Cyprus University of Technology

Faculty of Engineering and Technology

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Architecture for Identity verification with privacy-preserving credentials for anonymous access to Online Services

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Approval Form

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Abstract

Identity verification to online services has many challenges nowadays. Most online services lack Attribute-based access control, which does not allow anonymity-preserving. Also, distributed internet services are traditionally based on username and password, affecting users' security. Moreover, existing solutions rely on a central authority, which depends on a single point of failure. In this work, we design and implement an architecture for identity verification with privacy-preserving credentials for anonymous access to online services to overcome these challenges. The architecture includes robust device-centric authentication methods and federated login solutions, a decentralized component to store identity attributes, and an AI-based assistant that is available to the user in order to assist with actions that need to be taken regarding identity management and interactions with the service providers. In addition to the passwordless authentication experience and the preservation of the user's privacy, the User Experience is considered a priority.