Metamodel Specification Tools Creation Review

Kenn Hussey

January 14, 2009

Communication Channel URL: http://www.eclipse.org/newsportal/thread.php?group=eclipse.mst

Agenda

- Executive Summary

- Requirements

- Mentors

- Committers

- Best Practices

- Community Response

- Initial Implementation Focus

- Eclipse Development Process

- Future Directions

Executive Summary

- Metamodel Specification Tools (MST) is a proposed open source subproject of the **Model Development Tools (MDT)** project to provide tooling for the development of MOF™-compliant metamodels and specifications based on them

- The goals of the MST project are to

  - leverage the CMOF (de)serialization support that was introduced in the UML2 project as part of the Ganymede release

  - customize and/or extend the existing (or forthcoming) UML® editors (primarily for class and package/profile diagrams) to expose CMOF concepts which are missing in UML (like identifiers, namespace URIs, and XMI® tags)

  - provide a mechanism for generating a specification document (or at least a decent boiler plate for one) directly from a metamodel using BIRT

  - automate the mapping between a metamodel and its profile representation (if there is one)

  - make use of the Eclipse Process Framework (EPF) to document and coordinate the specification development process

  - provide a proof of concept for changes and/or extensions to EMF and/or UML2 to better support richer and evolving metamodels, as per the **MOF Support for Semantic Structures RFP**

Requirements

- Enough Developers
  - The MST project has sufficient (five) committed developers to achieve its goals

- Clear and Concise Description
  - To date, the community has not found any aspects of the proposal confusing or unclear; expansions are provided for all acronyms used by the proposal

- Collaborations
  - Collaborations have been discussed with members of the Ecore Tools, EMF, EPF, Papyrus, and UML2 (sub)project teams

- Extensible Frameworks and Exemplary Tools
  - The MST project is visibly committed to producing both extensible frameworks and exemplary tools by virtue of its primary goals – the provide necessary frameworks (and extensions) and tooling to facilitate the development of metamodels and specifications based on them

- Sufficient Time for the Community
  - The MST project was declared on October 16, 2008 (just less than three months ago)

- The following mentors have been recruited for the MST project:

    1. Ed Merks, Macro Modeling Inc., Eclipse Modeling Project co-lead and Eclipse Modeling Framework project lead

    2. Richard Gronback , Borland Software Corporation, Eclipse Modeling Project co-lead and Graphical Modeling Framework project lead

Committers

- The following initial committers have been proposed for the MST project:

  - Kenn Hussey, Embarcadero Technologies (project lead)

  - Nicolas Rouquette, JPL

  - Nick Dowler, Adaptive

  - Chris Armstrong, Armstrong Process Group

  - Tom Digre, ModelDriven.org

Committers – Kenn Hussey

- Kenn Hussey works as a Program Manager for Embarcadero Technologies. He is a member of the Project Management Committee (PMC) for the Modeling project, lead of the Model Development Tools (MDT) sub-project, and a committer on the Eclipse Modeling Framework (EMF) sub-project at Eclipse. He is also actively involved with the Object Management Group™ (OMG™), representing Embarcadero on the Business Process Modeling Notation (BPMN), Unified Modeling Language™ (UML), and Meta-Object Facility (MOF) / XML™ Metadata™ Interchange (XMI) revision task forces, as well as the Information Management Metamodel (IMM) submission team. Kenn holds Master of Science (Computer Science) and Bachelor of Computer Science (Honors) degrees from Acadia University.

Committers – Nicolas Rouquette

- Nicolas Rouquette is a principal member of the technical staff at the Jet Propulsion Laboratory of the California Institute of Technology in Pasadena, California. He holds an engineering diploma from ESIEE in Paris and a Ph.D. in Computer Science from the University of Southern California. He is a member of NASA's Engineering Safety Center's Technical Discipline Team in software where he represents NASA's interests at the OMG on the development and definition of the UML specification. He is key a contributor to the "Executable UML" specification for the OMG. Nicolas is a member of the IEEE, ACM and the Association for Symbolic Logic. At JPL, Dr. Rouquette has been using Eclipse-based modeling tools in conjunction with lightweight formal methods techniques to support his work on software architecture and engineering for space mission projects. Since 2006, he has reported on several bugs and contributed several bug fixes, primarily in the context of the MDT sub-project .

