

SecureCloud

Secure Big Data Processing In Untrusted Clouds



RESEARCH NEWSLETTER

SecureCloud Project Use Cases

The cloud computing has recently emerged as compelling paradigm for managing and delivering services over the Internet. However, the critical infrastructure operators have legitimate concerns about the confidentiality, integrity and availability, in short, the dependability, of applications and their data hosted on a third-party cloud. Today, the dependability has become a commercial imperative for cloud providers, especially to support cloud computing for critical infrastructures, which need strong security requirements. The **SecureCloud** project, funded by the European Union's Horizon H2020 for research, aims at removing technical impediments to dependable cloud computing, overtaking the barriers to a broad adoption of cloud computing in the critical infrastructure domain.

The main goals of SecureCloud are:

- Ensure secure and efficient processing of sensitive data in untrusted clouds;
- Provide an effective solution to protect applications running on cloud against potential attacks from a compromised operating system or a compromised hypervisor;
- Enable a greater uptake of cost-effective and environment-friendly of cloud services.
- Promote innovative cloud solutions, in particular, for critical infrastructure

applications.

The demonstration scenario will be focused on the smart grid domain. Smart grid applications offer the opportunity of an in-depth evaluation of the requirements that sensitive big data applications may have when executing in the cloud. Seven different use cases are proposed to demonstrate how the approach and technologies used by the SecureCloud platform dramatically improve the dependability of smart grid critical operations, including:

- Smart metering reading, management and processing;
- Fault analysis and fraud detection;
- Smart home data collection, processing and visualisation;
- Video storage and processing;
- Dynamic electrical safety assessment.

IN THIS ISSUE

Project Use Cases	Page 1
Dissemination & Clustering Activities	Page 2
Project Workshops	Page 3
Project Papers	Page 4
Project Meetings	Page 4

AT A GLANCE

Call: H2020-EUB-2015 (3rd Coordinated Call)

Topic: EUB-1-2015: Cloud Computing, incl. security aspects

Duration: 01. Jan 2016 - 31. Dec 2018 (36 months)

Project cost: € 2,285,377

EU Contribution: € 1,499,627

Contact: <https://www.securecloudproject.eu/>



European Coordinator:

Prof. Dr. Christof Fetzler

Technische Universität Dresden (DE)

E-mail: Christof.Fetzler@tu-dresden.de

Brazilian Coordinator:

Prof. Dr. Andrey Brito

Federal University of Campina Grande (Brazil)

E-mail: andrey@computacao.ufcg.edu.br



CONSORTIUM

The SecureCloud consortium comprises 14 members, coming from 7 different countries (Brazil, Denmark, Germany, Israel, Italy, Switzerland and United Kingdom):

European partners

- Technische Universität Dresden (Germany)
- Imperial College (United Kingdom)
- University of Neuchâtel (Switzerland)
- Chocolate Cloud ApS (Denmark)
- Synclab S.r.l. (Italy)
- Israel Electric Corporation Ltd (Israel)
- CloudSigma AG (Switzerland)

Brazilian partners

- Instituto de Tecnologia para o Desenvolvimento (Brazil)
- Federal University of Campina Grande (Brazil)
- Federal University of Technology - Paraná (Brazil)
- Federal University of Itajuba (Brazil)
- Copel Distribuição SA (Brazil)
- CAS Tecnologia S/A (Brazil)
- Intituto Nacional de Metrologia, Qualidade e Tecnologia (Brazil)

Dissemination & Clustering Activities

SecureCloud project on TV

On November 2017 the regional TV broadcaster RPC, associated to the major Brazilian broadcaster TV Globo, has talked about SecureCloud.



