The technological developments that are realized are changing the dynamics of the software industry and posing new requirements and opportunities for improving Europe's competitive position in software.

A transition from the 'intelligent design' approach, which currently rules software engineering to meta-design approaches as well as self-combining software systems has to be realised.

*Implemented approaches have to consider the **inability of software engineers to foresee all possible situations that systems, connected to the open physical world, have to face**.*

The Consortium

NUI Galway OÉ Gaillimh — Project Coordinator

UBITECH — ubiquitous solutions

cnit

TU berlin

aditess — Advanced Integrated Technology Solutions & Services

WINGS ICT Solutions

SINTEF

Univerza v Ljubljani

GRUPPO Maggioli

A Novel Reconfigurable
by design
Highly Distributed Applications
Development Paradigm
over
Programmable Infrastructure

ARCADIA

www.arcadia-framework.eu

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PROJECT DETAILS

Start date: 01/01/2015
Duration: 36months
Reference: GA no 645372
Budget: 3,543,864 €
Funding: 3,543,864 €

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ARCADIA aims to provide a novel reconfigurable by design highly distributed applications' development paradigm over programmable infrastructure. The objective is to <u>facilitate</u> application developers to develop software that is able to <u>benefit</u> of the underlying infrastructure, while in parallel ***support the deployment and dynamic configuration of applications*** in an optimal and autonomic manner.

"Future Internet" software will be the critical infrastructure on which all other critical infrastructures will depend….

…the technological developments that are realized are changing the dynamics of the software industry and posing new requirements and opportunities for improving Europe's competitive position in software.

OUR VISION

ARCADIA project aims to design and validate a paradigm so as to:

- enable the deployment of eco-systems offering a plethora of innovation opportunities for software industry as well as SMEs
- Introduce the use of advanced applications and end-to-end services

While still:

- Maintaining network reliability & security
- Improving network utilization & operational efficiency
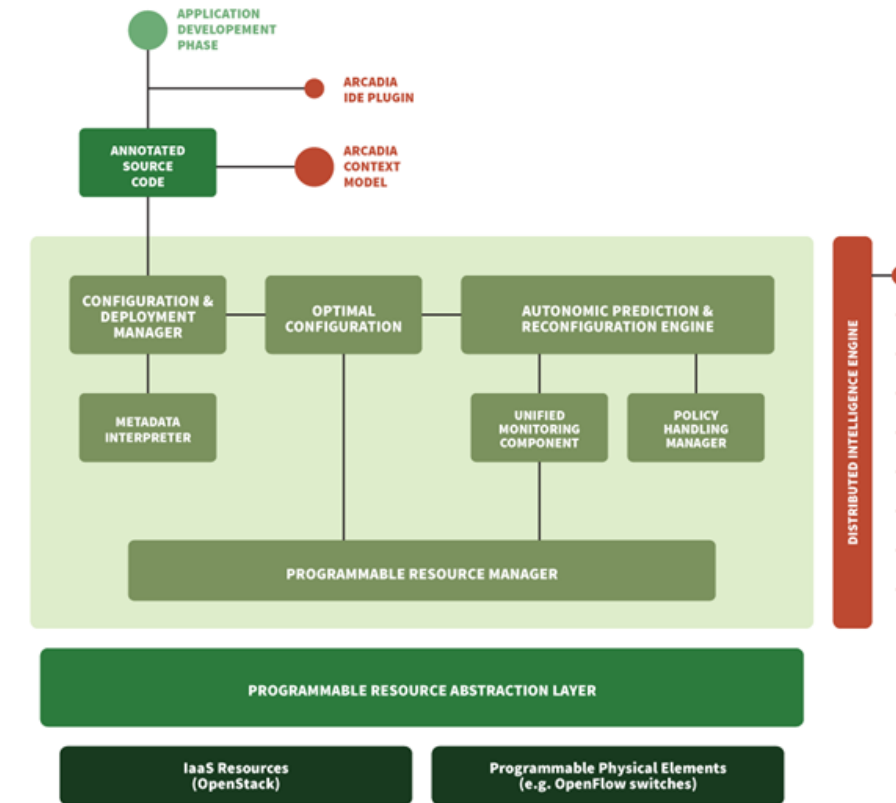
ARCHITECTURE

The proposed framework is going to rely on the design and development of a novel reactive software development paradigm for concurrent and highly distributed applications as well as the design and development of a holistic applications' deployment and management framework over programmable infrastructure.

OBJECTIVES

- Leverage the re-configurability aspects of highly distributed applications and facilitate the design over programmable infrastructure based on the conceptualization and instantiation of a Reference Framework
- Prove the applicability, usability, effectiveness and value of the ARCADIA concepts, models and mechanisms in industrial, real-life networking and computational infrastructures, services and applications, demonstrating and stress-testing the developed ARCADIA artifacts under pragmatic conditions against a predefined set of use cases.
- Ensure wide communication and scientific dissemination of the innovative ARCADIA results to the research, academic, and international community as well as efficient exploitation and business planning of the ARCADIA concepts and tools to the market in order to identify end-users and potential customers.

USE CASES

Validation of the designed and developed solutions will be realized through the following cases:

- Energy Efficiency vs Quality of Service (QoS) trade-off Use Case.
- High Performance Survivable Communications in Distributed Internet of Things (IoT) Deployments Use Case
- Security and Privacy Support in the FI-WARE Platform Use Case

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