Service-Oriented Digital Identity-related Privacy Interoperability: Implementation Framework of Privacy-as-a-Set-of-Services (PaaS)

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Abstract. Protecting digital identity is crucial aspect in order to successfully enable collaboration between heterogeneous and distributed information systems. In this context, privacy could play a key role for digital identity protection and security. Thus, an identity layer in which interoperable privacy is delivered in the shape of a set of services, rather than monolithic applications, would be inevitably responding to the need of collaboration. In this article, we suggest a novel layered service-oriented implementation framework that information systems security projects’ members could borrow to successfully turn digital identity-related privacy requirements into a set of services. Several blocks are distributed amongst five layers and three mapping gateways determine the roadmap of the implementation effort governance. Seven loosely coupled, publicly hosted and available to on-demand calls services are specified to accommodate service-oriented architectures. OMG SoaML diagrams, BPMN process descriptions and SOA-artifacts specifications are provided and explained.

Keywords: Digital identity, privacy, interoperability, implementation framework, SOA.

1 Introduction

Recent years have seen the trend of business globalization which urgently requires dynamical collaboration among organizations. The business processes and organizations’ information systems need to be integrated seamlessly to adapt the continuously changing business conditions and to stay competitive in the global market. Collaborative environments present major challenges to privacy since there is an exchange of digital identities between collaborators [1]. Moreover, privacy is a critical right and a protection to enforce, if we wish to provide to individuals with the means to protect digital identities. When privacy is compromised, security of the individual, the organization or the country could be threatened [2-10]. Thus, there is a need to establish a balance between the benefits of collaborative environments, which