Committers – Nick Dowler

- Nick Dowler has world-class expertise in MOF, XMI, CWM and other metamodel technologies and standards. He has an active technical leadership and development role in Adaptive's commercial product implementation of its MOF-based repository which includes integrated implementation of various standard metamodels including CWM and UML (versions 1 and 2), and which incorporates support for the Eclipse XML Schema metamodel (forming part of IMM), leveraging its EMF implementation. Adaptive initiated and is active in the development of the IMM standard. Nick is a committer on the Eclipse MDDi project and active in the EU ModelWare and ModelPlex projects that contribute to it. He chairs OMG's Revision Task Force for MOF2 Versioning. Nick is currently a committer on the IMM component of the MDT sub-project.

Committers – Chris Armstrong

- Chris Armstrong, President of Armstrong Process Group, Inc., is an internationally recognized thought leader and expert in enterprise architecture, systems engineering, software development, iterative/agile development, object oriented analysis and design, the Unified Modeling Language (UML), use case driven requirements, and process improvement. Over the past twenty years, Chris has worked to bring modern management and engineering best practices to practical application at many different private companies and government organizations all over the world. He has worked in many different industries including financial services, manufacturing, retail, healthcare, education, publishing, real estate, life sciences, and social services. In 2005, Chris started Armstrong Process Group, Inc., and continues his focus on organizational development, process improvement training and consulting, and IT professional development and certification. Chris represents APG at the Architecture Forum at The Open Group, the Object Management Group and the Eclipse Process Framework project.

- Tom Digre, currently Vice President of Product Development for Data Access Technologies, Inc. (DAT), has more than 32 years' experience developing software for enterprise architecture and automated development. His expertise is centered in enterprise architecture; standards (both authoring and implementing); model-driven architecture; Unified Modeling Language (UML); metadata, metamodels, and related tooling and facilities, including OMG-MOF; code generation and dynamic execution from models; automating the development process; distributed-object and internet technologies (including Corba, Enterprise JavaBeans (EJB) and Extensible Markup Language (XML); and bridging from architecture and design to implementation. In addition, he has helped with innovations to meta model facilities, model execution engines, advanced technology research projects, code generators, CASE tools, application architectures, manufacturing systems, operating systems, and compilers.

Best Practices

- ## Communities

  - The MST project has a number of contributors and users willing to make the project a success; those outside the core developers include IBM, No Magic, Unisys, visumpoint, and Zeligsoft

- ## Diversity

  - The MST project is a diverse effort, with initial involvement from at least ten different organizations

- ## Technical Scope

  - The technology scope and focus of MST are well-defined and have a reasonable likelihood for success

- ## Maturity Plan

  - It is expected that the MST project will take two years (releases) to mature within the top-level Modeling PMC

- ## Following Eclipse Rules

  - The proposed project lead and initial committers for the MST project understand their responsibility to implement the minimal restrictions and rules placed on projects by the Eclipse Foundation

Community Response

- The community response to the MST project proposal has been positive

- Since its declaration, the MST project has attracted two additional initial committers and two potential IP contributions

Initial Implementation Focus

- The initial implementation focus will be on creation and serialization of metamodels (in CMOF XMI format), based on current MOF practices, by leveraging functionality from UML2 and Papyrus components of MDT

- Meanwhile, a proof of concept will be done based on draft submissions for the MOF Support for Semantic Structures RFP and validated by the EMF and MDT communities at Eclipse

- Longer term, the project team will look at leveraging BIRT and EPF to generate specification document and support specification creation/revision process(es)

Eclipse Development Process

- The MST project members and new candidates have read and understand the Eclipse Development Process and their responsibilities towards the community and especially in regards to IP issues

Future Directions

- In the future, the MST project may look at how innovations in the way metamodels are defined and/or structured could/should be repatriated back to <u>EMF</u> and/or <u>UML2</u> projects

- The MST project also hopes to provide greater assistance to specification authors by looking at leveraging advanced techniques for developing specification metamodels in conjunction with corresponding formalizations in OCL and lightweight formal specification languages

- Finally, the project team would look toward having MST become the de facto tool for authoring specifications at the <u>OMG</u> (and possibly other open standards/specifications organizations)

Legal Notices

- **MOF**, **Object Management Group**, **OMG**, and **Unified Modeling Language** are trademarks of the Object Management Group

- **UML** and **XMI** are registered trademarks of the Object Management Group

- **Metadata** and **XML** are trademarks of the World Wide Web Consortium; marks of W3C are registered and held by its host institutions MIT, ERCIM, and Keio

- **Java** and all Java-based trademarks are trademarks of Sun Microsystems, Inc. in the United States, other countries, or both

- Other company, product, or service names may be trademarks or service marks of others

Thank You

Communication Channel URL: http://www.eclipse.org/newsportal/thread.php?group=eclipse.mst