Design and Application of NFC-Based Identity and Access Management in Cloud Services

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Abstract : In response to a changing world and the fast growth of the Internet, more and more enterprises are replacing web-based services with cloud-based ones. Multi-tenancy technology is becoming more important especially with Software as a Service (SaaS). This in turn leads to a greater focus on the application of Identity and Access Management (IAM). Conventional Near-Field Communication (NFC) based verification relies on a computer browser and a card reader to access an NFC tag. This type of verification does not support mobile device login and user-based access management functions. This study designs an NFC-based third-party cloud identity and access management scheme (NFC-IAM) addressing this shortcoming. Data from simulation tests analyzed with Key Performance Indicators (KPIs) suggest that the NFC-IAM not only takes less time in identity identification but also cuts time by 80% in terms of two-factor authentication and improves verification accuracy to 99.9% or better. In functional performance analyses, NFC-IAM performed better in salability and portability. The NFC-IAM App (Application Software) and back-end system to be developed and deployed in mobile device are to support IAM features and also offers users a more user-friendly experience and stronger security protection. In the future, our NFC-IAM can be employed to different environments including identification for mobile payment systems, permission management for remote equipment monitoring, among other applications.
Keywords : cloud service, multi-tenancy, NFC, IAM, mobile device
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