

Real-time and Embedded Systems Forum

THE *Open* GROUP

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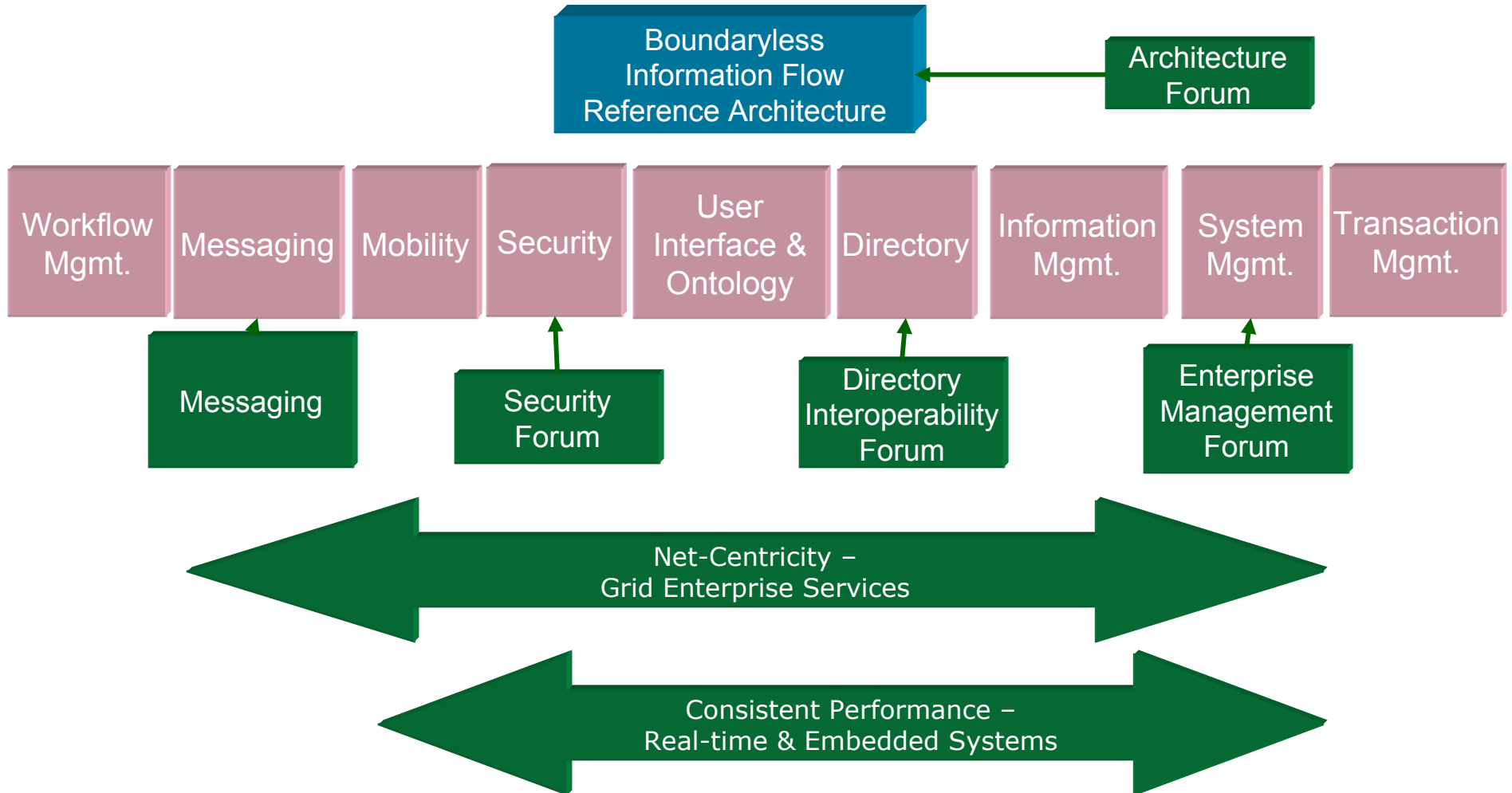
