PRESS RELEASE

Intelligent solutions to optimize the development of applications based on data

- The European project DITAS, in which the Basque technology centre IK4-IDEKO is involved, seeks to improve the development of data-intensive applications in areas such as health and industry
- The initiative with a budget of 4.4 million euros, started at the beginning of the year and has eight international partners
- The results of the project, a new framework for the design of applications, will be distributed as open source.

(Elgoibar, -- May 2017).- The use of information and communication technologies in the most common areas such as trade, transport, industrial manufacturing, smart production lines, computerised health care known as eHealth, or the self-driving car sector requires the development of new solutions able to seamlessly process and manage vast amounts of data in a safe and efficient manner.

This is the backdrop in which the European project DITAS (Data-intensive applications improvement by moving data and computation in mixed cloud/fog environments) is being developed, an initiative with the participation of IK4-IDEKO, the Basque technology centre specialising in Advanced Manufacturing .

The project started in January this year and aims to create a new workspace or framework - which will bear the same name as the initiative - with the mission to facilitate the development of data-intensive IT applications in the industry and healthcare sectors among others.

The design of a smart framework is a key element in the development of IT applications as this supposes a technological structure that encompasses concepts, practices and protocols that must meet concrete problems, render a strictly defined assistance and serve as a basis for the organisation and development of software.

The innovative approach of the DITAS combines the advantages of cloud computing with the fog computing paradigm with the mission of developing a framework to simplify the development and execution of data management applications.

"The adoption of a hybrid strategy that encompasses the strengths of cloud /fog environments to store and process data can improve response time and connectivity and at the same time guarantee safety and reduce latency", explained the project leader in IK4-IDEKO, Aitor Fernández.

Companies specializing in the development of data-intensive applications will be the main beneficiaries of the DITAS solution, which will be distributed as free software.

"Data usage applications for organisations and companies that wish to use their data efficiently, reliably, scalably and safely are crucial at present and will even be more so in the future," says Fernández.

The researcher adds that the outcome of the project "will enable the developers to focus only on the logical aspects of the application as how, when and where to store the data, while leaving the DITAS runtime environment find, process, and deliver the data."

Two scenarios to validate the new technology

The project foresees to validate the results in the Industry 4.0 sector and in the eHealth sector. Both have a need to develop smart data-based applications, but require a different approach in terms of performance, quality, safety, privacy, format, source and storage.

IK4-IDEKO will lead the Industry 4.0 scenario with the mission to show that the use of the DITAS framework makes it possible to develop, deploy and maintain in a simple manner applications based on data generated by sensors, actuators and machines that are hosted both at cloud providers and in the facilities where the equipment is located.

As far as the health sector is concerned, DITAS aims to demonstrate the simplicity this framework provides for the development of applications that require processing and moving data from health centres, where it has been collected, to cloud environments, in strict adherence with safety and privacy criteria required for this type of sensitive information.

Finding a way through clouds and fog to clear skies

The scalability, reliability and cost of the paradigm of cloud computing make this model a beneficial alternative for the management, storage and analysis of data. However,

this option still has to overcome barriers such as latency, safety and restrictions of conformity.

At the same time, the paradigm fog computing has emerged as a formula that promises to capitalise on the potential of both extremes of the network, i.e., the capacity of traditional devices such as computers and industrial PCs as well as of the new generations of smart devices that process data in the very place where it is generated or consumed.

The downside of fog computing lies in the fact that the same reliability and scalability as in cloud computing cannot be guaranteed.

"Up to now, this reality means that application developers have to continually deal with scattered data in heterogeneous environments and with the complexity of infrastructures consisting of sensors, smart devices or traditional devices," said Fernández.

In this scenario, the solution proposed by DITAS is based on the adoption of a mixed strategy that combines the advantages of the paradigm of cloud computing and fog computing with the intention of overcoming the obstacles of both alternatives.

The system devised in DITAS is based on a model of Virtual Ddata Containers, which allows developers to define what data the application requires in order to function and to focus on the exploitation of these data, leaving it up to the framework to find, process, and deliver the data to the application.

In short, the DITAS environment seeks to improve the productivity of application developers, optimise data management in mixed cloud/fog environments and provide a strategy to improve the implementation of data-intensive applications.

An international consortium

The project, to be completed by the end of 2019, is led by the Spanish company dedicated to digital transformation Atos. Also participating in the consortium are the educational institution, Politecnico di Milano*,* the Technical University of Berlin, the Swiss cloud infrastructure provider CloudSigma, the Institute for Communication and Computerised Systems from Greece (ICCS), IBM of Israel and the Italian University Hospital San Raffaele.

DITAS has a budget of 4.4 million euros, funded by the European Commission through the ICT program within the Horizon 2020 program for support in research and innovation.

About IK4-IDEKO

The Basque Technological Centre IK4-IDEKO has a long-standing experience of 30 years in research, development and innovation of new technologies applied to manufacturing and industrial production.

Set up to respond to highly technological challenges from the Mondragon Corporation machine tool companies, today it has more than 100 researchers and a portfolio of more than 50 customers a year.

Its R&D&I is aimed at offering innovative solutions to improve competitiveness of the business fabric, and is structured in 4 research units: Dynamics and Control, Manufacturing Processes, ICT and Automation and Design and Precision Engineering.