

Advanced UML 2 Workshop: *Modeling System Architectures with UML 2™* – *Enterprise Architect™* edition

This advanced UML 2 modeling workshop builds on principles and best practices learned in the *UML 2 Simplified™* workshop, and shows how they can be applied to model system architecture patterns and frameworks using Enterprise Architect™, an award winning modeling tool.

Although visual modeling has been an important part of software development since the invention of flowcharts more than a half-century ago, during the last decade software developers have significantly increased their use of model-driven development technologies to **evolve a new discipline of Model-Driven Software Engineering (MDSE)**. MDSE differs from traditional software engineering, which is sometimes characterized as document centric, in that it **emphasizes a system architecture model that captures software artifacts for the full System Development Life Cycle (SDLC)**. In addition to serving as a knowledge repository for SDLC artifacts, a system architecture model can also be executed to drive system simulations and generate software code.

This interactive modeling workshop explains advanced techniques for specifying system architecture patterns and frameworks with UML 2, the industry standard architecture description language. It builds on the principles and best practices learned in the *UML 2 Simplified™* workshop, and it includes a practicum to show how the techniques can be applied to model system architectures that are systems-of-systems. The hands-on workshop shows you how to construct a well-formed system architecture model with UML 2 and organize it using views, subsystems, and frameworks.

THE PIVOTPOINT TRAINING ADVANTAGE

- **Authored and taught by experts.** All workshops are authored by PivotPoint's founder, Cris Kobryn, an internationally recognized expert in visual modeling languages and model-driven development technologies. (Cris chaired the international standardization teams for UML 1.1, UML 2.0 and SysML 1.0.) In addition, all PivotPoint instructors have 10+ years experience working with Model-Driven Development technologies.
- **Small, intense and interactive.** We limit workshop sizes, usually to a maximum of 12 students. This ensures that students get the individual attention that they need to learn quickly. Also, our workshops are intense and highly interactive with frequent work sessions, so you will learn from other students as well as your instructor.
- **Proven principles and best practices.** Our workshops emphasize proven modeling principles and best practices that will work with all modeling tools that comply with the relevant standards. If you have already chosen a modeling tool, we can integrate optional tool training in your workshop. If you have not yet selected a modeling tool, we can help you select one that best meets your project and team needs.
- **Emphasis on pragmatic problem solving.** Our workshops emphasize the use of modeling technologies to solve tough, practical problems such as those you encounter on your day job. The bigger and more difficult the problem you choose for practice sessions, the more interesting the workshop will be for the students and the instructor.
- **Flexible choice of venue.** Our workshops are available onsite at Client training facilities, which allow us to customize workshops to meet Client project or team needs, or at PivotPoint training facilities.

WHAT WILL YOU LEARN?

- Advanced UML 2 modeling techniques to refine structural and behavioral models
- How to customize UML 2 for your work domain and target platform
- How to build executable UML 2 models, which can drive simulations and generate code
- How to select model-driven processes and tools
- How to define and reuse architecture patterns
- How to select and apply architecture frameworks
- Advanced tool techniques for selected UML 2 modeling tool: Enterprise Architect™
- Which system architecture principles and best practices are most important to your team and your project
- How to learn more about system architecture modeling

WHO SHOULD PARTICIPATE?

Software architects, software designers, software developers, system engineers, and others who want to learn how to improve how they specify system architectures will benefit from this workshop.

PREREQUISITES

UML 2 Simplified™ or equivalent UML 2 training.

WORKSHOP AUTHOR & PRIMARY INSTRUCTOR



Cris Kobryn is the CEO and Founder of PivotPoint Technology Corporation, a company that specializes in Model-Driven Engineering Solutions™ for tough business and engineering problems. He is an internationally recognized expert in visual modeling and model-driven development, and has successfully applied these technologies to diverse industries ranging from aerospace-defense and telecom to financial services and manufacturing. Cris has global experience leading high-performance software development teams, and has architected custom applications and commercial products. He formerly held senior technical positions at Telelogic, EDS, MCI Systemhouse, Inference Corporation, and SAIC.

Cris chaired large international teams of vendors and users to specify the Unified Modeling Language (UML) 1.1 and 2.0 standards for software engineering, and the Systems Modeling Language (SysML) for systems engineering. In recognition of Cris's contributions to the UML the Object Management Group (OMG) presented him with its Distinguished Service Award, and in acknowledgement of his contributions to the SysML the International Council on Systems Engineering (INCOSE) presented him with its Outstanding Service Award. Cris is a contributing editor for the *Software and Systems Modeling* journal, and a member of IEEE, INCOSE, ACM, and AAAI.

