SOFIE - Secure Open Federation for Internet Everywhere

Resultados

Información del proyecto

SOFIE

Identificador del acuerdo de subvención:
779984

Sitio web del proyecto

DOI
10.3030/779984

Proyecto cerrado

Fecha de la firma de la CE
31 Octubre 2017

Fecha de inicio
1 Enero 2018

Fecha de finalización
31 Diciembre 2020

Financiado con arreglo a
INDUSTRIAL LEADERSHIP - Leadership in enabling and industrial technologies - Information and Communication Technologies (ICT)

Coste total
€ 4 491 048,75

Aportación de la UE
€ 4 491 048,75

Coordinado por
AALTO KORKEAKOULUSAATIO SR
Finland

CORDIS proporciona enlaces a los documentos públicos y las publicaciones de los proyectos de los programas marco HORIZONTE.

Los enlaces a los documentos y las publicaciones de los proyectos del Séptimo Programa Marco, así como los enlaces a algunos tipos de resultados específicos, como conjuntos de datos y «software», se obtienen dinámicamente de OpenAIRE.

Resultado final

Documents, reports (28)

Integration Plan
Integration Plan.

First Architecture and System Evaluation Report
First Architecture and System Evaluation Report.

Interim Report on Communication, Dissemination and Exploitation
Achievements of communication, dissemination, and exploitation during the reporting period.

Final Architecture, System, and Pilots Evaluation Report
Final Architecture, System, and Pilots Evaluation Report.

Federation Framework, final version
Improved final version.

Federation Architecture, 1st version
Core architecture, including security architecture and KPIs.

Final Validation & Replication Guidelines
Will provide the results of the initial, intermediate and final version of the SOFIE platform validation at each pilot site and end-to-end cross platform validation. Captured data from pilot operations will be partially published as Open Data.

Federation Framework, 2nd version
To be used in the pilots.

Final Business Platform Integration Report
Final Business Platform Integration Report.

Initial Report on Communication, Dissemination and Exploitation
Achievements of communication, dissemination, and exploitation during the reporting period.

Business planning
Outlines the main business plans for the three use cases as well as for the general platform for potential other uses.

Federation Framework, 1st version
For testing in the laboratory.

Initial Platform Validation

Will provide the results of the initial version of the SOFIE platform validation at each pilot site focusing on functional validation. Captured data from pilot operations will be partially published as Open Data.

Baseline System and Measurements

This deliverable will provide an initial description of the SOFIE baseline system, and a description of the captured data from the pilots, which will be used for system laboratory testing and published as Open Data.

Testbed and Emulation Environment Design and Setup

Testbed and Emulation Environment Design and Setup.

Exploitation strategy and roadmap

Report includes the main aspects of projects exploitation during the duration of the project and beyond.

State of the Art Report

State of the art study describing currently available technologies and solutions.

Validation and Evaluation Plan

Validation and Evaluation Plan.

Federation Architecture, final version

Improved final version.

Initial Communication and Dissemination Plan

This deliverable will lay out the preliminary communication and dissemination plan clearly defining the target audience and detailing project website related activities.

Business platform, lab prototype release

Based on Federation Framework, 1st version delivered by WP2. One business platform is integrated and delivered to WP4 for testing in the lab. Continuous integration will bring in updates and corrections until the pilot release.

Updated Consolidated Communication and Dissemination Plan

This deliverable will provide the final communication and dissemination strategy which includes specific actions taken regarding target audiences as well as an updates.

Business platforms, final release

Based on Federation Framework, final version delivered by WP2. Three business platforms are integrated and finalized for release.

Final Report on Communication, Dissemination and Exploitation

Achievements of communication, dissemination, and exploitation during the reporting period.

Business platforms, pilot release

Based on Federation Framework, 2nd version delivered by WP2. Three business platforms are integrated and delivered to WP4 and WP5 to support all pilots. Continuous integration will bring in updates and corrections until the final release.

Second Architecture and System Evaluation Report

Second Architecture and System Evaluation Report.

End-to-end Platform Validation

Will provide the results of the intermediate version of the SOFIE platform validation at each pilot site focusing on end-to-end validation. Captured data from pilot operations will be partially published as Open Data.

Federation Architecture, 2nd version

Complete version.

