

# Data Service Trust Measurement in Cloud Environment

**CURRENT STATUS:** UNDER REVIEW

Journal of Cloud Computing  Springer

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## DOI:

10.21203/rs.2.19247/v1

## SUBJECT AREAS

*Computer Architecture and Engineering*    *Systems and Networking*

## KEYWORDS

*Cloud Environment, Data Service, Trusted Measure, Cloud Security, Trust Service*

## Abstract

Highly trusted issues will be one of the main obstacles to a new era of highly trusted cloud computing. In the cloud computing environment, because sensitive applications and user data are put into the cloud, they run in virtual machines in the data center. Among them, due to the existence of access vulnerability, virtualization vulnerability, web application vulnerability, etc., high trust issues arise from data control, identity authentication, lack of information and other related issues. The introduction of trust mechanisms can be very facilitate the solution of related issues, achieve highly trusted quantification, analysis, and modeling of cloud data centers, meet high trust requirements, and provide users with a highly trusted cloud computing environment. This article mainly studies the trust measure of data services in cloud environment. In this paper, the optimization scheme is verified through experiments, and the traditional big data processing scheme, the original Sahara and the optimization scheme are compared in six cases. Overall, the optimization scheme has a significant performance improvement. Compared with the default configuration of Sahara, the configuration of the new interface has increased the throughput in DFSIO by 120%. Using the design of the unified cache management service, Tachyon can reach 13 in specific situations. In the execution time of Sort workloads, the optimization scheme generally decreased by about 50% compared to the original Sahara, and the memory utilization increased from 80% to 96% in our experiments, but in the cache isolation and other areas need to be improved. The results are basically in line with expectations, which also confirms the rational thinking and value of this article on BDAaS performance research.

## Full Text

Due to technical limitations, full-text HTML conversion of this manuscript could not be completed. However, the manuscript can be downloaded and accessed as a PDF.

## Figures

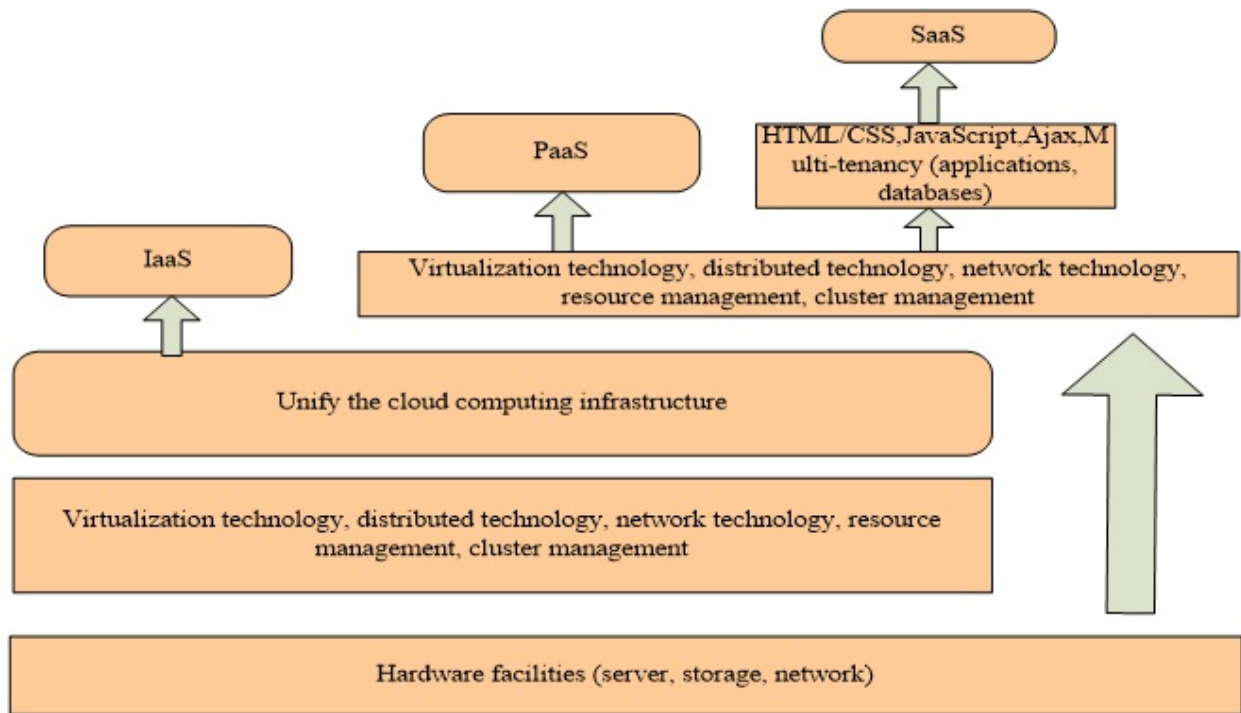


Figure 1

Cloud computing service framework

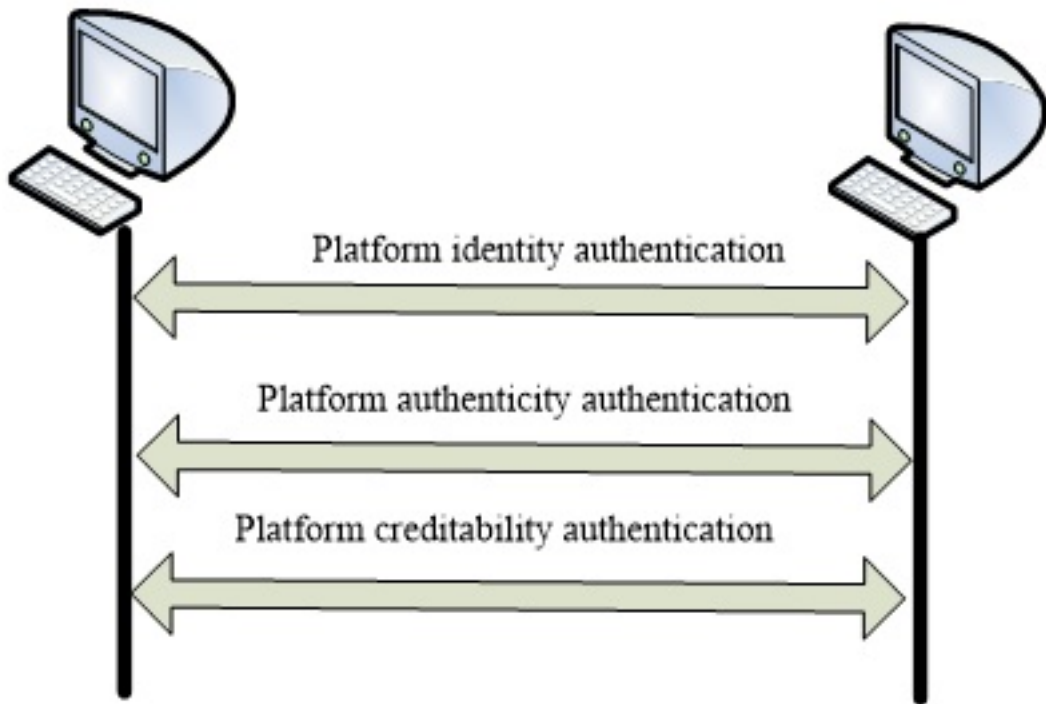


Figure 2

Trusted platform authentication flowchart

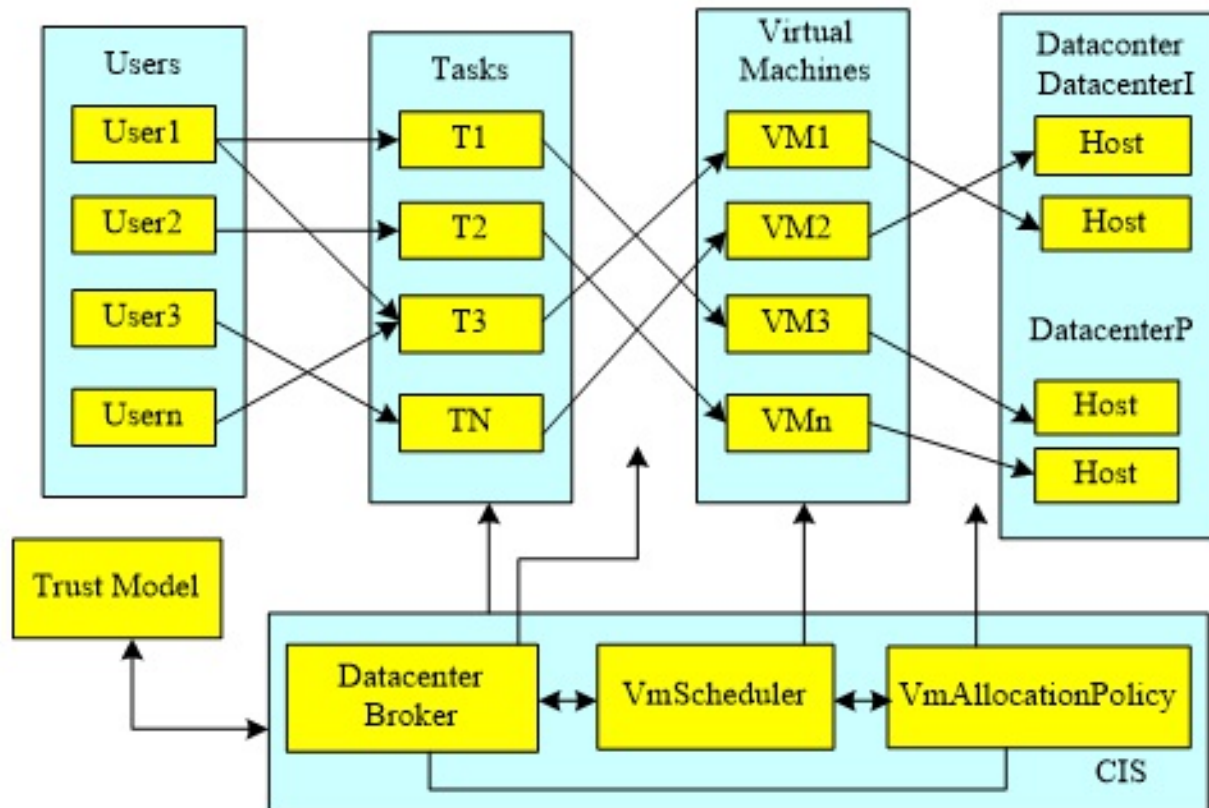


Figure 3

CloudSim resource scheduling simulation diagram

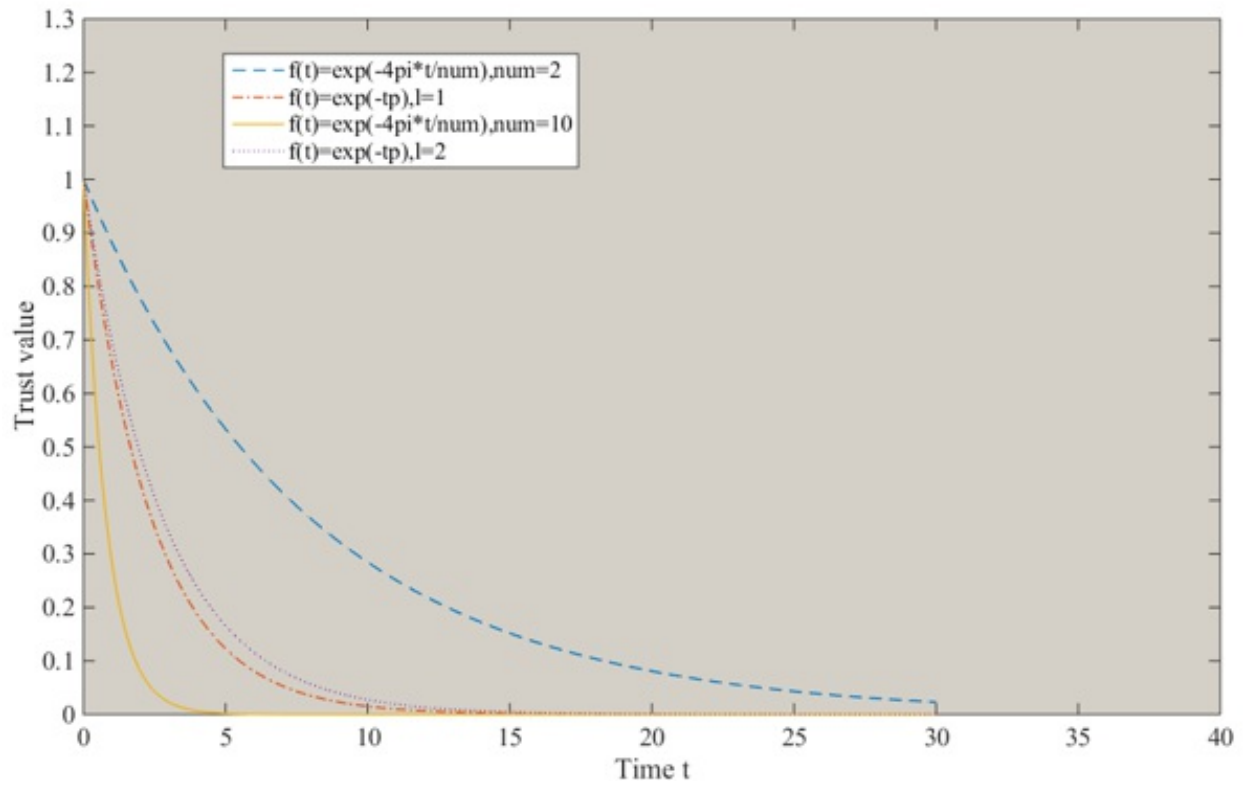


Figure 4

Trust value decay versus time

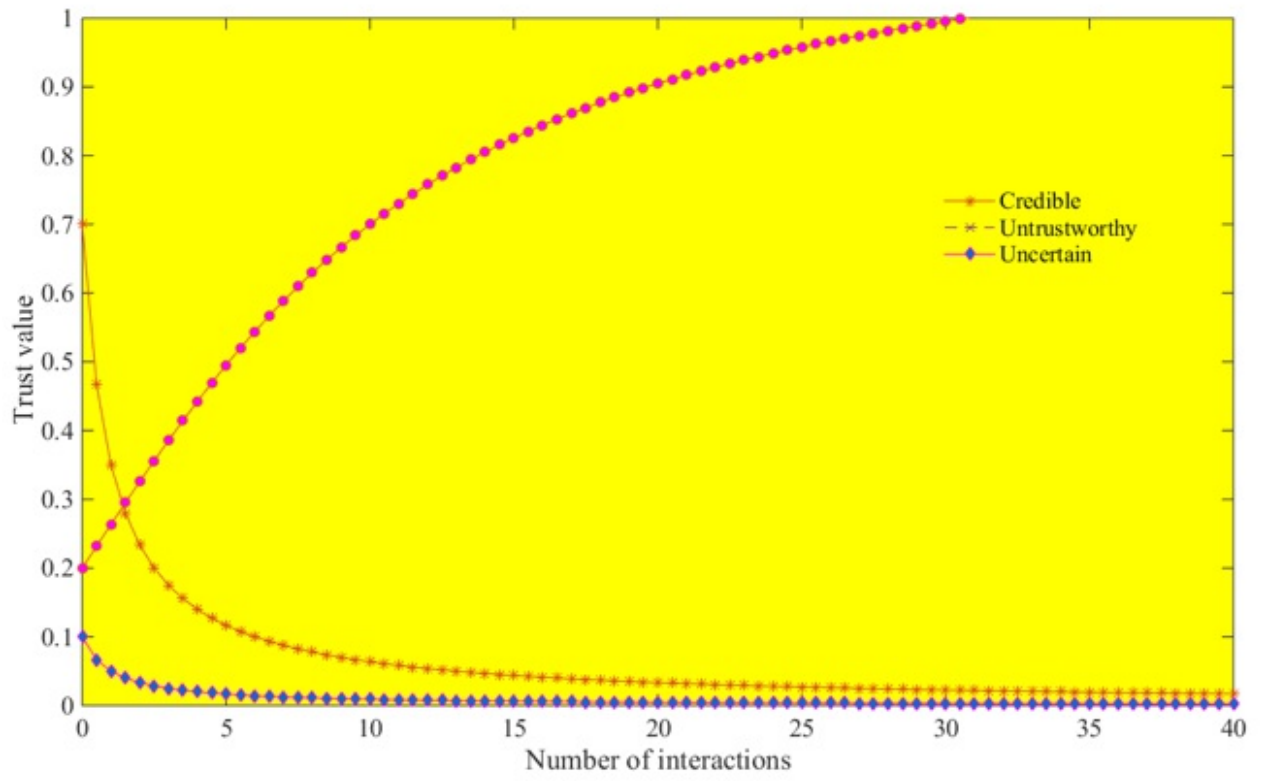


Figure 5

Relationship between trust change and time

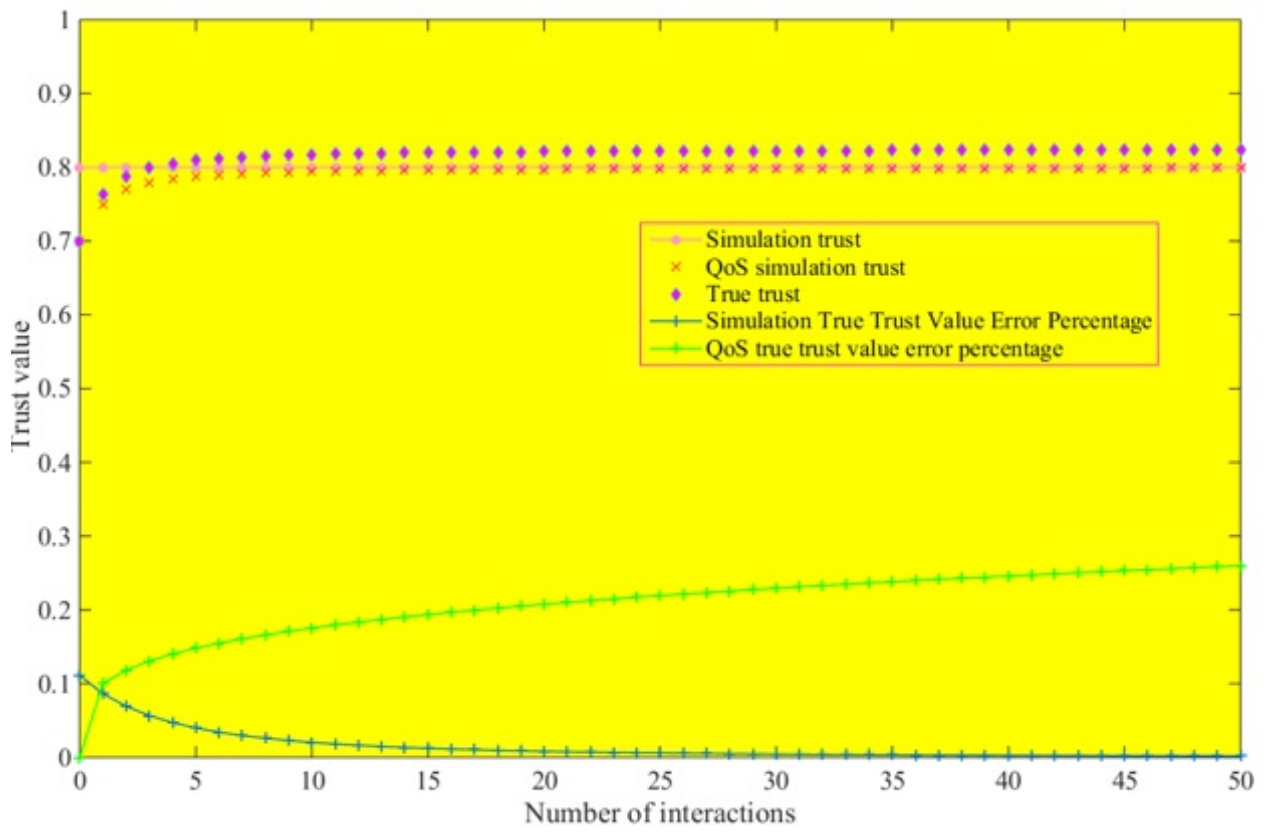


Figure 6

Static trust relationship diagram before and after the trust model is applied

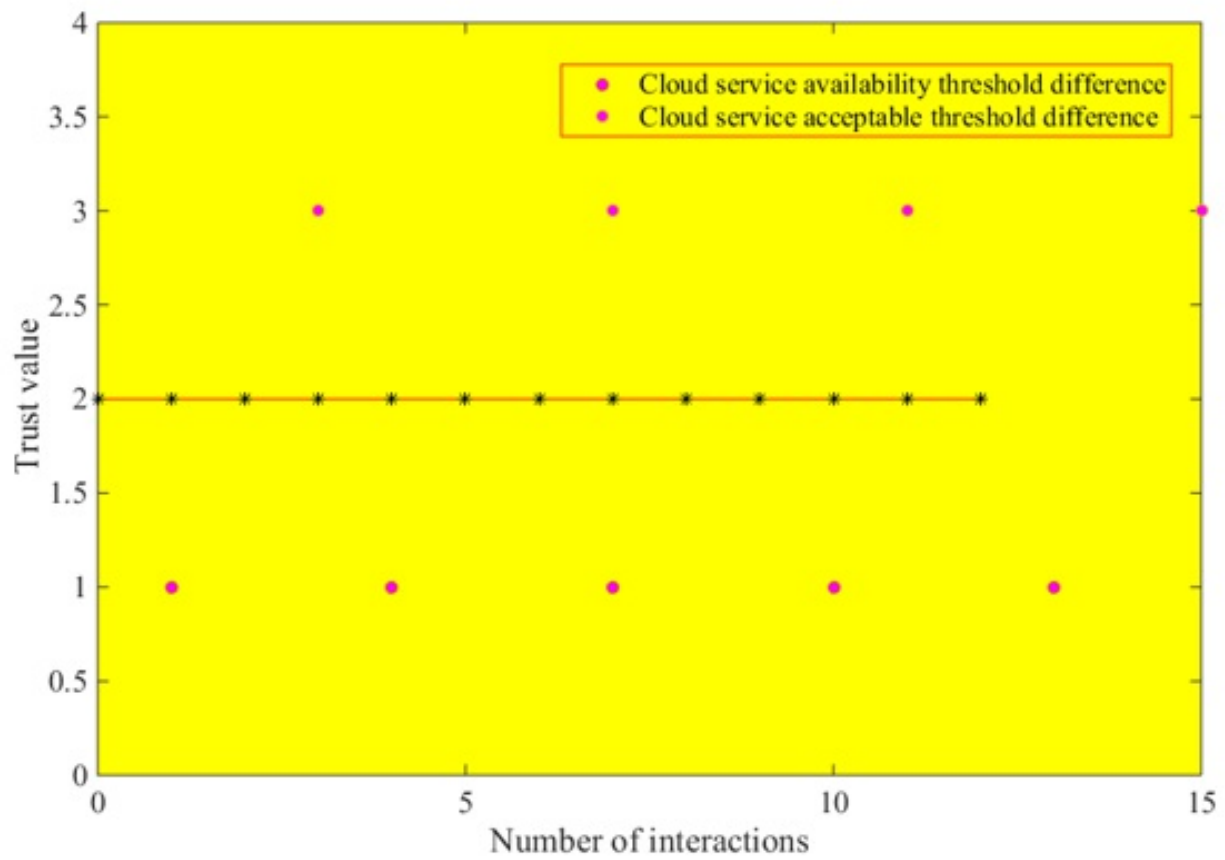


Figure 7

Difference graph of service availability change