WORKSHOP SYLLABUS

The workshop syllabus, in a menu form that can be customized to meet your needs, is described at the end of this handout. NOTE: This workshop description and syllabus are subject to revision. Check www.PTCorp.com/training.htm for updates.

WORKSHOP SIZE

COST, AVAILABILITY, AND FURTHER INFORMATION

This workshop is available at client sites, PivotPoint instructional facilities, or by web conferencing. Costs depend upon your choice of venue, duration, and the number of students. For further information regarding the contents, availability, and cost of the workshop please email us at workshops@PTCorp.com or call **+1-760-728-9747**.

WORKSHOP MENU

All PivotPoint workshops include both structured presentations and interactive hands-on work sessions to reinforce learning principles and best practices. In addition, workshops can be customized for different project and team requirements.

WORKSHOPS THAT INCLUDE STRUCTURED TRAINING + PROJECT PRACTICUM

- **3 day workshop** includes: *UML 2 – Advanced, System Architecture – Intermediate*, and either *UML 2 – Advanced Modeling Tool* or *System Architecture – Project Practicum*.
- **4 day workshop** includes: *UML 2 – Advanced, System Architecture – Intermediate, UML 2 – Advanced Modeling Tool* and *System Architecture – Project Practicum*.
- **5 day workshop** includes: *UML 2 – Advanced, System Architecture – Intermediate, UML 2 – Advanced Modeling Tool* and two days of *System Architecture – Project Practicum*.

WORKSHOPS THAT FEATURE PROJECT PRACTICUM PEER REVIEWS AND MODEL MAKEOVERS

- **3-5 day workshop** includes: three to five days of *System Architecture – Project Practicum* where the instructor can facilitate system architecture peer reviews and/or model makeovers.

<p style="text-align: center;">UML 2 – ADVANCED [Module# LU103]</p> <p>UML 2 Review <i>[If UML 2 refresher required]</i></p> <p>Topics</p> <ul style="list-style-type: none"> • Advanced structural modeling • Advanced behavioral modeling • Design patterns • Customizing UML for domains and platforms • Executable models • Process selection and customization • Tool selection and customization 	<p>Goals</p> <ul style="list-style-type: none"> • Learn advanced UML 2 modeling techniques to refine structural and behavioral models • Understand how to customize UML 2 for your work domain and target platform • Learn how to build executable models, which can drive simulations and generate code • Understand how to select model-driven processes and tools
<p style="text-align: center;">SYSTEM ARCHITECTURE – INTERMEDIATE [Module# SA102-U]</p> <p>Topics</p> <ul style="list-style-type: none"> • Middle-Driven Marketecture vs. Model-Driven Tarchitecture • Industry-standard Architecture Description Languages: UML, SysML, BPMN • OMG’s Model Driven Architecture™ standards • Architecture patterns • Architecture frameworks: DODAF/MoDAF, TOGAF, Zachman • Managing large-scale models: integrating views, subsystems, and model libraries 	<p style="text-align: center;">Goals</p> <ul style="list-style-type: none"> • Learn how to define and reuse architecture patterns • Understand how to select and apply system architecture frameworks
<p style="text-align: center;">UML 2 – ADVANCED MODELING TOOL: ENTERPRISE ARCHITECT™ [Module# LU112-EA]</p> <p>Topics</p> <ul style="list-style-type: none"> • Team modeling • Roundtrip engineering • Document generation • Requirements-driven modeling • Pattern-based modeling • Customizing profiles 	<p>Goals</p> <ul style="list-style-type: none"> • Learn advanced tool techniques for selected UML 2 modeling tool

SYSTEM ARCHITECTURE – PROJECT PRACTICUM

[Module# SA121-U-EA]

This one or multi-day project practicum provides an opportunity to apply System Architecture modeling principles and best practices to solve project modeling problems in a creative and supervised workshop environment. The practicum can be used to facilitate:

- System Architecture model peer reviews
- System Architecture model revisions and extreme makeovers

Students can identify project modeling problems in advance, or Instructor will work with students to identify them.

Goals

- Identify the System Architecture modeling principles and best practices that are most important to your team and your project
- Apply advanced System Architecture modeling techniques to project problems that you choose