



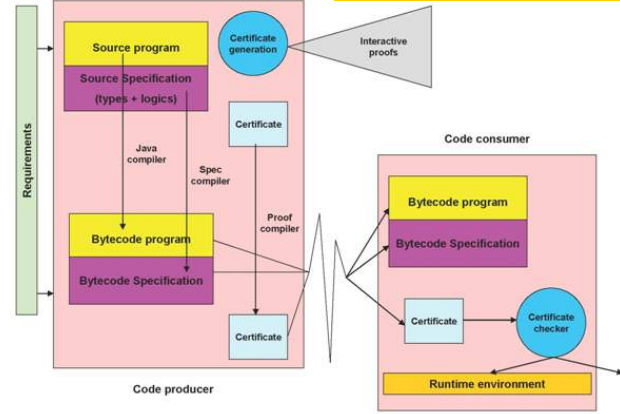
MOBIUS OBJECTIVES :

Establish a security architecture appropriate for global computers:

- 1 adopt a computational model that captures faithfully fundamental aspects of global computers
- 2 identify the trust and security requirements of such a model
- 3 develop on top of the computational model a security framework that enforces these requirements
- 4 provide the enabling technologies necessary for implementing the framework
- 5 validate the architecture

We aim to develop the technology for establishing trust and security for the next generation of global computers, using the **Proof Carrying Code (PCC)** paradigm.

MOBIUS VISION



Next Event: MOBIUS TUTORIAL at ETAPS 07 (Sunday April 1, 2007) Braga, Portugal

This tutorial will introduce participants to the central security architecture of Mobius as well as type systems, logics, and tools that enable static verification of Java source and bytecode.

Contents :

The proposed tutorial consists of the following units:

1. MOBIUS Proof Carrying Code scenarios (Gilles Barthe, INRIA) A high-level overview of the Mobius goals and scientific objectives.
2. Type systems I: Secure information flow (David Pichardie, IRISA) We will present an information flow type system for a sequential JVM-like language that includes classes, objects, arrays, exceptions and method calls, and prove that it guarantees non-interference.
3. Type systems II: Resource control (David Aspinall, Univ. of Edinburgh) An overview of type systems (and related static analysis tools) developed in Mobius for resource control. These include mechanisms for managing heap space consumption, access controls, and external resources (e.g. billable events).
4. Type systems III: Ownership (Peter Müller, ETH Zurich) An introduction to ownership type systems for alias control, in particular, the Universe type system, and their application to program verification.
5. Mobius logics (Lennart Beringer, LMU Munich) An introduction to the base formalisms underlying the Mobius verification architecture: operational model of Java bytecode, program logic for verification of JML-like specifications, representation of (resource) type systems in program logics.
6. Mobius tool suite (Joe Kiniry, UC Dublin) We will review the primary features of the Mobius Program Verification Environment, which is based upon the Eclipse platform. In particular, we will review the environment's "lightweight" features that support writing, modifying, and checking annotations (statically and at runtime), and "heavyweight" features that focus upon program verification with integrated automatic and interactive theorem provers.
7. Perspectives (Gilles Barthe, INRIA) How the results presented in the tutorial fit into the wider view of Mobius; conclusion, ongoing work, and future work.

Learning Objectives : The objective of this tutorial is to get an overview of state-of-the-art techniques and tools for reasoning about security and functional correct properties of object-oriented code as well as their application to Proof-Carrying Code.

Intended Audience: The target audience of the tutorial consists of researchers and practitioners interested in Proof-Carrying Code, type systems, program verification.

The Mobius project will hold its annual **End User Panel** meeting in conjunction with ETAPS and invite all members of the End User Panel to the tutorial but attendance is OPEN. Participants should have interest in security, formal methods and object-oriented programming. Experience with a particular language, formalism, or tool is not required.

Registration : If you want to participate, please register for the ETAPS tutorial "Mobility, Ubiquity, and Security" at <http://www.di.uminho.pt/etaps07/>.

FACT SHEET :

- Integrated Project within Global Computing II, started Sept 2005, 4 years duration.
- 16 members



INRIA
RU Nijmegen
U. Edinburgh
Tallinn U.
UC. Dublin
UP. Madrid
SAP Research
Trusted Logic

LMU München
ETH Zürich
Chalmers U.
Imperial College
U. Warsaw
RWTH Aachen
France Telecom
TLS

Please visit our website at: <http://mobius.inria.fr>



For further information, please contact: coordinator:
Gilles.Barthe@sophia.inria.fr

EUROPEAN INTEGRATED PROJECT
 IN IST GLOBAL COMPUTING II

FUTURE AND EMERGING TECHNOLOGY

