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Can Nuclear Installations and Research Centres Adopt Cloud Computing Platform?

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Cloud Computing is arguably one of the recent and highly significant advances in information technology today. It produces transformative changes in the history of computing and presents many promising technological and economic opportunities. The pay per use model, the computing power, abundance of storage, skilled resources, fault tolerance and the economy of scale it offers, provides significant advantages to enterprises to adopt cloud platform for their business needs. However, customers especially those dealing with national security, high end scientific research institutions, critical national infrastructure service providers (like power, water) remain very much reluctant to move their business system to the cloud. One of the main concerns is the question of information security in the cloud and the threat of the unknown. Cloud Service Providers (CSP) indirectly encourages this perception by not letting their customers see what is behind their virtual curtain. Jurisdiction (information assets being stored elsewhere), data duplication, multi-tenancy, virtualisation and decentralised nature of data processing are the default characteristics of cloud computing. Therefore traditional approach of enforcing and implementing security controls remains a big challenge and largely depends upon the service provider. The other biggest challenge and open issue is the ability to perform digital forensic investigations in the cloud in case of security breaches. Traditional approaches to evidence collection and recovery are no longer practical as they rely on unrestricted access to the relevant systems and user data, something that is not available in the cloud model. This continues to fuel high insecurity for the cloud customers.

In this paper we analyse the cyber security and digital forensics challenges, issues and opportunities for nuclear facilities to adopt cloud computing. We also discuss the due diligence process and applicable industry best practices which shall be considered before deciding to adopt cloud computing for the organisational ICT needs.

Country or International Organization

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