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Telelogic Advances Systems and Software Development with Tau® Generation2 Tools

- New Model-Driven Visual Tool Family Ends Reliance on Code-Centric Programming to Deliver Better, Faster and Cheaper Systems and Real-Time Software -

MALMÖ, Sweden and IRVINE, California – October 7, 2002 – Telelogic (Stockholm Exchange: TLOG), the leading global provider of solutions for advanced systems and software development, today announced the availability of two new state-of-the-art tools for high productivity development of advanced systems and real-time software: Telelogic Tau/Architect™ and Telelogic Tau/Developer™. Both tools, along with Tau/Tester™, which was introduced in May 2002, represent Telelogic's next generation of development tools, known as Tau Generation2.

With Tau Generation2 companies can for the first time deploy across the entire enterprise an integrated, multi-user visual tool solution that supports and accelerates the entire application development lifecycle – from system analysis and specification to real-time software design, implementation and testing – all within the same state-of-the-art, productivity-enhancing development environment. Using models to visualize the development process, Tau Generation2 tools enable significant increases in productivity to be realized compared to labor intensive manual programming approaches.

Tau/Architect and Tau/Developer both support the Unified Modeling Language™ (UML™), an industry standard visual specification language. While UML is currently being revised by the Object Management Group™ (OMG™), the organization responsible for the development of UML and other computer industry specifications, Tau/Architect and Tau/Developer include many of the advanced features proposed for the next major revision of the language known as UML 2.0. Telelogic is playing a leading role in defining the evolving UML 2.0 standard as a contributing member of the Object Management Group. Telelogic is also a major contributor to the OMG's Model Driven Architecture™ initiative and is particularly active in task forces and working groups that focus on UML models and methods.

While Telelogic's two new tools both support UML, they are targeted at different users. With its ability to automatically generate complete applications directly from a graphical model, Tau/Developer is ideal for software engineers who design and develop real-time software. In contrast, Tau/Architect is ideal for system engineers who want to model large and complex systems using an industry accepted visual language. This enables specifications to be validated at an early stage for timely and cost effective error correction. With both systems and software engineers using a UML compatible platform, Tau/Architect and Tau/Developer improve the

communication and collaboration between these distinct user communities by enabling them to "speak the same language."

Helping Systems Engineers Visualize and Prove Requirements
UML 1.x, the first generation of the notation, was not well suited for use by systems engineers because it lacked support for, among other things, specifying architectures and component-based development. The revision of the language, which is currently underway at the OMG, will address these issues in two important ways. First, the expressiveness of the language is being enriched to meet the needs of systems engineers as well as software engineers. Secondly, the precision and completeness of the language is being improved so that it will be possible to specify executable models, reducing the need for manual programming. When finalized, systems engineers will be able to use UML 2.0 to prove that requirements are correct by simulating and testing them. Furthermore, since software engineers can also use UML, it will become a common language across the software development lifecycle, thus reducing the risk of misinterpretation.

Tau/Architect supports the evolving UML 2.0 revision, and through its integration with the market leading requirements management tool Telelogic DOORS®, systems engineers can precisely visualize requirements very early in a project. The integration delivers full traceability from textual requirements in DOORS to the visual expression of those requirements in the UML model within Tau/Architect. By supporting dynamic model execution, systems engineers can prove that requirements are sensible and correct, regardless of whether the system is to be implemented in hardware, software, or a combination of both. As such, the advanced capabilities of Tau/Architect enable systems engineers to produce high quality systems specifications first time, every time. For systems with a software component, Tau/Developer may be used downstream by software engineers. Because the UML models produced by the systems engineers are reused, miscommunication between systems and software engineers is eliminated once and for all.

Helping Organizations Develop Better Real-Time Software Faster and Cheaper
The vast majority of today's software developers still rely on labor intensive, code centric methods. However, more and more companies are adopting model-driven development approaches that are reflected in tools like Tau/Architect and Tau/Developer. This enables system specifications and designs to be modeled, analyzed and validated early in the development lifecycle where problems are easy to fix. Instead of months of hand coding, model-driven tools use automatic code generation to provide complete software applications in minutes.

"The best measures of the success of our Model Driven Architecture (MDA) are its user benefits, such as increased precision, quality and productivity," said Richard Soley, chairman and CEO, Object Management Group. "In order to realize those benefits, innovative development tools driven by MDA standards are required, such as Tau/Architect and Tau/Developer. We commend Telelogic for its leadership role in contributing to the evolving UML and MDA standards, and for transforming those standards into power tools for developers."

Comments from Industry Analysts
"Organizations using a model-driven or pattern-based application development framework containing a large inventory of business components have the potential to be five to ten times more productive and responsive than those that do not," said Michael Blechar, vice president, Internet and e-Business Technologies, Gartner. Through Tau/Architect and Tau/Developer, Telelogic delivers these same benefits to the real time software development market.