Rodrigo Riella (LACTEC), Keiko Fonseca (UTFPR), Marcelo Pasin (UNINE) and Daniel Lucani (Chocolate Cloud) have presented the significant contribution of the SecureCloud project for the new applications data security. The complete interviews are available at following link:

https://www.youtube.com/watch?v=zO6zN8xjo_c

Public event

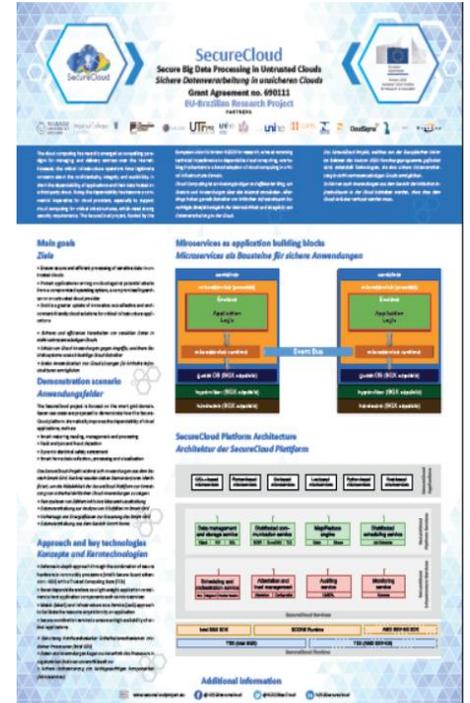
SecureCloud was invited at event named "BIG DATA in Space Sector". The conference was hosted by the Embassy of Poland in Rome last 6 of December. Luigi Romano (SYNC) has presented the SecureCloud platform technologies, its innovative approach and the achieved results. The event audience was ranged from public authorities, industrial operators and scientific personalities.

Poster exhibition

SecureCloud was invited by the German Free State of Saxony's Ministry for Science and the Arts for a poster exhibition to present the project and its first results.

The event, named "European Funds and Saxon ideas", has taken place in Dresden from 5 December 2017 to 2 February 2018. The objective of the exhibition was to present outstanding research achievements and

successful results of Saxon projects in different research areas.



SecureCloud Poster in Dresden

Common Dissemination Booster: SecureCloud is on board

SecureCloud consortium is glad to inform that it has been included in the Common Dissemination Booster (CDB) service. CDB is a brand-new set of services from the European Commission, available for ongoing or closed European-, nationally- and regionally-funded Research & Innovation projects (H2020, FP7 or others). The booster encourages projects to come together to identify a common portfolio of results and shows them how best to disseminate to end-users, with an eye on exploitation opportunities. It offers an expert team providing support in identifying the project's portfolio, mapping end-users, and planning dissemination and other campaigns. The cluster is composed by several EU projects, including: MUSA, PRISMACLOUD, SECURECLOUD, SERECA, SPECS, SUNFISH, SWITCH, TREDISEC and UNICORN.



SecureCloud has received funding from the European Union's Horizon 2020 research and innovation programme and was supported by the Swiss State Secretariat for Education, Research and Innovation (SERI) and MCTI/RNP 3rd Coordinated Call under grant agreement No 690111.



Project Workshops

2nd Workshop on System Software for Trusted Execution (SysTEX-2017)



SecureCloud, jointly with the SERECA and SafeCloud EU projects, organized the 2nd workshop on System Software for Trusted Execution (SysTEX 2017).

The program committee was chaired by:

- Pascal Felber, University of Neuchâtel, Switzerland
- Christof Fetzer, TU Dresden, Germany
- Rüdiger Kapitza, TU Braunschweig, Germany
- Peter Pietzuch, Imperial College, United Kingdom

The SysTEX workshop was focused on systems research challenges related to Trust Execution Environments (TEEs) and explored new ideas and strategies for the implementation of trustworthy systems using TEEs. Universities and companies have presented papers in this field, stimulating the discussion among researchers and practitioners. SysTEX was sponsored by Intel Corporation.

1st International Workshop on Heterogeneous Distributed Cloud Computing



The 1st International Workshop on Heterogeneous Distributed Cloud Computing, in conjunction with the IEEE/ACM International Conference on Utility and Cloud Computing (UCC 2017), in Austin, Texas (USA), December 5-8, 2017, was supported by SecureCloud.

The workshop was organized by:

- Seán Murphy, Zurich University of Applied Science, Switzerland
- Presentation of Andrey Brito, Universidade Federal de Campina Grande, Brazil

The workshop was intended both for the classical cloud computing R&D community and those which is looking at new hardware compute platforms and how they will impact on the cloud computing sector. The goals of this workshop were to understand how today's cloud systems will evolve.