Websites, patent fillings, videos etc. (3)

Social Network Profiles, Including Twitter and LinkedIn

Social Network Profiles, Including Twitter and LinkedIn.

Website

Promoting the project by hosting facts, background, profiles, status, events, deliverables, and publications.

Flyer

The facts and background of SOFIE in accessible language. The flyer will be updated with results on M18 and on M36.

Open Research Data Pilot (1)

Data Management Plan

Will describe principles of open data publishing.

Publicaciones

Conference proceedings (21)

Flexibility - enabling technologies using electric vehicles

Autores: Federico Carere; Francesco Bellesini; Tommaso Bragatto; Vincenzo Croce; Giuseppe Raveduto; Francesca Santori; Matteo Verber
Publicado en: 2020 IEEE International Conference on Environment and Electrical Engineering and 2020 IEEE Industrial and Commercial Power Systems Europe (EEEIC / I&CPS Europe), 2020
Editor: IEEE
DOI: 10.1109/eeeic/icpseurope49358.2020.9160781

Interledger Smart Contracts for Decentralized Authorization to Constrained Things

Autores: Vasilios A. Siris, Dimitrios Dimopoulos, Nikos Fotiou, Spyros Voulgaris, George C. Polyzos
Publicado en: IEEE INFOCOM 2019 - IEEE Conference on Computer Communications Workshops (INFOCOM WKSHPS), 2019, Página(s) 336-341, ISBN 978-1-7281-1878-9
Editor: IEEE
DOI: 10.1109/infcomw.2019.8845275

OAuth 2.0 Authorization using Blockchain-based Tokens

Autores: Nikos Fotiou, Iakovos Pittaras, Vasilios A. Siris, Spyros Voulgaris and George C. Polyzos
Publicado en: Workshop on Decentralized IoT Systems and Security (DISS) 2020, 2020
Editor: NDSS

OAuth 2.0 meets Blockchain for Authorization in Constrained IoT Environments

Autores: Vasilios A. Siris, Dimitrios Dimopoulos, Nikos Fotiou, Spyros Voulgaris, George C. Polyzos
Publicado en: 2019 IEEE 5th World Forum on Internet of Things (WF-IoT), 2019, Página(s) 364-367, ISBN 978-1-5386-4980-0
Editor: IEEE
DOI: 10.1109/wf-iot.2019.8767223

Enabling Opportunistic Users in Multi-Tenant IoT Systems using Decentralized Identifiers and Permissioned Blockchains

Autores: Nikos Fotiou, Iakovos Pittaras, Vasilios A. Siris, George C. Polyzos
Publicado en: Proceedings of the 2nd International ACM Workshop on Security and Privacy for the Internet-of-Things - IoT S&P'19, 2019, Página(s) 22-23, ISBN 9781450368384

Editor: ACM Press
DOI: 10.1145/3338507.3358622

Hierarchical Blockchain Topologies for Quality Control in Food Supply Chains
Autores: Spyros Voulgaris, Nikos Fotiou, Vasilios A. Siris, George C. Polyzos, Artemios Tomaras, Sotiris Karachontzitis
Publicado en: 2020 European Conference on Networks and Communications (EuCNC), 2020, Página(s) 139-143, ISBN 978-1-7281-4355-2
Editor: IEEE
DOI: 10.1109/eucnc48522.2020.9200913

Secure IoT Access at Scale Using Blockchains and Smart Contracts
Autores: Nikos Fotiou; Iakovos Pittaras; George C. Polyzos; Spyros Voulgaris; Vasilios A. Siris
Publicado en: WOWMOM, Edición 2, 2019
Editor: IEEE
DOI: 10.1109/wowmom.2019.8793047

SOFIE: Secure Open Federation for Internet Everywhere
Autores: Arto Karila, Yki Kortesniemi, Dmitrij Lagutin, Pekka Nikander, Santeri Paavolainen, Nikos Fotiou, George C. Polyzos, Vasilios A. Siris, Theodore Zahariadis
Publicado en: Proceedings 2018 Workshop on Decentralized IoT Security and Standards, 2018, ISBN 1-891562-51-7
Editor: Internet Society
DOI: 10.14722/diss.2018.23001

