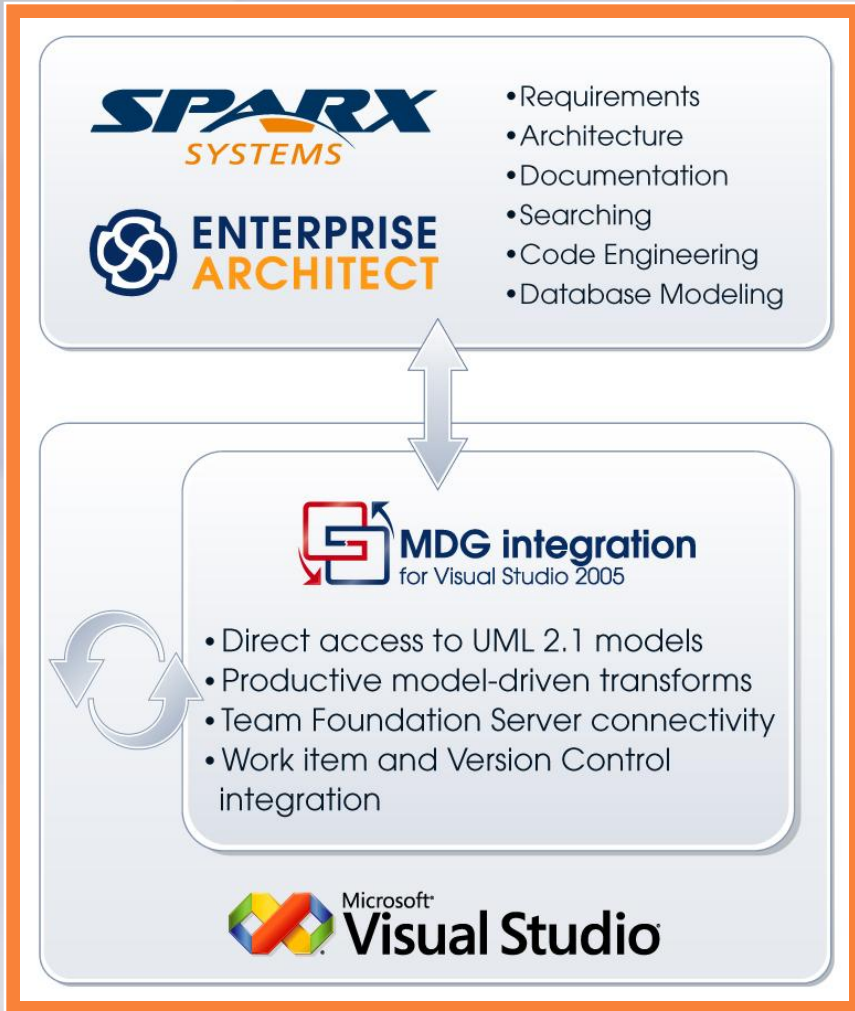
Element Browser:

- Order
 - Operations
 - Status(): OrderStatus
 - LineItem(): LineItem
 - Date(): Date
 - DeliveryInstructions(): string
 - OrderNumber(): string
 - checkForOutstandingOrders()
 - Attributes
 - date: Date
 - deliveryInstructions: string

Hierarchy:

- Order
 - links to LineItem
 - links to StockItem
 - links from ShoppingBasket
 - links from Transaction
 - links from OrderStatus
 - links from Account

Team Tools: MDG Integration



Visualize

Communicate & Collaborate

Integrate

MDG Integration: Key Features

- **Tight integration of Enterprise Architect with VSTS**
- **Connects UML packages to Visual Studio projects**
- **Precise navigation from UML to source code**
- **Code Round-Trip Engineering (“live” synchronization)**
- **‘Build & Run’ projects from Enterprise Architect**
- **Model editing directly within the IDE:**
 - View and edit UML diagrams
 - Update model elements,
 - Generate documentation
 - Transform models using MDA

Team Tools: MDG Integration

OnLineBookstore - Microsoft Visual Studio

File Edit View Project Build Team Debug Data Tools Test Window Community Help

OnlineBookstore.cs Start Page EA Model Views Object Browser

Model Search Forum Help

Manage Users

- + AccountAdmin
- + Close Account
- + Create Account
- + Delete User
- + Login
- + View Account details
- + View History
- + View Open Orders

Manage Inventory

- + Add New Titles
- + Create Orders
- + Edit Titles
- + List Stock Levels
- + Manage Publishers
- + Manage Titles
- + Receive Orders

Fulfill Orders

- + List Current Orders
- + Package Order
- + Process Order
- + Ship Order

Take Orders

- + Add To Shopping Basket
- + Go To Checkout
- + Remove From Shopping Basket
- + Search for Books
- + View Shopping Basket

ud Sell Books

Client (from Actors)

- Search for Books
- Add To Shopping Basket
- Remove From Shopping Basket
- View Shopping Basket
- Go To Checkout

EA Project Explorer

- Model
 - Requirements Model
 - Formal Requirements
 - Non-Functional Requirements Model
 - Use Case Model
 - Use Case Model
 - Actors
 - Manage Users
 - Manage Inventory
 - Take Orders
 - Fulfill Orders
 - General Process
 - Use Case Frame
 - Business Processes View
 - Web Services Model
 - Web Services Model
 - Transform Process
 - OnlineBookstore
 - Bookstore Services PIM
 - Address
 - Cart
 - CartItem

Solution Explorer EA Project Exp... Team Explorer

Class View

<Search>

- Project References
- Address
- Cart
- Base Types
- CartItemCompletedEventArgs
- Base Types
- CartItemCompletedEventHandler
- Base Types
- CartCheckoutCompletedEventArgs
- CartCheckoutCompletedEventHandler

BeginInvoke(object, CartAddItemCompletedEventArgs, CartAddItemCompletedEventHandler, void) (object, Cart, EndInvoke(System.IAsyncResult) Invoke(object, CartAddItemCompletedEventArgs)

Output

Show output from: Build

```
kstoreServices, Configuration: Debug Any CPU -----
\v2.0.50727\Csc.exe /noconfig /nowarn:1701,1702 /errorreport:prompt /warn:4 /define:DEBUG;TRACE /reference:C:\WINDOWS\Documents\Visual Studio 2005\Projects\WindowsApplication1\WindowsApplication1\Program.cs(12,27): warning CS0649: Field 'm_rnings' is never assigned to, and its default value null will be used
and Settings\benc\My Documents\Visual Studio 2005\Projects\WindowsApplication1\WindowsApplication1\bin\Debug\WindowsApplication1.p-to-date, 0 failed, 0 skipped =====
```

Error List

Ready

Navigate

Report

Transform

Version Control

Team Tools: MDG Integration

View

Search

Collaborate

Create Account : public UseCase

Created: 2005-03-07 21:45:50
Modified: 2006-03-10 09:20:11
Diagrams: [Manage Users](#), [ManageUsers](#)
Implements: [REQ025 - Store User Details](#), [REQ016 - Add Users](#)
Owns: [Create Account](#), [Sequence Diagram : Create Account](#), [Submit New Account Details](#), [Create New Account](#)

Project:
 Advanced:
The Client's goal is to create a new account with the book store system. The system ensures that the account data is left in a consistent state in the event of network failure or in the alternative scenario where the user cancels the account creation

Scenario	Type	Details
Basic Path	Basic Path	1. Use case begins when the Client selects the 'Create Account' command. 2. The Client enters name, address, e-mail address, password and password confirmation. 3. Client presses Submit button. 4. Submitted details are validated. 5. Processing message is displayed to the Client. 6. New account is created in the database. 7. Success message is displayed to Client.
Cannot Create New Account	Alternate	In step 6, if the database create fails, the Client is informed and the use case terminates.
No Submit	Alternate	The Client may press the Exit or Back button at step 3. The use case terminates with no action performed.
Validation fails	Alternate	At step 4, if validation fails then an error message is displayed and the Client is returned to step 2 with the invalid field or fields highlighted.

