

Real-time and Embedded Systems Forum

Membership Prospectus

August, 2000

INTRODUCTION

The Open Group is committed to delivering greater business efficiency and lowering the costs and risks associated with integrating new technology across the enterprise. We bring buyers and suppliers together to discuss, address and resolve standardization and interoperability issues. We have earned industry respect as the UNIX® System, CORBA® and WAP Forum certification authority. We have extensive experience in building consensus to turn standards into real-world product through our test and certification programs.

We invite your organization to join the Real-time and Embedded Systems Forum.

The mission of the Real-time and Embedded Systems Forum is to accelerate growth of the marketplace for standardized real-time and embedded systems by coordinating between suppliers, practitioners and existing industry standard groups and developing and delivering test and certification programs. The Forum addresses a broad range of market requirements: embedded and non-embedded, networked and standalone. Industry sectors that will benefit from the Forum include aerospace/defense, telecommunications, manufacturing, automotive and medical/scientific research.

This prospectus describes areas of possible work under consideration by the forum to assist firms in evaluating membership. The actual work program and schedule will be as agreed and executed by the forum members. We will provide expert facilitation and support to insure that tangible progress and results occur.

Membership will comprise leading suppliers and early adopters of real-time and embedded systems. Each member has the right to use and early access to test suites¹, profiles and future work programs.

¹ The VSART, VSRTE and VSTRC test suites are offered as a membership benefit subject to the appropriate license terms and conditions.

THE OPPORTUNITY

Implementors of this technology face the same challenges:

- the need for fast, predictable response to events such as interrupts and messages
- the ability to manage system resources to meet processing time constraints

Existing standards are necessary yet insufficient. They need to be complemented by packaging into coherent sets, tests suites and a certification program to assure buyers. The Forum intends to fill the standards gap and develop tests and certification programs that enable conformant products to be delivered to the market. The goal is to enable implementations with confidence by customers, thus causing significant market growth.

PROPOSED WORK PROGRAM

The potential scope of the forum includes: operating system APIs (Application Programming Interfaces), operating system profile standards, performance APIs, security policy and APIs, real-time Java® and real-time CORBA®.

Standards for Real-time & Embedded Operating Systems

The primary aim of this work item is to establish a set of profiles of open standard APIs that will:

- Facilitate the development of standards based on real product solutions.
- Support for a range of systems, from embedded to non-embedded.
- Build upon existing work, such as the IEEE POSIX 1003.13 Profiles, extending them to address market requirements. Possible extensions include a selection of APIs from the UNIX® and/or Linux® system interfaces, networking and graphical user interfaces.
- Include quality-of-service aspects to the APIs to facilitate deterministic behavior.
- Facilitate application portability between/among systems from multiple suppliers.

A complementary objective is to develop a test and certification program that will provide:

- Test tools for suppliers to establish confidence their products conform
- An independent certification program for suppliers' products that delivers guaranteed conformance to the buyer.

The test and certification program will address existing real-time specifications, such as the POSIX 1003.13 profiles, encompassing IEEE Stds. 1003.1b (Realtime), 1003.1c (Threads), 1003.1d (Advanced Realtime), 1003.1j (Additional Realtime) and other open standard APIs as identified by the forum. The tests will support embedded systems with a small footprint, such as the PSE51 profile within IEEE Std. 1003.13 as well as larger non-embedded systems.

Forum members enjoy the right-to-use entitlements for the following test suites: VSRTE –POSIX 1003.1d, VSART – POSIX 1003.1j and VSTRC – POSIX 1003.1q, thus reducing the total cost of ownership of real-time test tools.

Uniform Driver Interface

Uniform Driver Interface (UDI) defines the architecture and a set of operating systems neutral and platform-neutral APIs for use between a driver and the surrounding system, enabling any peripheral device to be used with any platform. The Forum has established a liaison with the UDI project and will regularly track its activities. Potential activities include development of tests and certification for UDI compliance, and testing for performance and determinism of real-time UDI drivers.

New Ways to Specify Behavior

The Forum has identified that work is needed in the area of API specification to indicate application real-time requirements to an implementation and for implementations to indicate to applications the real-time performance of implementation supplied components.

Security for Real-time and Embedded Systems.

The intersection of security requirements with real-time and embedded systems requirements needs to be better defined, for example how do you handle audit logs on an embedded system with no filesystem or network?

New APIs.

There are potential areas of new standardization that could be addressed by the Forum, where existing specifications do not meet the requirements. Areas identified at the inaugural meeting include distributed real-time, performance APIs, and middleware APIs.

WORKING WITHIN THE INDUSTRY

The Forum will work with appropriate industry groups as an independent party and standards integrator to review existing specifications and requirements to avoid duplication and redundancy. Liaisons have been established with the following groups: Object Management Group, Society of Automotive Engineers, IEEE Portable Application Software Committee (PASC), Uniform Driver Interface Consortium and National Committee for Information Technology Standards Technical Committee for Real-time Standards (R1). All of the above organizations were represented at the Inaugural meeting of the Forum.

THE NEXT STEP

For more information, visit our Web site at www.opengroup.org/rtforum, which contains the latest information on the Forum, including post-meeting materials from the most recent meeting, or contact:

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