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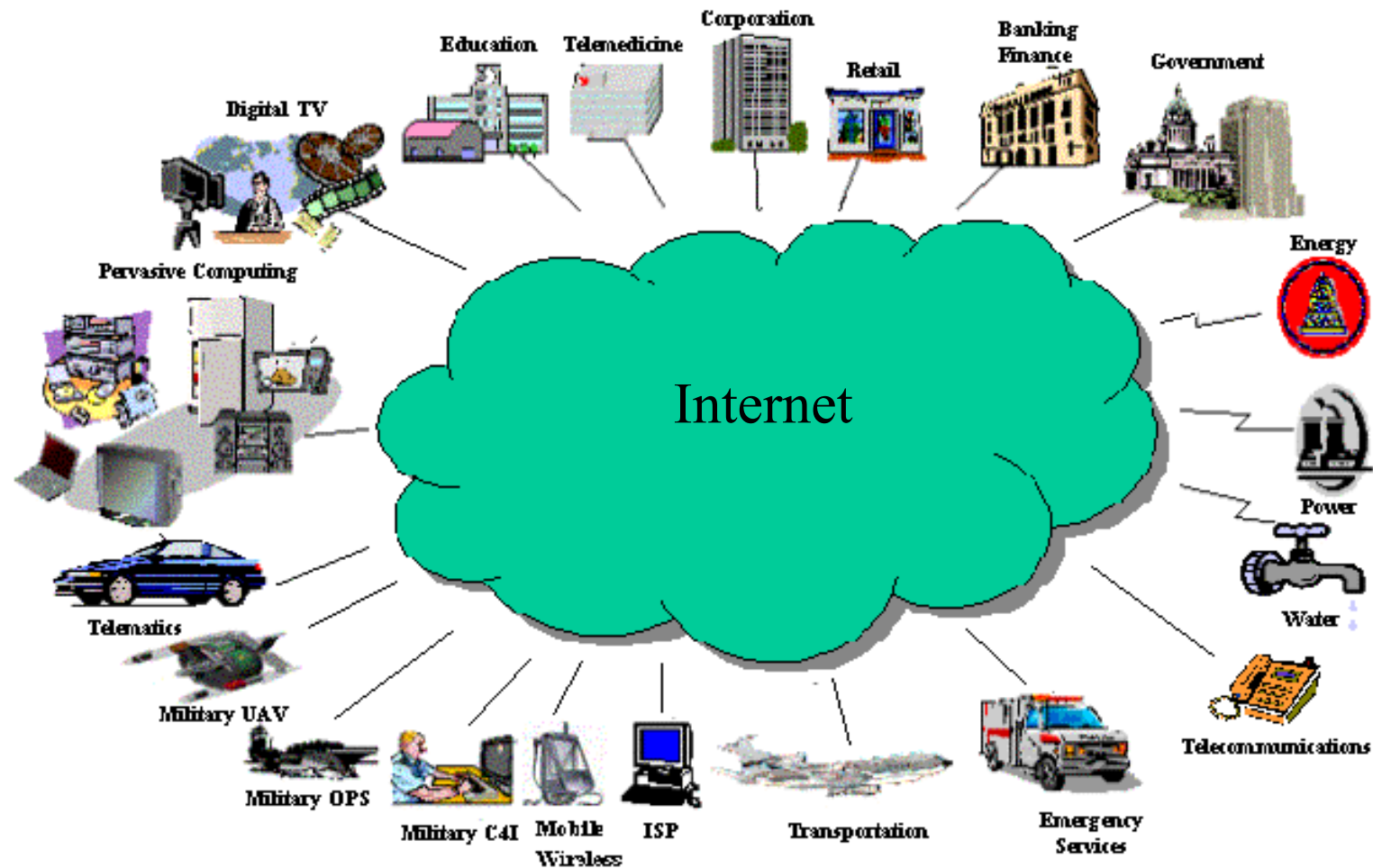
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THE *Open* GROUP

