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Addressing cloud computing security issues

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Abstract

The recent emergence of cloud computing has drastically altered everyoneâ€™s perception of infrastructure architectures, software delivery and development models. Projecting as an evolutionary step, following the transition from mainframe computers to client/server deployment models, cloud computing encompasses elements from grid computing, utility computing and autonomic computing, into an innovative deployment architecture. This rapid transition towards the clouds, has fuelled concerns on a critical issue for the success of information systems, communication and information security. From a security perspective, a number of unchartered risks and challenges have been introduced from this relocation to the clouds, deteriorating much of the effectiveness of traditional protection mechanisms. As a result the aim of this paper is twofold; firstly to evaluate cloud security by identifying unique security requirements and secondly to attempt to present a viable solution that eliminates these potential threats. This paper proposes introducing a Trusted Third Party, tasked with assuring specific security characteristics within a cloud environment. The proposed solution calls upon cryptography, specifically Public Key Infrastructure operating in concert with SSO and

LDAP, to ensure the authentication, integrity and confidentiality of involved data and communications. The solution, presents a horizontal level of service, available to all implicated entities, that realizes a security mesh, within which essential trust is maintained.

Research highlights

â–º This paper attempts to evaluate cloud computing security. â–º A solution is presented which attempts to eliminate unique threats. â–º This paper introduces a Trusted Third Party. â–º TTP is tasked with assuring security characteristics within a cloud environment. â–º The solution employs Public Key Infrastructure in concert with SSO and LDAP.

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Keywords

Cloud computing security; Trusted Third Party; Public key infrastructure; Information and communication security; Trust

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