Risks from Spam Attacks on Blockchains for Intemet-of-Things Devices
Autores: Santeri Paavolainen, Tommi Elo, Pekka Nikander
Publicado en: 2018 IEEE 9th Annual Information Technology, Electronics and Mobile Communication Conference (IEMCON), 2018, Página(s) 314-320, ISBN 978-1-5386-7266-2
Editor: IEEE
DOI: 10.1109/IEMCON.2018.8614837

Turning Trust Around: Smart Contract-Assisted Public Key Infrastructure
Autores: Abu Shohel Ahmed, Tuomas Aura
Publicado en: 2018 17th IEEE International Conference On Trust, Security And Privacy In Computing And Communications/ 12th IEEE International Conference On Big Data Science And Engineering (TrustCom/BigDataSE), 2018, Página(s) 104-111, ISBN 978-1-5386-4388-4
Editor: IEEE
DOI: 10.1109/TrustCom/BigDataSE.2018.00026

Security and Privacy Challenges and Potential Solutions for DLT based IoT Systems
Autores: Santeri Paavolainen, Pekka Nikander
Publicado en: 2018 Global Internet of Things Summit (GIoTS), 2018, Página(s) 1-6, ISBN 978-1-5386-6451-3
Editor: IEEE
DOI: 10.1109/giots.2018.8534527

Smart Contracts for the Internet of Things: Opportunities and Challenges
Autores: Nikos Fotiou, George C. Polyzos
Publicado en: 2018 European Conference on Networks and Communications (EuCNC), 2018, Página(s) 256-260, ISBN 978-1-5386-1478-5
Editor: IEEE
DOI: 10.1109/eucnc.2018.8443212

Enabling Decentralised Identifiers and Verifiable Credentials for Constrained IoT Devices using OAuth-based Delegation
Autores: Dmitrij Lagutin, Yki Kortesniemi, Nikos Fotiou, Vasilios A. Siris
Publicado en: Proceedings 2019 Workshop on Decentralized IoT Systems and Security, 2019, ISBN 1-891562-56-8
Editor: Internet Society
DOI: 10.14722/diss.2019.23005

Bridging the Cyber and Physical Worlds using Blockchains and Smart Contracts
Autores: Nikos Fotiou, Vasilios A. Siris, Spyros Voulgaris, George C. Polyzos, Dmitrij Lagutin
Publicado en: Proceedings 2019 Workshop on Decentralized IoT Systems and Security, 2019, ISBN 1-891562-56-8
Editor: Internet Society
DOI: 10.14722/diss.2019.23002

IoT Resource Access utilizing Blockchains and Trusted Execution Environments
Autores: Vasilios A. Siris, Dimitrios Dimopoulos, Nikos Fotiou, Spyros Voulgaris, George C. Polyzos
Publicado en: 2019 Global IoT Summit (GIoTS), 2019, Página(s) 1-6, ISBN 978-1-7281-2171-0
Editor: IEEE
DOI: 10.1109/giots.2019.8766403

Trusted D2D-based IoT Resource Access using Smart Contracts
Autores: V.A. Siris, D. Dimopoulos, N. Fotiou, S. Voulgaris, G.C. Polyzos
Publicado en: 20th IEEE International Symposium on a World of Wireless, Mobile and Multimedia Networks (IEEE WoWMoM 2019), 2019
Editor: IEEE

Decentralized Beacons: Attesting the Ground Truth of Blockchain State for Constrained IoT Devices

Autores: Santeri Paavolainen, Pekka Nikander
Publicado en: 2019 Global IoT Summit (GIoTS), 2019, Página(s) 1-6, ISBN 978-1-7281-2171-0
Editor: IEEE
DOI: 10.1109/giots.2019.8766432

Interledger Demo: IoT Integration

Autores: Santeri Paavolainen, Pekka Nikander
Publicado en: 2019 IEEE International Conference on Blockchain and Cryptocurrency (ICBC), 2019, Página(s) 7-8, ISBN 978-1-7281-1328-9
Editor: IEEE
DOI: 10.1109/bloc.2019.8751399

Interledger for the Industrial Internet of Things

Autores: Pekka Nikander, Juuso Autiosalo, Santeri Paavolainen
Publicado en: 2019 IEEE 17th International Conference on Industrial Informatics (INDIN), 2019, Página(s) 908-915, ISBN 978-1-7281-2927-3
Editor: IEEE
DOI: 10.1109/indin41052.2019.8972167

Secure Open Federation of IoT Platforms Through Interledger Technologies - The SOFIE Approach