The Open Group Forum Coverage

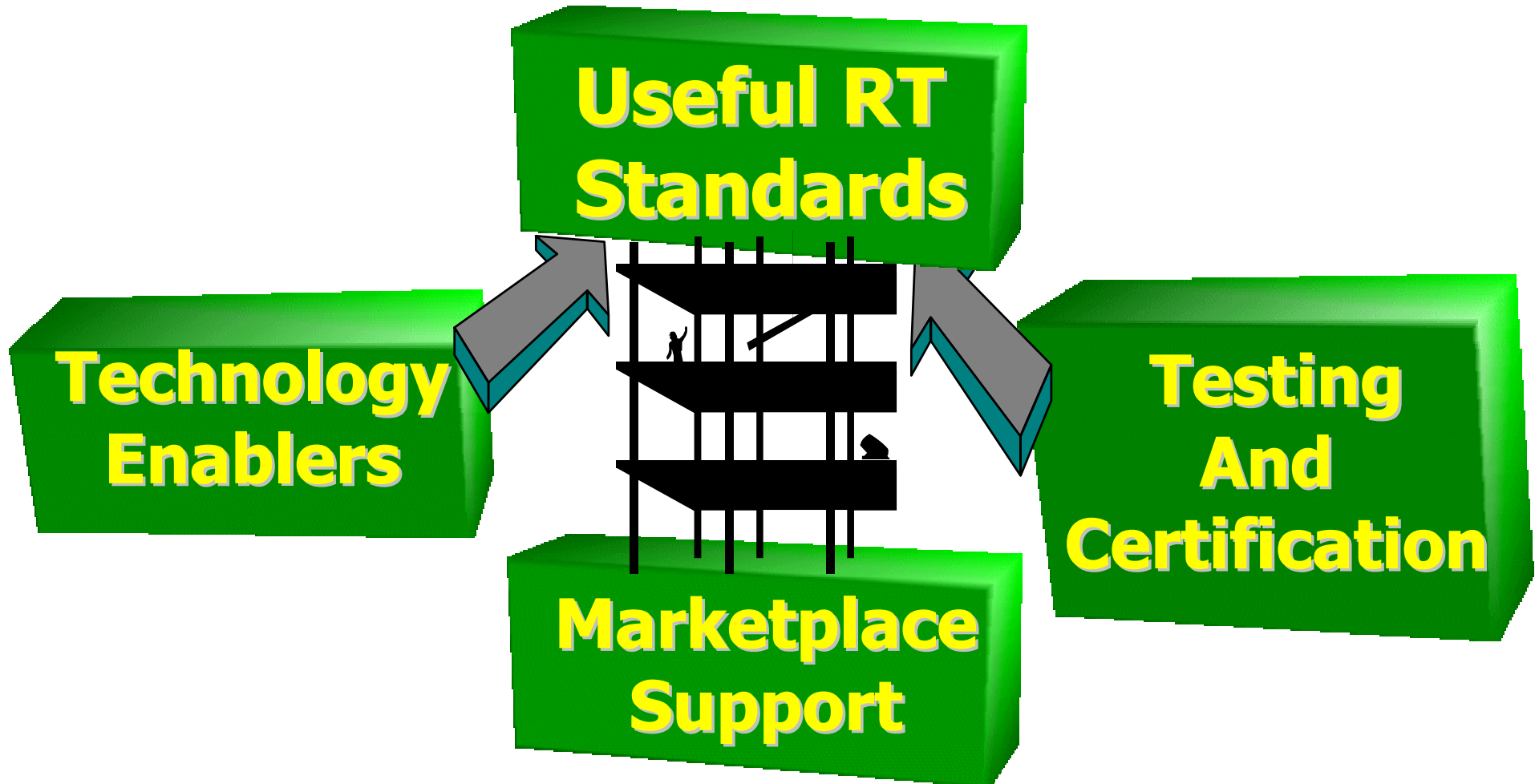


“The Boundaryless Enterprise”



Software with Real-time and QoS features will make the Boundaryless RT Enterprise deterministic, integrated and flexible.

Vision



Mission

Improve the time and cost, to market adoption, of real-time and embedded solutions by providing a forum where we can share knowledge and integrate open initiatives, and certify approved products and processes

Real-time and Embedded Systems Forum Role

- ❑ Leverage The Open Group's diverse membership
- ❑ Bring together leading vendors with corporate and government customers
- ❑ Advance standards development based on real product solutions
- ❑ Establish test tools for suppliers to use to provide confidence in their products
- ❑ Deliver an independent certification program that delivers guaranteed conformance to the buyer.

