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1 **OMG Architecture-Driven Modernization – Accelerating The Reuse of Existing Legacy Systems**

Accelerating The Reuse of Existing Legacy Systems

Whether you refer to your project as Portals, EAI, BPM, Basel II, SOA, integration, porting to a new platform, migration, transformation, evolution, downsizing, off-loading or architecture consolidation – the common theme is building on your existing investments and making the most of the application services, data and development processes that you have.

A wide range of approaches have been tried over the years to “making the most of your existing investments”. A new idea that shows a lot of promise for accelerating the reuse of existing legacy systems, and that is beginning to gain wider recognition, is “Architecture-Driven Modernization” (ADM) from the Object Management Group (OMG).

OMG Architecture-Driven Modernization

In 2003 a number of interested OMG members, (including Delta Software Technology) came together at the OMG Technical

Meeting in Paris, France to form a new working group to apply the concepts, practices and standards of Model-Driven Architecture (MDA) to create interoperability standards for modernization tools.

MDA is a top-down model-driven process for developing new systems, whereas Architecture-Driven Modernization (ADM) is a bottom-up approach to accelerate the reuse of existing systems.

ADM incorporates the bottom-up extraction of architectural models from the existing software implementation, followed by their top-down reuse in MDA processes. Further, ADM describes in detail the individual scenarios for the modernization of legacy systems, giving a direct connection to usage in the real-world.

ADM can be thought of as “closing the gap” between the different methodologies and tools available for old and new systems.

Since the initial meeting in Paris ADM has quickly established itself and become one of the most active OMG areas. ADM has now achieved the status of a formal OMG Task Force and the first two standards are already subject to the final voting process.

Delta is closely involved with the modernization work being performed by the [ADM Task Force](#) (ADMETF). Rüdiger Schilling, Delta's co-founder and CTO, will be attending the next OMG Technical Meeting in Atlanta, USA in mid-September to continue work on the ADM standards.

OMG Defines Modernization

The ADMETF defines modernization as being the process of understanding and evolving existing software assets, whereby modernization can be decomposed into three basic activities:

- **Assessment** – Analysis and exposure of system and business artefacts, architectures, data and process flows, system structure and behaviour.
- **Stabilization and Standardization** – Tasks that structure, rationalize, realign, modularize and otherwise refactor existing systems.
- **Transformation** – Extraction of data definitions, data and business rules, along with the reuse of existing system artefacts in the redesign of the target architectures.

The ADMETF is driven by vendor and end-user organisations that want to extract meta-data from existing software environments and then to share this information across a broad range of modernization tools. To do this effectively requires defined and accepted open standards.

The OMG strives to closely relate their standards work to business practice. Therefore, the ADMETF is taking a pragmatic approach, basing their work around real-world scenarios based on typical modernization projects.

Modernization Scenarios

In order to ensure that ADM standards evolve to support various users, customers, strategies and projects, the ADMETF has defined a range of modernization scenarios that the future ADM standards may facilitate:

- Application Portfolio Management
- Application Improvement
- Language-to-Language Conversion
- Platform Migration
- Non-Invasive Application Integration
- Services Oriented Architecture Transformation
- Data Architecture Migration
- Application & Data Architecture Consolidation
- Data Warehouse Deployment
- Application Package Selection & Deployment
- Reusable Software Assets and Component Reuse
- Model-Driven Architecture Transformation

Defining such scenarios is useful as experience shows it is difficult for someone unfamiliar with modernization to envision all of its potential applications. For example, it may not be readily apparent that modernization can help leverage the refactoring of several applications to facilitate migration to services oriented architecture (SOA).

Modernization scenarios provide an excellent way of talking about the types of projects where modernization tools and techniques can be of value. This

is an approach that Delta has been using for a while now with SCORE Adaptive Bridges for non-invasive integration. You will be seeing more about how Delta supports the individual OMG Modernization Scenarios in the near future.

OMG Architecture-Driven Modernization Tutorial

The ADMTF presented a comprehensive (109 slides!) tutorial on Architecture-Driven Modernization at the OMG Technical Meeting held in Athens, Greece in April 2005.



OMG Tutorial on Architecture-Driven Modernization

This tutorial introduces the concepts of ADM and then moves on to look in detail at

the first two standards that are being defined by the ADMTF – Knowledge Discovery Meta-model (KDM) and Abstract Syntax Tree Meta-model (ASTM). The presentation is in Microsoft PowerPoint format and is in English.

