Title: Designing Privacy Compliant DLT (Blockchain) Systems

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Conference topics: security and privacy, blockchain

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Expected duration: 3 hours, including 20 minutes of Q&A session.

Aim and Scope

Blockchain technologies are well known for their feature of data immutability, and gained their popularity with the first system of digital currency, the Bitcoin, that is able to detect the double-spending problem without the interference of a trusted authority. Many other blockchain platforms and applications, not all of them limited to finance, have been inspired by Bitcoin, and Blockchain-based systems have been proposed for a large number of cases, including health, Internet of Things, Smart vehicles, and so on. In fact, due to their intrinsic properties (robustness, reliability, etc.) these systems are very attractive for developing ICT solutions operating in non-trusted environment.

A blockchain-based system, however, poses many issues related to respect of privacy regulations. Due to its immutability, it is not simple to respect various citizens' rights (e.g. right to be forgotten). Many authors face these problems, and some solutions are given to developers.

This tutorial aims to inform students and researchers about the main issues involved in developing blockchain-based systems in privacy-related contexts, the solution proposed by researchers and the guidelines published by Privacy Authorities. Although the tutorial is based mainly on EU Regulation (GDPR), some notes will be given on other national regulations. Moreover, the respect for GDPR must be shown not only by European firms, but also by Non-European firms developing software and services to be used by EU citizens, thus the tutorial is interesting also for developers and researchers outside the countries of the EU.

Contents

- Introduction: The privacy regulation in EU (GDPR), notes on different countries' regulations (USA, China, India, Australia)
- The attractiveness of Blockchain Systems
- The key principles and the rights of users: The impact on Software Developement Life Cycle
- Blockchain issues in the field of respect for personal data protection regulations
- A view of proposed solutions for Privacy Compliant Blockchain Systems
- A case study: Blockchain in Smart Road Environment
- References
- Q & A

Short biography

MICHELE MASTROIANNI is currently the Data Protection Officer (Privacy expert) at University of Campania Luigi Vanvitelli, Caserta, Italy, He holds a M. Sc. degree in Electrical Engineering and a Ph.D. degree in Management Engineering, and has been Network Manager at the same University He is also an Adjunct Professor of ERP Systems at MS course in Computer Engineering at the University of Campania Luigi Vanvitelli. He also taught (Adjunct Professor) Programming Languages, Computer Networks, Data Base Systems and Object Oriented Programming at the University of Naples Federico II and at the University of Campania Luigi Vanvitelli. His research activity concerns study of various themes related to ICT networks, system and software. The main research interests include performance modeling of complex computer based systems, performance evaluation, privacy and security in ICT systems and networks, ICT impact on Public Sector and small firms.

Note: This Tutorial was not submitted to any other Conference or Workshop.