RT&ES Forum Membership Benefits

- ❑ Full voting participation in either the customer or supplier council
- ❑ Eligible for election to the Board of Directors (As representative of the customer or supplier council)
- ❑ May attend public parts of The Open Group quarterly meetings
- ❑ Full voting participation in forum decisions
- ❑ Eligible for election to the steering committee of the RT&ES Forum
- ❑ Eligible to be a Chair of a forum specific working group
- ❑ Right to participate in all forum working groups – currently six
- ❑ Influence the direction and outcome of the forum and working groups through the right to vote in the consensus activities
- ❑ Early access to evolving specifications insuring product compatibility
- ❑ Early access to new test suites
- ❑ Insure early access to the marketplace for compliant products
- ❑ Balloter on all specifications submitted for Company Review within the forum
- ❑ Reviewer of all specifications submitted for Company Review
- ❑ Network with potential customers, suppliers, cross industry forums and other consensus consortia
- ❑ Market Intelligence to insure products fulfill customer requirements
- ❑ Access to members only section of the WEB, eMail associated with the forum
- ❑ Receive The Open Group electronic newsletter and other information about The Open Group

RTES Forum Activities

□ Work Areas:

- RT Operating System Profiles and Certification
- Security for RT and Embedded Systems
- Safety/Mission Critical Applications
- Real-time Java for Mission/Safety Critical Environments
- Open Architecture for Real-time and Embedded Systems
- High Assurance, Safety Critical

□ Liaisons:

- The Object Management Group
- IEEE PASC SSWG RT
- Society of Automotive Engineers
- J Consortium
- Java Community Process
- Embedded Linux Consortium
- NIST PCSRF
- NATO Research Task Group on Validation, Verification and Certification of Embedded Systems
- Joint Council on Aging Aircraft
- US Army WSTAWG (US Army OE)
- Process Control Systems Cyber Security Forum
- ARINC 653 APEX Working Group
- Association for Enterprise Integrators
- Consumer Electronics Linux Forum
- High Confidence Medical Device Software and Systems Workshop

Forum Champions

- ❑ **Forum Chair**
 - **Glen Logan, OSJTF**
- ❑ **Working Groups**
 - **Open Architecture for Real-time and Embedded Systems – Glen Logan, OSJTF/Dave Marlow US Navy NSWC**
 - **Profiles and Certification – Glen Logan, OSJTF/Joe Gwinn, Raytheon**
 - **Security for RT – Edwin Lee, Raytheon**
 - **Safety/Mission Critical Applications –George Romanski, Verocel**
 - **Safety/Mission Critical RT Java – Robert Allen, Boeing**
 - **High Assurance, Safety Critical – Michael McEvilley, Mitre**

Forum Members

- ❑ aicas GmbH
- ❑ AXE Company Inc.
- ❑ BAE Systems
- ❑ Carnegie Mellon University, Software Engineering Institute
- ❑ City University (London)
- ❑ Finite State Machine Labs
- ❑ Florida State University
- ❑ Fujitsu
- ❑ Forschungszentrum Informatik
- ❑ Defense Information Systems Agency
- ❑ Georgia Tech University
- ❑ Hewlett-Packard Co.
- ❑ IBM Corporation
- ❑ J Consortium
- ❑ Jet Propulsion Laboratory
- ❑ Kestrel Institute
- ❑ Lockheed Martin Corp.
- ❑ LinuxWorks Inc.
- ❑ MIT, Embedded Systems Lab
- ❑ Matsushita Electric Works, Ltd.
- ❑ NEC
- ❑ NTT Software
- ❑ MontaVista Inc.
- ❑ NASA Goddard Space Flight Center
- ❑ Objective Interface Systems
- ❑ Open Systems Joint Task Force
- ❑ Ohio University
- ❑ QNX Software
- ❑ Raytheon
- ❑ REGIS
- ❑ Ricoh
- ❑ Real-time Innovations
- ❑ Silicon Graphics
- ❑ Smiths Aerospace
- ❑ Sun Microsystems Inc.
- ❑ Teamcall Ltd.
- ❑ The Boeing Company
- ❑ The Mitre Corp.
- ❑ TimeSys Corp.
- ❑ Toyota InfoTechnology Center
- ❑ Universidad de Cantabria (Spain)
- ❑ University of Idaho
- ❑ University of York (UK)
- ❑ US ARMY WSTAWG
- ❑ US Navy (POC:NSWC)
- ❑ Veriserve Corp.
- ❑ Verocel
- ❑ Wind River Systems

Membership List Current as of 23 March 2005

RTES Forum Successes

- ❑ **Test Suites for IEEE POSIX 1003.13-1998**
 - Profiles 52 and 54
- ❑ **Certification Program for IEEE POSIX 1003.13-2003**
 - Profile 54 (Pending Approval from IEEE - estimate GA 31 March 05)
- ❑ **White Papers**
 - Conformance
 - Safety Critical
- ❑ **Security for Real-time and Embedded Environments**
 - Generic Separation Kernel Protection Profile at EAL7
- ❑ **Agreement to develop family of Real-time Protection Profiles under the Common Criteria**
- ❑ **Developed RT Java JSR for Safety Critical Environments**
- ❑ **Agreement to develop Dynamic Resource Management Standard**
- ❑ **6 Active working groups**
- ❑ **48 Active members**

RTES Forum Deliverables 2005

- **Strategic Deliverables:**
 - **Open Architecture for Real-time**
 - Templates April 2005
 - Technical Reference Model July 2005
 - Dynamic Resource Management Standard Draft October 2005
 - **Safety Critical Real-time Java**
 - Draft Specification October 2005
 - Subset Reference Implementation (RI) December 2005
 - Subset Technology Compatibility Kit (TCK) March 2006
 - **Security Protection Profiles**
 - EAL 6 Deeply Embedded OS Draft July 2005
 - EAL 6 Web Services Draft October 2005
 - **High Assurance, Safety Critical**
 - Security/High Assurance Guide Book for Managers Draft July 2005
 - Security/High Assurance Guide Book for Software Developers Draft October 2005
 - High Assurance RT Profile IEEE POSIX/ARINC 653 Draft July 2005
 - **Initiate Consumer Electronics Activity** January 2005
 - **Initiate Medical Devices Product Standards Activity** July 2005
- **Other Supporting Deliverables:**
 - **Certification for POSIX 1003.13 PSE53** December 2005
 - **Software Development Patterns for RT** December 2005
 - **Mission Critical RT Java Specification Draft** October 2005

Expected GA 31 March 2005... IEEE POSIX 1003.13-2003 RT Profile Certification

- Initially PSE54:2003 Certification
 - Pilot program for certification program in October/November 2004
 - PSE54 Test Suite beta test completed October 2004
 - Conformance requirements developed with companies participating in pilot program
 - PSE54 Certification pending IEEE Approval
 - Expected to be basis for DoD procurements
- Proposed developments in 2005
 - PSE53:2003 certification subject to funding

Future RTES Forum Activities

- **For the Boundaryless Enterprise --**
 - Acquisition/Procurement of RT Systems*
 - Aggregated Real-time Systems*
 - Architecture Tool Standards - Integration of Disparate Architectures *
 - Data Base for RT Environments
 - Directory Services/DNS for RT Environments*
 - Dynamic Resource Management as part of Autonomic Computing
 - High Dependability Systems Standards*
 - Lightweight Browser based on the X Interface for RT Embedded Systems
 - MILS for Web Services*
 - MILS Off the Shelf RTOSs
 - Multi Media Integration for RT Embedded Systems
 - Open Source for High Assurance Applications Guide Book*
 - Product Standards/Certification for Medical Devices/Consumer Electronics
 - Quality of Service for High Assurance Environments*
 - Security Interoperability*
 - Service Oriented Architectures* with emphasis on the use of RT Java
 - Software Assurance*
 - Software Conformance Tools*
 - Software Composability Tools
 - Software Design and Coding Standards*
 - Software Design Patterns* to include SCRT Java
 - Software Traceability* to include SCRT Java
 - Standardized XML Tags - Trace Requirements* to include SCRT Java
 - System/Family of Systems Testing and Certification*

*** Potential Collaboration Activities**

San Francisco RT&ES Forum

24-28 January 2005

What Happened?

