Privacy-Preserving Electronic Ticket Scheme with Attribute-Based Credentials

ABSTRACT:

Users accessing services are often required to provide personal information, for example, age, profession and location, inorder to satisfy access polices. This personal information is evident in the application of e-ticketing where discounted access is grantedto visitor attractions or transport services if users satisfy policies related to their age or disability or other defined over attributes. Wepropose a privacy-preserving electronic ticket scheme using attribute-based credentials to protect users' privacy. The benefit of ourscheme is that the attributes of a user are certified by a trusted third party so that the scheme can provide assurances to a seller that auser's attributes are valid. The scheme makes the following contributions: (1) users can buy different tickets from ticket sellers withoutreleasing their exact attributes; (2) two tickets of the same user cannot be linked; (3) a ticket cannot be transferred to another user; (4)a ticket cannot be double spent. The novelty of our scheme is to enable users to convince ticket sellers that their attributes satisfy theticket policies and buy discounted tickets anonymously. This is a step towards identifying an e-ticketing scheme that captures userprivacy requirements in transport services. The security of our scheme is proved and reduced to a well-known complexity assumption.The scheme is also implemented and its performance is empirically evaluated.

SYSTEM REQUIREMENTS:

HARDWARE REQUIREMENTS:

- System : Pentium i3 Processor.
- Hard Disk : 500 GB.
- Monitor : 15’’ LED
- Input Devices : Keyboard, Mouse
- Ram : 4 GB

SOFTWARE REQUIREMENTS:

- Operating system : Windows 10.
- Coding Language : Java
- Web Framework : Flask

REFERENCE:

J. Han, L. Chen, S. Schneider, H. Treharne and S. Wesemeyer, "Privacy-Preserving Electronic Ticket Scheme with Attribute-Based Credentials," in IEEE Transactions on Dependable and Secure Computing, vol. 18, no. 4, pp. 1836-1849, 1 July-Aug. 2021, doi: 10.1109/TDSC.2019.2940946.