OMG Standards for ADM

The ADMTF has defined a multi-year roadmap consisting of seven inter-related standards to facilitate the interoperability of modernization tools. These standards cover the following broad areas:

- Knowledge Discovery
- Abstract Syntax Tree
- Analysis
- Metrics
- Visualization

- Refactoring
- Target Mapping & Transformation

The ADMTF has started with a Knowledge Discovery Meta-model (KDM) that defines a common view of application meta-data. Users of tools that support the KDM can then collect and integrate this information for a variety of platforms, languages, databases, interfaces and environments.

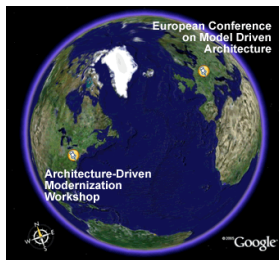
The KDM is based on the OMG Meta-Object Facility, a standard for the definition and usage of meta models that has been used by Delta in a number of products, including SCORE Adaptive Bridges. Delta's transformation solutions based on AMELIO and SCORE Transformation Suite perform knowledge discovery of existing applications and we will be working to bring these into line with the evolving OMG ADM standards.

Further Information

If you would like to know more about building on your existing investments and how Delta can help you to make the most of your application services, data and development processes then please contact your local sales representative.

2 Model-Driven Generator Development – The Foundation of Delta’s Successful Software Generator Products

Learn More About OMG ADM and MDA At Upcoming Conferences in Europe and USA



OMG Architecture-Driven Modernization Workshop Begins on 24th October in USA



Architecture-Driven Modernization Workshop
A Model-driven Approach to Modernizing IT Systems

The second annual OMG Architecture-Driven Modernization Workshop takes place between 24th and 27th October 2005 in Alexandria, Virginia, USA.

Hosted by the OMG and its ADM Platform Task Force (ADMTF), this workshop will explore concepts related to the understanding, improvement, redesign, migration and redeployment of existing software assets. Practitioners with relevant experience are invited to share their experiences with each

other and their vendor community.

The first article in this edition of the Delta newsletter introduced the OMG ADMTF and its role in accelerating the reuse of existing software systems. If you are in the USA and would like to learn more about ADM then in particular we can recommend the following sessions at the workshop:

- **Architecture-Driven Modernization 101: Concepts, Strategies & Justification** – This introductory session is given by William Ulrich, one of the driving forces behind ADM, and will outline practical modernization options for business and IT analysts and architects. It discusses ways to leverage ADM analysis, re-factoring and transformation techniques and tools to augment traditional replacement, migration, integration and package deployment strategies.
- **Knowledge Discovery Meta-Model (KDM)** – Nikolai Mansurov will present a half day tutorial on the work of the ADMTF related to Knowledge Discovery Meta-Model (KDM), the core standard on which ADM is being built.

You will find the official Web site of the workshop here: <http://www.omg.org/news/meetings/ADM2005>

2005 European Conference on Model-Driven Architecture Begins on 7th November in Germany



The 2005 European Conference on Model-Driven Architecture – Foundations and Applications, takes place between 7th and 10th November 2005 in Nuremberg, Germany.

This conference is dedicated to furthering the state of knowledge and fostering the industrialization of the OMG MDA methodology. Its focus is on engaging the key European research and industrial figures in a dialogue which will result in a stronger more efficient industry, producing more reliable software on the basis of state-of-the-art research results.

Delta has been involved with the MDA initiative for a number of years, with MDA forming the basis of SCORE Adaptive Bridges. If you are in Europe and would like to learn more about MDA then we think the following tracks at the conference are of particular note:

- **Track A3: MDA and component-based software engineering** – With sessions on “An MDA Approach for Adaptable Components” and “Model-driven development - hot spots in business information systems” this looks to be a good choice for practical usage of MDA.
- **Track F: Model Synchronization and Consistency** – With sessions on more advanced topics such as “Horizontal Transformation of PSMs” and “Automatic Support for Traceability in a Generic Model Management Framework” this looks to be an interesting track for those that want to have a more detailed insight into practical aspects of using MDA.

You will find the official Web site of the conference here: <http://ecmda-fa.org>

Further Information

If you would like to know more about building on your existing investments and how Delta can help you to make the most of your application services, data and development processes using MDA and ADM then please contact your local sales representative.

