Accepted Manuscript

A thin client friendly trusted execution framework for infrastructure-as-a-service clouds

Imran Khan, Habib-ur Rehman, Mohammad Hussein Fayiz Al-khatib, Zahid Anwar, Masoom Alam

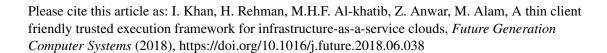
PII: S0167-739X(17)32970-9

DOI: https://doi.org/10.1016/j.future.2018.06.038

Reference: FUTURE 4300

To appear in: Future Generation Computer Systems

Received date: 28 December 2017 Revised date: 4 May 2018 Accepted date: 24 June 2018



This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.



ACCEPTED MANUSCRIPT

A Thin Client Friendly Trusted Execution Framework for Infrastructure-as-a-Service Clouds

Imran Khan^{a,*}, Habib-ur Rehman^a, Mohammad Hussein Fayiz Al-khatib^b, Zahid Anwar^c, Masoom Alam^d

Abstract

Individuals and businesses are moving to cloud-based services, to benefit from their pay-as-you-go and elastic scalability features. The main concern to wide adoption of cloud-based services is the lack of protection of clients data and computation from the various outsider as well as insider attacks, which threaten to compromise client data confidentiality and integrity. Trusted computing provides a foundation for designing security services that are resilient to various threats and attacks in a distributed environment such as the cloud. Current trusted computing based solutions are ill-suited to the cloud as they inadvertently disclose too many details about the underlying infrastructure to clients and at the same time involve the complex task of attestation and verification on the client side. Additionally, direct verification of security properties of the cloud platform to each and every client introduces computational bottlenecks. In this work, we propose a scalable framework which enables verification of the properties of the cloud platform through a trusted third party without the direct involvement of the client. Our proposed framework is thin client (mobile device) friendly, as the client is alleviated of direct attestation and verification

Email address: imrankhan@nu.edu.pk (Imran Khan)

^aDepartment of Computer Science, National University of Computer and Emerging Sciences, FAST-NUCES, Islamabad, Pakistan.

^b College of Computer and Information Sciences, Al Imam Mohammad Ibn Saud Islamic University (IMSIU), Riyadh, Saudi Arabia.

^cDepartment of Mathematics and Computer Science, Fontbonne University, Saint Louis, MO. USA.

^dComsats Institute of Information Technology, Islamabad, Pakistan.

^{*}Corresponding author

Download English Version:

https://daneshyari.com/en/article/6872802

Download Persian Version:

https://daneshyari.com/article/6872802

<u>Daneshyari.com</u>