"With their ability to model, analyze and validate designs early on, modeling tools are becoming an increasingly important foundation for the software development process," said Chris Lanfear, analyst at Venture Development Corporation (VDC). "We expect that by 2006, worldwide

shipments of software modeling tools for embedded applications will exceed US$350 million, which represents a compounded annual growth rate of over 17 percent."

Comments from Users
"We believe that the automatic implementation of visually defined software architectures is the next revolution in software development," said Jason Smith of Raytheon. "Our overall evaluation of Tau/Developer was positive as the tool and the training exceeded our expectations."

"At Nokia Research Center, we have evaluated Tau/Developer since early 2002, and we are impressed with the tool's strong visual modeling and simulation capabilities and its overall user-friendliness," said Ari Ahtiainen, senior research manager, Nokia Research Center. "As for the evolving UML 2.0, we view it as a very important technology platform, and we believe it will significantly increase productivity compared to traditional development approaches. Our organization is already setting up a UML 2.0-based development methodology for mobile protocol software development, and Tau/Developer is helping us bring these plans to life."

"Tau/Developer provides us with a higher level view of our designs, extending the benefits of design simulation, validation and automatic code generation earlier in the lifecycle," said Mark Jones at Thales e-Security, Brighton, U.K. "This will allow us to demonstrate at an early stage the ultimate product behavior, verify functionality, and find flaws in the system when they are still inexpensive to fix."

Tau/Architect & Tau/Developer Overview
The key features of Tau/Architect and Tau/Developer include:

- **Precise and unambiguous system specification** – Engineers can visually specify systems using a high-quality implementation of the UML standard, including many of the advanced features proposed for UML 2.0. This results in specifications that are not only easier to understand, but also more correct and precise.

- **Specification of behavior** – Most system analysis tools allow only specification of system architecture. Tau/Architect and Tau/Developer also allow the engineer to specify – visually – the dynamic aspects of the system's behavior.

- **Automated application generation (Tau/Developer only)** – Tau/Developer is the only tool that supports executable models, compliant with the latest UML 2.0 proposals, with behavioral specifications. Developers have access to pre-defined, verifiable code patterns that ensure high quality standards. With these capabilities, developers can, at the press of button, generate complete applications automatically.

- **Dynamic model verification** – With fully controllable model simulation, engineers can verify their work in the analysis, design, and implementation phases. As a result, they can locate and correct errors early when they are easiest and most cost effective to fix.

- **Integration with Telelogic DOORS** – Integration with Telelogic DOORS, the market leading requirements management solution, will occur by the end of 2002.

- **Complete up-to-date documentation through integration with Telelogic DocExpress®** – Integration with DocExpress provides automatic extraction and formatting of up-to-date documentation of the system or software application under development.

- **Scalability** – Large scale systems can be specified and models can be mapped to how teams want to work, rather than having restrictions imposed by the tool. System

architecture and behavior can also be modeled and viewed at the required level of detail for the user.

"For too many years companies have been trapped by having to use many different, inadequate tools and methodologies for system specification, software development, and testing," said Ingemar Ljungdahl, chief technology officer at Telelogic. "Where other industries have taken huge strides in improving efficiency by automating mundane and error-prone activities, the software industry has not progressed far enough. Tau Generation2 represents the next advance in systems and software development as these tools deliver a highly automated, model-driven solution for systems and software engineers that enable great leaps in productivity to be realized."

"Quite simply, more visual tools targeted to specific user communities provide better results," said Per Blysa, vice president of product management for Tau at Telelogic. "Since Tau/Architect and Tau/Developer build on the same platform and leverage the same visual standardized language, organizations can finally use the same integrated solution for both comprehensive system specification and rapid software development. This streamlines the tool environment, minimizes the learning curve, and accelerates the deployment of Tau Generation2 tools."

About Telelogic Tau
Telelogic Tau is an integrated family of software development and testing tools that provides a unique visual development environment. This simplifies, automates and accelerates the production of real-time and other advanced software.

About Telelogic
Founded in 1983, Telelogic® is the leading global provider of solutions for advanced systems and software development. The company's integrated best-in-class software tools, supported by professional services, enable companies to automate their entire development lifecycle, resulting in improved quality and predictability with reduced time-to-market and overall costs. To ensure interoperability with third-party tools, Telelogic's products are built on an open architecture and standardized languages. As an industry leader and technology visionary, Telelogic is actively involved in shaping the future of advanced systems and software development by participating in industry organizations like 3GPP, ETSI, INCOSE, ITU-T, MOST, OMG and others.

Headquartered in Malmö, Sweden with U.S. headquarters in Irvine, California, Telelogic has more than 900 employees worldwide. Customers include Alcatel, BAE SYSTEMS, BMW, Boeing, DaimlerChrysler, Deutsche Bank, Ericsson, General Motors, Lockheed Martin, Motorola, NEC, Nokia, Philips, Siemens and Thales. For more information, please visit www.telelogic.com

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