



Model Driven Architecture Vision VS Reality



EDOC 2001
September 4-7, Seattle, USA

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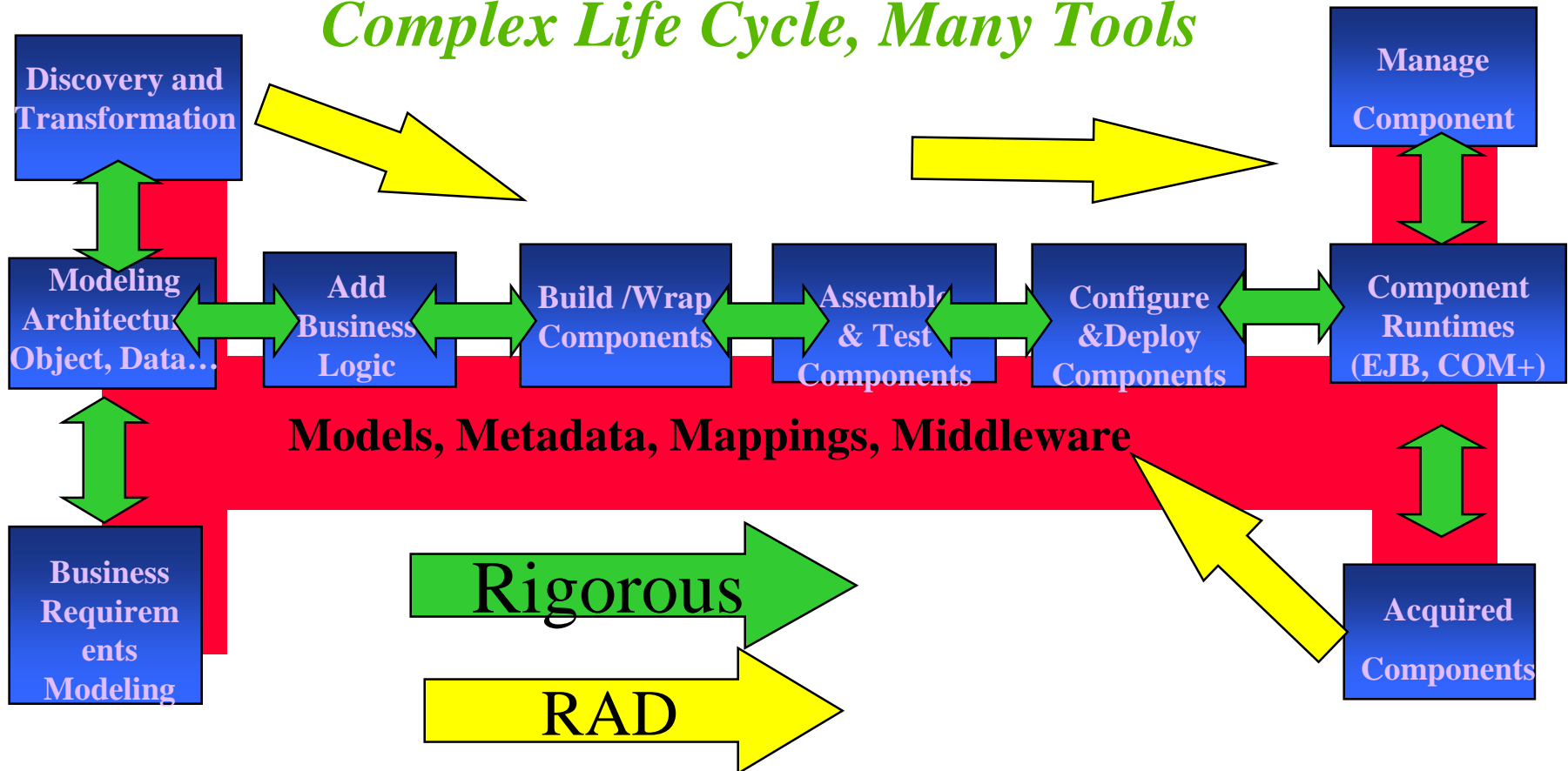


Model Driven Architecture Vision VS Reality

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|-------------------|----------------------|
| ■ Sridhar Iyengar | Unisys (Panel Chair) |
| ■ Jon Siegel | OMG |
| ■ Ariel Aloni | Merryl Lynch |
| ■ Stephen Brodsky | IBM |
| ■ Chris Horn | IONA |
| ■ Eugen Ardeleanu | Microsoft |
| ■ Jack Greenfield | Rational |

