USER-CENTRIC MANAGEMENT OF SECURITY AND DEPENDABILITY IN CLOUDS OF CLOUDS

MISSION

SUPERCLOUD aims to **support user-centric deployments** across multi-clouds, enabling the composition of innovative trustworthy services, to uplift Europe's innovation capacity and thus improve its competitiveness. SUPERCLOUD will thus build a **security management architecture** and infrastructure to fulfil the vision of user-centric secure and dependable cloud of clouds.

OBJECTIVES

Self-Service Security: Implementation of a cloud architecture that gives users the flexibility to define their own protection requirements and instantiate policies accordingly.

Self-Managed Security: Development of an autonomic security management framework that operates seamlessly over compute, storage and network layers, and across provider domains to ensure compliance with security policies.

End-to-End Security: Proposition of trust models and security mechanisms that enable composition of services and trust statements across different administrative provider domains.

Resilience: Implementation of a resource management framework that composes provider-agnostic resources in a robust manner using primitives from diverse cloud providers.

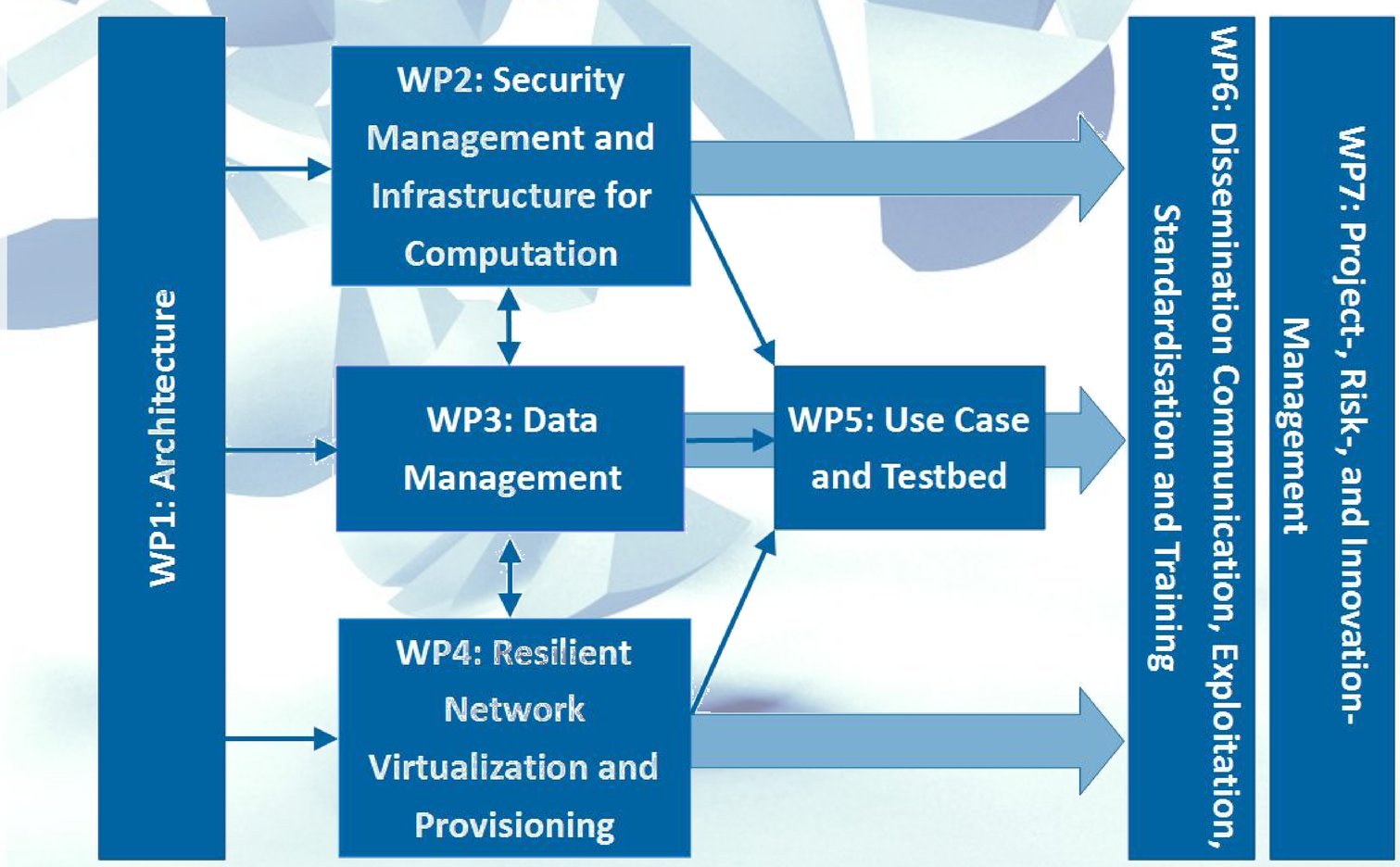
MOTIVATION

Despite many benefits in terms of business, distributed cloud computing raises many security and dependability concerns. At stake are an increase in complexity and a lack of interoperability between heterogeneous, often proprietary infrastructure technologies. The SUPERCLOUD project proposes new security and dependability infrastructure management paradigms that are:

- **user-centric**, for self-service clouds of clouds where customers define their own protection requirements and avoid lock-ins
- **self-managed**, for self-protecting clouds-of-clouds that reduce administration complexity through security automation

TECHNICAL APPROACH

The SUPERCLOUD project is planned to run for 36 months. It is organized into seven work packages with significant dependencies and expected synergies between them.



WP1 Architecture is the technical backbone of the SUPERCLOUD project as it defines the architecture and framework for the remaining work packages.

WP2 Security Management and Infrastructure for Computation specifies and implements the main components and protocols of the federated cloud infrastructure for computing and the design of the corresponding security self-management framework.

WP3 Data Management designs and implements SUPERCLOUD protection of user assets in the distributed cloud, focusing on autonomic security provisioning and end-to-end security.

WP4 Resilient Network Virtualization and Provisioning enables to create virtual networks for multi-clouds with resilience and security guarantees.

WP5 Use-case and testbed enables to demonstrate and validate SUPERCLOUD core technology. A testbed that will enable the reproduction in realistic settings of the two use cases will be set up.

WP6 Dissemination, Communication, Exploitation, Standardization and Training focuses on communication and dissemination of scientific research results to outside parties as well as to participating entities.

WP7 Project-, Risk-, and Innovation-Management ensures a successful project lifetime with respect to risk and innovation management. WP7 coordinates the tasks so that they are in line with the project work plan in order to reach the objectives of SUPERCLOUD.

Project Coordinator:
Dr. Klaus-Michael Koch
Technikon Forschungs- und
Planungsgesellschaft mbH
Burgplatz 3a
A-9500 Villach
Austria
Tel.: +43 4242 233 55 - 71
Fax: +43 4242 233 55 - 77
Email: coordination@supercloud-project.eu
Web: www.supercloud-project.eu

Technical Lead:
Dr. Marc Lacoste
Orange Labs, Department of Security
38-40 rue du Général Leclerc
92794 Issy-Les-Moulineaux
France
Tel.: +33 1 45 29 67 24
Email: marc.lacoste@orange.com

Project start: 1st February, 2015
Project duration: 3 years

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 643964.

This work was supported (in part) by the Swiss State Secretariat for Education, Research and Innovation (SERI) under contract number 15.0091.

Project Partners: