



Proceedings of the second SafeCloud Workshop

D6.8

Project reference no. 653884

August 2018



European
Commission

Horizon 2020
European Union funding
for Research & Innovation

Document information

Scheduled delivery	31.08.2018
Actual delivery	31.08.2018
Version	1.0
Responsible Partner	UniNE

Dissemination level

Public

Revision history

Date	Editor	Status	Version	Changes
26.06.2018	H. Mercier	Final	1.0	Final version

Contributors

H. Mercier (UniNE)

Internal reviewers

F. Maia (INESC TEC)

Acknowledgements

This project is partially funded by the European Commission Horizon 2020 work programme under grant agreement no. 653884.

More information

Additional information and public deliverables of SafeCloud can be found at <http://www.safecloud-project.eu>

Table of contents

Document information	1
Dissemination level	1
Revision history	1
Contributors	1
Internal reviewers	1
Acknowledgements	1
More information	1
Table of contents	2
Executive Summary	3

Executive Summary

This deliverable includes the proceedings of the second SafeCloud Workshop, organized jointly by the SafeCloud and SecureCloud (<https://www.securecloudproject.eu>) European projects. The workshop, titled Workshop on Privacy by Design in Distributed Systems (W-P2DS), was held in conjunction with the European Conference on Computer Systems (EuroSys) in Porto, Portugal, April 23-26, 2018. The goal of the workshop was to gather researchers and practitioners from the cryptography, distributed systems, and security systems communities to discuss the current state of the art, emerging challenges and trends, as well as novel solutions, implementations and deployment of privacy-preserving systems and applications. The focus was on concrete applications that bring privacy-preserving systems mechanisms into cloud computing infrastructures. EuroSys is a premier international forum for presenting computer systems research, broadly construed, and the workshop itself was attended by around 40 people from academia and industry worldwide. More details about W-P2DS and EuroSys can be found at <http://www.gsd.inesc-id.pt/~p2ds/> and <http://eurosys2018.org>, respectively. Detailed information about the articles accepted for publication and presentation at the workshop are available from the ACM website at <https://dl.acm.org/citation.cfm?id=3195258>.

Proceedings of the
Workshop on
Privacy by Design in Distributed Systems
P2DS'18

co-located with
European Conference on Computer Systems
EuroSys 2018
April 23rd, 2018
Porto, Portugal

Workshop Editors and Chairs

Francisco Maia (INESC TEC)

Hugues Mercier (Université de Neuchâtel)

Andrey Brito (University of Campina Grande)



**The Association for Computing Machinery
2 Penn Plaza, Suite 701
New York New York 10121-0701**

ACM COPYRIGHT NOTICE. Copyright © 2015 by the Association for Computing Machinery, Inc. Permission to make digital or hard copies of part or all of this work for personal or classroom use is granted without fee provided that copies are not made or distributed for profit or commercial advantage and that copies bear this notice and the full citation on the first page. Copyrights for components of this work owned by others than ACM must be honored. Abstracting with credit is permitted. To copy otherwise, to republish, to post on servers, or to redistribute to lists, requires prior specific permission and/or a fee. Request permissions from Publications Dept., ACM, Inc., fax +1 (212) 869-0481, or permissions@acm.org.

For other copying of articles that carry a code at the bottom of the first or last page, copying is permitted provided that the per-copy fee indicated in the code is paid through the Copyright Clearance Center, 222 Rosewood Drive, Danvers, MA 01923, +1-978-750-8400, +1-978-750-4470 (fax).

ACM ISBN: 978-1-4503-5654-1/18/04

P2DS'18

Workshop on Privacy by Design in Distributed Systems

Abstract:

Cloud Computing has fostered a significant shift in the way applications and services are deployed and managed but serious privacy and confidentiality issues arise in such context. Massive scale surveillance has become a reality and individual's privacy almost a luxury. Although a multitude of encryption and privacy-preserving mechanisms exist, there is still a significant gap between the theoretical body of knowledge and its applications in real-world systems. The goal of the workshop is to gather researchers and practitioners from the cryptography, distributed systems, and security systems communities to discuss the current state of the art, emerging challenges and trends, as well as novel solutions, implementation and deployment of privacy-preserving systems and applications. The program was thought to foster fruitful discussions and pave the way for new collaborations and contributions in the area.

General chairs:

Francisco Maia, HASLab - INESC TEC & U. Minho (Portugal)

Hugues Mercier, Université de Neuchâtel (Switzerland)

Program committee chair:

Andrey Brito, University of Campina Grande (Brazil)

Program Committee:

Bernardo Portela - INESC TEC (Portugal)

Charles Prado – INMETRO (Brazil)

Christof Fetzer – TU Dresden (Germany)

Dan Bogdanov – Cybernetica (Estonia)

Daniel Rötter – Chocolate Cloud (Denmark)

Florian Kelbert – Imperial College London (UK)

Georg Carle – TU Munich (Germany)

João Claro - INESC TEC (Portugal)

João Paulo - SafeCloud Technologies (Switzerland)

Keiko Fonseca – Universidade Tecnológica Federal do Paraná (Brazil)

Luigi Romano – Sync Lab. (Italy)

Luis Rodrigues - INESC-ID (Portugal)

Luiz Gomes-Jr. - Universidade Tecnológica Federal do Paraná (Brazil)

Marcelo Pasin – University of Neuchatel (Switzerland)

Marcelo Rosa - Universidade Tecnológica Federal do Paraná (Brazil)

Miguel Correia - INESC-ID (Portugal)

Pascal Felber – Université de Neuchâtel (Switzerland)

Paulo Sousa – Maxdata (Portugal)

Stefan Köpsell – TU Dresden (Germany)

Steve Schmerler - Cloud&Heat (Germany)

Valerio Schiavoni - Université de Neuchâtel (Switzerland)

P2DS'18

Workshop on Privacy by Design in Distributed Systems

Table of Contents

Papers

1. **“Securing Electronic Health Records in the Cloud”**
David R. Matos, Miguel L. Pardal, Pedro Ado, Rito Silva and Miguel Correia
2. **“Protecting Sensory Data against Sensitive Inferences”**
Mohammad Malekzadeh, Richard G. Clegg, Andrea Cavallaro and Hamed Haddadi
3. **“An Information-Theoretic Approach to Time-Series Data Privacy”**
Yousef Amar, Hamed Haddadi and Richard Mortier
4. **“Challenges for the design of a privacy-preserving, multi-domain telemetry system for widely-spread network security appliances”**
Christophe Bacara, Michael Hauspie, Damien Deville and Gilles Grimaud
5. **“Securing Smart Metering applications in Untrusted Clouds with the Secure Cloud Platform”**
Rodrigo Riella and Keiko Fonseca
6. **“An Experimental Performance Analysis of the Cryptographic Database ZeroDB”**
Michael Mitterer, Heiko Niedermayer, Marcel von Maltitz and Georg Carle