Security Risks Assessment: A Conceptualization and Extension of NFC Touch-And-Go Application

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Abstract : NFC operates on low-range 13.56 MHz frequency within a distance from 4cm to 10cm, and the applications can be categorized as touch and go, touch and confirm, touch and connect, and touch and explore. NFC applications are vulnerable to various security and privacy attacks such due to its physical nature; unprotected data stored in NFC tag and insecure communication between its applications. This paper aims to determine the likelihood of security risks happening in an NFC technology and application. We present an NFC technology taxonomy covering NFC standards, types of application and various security and privacy attack. Based on observations and the survey presented to evaluate the risk assessment within the touch and go application demonstrates two security attacks that are high risks namely data corruption and DOS attacks. After the risks are determined, risk countermeasures by using AHP is adopted. The guideline and solutions to these two high risks, attacks are later applied to a secure NFC-enabled Smartphone Attendance System.

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