ARCADIA is an innovative framework addressing the challenges of future computing.

ARCADIA ensures the optimal use of the available computing resources at the infrastructural level.

ARCADIA solutions will enable the deployment of eco-systems offering a plethora of innovation opportunities for software industry as well as SMEs.

ARCADIA is focusing on application developers to take advantage of the emerging programmability of the underlying infrastructure to develop Reconfigurable-by-Design applications and increase productivity.

ARCADIA solutions are environmental friendly based on the optimal use of the underlying infrastructure resources.

ARCADIA will provide a Development Methodology that will assure that developed Highly Distributed Applications are Reconfigurable-By-Design.

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

CONTACT

Dr. Adegboyega Ojo (Project Coordinator),
Insight Centre for Data Analytics, National University of Ireland (NUIG),
phone: +353 91 495336
email : adegboyega.ojor@insight-centre.org

Dr. Panagiotis Gouvas (Technical Coordinator),
UBITECH Ltd,
phone: +30 216 5000500
Email: pgouvas@ubitech.eu

PROJECT DETAILS

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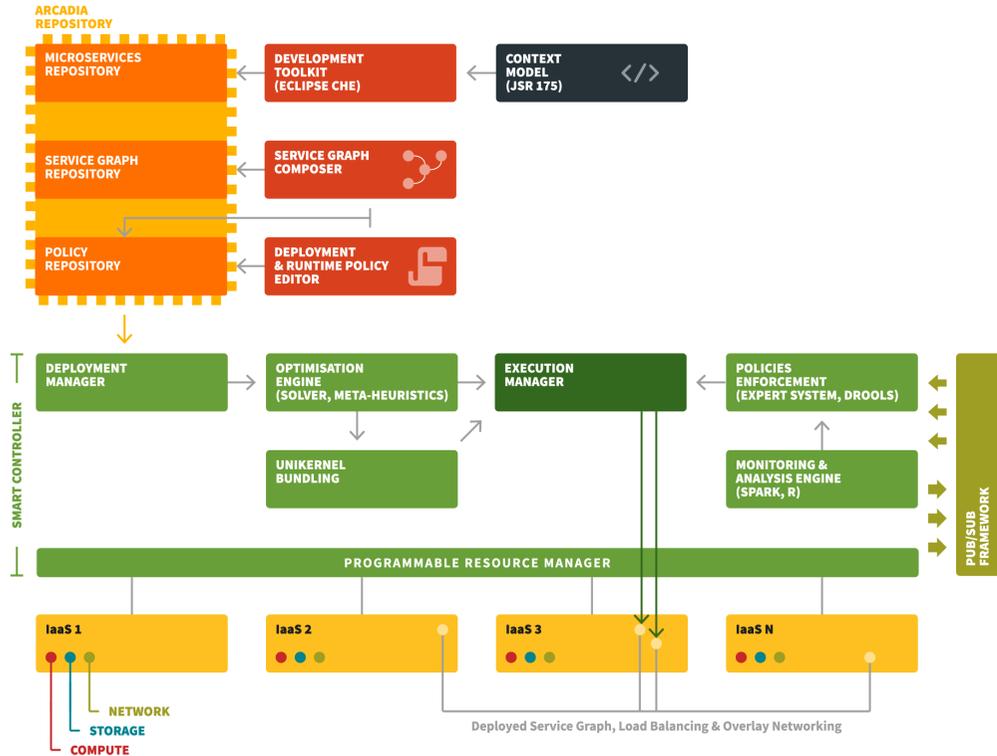Funding: 3,543,864 €

www

in

ARCADIA's 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.

DEPLOYMENT ENVIRONMENT & EXECUTION MIDDLEWARE ORCHESTRATABLEN-BY-DESIGN MICRO-SERVICES

ARCADIA is mainly targeting at proposing a software development paradigm along with a deployment framework that enables the design, development and deployment of distributed applications over programmable infrastructure.

The project defines the management of an application from its creation from a developer to its operation over a programmable infrastructure. Annotated source code provides for embedding at the source code level multisource requirements and driving operation of an application over a programmable infrastructure with enhanced management capabilities towards optimal deployment to satisfy the various involved stakeholders. Furthermore, reusability and sharing is promoted through providing a component's repository for easily inter-

ARCHITECTURE

ARCADIA REPOSITORY
- MICROSERVICES REPOSITORY
- SERVICE GRAPH REPOSITORY
- POLICY REPOSITORY

- DEVELOPMENT TOOLKIT (ECLIPSE CHE)
- CONTEXT MODEL (JSR 175) </>
- SERVICE GRAPH COMPOSER
- DEPLOYMENT & RUNTIME POLICY EDITOR

SMART CONTROLLER
- DEPLOYMENT MANAGER
- OPTIMISATION ENGINE (SOLVER, META-HEURISTICS)
- EXECUTION MANAGER
- POLICIES ENFORCEMENT (EXPERT SYSTEM, DROOLS)
- UNIKERNEL BUNDLING
- MONITORING & ANALYSIS ENGINE (SPARK, R)
- PROGRAMMABLE RESOURCE MANAGER
- PUB/SUB FRAMEWORK

IaaS 1 | IaaS 2 | IaaS 3 | IaaS N

NETWORK
STORAGE
COMPUTE

Deployed Service Graph, Load Balancing & Overlay Networking

facing to a newly developed distributed application, already developed components, network functions, transformed legacy applications or multitenant services already in operation.

KEY VALUES

DISTRIBUTED APPS DEVELOPMENT ENVIRONMENT

Design and develop micro services using ARCADIA libraries. Define app-oriented metrics. Reconfigurable-by-design apps.

MULTI - DATACENTER EXECUTION MIDDLEWARE

Exploit unikernel stacks. Support multi-IaaS scenarios. OpenStack-ready.
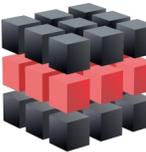
POLICY-AWARE ORCHESTRATION

Optimal app deployment using meta-heuristic algorithms. Enable real-time policy enforcement. ETSI NFV compliant.

COMPONENT & APPLICATION DISCOVERY

Compose micro services-based applications.
◊ Discover.
◊ Reuse.
◊ Deploy.

www   in   twitter