- New Consumer Electronics Activity Started – On-Going discussions with the CE Linux Forum on Collaboration. Effort was Initiated in response to RT&ES Forum members in Japan
 - Areas of Potential Collaboration Identified
 - Product Standards and Certification
 - System Test and Certification
 - Security for Real-time & Embedded Systems
 - Safety/ Mission Critical Java
 - High Assurance Operating System Profile
 - Dynamic Resource Management
 - Other Technical Areas Identified such as APIs for SMP, Core Processing, etc are to be investigated
- Planned for a Medical Devices Product Standard and Certification Activity for the July Meeting in New York. Areas of Potential Collaboration same as Consumer Electronics above.

San Francisco RT&ES Forum

24-28 January 2005

What Happened? (Cont'd)

- Security for Real-time and High Assurance
 - Completed a Draft Outline for a Managers & Software Developers Guide for –
 - Security for Real-time
 - High Assurance/Safety Critical Applications

Note: It is anticipated that both documents will be widely used as a standard.
 - Started Review of Two New Real-time Security Protection Profiles
 - Console
 - Partitioning Communications System
 - Reviewed --
 - Issues in Layered Assurance Certification
 - MILS Architecture for High Assurance Design
 - Continued Progress on a RTOS High Assurance Profile. A Collaboration Effort with IEEE PASC SSWG RT and ARINC 653 APEX Working Group

San Francisco RT&ES Forum

24-28 January 2005

What Happened? (Cont'd)

- Open Architecture for RT –
 - Revisited Dynamic Resource Management Standards as it Relates to Autonomic Computing. WG Will Collaborate with OASIS on Standards Effort to Ensure Real-time DRM Requirements are Included in New Standard -- Web Services Distributed Management (WSDM). Collaboration with The Open Group Enterprise Management Group Was Initiated.
 - Discussed Issues Concerning Software Portability POSIX/UNIX/LINUX. A Softwareilities Session Will Be Added to the April RTES Forum Agenda in Dublin,.
 - Reviewed Proposal from X.Org on a Light Weight “X” Interface for Real-time and Embedded Systems and Integration of a Multi-Media Application Server. There Will Be Additional Dialogue with X.Org.
 - Reviewed Commonality of Various DoD Open Architectures – from programs JTRS, MBMS, FCS, JSF and others.
 - Reviewed Service Oriented Architectures Elements for Time Critical Applications
 - Updated the Forum on the IEEE POSIX 1003.13 PSE54 Certification Program. Expect final approval from IEEE by 31 March 05.

San Francisco RT&ES Forum

24-28 January 2005

What Happened? (Cont'd)

- Safety Critical RT Java
 - Continued Work on Safety Critical RT Java with a Slight Shift in Focus to NASA Requirements. The Shift in Focus Was Due to The Availability of Funding for a NASA Project to Develop a Safety Critical RT Java RI and TCK. See Kestrel Institute Presentation.
 - Three Members Expressed Concern That the “Current” Safety Critical Specification Did Not Address a Distributed Environment, to Include The “Mission-Critical” Specification. The Three Members Were Asked to Detail Their Requirements for Consideration.
- Open Source
 - Started Effort to Investigate Potential Impact of Open Source on High Assurance Applications. Planning an All Day Session on Topic at the July Meeting in New York – July 2005.

Further details:- Please check 'Documents' for presentations

Agenda from San Francisco - <http://www.opengroup.org/rtforum/doc.tpl?gid=6323>

Non-Members Documents - <http://www.opengroup.org/rtforum/documents.tpl>

Members Documents --Requires Password - <http://www.opengroup.org/rtforum/protected/index.tpl?CALLER=documents.tpl>

Real-time and Embedded Systems Forum Schedule for 2005

- ❑ **Dublin, Ireland -- 25-29 April 2005**
- ❑ **New York City, New York -- 18-22 July 2005**
- ❑ **Houston, Texas -- 17-21 October 2005**

<http://www.opengroup.org/rtforum>