Output

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Show output from: Build  
kstoreServices, Configuration: Debug Any CPU -----  
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and Settings\benc\My Documents\Visual Studio 2005\Projects\WindowsApplication1\WindowsApplication1\bin\Debug\WindowsAp  
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```

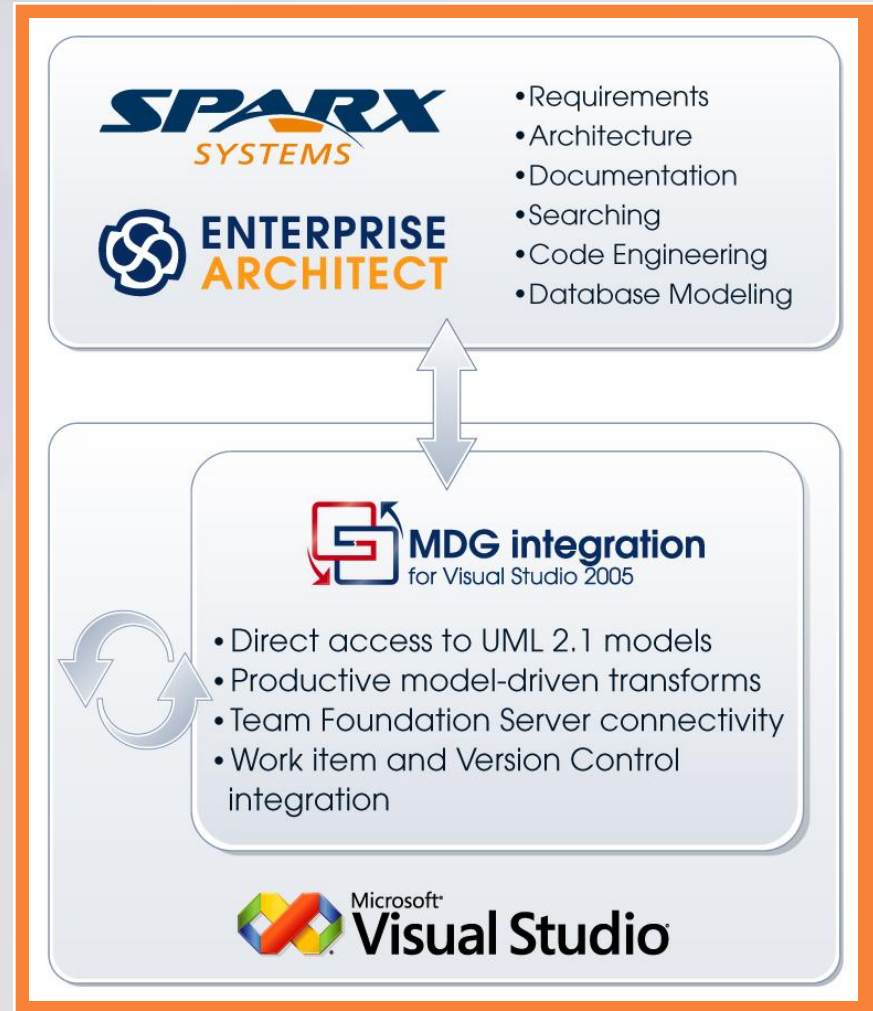
Team Tools: MDG Integration

Product Demonstration

MDG Integration for Visual Studio 2005

Demo available at:

www.sparxsystems.eu



Additional Information

- **FREE 30 day trial and more info:**
 - <http://www.sparxsystems.eu>
- **Questions, suggestions and feedback**
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Peter.Lieber@sparxsystems.eu



thank you for your attention!