The Business Application Life Cycle

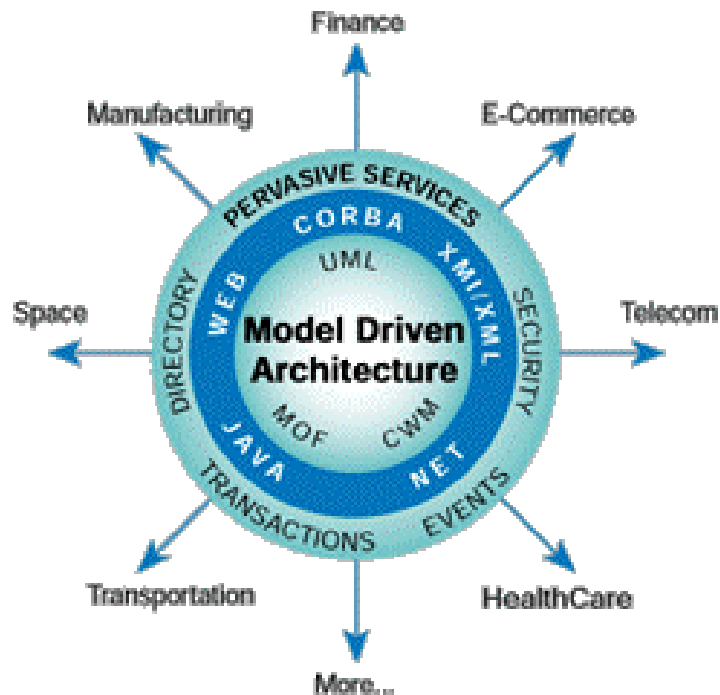
*Architecture Centric, Business driven,
Complex Life Cycle, Many Tools*



And do this with quality in a distributed environment

Solution for Managing Complexity :

MDA: Model Driven Architecture



- An evolution of OMA that includes best practices in Modeling , Middleware, Metadata and Software Architecture
- Model Driven (UML, MOF, CWM...)
 - Platform Independent Models (PIM)
 - Platform Specific Models (PSM)
 - Mappings : PIM <==> PSM
- Key Benefits
 - Improved Productivity for Architects, Designers, Developers and Administrators
 - Lower cost of Application Development and Management
 - Enhanced Portability and Interoperability
 - Business Models and Technologies evolve at own pace on platform(s) of choice

OMG Model Driven Architecture

MDA for Enterprise Integration

UML
Model & Design (PIM)

EDOC
UML4EDOC*(PSM)
UML4EAI*(PSM)

Vertical Industry Applications

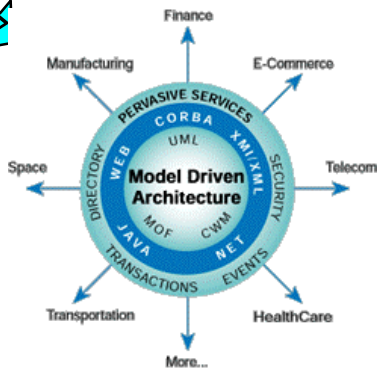
Business Components

Model Driven App Integration

Model Driven App Development

MetaData Management

Business Process Integration



Integration for

CORBA
UML4CORBA(PSM)

EJB
UML4EJB* (PSM)

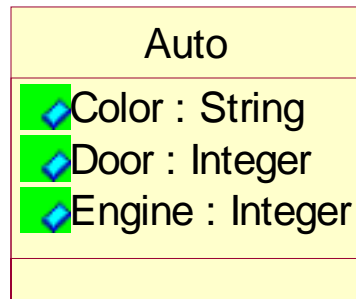
PIM : Platform Independent Model
PSM : Platform Specific Model

*Coming



Mapping from PIM to PSM - Simple Example using MOF/XMI

UML Model (PIM)



XMI Document (PSM)

```
<Auto>
  <Color> Red </Color>
  <Door> 4 </Door>
  <Engine> 2 </Engine>
</Auto>
```

IDL, Java... (PSM)

```
interface Auto
{
  Class Auto
  {public String color;
  public int Door;
  public int Engine;
  }
```

XMI DTD, Schema (PSM)

```
<!Element Auto
  (Color*,
  Door*,
  Engine*)>
```

OMG MDA Technologies

Submissions

EJB

Java

SPEM

UML Profile for EDOC...

Evaluating

UML

MOF

CORBA Med

Manufacturing



Life Sciences

EC
EAI
CCM
CWM
UML

CWM

EC
EAI
CCM
CWM
UML

Electronic Commerce

CIAS

Enterprise App Integration

Document Management

Etc.

Standards

MOF

UML

XMI

CCM

IDL
UML4CORBA

CWM



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Steve Brodsky
IBM
Senior Technical Staff Member



WebSphere MDA

Powered by MOF/XMI

Java

EJB

XML

Mapping

Web Architecture Models

HTML

JSP

RDB/CWM/SQL

WSDL

MQ/FCM

COBOL

User Model

+

User Application Model

Deployed Application

=

User Web Application



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Eugen Ardeleanu
Microsoft
VisualStudio.Net Program Manager



Enterprise Application Integration

- UML profiles (metamodels) targeting specific platforms – viable solution
- Registration (meta-data)
 - How are reusable assets (services) registered?
 - Is automatic detection possible (reverse engineering)? The core has to be rich enough (a union of all profiles?);
- Composition: Completeness & Consistency
 - How can the information in the model help compose different components: is **all** the **right** information there?
- Execution & Deployment
 - How is the execution semantics expressed (UML Action Semantics work in progress?)
- Constraints Language?

Microsoft UML modeling tool

- UML standard compliant
- Model validation according to the standard well-formedness rules
- Export UML models to XMI
- Integration with Visual Studio .NET
 - Code generation/reverse engineering to/from VS.NET (C#, C++, VB)
 - VS.NET templates support
- Based on the Visio design surface