Home > ... > **H2020** >

Adaptive, Trustworthy, Manageable, Orchestrated, Secure, Privacy-assuring, Hybrid Ecosystem for REsilient Cloud Computing

HORIZON 2020

Adaptive, Trustworthy, Manageable, Orchestrated, Secure, Privacy-assuring, Hybrid Ecosystem for REsilient Cloud Computing

Results in Brief

Resilient, secure and adaptive cloud computing

The opportunity presented by cloud computing is huge. ATMOSPHERE is providing the confidence for European businesses to seize it.

DIGITAL ECONOMY

© Blackboard, Shutterstock

Digital systems across the private and public spheres are increasingly dependent on cloud computing ↗. Yet the adequate technologies and frameworks for inspiring confidence in the security and proficiency of cloud applications are still lacking. In order for European businesses to thrive with this new opportunity, confidence in the cloud is paramount.

ATMOSPHERE, an international project funded under the fourth EU-Brazil coordinated call, has designed and developed a framework and a platform to implement trustworthy cloud services in a federated intercontinental resource pool.

"ATMOSPHERE focuses on a broad spectrum of trustworthiness properties and their measures such as security, privacy, coherence, isolation, stability, fairness, transparency and dependability. Based on the given definition of trust in cloud computing, trustworthiness can be defined as the worthiness of a service and its

provider being trusted," says Ignacio Blanquer, professor at the Polytechnic University of Valencia (UPV), Spain, European coordinator of the ATMOSPHERE project.

Over a 24-month period, the ATMOSPHERE ⬀ project designed and developed a suite of tools and services to build and evaluate trustworthy data analytics applications in interlinking cloud networks.

"As a result of the project, data owners, system administrators, application developers and managers, and data scientists can now develop more trustworthy and secure cloud computing applications while being compliant with data protection regulations on both sides of the Atlantic," says Francisco Brasileiro, professor at the Federal University of Campina Grande (UFCG), Brazil, the Brazilian coordinator.

Harnessing the clouds

ATMOSPHERE worked on developing four services across its framework: a robust cloud computing platform for deploying complex applications automatically; a framework that evaluates trustworthiness levels through quality models; distributed data management services for secure storage and data access; and a service for data analytics.

"All these components can be deployed on standard cloud offerings," says Blanquer.

The Trustworthy Data Management Services in ATMOSPHERE securely store sensitive information even in untrusted cloud services. The system includes mechanisms for data scientists and others to store encrypted data on a disk, process them under encryption and guarantee that only authorised processes can access such data. This prevents users even with administrative credentials from accessing data in a disk or memory, making it ultra-secure.

Healthy tests

The main pilot application of ATMOSPHERE was a screening service for the diagnosis of rheumatic heart disease based on cloud-based processing of medical images, metadata and clinical information using artificial intelligence. The system processed a large set of medical images efficiently and securely, which led to better and quicker disease diagnosis.

Beyond medicine, ATMOSPHERE is already being used to manage a range of assets in both Europe and Brazil. These include Dell, Vodafone, Talkdesk and INDRA, as well as the EGI Foundation and the Brazilian National Education and Research Network, RNP. Others are expected to start using the services soon.

"ATMOSPHERE has been the result of the joint development of a large and distributed team of 14 partners. The high degree of collaboration and the team spirit created during the project have been an intangible result that will set up the basis for long-term collaboration," adds Brasileiro.

ATMOSPHERE constitutes the latest step in a long trajectory of Europe-Brazil collaborative projects in cloud computing, started back in 2010.

Keywords
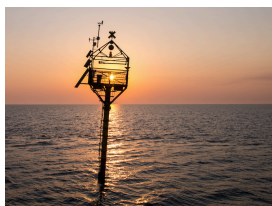
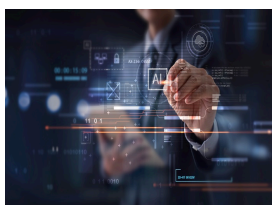ATMOSPHERE   computing   resilient   cloud   collaborative   data

medical

Discover other articles in the same domain of application

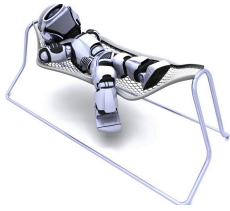
Upgrading Europe's maritime data infrastructure

8 October 2021

Progressing towards the next-generation cloud-edge-IoT continuum

5 September 2023

[Dream-like processes could help build more human-centric robots](#)

30 September 2019

[Making Europe's critical infrastructures future-proof](#)

25 September 2024

Project Information

ATMOSPHERE

Grant agreement ID: 777154

[Project website ↗]

DOI
[10.3030/777154 ↗](#)

Project closed

EC signature date
8 September 2017

Start date
1 November 2017

End date
31 October 2019

Funded under
INDUSTRIAL LEADERSHIP - Leadership in enabling and industrial technologies - Information and Communication Technologies (ICT)

Total cost
€ 1 499 375,00

EU contribution
€ 1 499 375,00

Coordinated by
UNIVERSITAT POLITECNICA DE VALENCIA
🇪🇸 Spain

This project is featured in...

RESEARCH*EU MAGAZINE

A quantum leap forward for European fundamental research

NO. 93, JUNE 2020

Related articles

NEWS

SCIENTIFIC ADVANCES

Progressing towards the next-generation cloud-edge-IoT continuum

5 September 2023

Last update: 21 March 2020

Permalink: https://cordis.europa.eu/article/id/415493-resilient-secure-and-adaptive-cloud-computing

European Union, 2025