3 SCORE Adaptive Bridges Version 3.1 – New Tools, Technologies and Target Platforms for Freedom of Choice

Delta's Generators Again Achieve The Shortlist For The “Software Engineering 2006” Research Initiative

With the research initiative “Software Engineering 2006” the German Federal Ministry for Education and Research (BMBF) aims to strengthen Germany's leading position in software technology. Delta Software Technology will be playing a central role in the project “Model-Driven Integration of Information Systems” (MINT) by providing the generator technology and tools. Our product SCORE Adaptive Bridges will be used and extended to make existing applications and their data objects available as flexible services in new environments. In addition, the HyperSenses Technology created by Delta has been selected to develop project-specific generators.

The Research Initiative

The second round of the “Software Engineering 2006” research initiative is funded to the tune of 45 million euro and is focused on:

- Maintenance and reuse of application software systems
- Correctness, security and reliability of software systems
- Development of software systems in (geographically) distributed environments
- Ambient intelligence
- Requirements engineering (including end user development)

In order to support innovation in strategically important fields of technology, and to strengthen Germany’s standing in the international marketplace, particular emphasis is being given to joint projects between research institutes, universities and commercial organisations.

Delta has already delivered the generator technology and tools for the successfully initiated PESOA project (Process Family Engineering in Service-Oriented Applications) that was a part of the research initiative round that started in 2003. With the new project Delta builds on its successful cooperation with research institutes and universities.

The MINT Project

Existing model-driven approaches for the integration of software systems have unfortunately up until now concentrated on new development, thereby neglecting the challenges of integration, evolution and modernization of existing systems.

The MINT project, lead by the renowned “Oldenburger Research and Development Institute for Information Tools and Systems” (OFFIS), has as its goal the creation of an innovative model-driven software development process that supports the integration of existing (heterogeneous) commercial software systems. By using model-driven development concepts and advanced generator technology the project aims to increase the adaptability of the software so that it is better able to thrive in a continuously changing world.

This project is part of the research initiative stream “Maintenance and Reuse of Application Software System”. A key element of the project is a comprehensive validation process that will compare and evaluate the different connector technologies with the goal of creating decision criteria for the possible real-world use of the methodology.

Delta’s Generative Tools

Delta’s SCORE Adaptive Bridges product, already proven in customer projects, is able to integrate existing applications and application components as adaptive services into new “worlds”. The necessary adapters are automatically generated. SCORE Adaptive Bridges’ non-invasive integration technique ensures that existing data objects and application components can be reused unchanged.

A particular focus of the MINT project is the possibility to reuse existing data objects as adaptive services in diverse client architectures.

In addition, Delta’s advanced HyperSenses Technology and Pattern By Example will be used to develop

project-specific generators.

Start Anticipated in October 2005

The decisive factor in selecting projects for the research initiative, in addition to the level of innovation and the significance compared to other international activities, is the feasibility of the project taking into account the scientific and technical implementation risks. Only about 10% of the submitted project proposals make it through the selection process on to the shortlist.

For Delta the close cooperation with leading universities is an important element in product development. The early and comprehensive feedback enables the development of products that are ideally suited to the use in large projects.

The MINT project has made it onto the shortlist of projects selected as being especially worthy of funding in the second round of the Federal Ministry for Education and Research's "Software Engineering 2006" research initiative. Following the submission of detailed project descriptions, all that is now required is for the funding to be approved and then the way will be clear for the MINT project to start in October.

Further Information

If you would like to learn more about the advan-

tages of our generator technology and tools then please read our white paper "Faster ROI Through Automatic Integration of the Back-End Systems" or contact your local sales representative.

You will find further information on our core technologies, as well as on Delta's activities in the area "Research and Development", on our Emerging Technologies Web site.

You would like to be regularly informed of our research and development activities? Then simply subscribe to our GP-Letter.

SCORE Adaptive Bridges

SCORE Adaptive Bridges offers secure and in particular non-invasive integration for existing applications. The applications can not only be efficiently connected with new clients, they are even in the position with SCORE Adaptive Bridges to make new bespoke services available for clients – without requiring any changes to the programs. SCORE Adaptive Bridges automatically generates all the integration and connectivity code that is required.

If you would like to know more about SCORE Adaptive Bridges then you will find comprehensive information in the Product area of our Web site. Alternatively please contact your local sales representative.

More newsletters and our newsletter administration can be found here:
www.delta-software.com/newsletter

