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Outline

- Project overview
- Vision and objectives
- The PLASTIC platform
- Contributions to SE
- Open issues
Project at a Glance

**IST PLASTIC (STREP)**
- Started February 2006 with a duration of 30 months
- Project Coordinator: Valerie Issarny, INRIA

**11 Partners**
- 10 countries, mix of industry, academia, and research centers

**Complementary skills**
- Scientific development
- Technology developers and providers
- Service developers and providers
PLASTIC B3G Vision

When services meet users

Difficulty to develop dependable software services:

- Heterogeneous platforms
- Dynamic environment
- Open networking environment that raises issues of localized scalability & security
- Non-integrated networks

Deployment & usage of services ultimately dependent upon the confidence of the end-users

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PLASTIC Objective

Ease the development of dependable services for B3G
- Services to be hosted by the various networked nodes
- Promote dependability by offering comprehensive design, analysis and validation methodologies & tools
- Promote user trust in services through service level agreement
- Provide generic middleware services to manage the diversity of digital resources available in the open networking environment
- Ease the exploitation of the B3G networking environment through comprehensive communication protocols & network abstractions

Lightweight services for beyond 3G
- Provisioning robust services in the B3G open environment
- SLA- & resource-aware, platform-independent services
- Communication and distributed resource management for B3G
- Abstractions of the B3G network for energy-efficient seamless mobility
The PLASTIC Platform at a Glance

PLASTIC conceptual service model

- Service Design
  - Service Functional Specification
  - Service Level Specification (SLS)
- Service Analysis
  - Analysis models (Functional & Extra-functional)
- Service Implementation
  - SLS- Resource-aware service
- Service Validation
  - SLS-aware Customized Service over B3G
- Service Execution
  - PLASTIC middleware
Platform Implementation

- WP 1: Conceptual Model
- WP 2: Service Development
- WP 3: Middleware
- WP 4: Validation
- WP 5: Integration and Evaluation (e-services for the mobile users)
Platform Validation (WP5)

Services developed from scratch to validate the PLASTIC platform

3 application domains investigated

- **eHealth**: integrating new monitoring devices, communication between health care providers.
  - SLA monitoring, service validation...
- **Field workers**: on-site maintenance. collaborative work.
  - Modeling and code transformation, context-awareness, B3G communications...
- **eVoting**: crisis management, opinion research, human resources.
  - Security, SLA and validation...

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Contributions to Service Engineering (1/3)

Design and Development (WP1-WP2)

- Detailed conceptual model (CM) for B3G environments and services
  - Adaptability, context and resource-awareness, multi-radio/network....
- EMF implementation of the CM
  - Design tools with SLA support
  - Services respecting the PLASTIC CM can be easily developed
Contributions to Service Engineering (2/3)

Middleware (WP3)

- **B3G communication middleware**
  - Multi-radio addressing, Multi-network routing, mobility management
  - Advanced communication models (B3G SOAP, content based)

- **Middleware services**
  - Discovery, security, context, data sharing
  - QoS/context and adaptation are first-class properties throughout the middleware
Contributions to Service Engineering (3/3)

Validation (WP4)

- **Solutions for off-line and on-line** (both at registration and execution time)
- **Off-line**: tools for *model-based testing*, *service-stub generators*, and *workload generators*
- **On-line**: admission control (registry) and monitoring of functional and non-functional properties.
Open Issues and Opportunities for Collaboration

- **Design & Development**
  - Modeling of (resource-aware) adaptive services, tools for automatic code enhancement

- **Middleware**
  - Service-oriented overlays taking into account context/QoS for discovery, access and composition

- **Validation**
  - Specification of service behaviour and extra-functional properties of B3G systems
Contacts

For documentation and software

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WP3: Valerie Issarny or Pierre-Guillaume Raverdy, INRIA
WP4: Antonia Bertolino, CNR
WP5: Fotis K. Liotopoulos, VTRIP