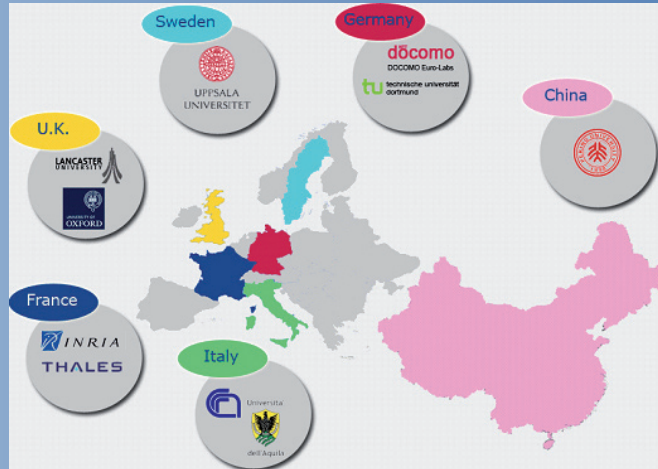


SCENARIO:

CONNECT will experiment with various scenarios, including from the area of Global Monitoring for Environment & Security.

'Global Monitoring for Environment and Security' (GMES) represents a European concerted effort to bring data and information providers together with users, so that they can better understand each other and make environmental and security related information available to the people who need it through enhanced or new services. Hence, a key enabler of this European effort is the connection among heterogeneous systems and networks, and particularly the capability in allowing systems to communicate among them even if they have not previously been designed to do so and, possibly, at run-time. Indeed:

- (1) GMES is a mix of legacy and new systems,
- (2) GMES aims at making international communities work together, and
- (3) most critical GMES systems – those used when a response to an alert occurs – have to be composed while they run.



CNR - Italy / www.isti.cnr.it, www.iit.cnr.it
DOCOMO - Germany / www.docomoeurolabs.de
INRIA - France / www-rocq.inria.fr/arles
LANCS - UK / www.comp.lancs.ac.uk
THALES - France / www.thalesgroup.com
UNIVAQ - Italy / www.di.univaq.it
TUDO - Germany / www.tu-dortmund.de/International
UOXF - UK / www.comlab.ox.ac.uk
UU - Sweden / www.it.uu.se
PKU - China / eecs.pku.edu.cn

DURATION

Starting date: 01 February 2009
42 months

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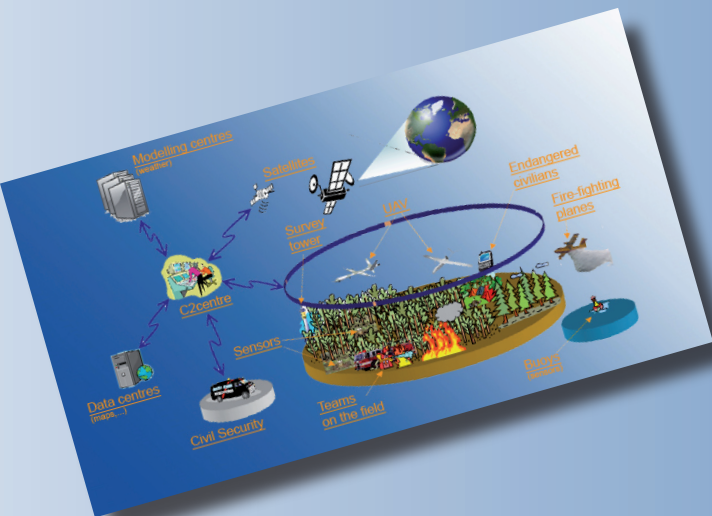


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Emergent CONNECTors for Eternal Software Intensive Networked Systems

... eternally
CONNECTED ...



ABSTRACT

The **CONNECT** Integrated Project aims at dropping the interoperability barrier by adopting a revolutionary approach to the seamless networking of digital systems, that is, synthesizing on the fly the connectors via which networked systems communicate. **CONNECT** enables the dynamic synthesis of **CONNECTORS** by introducing a formal foundation for connectors, which allows learning, reasoning about and adapting the interaction behavior of networked systems.