UCC is the premier IEEE/ACM conference covering all areas related to utility computing, cloud computing services, and other forms of advanced distributed computing. UCC provides an international forum for leading researchers and practitioners in this important and growing area.

1st International Workshop on Privacy by Design in Distributed Systems



The Workshop on Privacy by Design in Distributed Systems will take place on April 23, 2018, in Porto, Portugal, and is co-located with EuroSys 2018. W-P2DS 2018 will be co-sponsored by SecureCloud and SafeCloud.

The goal of the workshop will be to gather researchers and practitioners from the cryp-

tography, 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 workshop will be held in conjunction with the European Conference on Computer Systems (EuroSys 2018). EuroSys, which is a premier international forum for presenting computer systems research in the areas of cloud computing and datacenter systems, secure systems, privacy, and anonymity-preserving systems and dependable systems.

Summer Workshop on Trustworthy Systems

SECURECLOUD / SERECA / SAFE CLOUD
Summer Workshop on
Trustworthy Systems



IMP, TU-BS, TUD, UniNE

La Tène, Neuchâtel
04/09/17 — 07/09/17

SecureCloud jointly with SERECA and SafeCloud projects, co-organized the Summer Workshop on Trustworthy Systems. The event took place in La Tène, Neuchâtel, Switzerland last September. The main topics addressed by the workshop were:

- Trustworthy Services
- Data Processing
- Security attacks & Protection
- Cluster computing

The workshop was attended by personalities from industrial and scientific world and was a great opportunity for illustrating the SecureCloud results and future perspectives.

Additional events and information are available on the SecureCloud project web page and social accounts.



@h2020securecloud



h2020securecloud



@H2020SecCloud



www.securecloudproject.eu



Review Meeting in Brazil, February 2017

Project Papers

“Secure Big Data Processing in Untrusted Clouds: the SecureCloud Project”

ITASEC 18, 2nd Italian Conference on Cybersecurity, February 6-9, 2018, Milan, Italy

“An Approach for Securing Critical Applications in Untrusted Clouds”

PDP 2018, The 26th Euromicro International Conference on Parallel, Distributed and Network-Based Processing, March 21-23, 2018, Cambridge, UK.

“Secure and Privacy-Aware Data Dissemination for Cloud-Based Applications”

10th IEEE/ACM International Conference on Utility and Cloud Computing (UCC 2017), Dec 5-8, Austin, Texas

“DynSGX: A Privacy Preserving Toolset for Dynamically Loading Functions into Intel(R) SGX Enclaves”

9th IEEE International Conference on Cloud Computing Technology and Science (CloudCom 2017), Dec 11-14, Hong Kong

“X-search: revisiting private web search using Intel SGX”

18th ACM/IFIP/USENIX Middleware Conference (Middleware '17), Dec 11-15, Las Vegas, USA

Project Meetings

During the second project year the SecureCloud consortium met two times. During these meetings, the project updates and status were evaluated and subgroup meetings on specific topics were held. Through these sessions other projects for potential collaborations were selected.

Review Meeting, February 2017 in Porto de Galinhas, Brazil

The first SecureCloud Review Meeting took place in Porto de Galinhas (BR) on February 13-16, 2017. In Brazil, each technological provider has highlighted the achieved results in the development of the components that will be used for the implementation of the SecureCloud platform.

The properties and functionality of the components that will be provided by the SecureCloud platform were presented.

Plenary Meeting, June 2017 in Aalborg, Denmark

The third Plenary Meeting was held on June 7-9, 2017 in Aalborg, Denmark. During this meeting, each partner has presented several updates regarding their activity. Future strategies such as planning the validation task and the testing activities for the use cases were discussed.



SecureCloud has received funding from the European Union's Horizon 2020 research and innovation programme and was supported by the Swiss State Secretariat for Education, Research and Innovation (SERI) and MCTI/RNP 3rd Coordinated Call under grant agreement No 690111.