Autores: Dmitrij Lagutin, Francesco Bellesini, Tommaso Bragatto, Alessio Cavadenti, Vincenzo Croce, Yki Kortesniemi, Helen C. Leligou, Yannis Oikonomidis, George C. Polyzos, Giuseppe Raveduto, Francesca Santori, Panagiotis Trakadas, Matteo Verber
Publicado en: 2019 European Conference on Networks and Communications (EuCNC), 2019, Página(s) 518-522, ISBN 978-1-7281-0546-8
Editor: IEEE
DOI: 10.1109/eucnc.2019.8802017

Decentralized Interledger Gateway Architectures in Authorization Scenarios with Multiple Ledgers

Autores: Vasilios A. Siris, Michalis Tsenos, Dimitrios Dimopoulos, Nikos Fotiou, George C. Polyzos
Publicado en: 2020 Global Internet of Things Summit (GIoTS), 2020, Página(s) 1-6, ISBN 978-1-7281-6728-2
Editor: IEEE
DOI: 10.1109/giots49054.2020.9119678

Peer reviewed articles (7)

Interledger Approaches

Autores: Vasilios A. Siris, Pekka Nikander, Spyros Voulgaris, Nikos Fotiou, Dmitrij Lagutin, George C. Polyzos
Publicado en: IEEE Access, Edición 7, 2019, Página(s) 89948-89966, ISSN 2169-3536
Editor: Institute of Electrical and Electronics Engineers Inc.
DOI: 10.1109/access.2019.2926880

Blockchain Technology for Intelligent Environments

Autores: Spyros Voulgaris, Nikos Fotiou, Vasilios A. Siris, George C. Polyzos, Mikael Jaatinen, Yannis Oikonomidis
Publicado en: Future Internet, Edición 11/10, 2019, Página(s) 213, ISSN 1999-5903
Editor: MDPI
DOI: 10.3390/fi11100213

Security Properties of Light Clients on the Ethereum Blockchain

Autores: Santeri Paavolainen, Christopher Carr
Publicado en: IEEE Access, Edición 8, 2020, Página(s) 124339-124358, ISSN 2169-3536
Editor: Institute of Electrical and Electronics Engineers Inc.
DOI: 10.1109/access.2020.3006113

An Interledger Blockchain Platform for Cross-Border Management of Cybersecurity Information

Autores: Ricardo Neisse, Jose L. Hernandez-Ramos, Sara N. Matheu-Garcia, Gianmarco Baldini, Antonio Skarmeta, Vasilios Siris, Dmitrij Lagutin, Pekka Nikander
Publicado en: IEEE Internet Computing, Edición 24/3, 2020, Página(s) 19-29, ISSN 1089-7801
Editor: Institute of Electrical and Electronics Engineers
DOI: 10.1109/mic.2020.3002423

Improving the Privacy of IoT with Decentralised Identifiers (DIDs)

Autores: Yki Kortesniemi, Dmitrij Lagutin, Tommi Elo, Nikos Fotiou
Publicado en: Journal of Computer Networks and Communications, Edición 2019, 2019, Página(s) 1-10, ISSN 2090-7141
Editor: Hindawi Publishing Corporation
DOI: 10.1155/2019/8706760

Decentralized authorization in constrained IoT environments exploiting interledger mechanisms

Autores: Vasilios A. Siris, Dimitrios Dimopoulos, Nikos Fotiou, Spyros Voulgaris, George C. Polyzos
Publicado en: Computer Communications, Edición 152, 2020, Página(s) 243-

251, ISSN 0140-3664
Editor: Elsevier BV
DOI: 10.1016/j.comcom.2020.01.030

Scavenger Hunt: Utilization of Blockchain and IoT for a Location-Based Game
Autores: Ahsan Manzoor, Max Samarin, David Mason, Mika Ylianttila
Publicado en: IEEE Access, Edición 8, 2020, Página(s) 204863-204879, ISSN 2169-3536
Editor: Institute of Electrical and Electronics Engineers Inc.
DOI: 10.1109/access.2020.3037182

Book chapters (5)

Leveraging Interledger Technologies in IoT Security Risk Management
Autores: Dmitrij Lagutin, Yki Kortesniemi, Vasilios Siris, Nikos Fotiou, George C. Polyzos, Lei Wu
Publicado en: Security Risk Management for the Internet of Things: Technologies and Techniques for IoT Security, Privacy and Data Protection, 2020, Página(s) 229-246, ISBN 978-1-68083-683-7
Editor: now publishers

