

The background features two stylized globes, one positioned above the other. Each globe is rendered with a blue and yellow color scheme, representing continents and oceans. Two large, curved arrows, one purple and one blue, connect the two globes in a clockwise cycle, suggesting a continuous process or feedback loop.

***Open Toolkit for UML Model
Driven Code Generation for the Enterprise***

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Problem Area

- **Enterprise systems are hard to build**
 - Too much time is spent building the middle-tier
 - Developers want to focus on user functionality
 - Experts are needed for design and implementation
- **Technology evolution makes selection of middleware difficult and costly**
 - Market moves to “newer” technology, leaves developers and clients with stagnate and under supported technology
 - Difficult to make cost effective use of the latest advances in technology

Problem Area

- ***Support for Frameworks and Architectures***
 - Need for implementation of supporting methods
- ***No easy way to experiment with new technology***
 - Enterprise Java Beans (EJBs)
 - CORBA services
 - COM components
 - Web services
 - Too much work required of developers to make use of services

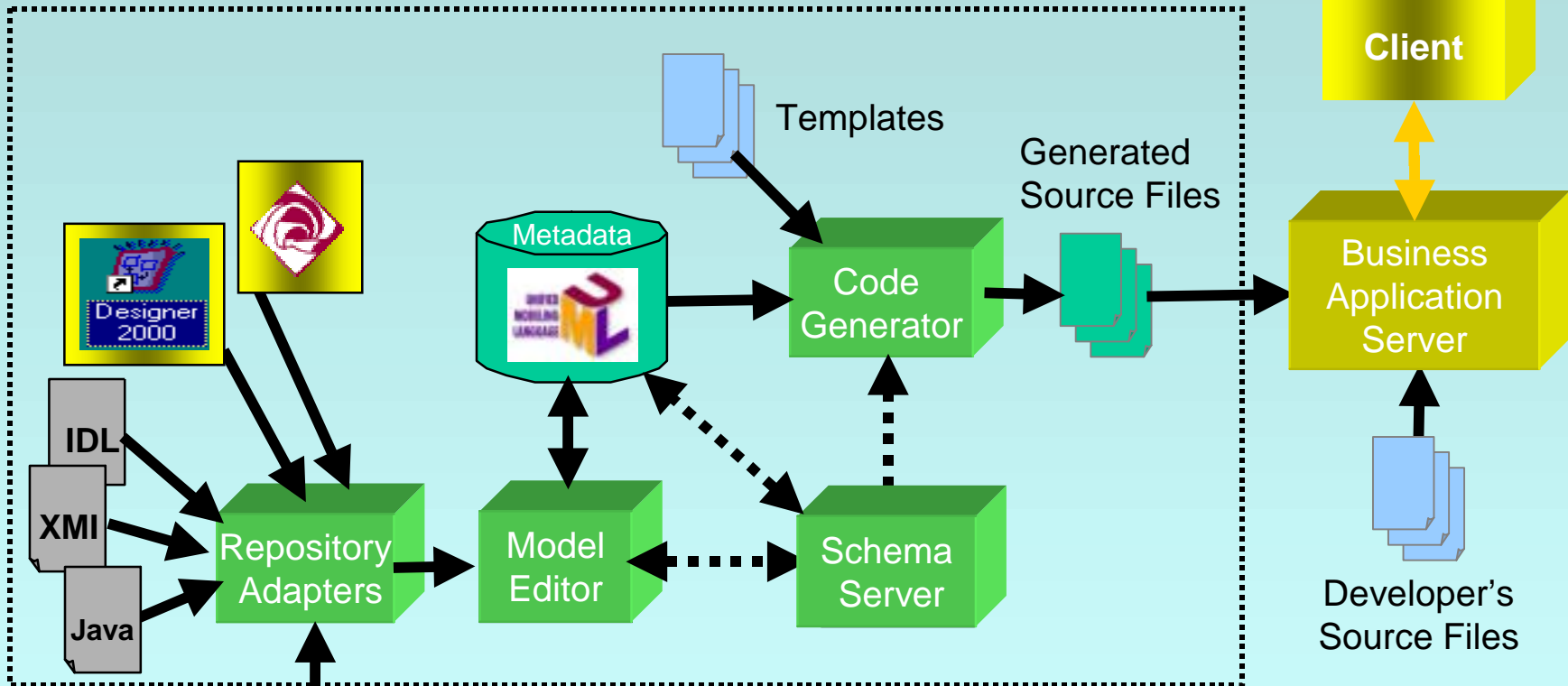
Solution

Focus on capturing the maximum amount of metadata about the system within a UML meta-model and then USE it

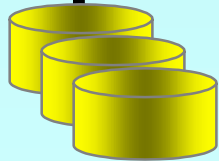
- *Use all available metadata for code generation*
- *Don't invent a new generation language*
- *Allow code generation to be open and extensible*
- *Use existing UML modeling tools*
 - *But don't tie developers into a proprietary solution*

Components - Scenario

Provides the Information Infrastructure



Information
Repositories
Oracle,
Sybase, etc



LEGEND

Our Component = 

COTS Component = 

Hand-Coded Component = 

Case Study Examples

Case	Number of Classes	Average Attributes per Class	Average Operations per Class	Lines of Code Generated
A	7	30	24	8,000
B	120	22	6	257,000
C	321	12	8	750,000

Note: Lines of code vary with the number of services enabled for that run of code generation

Examples

- **Generation of J2EE architecture class**
 - Bean managed persistence to mapped tables
 - Generation of standard J2EE classes
 - Generation of deployment files
- **Generation of CORBA infrastructures**
 - Generation of methods required by many of the OMG services
 - Persistence to both object and relational databases
- **Generation of Web Service and XML files**
 - WSDL, Web Service connector code
 - XML Schema
 - Model to Model mapping generation
- **Basically anything that can be defined by metadata**
 - Design Patterns

Questions?