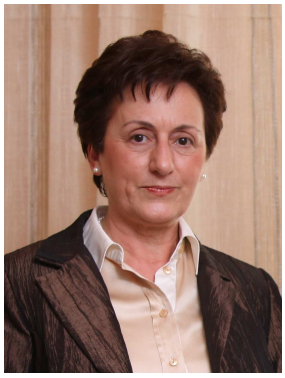

Cloud Computing – Trends and Challenges

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Abstract:
Advances in networks and computing systems have led to new platforms for computing, such as Clouds. The increasing popularity of cloud computing has offered computational services to many scientists, consumers and enterprises as utilities, on a pay-per-use approach. Many business organizations migrate all or part of their data processing activities in the cloud. In addition to enterprise and scientific computing, clouds are also being used for the management of smart facilities.

There are important issues that must be addressed in cloud computing, such as: performance, resource allocation, efficient scheduling, energy conservation, reliability, protection of sensitive data, security and trust, cost, availability, quality. Effective management of cloud resources is crucial to use effectively the power of these systems and achieve high system performance.

The cloud computing paradigm can offer various types of services, such as computational resources for complex applications, web services, social networking, urban mobility, health care, environmental science, etc. Furthermore, the simultaneous usage of services from different Clouds can have additional benefits such as lower cost and high availability - however issues like interoperability, portability and service brokerage need to be addressed.

Recently, Big Data has become one of the most important research fields in science, engineering, enterprise, biology, healthcare, etc. However, in order that cloud computing will be a platform for supporting big data applications, appropriate algorithms are required for acquiring knowledge from a variety of big and not centrally collected data.

In this talk we will present state-of-the-art research covering a variety of concepts on cloud computing, based on existing or simulated cloud systems, that provide insight into problems solving and we will provide future trends and challenges in the cloud computing area.