Interacting with the Internet of Things Using Smart Contracts and Blockchain Technologies
Autores: Nikos Fotiou, Vasilios A. Siris, George C. Polyzos
Publicado en: Security, Privacy, and Anonymity in Computation, Communication, and Storage - 11th International Conference and Satellite Workshops, SpaCCS 2018, Melbourne, NSW, Australia, December 11-13, 2018, Proceedings, Edición 11342, 2018, Página(s) 443-452, ISBN 978-3-030-05344-4
Editor: Springer International Publishing
DOI: 10.1007/978-3-030-05345-1_38

SOFIE – Secure Open Federation for Internet Everywhere
Autores: Dmitrij Lagutin, Helen C. Leligou, Panagiotis Trakadas, George C. Polyzos, Tommi Elo, Santeri Paavolainen
Publicado en: Next Generation Internet of Things, Distributed Intelligence at the Edge and Human Machine-to-Machine Cooperation - IERC Cluster Book 2018, 2018, Página(s) 278-285, ISBN 978-87-7022-007-1
Editor: Rivers Publishers

The SOFIE Approach to Address the Security and Privacy of the IoT using Interledger Technologies

Autores: Dmitrij Lagutin, Priit Anton, Francesco Bellesini, Tommaso Bragatto, Alessio Cavadenti, Vincenzo Croce, Nikos Fotiou, Margus Haavala, Yki Kortesniemi, Helen C. Leligou, Ahsan Manzoor, Yannis Oikonomidis, George C. Polyzos, Giuseppe Raveduto, Francesca Santori, Vasilios Siris, Panagiotis Trakadas, Matteo Verber
Publicado en: Security and Privacy in Internet of Things: Challenges and Solutions, 2020, Página(s) 76-93, ISBN 978-1-64368-053-8
Editor: IOS Press Ebooks IOS Press
DOI: 10.3233/aise200006

The Case of iOS and Android: Applying System Dynamics to Digital Business Platforms
Autores: Ektor Arzoglou, Tommi Elo, Pekka Nikander
Publicado en: Computational Science – ICCS 2019 - 19th International Conference, Faro, Portugal, June 12–14, 2019, Proceedings, Part V, Edición 11540, 2019, Página(s) 499-506, ISBN 978-3-030-22749-4
Editor: Springer International Publishing
DOI: 10.1007/978-3-030-22750-0_43

Other (1)

Poster: Securing IoT services using DLTs and Verifiable Credentials
Autores: Nikos Fotiou, Iakovos Pittaras, Vasilios A. Siris, Spyros Voulgaris, George C. Polyzos
Publicado en: Network and Distributed System Security Symposium (NDSS), 2020
Editor: NDSS

Derechos de propiedad intelectual

Patent (2)

METHOD AND SYSTEM FOR A NETWORK DEVICE TO OBTAIN A TRUSTED STATE REPRESENTATION OF THE STATE OF THE DISTRIBUTED LEDGER TECHNOLOGY NETWORK
Número de solicitud/publicación: 20 18081800
Fecha: 2018-11-19
Solicitante(s): OY L M ERICSSON AB

METHOD AND SYSTEM FOR DETERMINING A STATE OF AN ACCOUNT IN A NETWORK DEVICE RUNNING A LIGHT CLIENT PROTOCOL OF A DISTRIBUTED LEDGER TECHNOLOGY NETWORK

Número de solicitud/publicación: 20 18083652
Fecha: 2018-12-05
Solicitante(s): OY L M ERICSSON AB

Conjuntos de datos

Conjuntos de datos vía OpenAIRE (4)

EV data monitoring
Autores: Bellesini, Francesco; Pagliaccia, Michele
Publicado en: Zenodo

EVs/Charging Stations Data
Autores: Bellesini, Francesco
Publicado en: Zenodo

Food Chain pilot raw data - Farm, Transportation, Warehouse
Autores: I. Oikonomidis; A. Tomaras
Publicado en: Zenodo

Microgrid Profiles
Autores: Tommaso Bragatto
Publicado en: Zenodo

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Permalink: https://cordis.europa.eu/project/id/779984/results/es