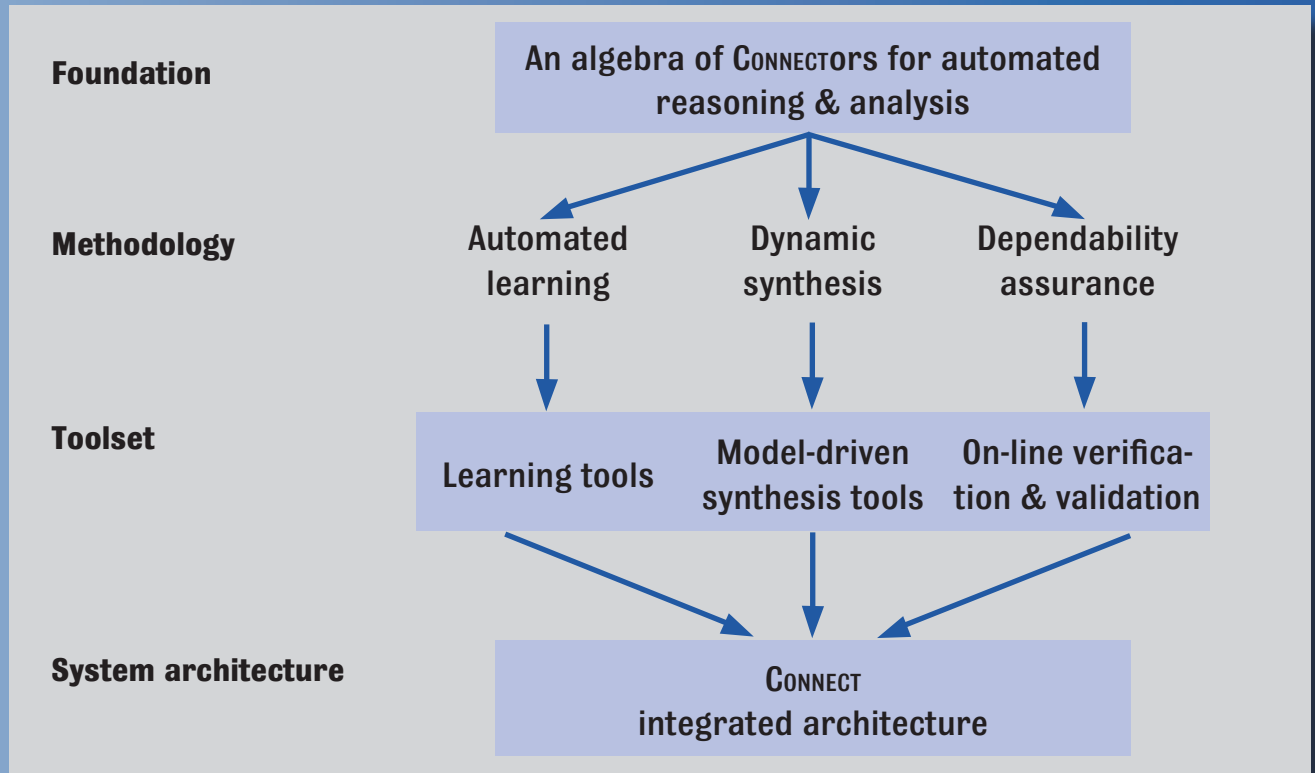
CHALLENGES

Connectors will be developed through a comprehensive dynamic process based on:

- (i) extracting knowledge from,
- (ii) learning about and
- (iii) reasoning about the interaction behavior of networked systems, together with
- (iv) synthesizing new interaction behaviors out of the ones exhibited by the systems to be made interoperable, and further
- (v) generating and deploying corresponding **CONNECTORS** implementations to actually realize networking of the involved systems.

The core objective of **CONNECT** is to effectively support the aforementioned dynamic process for the actual implementation and deployment of emergent **CONNECTORS**.

The above raises a set of unique challenges in the area of software systems engineering, from theoretical foundations to specify the interaction behavior of networked systems to run-time methods and tools to turn specifications into running protocols, and vice versa.



Below are the core challenges on which the **CONNECT** project will concentrate:

Scientific

- Compositional reasoning
- Automated verification
- Quantitative analysis

Technological

- Software evolution & management
- New software lifecycle paradigms
- Trustworthy networked systems

Practical

- Truly pervasive computing
- Supporting diversity
- Empowering non-IT people

