SOFIE - Secure Open Federation for Internet Everywhere
779984

DELIVERABLE D3.2

Business Platform, Lab Prototype Release

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1. Introduction

SOFIE is a three-year EU Horizon 2020 research and innovation project with the goal to enable diversified applications from various application areas to utilise heterogeneous IoT platforms and autonomous things across technological, organisational and administrative borders in an open and secure manner, making reuse of existing infrastructure and data easy.

IoT business platforms are created in SOFIE, based on the IoT federation framework defined in WP2. For this, an IoT framework repository, consisting of various components, adapters for well-known IoT platforms and security mechanisms is developed. These components can be used to create business platforms, including those for the four SOFIE real-world pilot use cases.

During 2018-2020, SOFIE will deliver three business platform main releases. Within every main release, new functionality is added through a Continuous Integration (CI) and Continuous Deployment (CD) process.

This deliverable (D3.2) describes the contents and purpose of the first main release: The Business Platform Lab Prototype software release (version 0).

The deliverable is structured as follows:

- Release identifier
- Purpose and target users
- Release contents
- Tools and practices
- Known issues
- Deployment and user information

2. Release information

2.1 Release identifier

Release name: SOFIE Business Platform Lab Prototype Release (version 0).

Release date: 30th of November 2018.

2.2 Purpose and target users

The Business Platform Lab Prototype release is based on the deliverable "D2.3 - Federation Framework, 1st version" [1], and integrated in accordance with deliverable "D3.1 - Integration Plan" [2].

The purpose of this release is to integrate initially one business platform, based on the federation architecture and components developed in WP2, for evaluation in WP4 in accordance with the deliverable "D4.1 - Validation and Evaluation Plan" [3].

Support for Continuous Integration is in-built to the process to minimize the lead time for corrections and support rapid feature growth (full D2.3 scope) in accordance with the overall project plan.

The initial Business Platform Lab Prototype release is not made publicly available. During 2019 this decision may be reconsidered before Pilot Release (version 1) availability as new functionality becomes available through Continuous Integration.

2.3 Release contents

The initial Business Platform Lab Prototype release consists of the following SW components:

Table 1: Initial Lab prototype release contents.

#	SW component	Description
1	Offer marketplace business platform	Generic model of request-offer (or proposal-bid) batch transaction model. For details see [1], chapter 4.
2	Interledger demo	Demonstrating access control of a constrained IoT device with interworking across permissionless Ethereum and permissioned Hyperledger Fabric DLTs. For details, see [4].

During December 2018 – September 2019 the functionality of this Business Platform Lab Prototype release will be extended to cover also the following SW components that are in the scope of [1]:

Table 2: Functional growth of the Lab Prototype Release.

#	SW component	Description
3	Offer marketplace business platform	Full implementation of this business platform. For details, see [1], chapter 5.
4	Provenance chain for trackable assets business platform	Establishment and recording into ledger provenance information for trackable assets. For details, see [1], chapter 5.
5	IoT resource access business platform	Access mediation to generic IoT resources. For details, see [1] chapter 6.

2.4 Tools and practices

Solution integration leverages on the world-class best practices established at LMF Ericsson. The continuous integration environment is built in Amazon Web Services with separate accounts for integration, staging (continuous deployment for WP4) and production (for WP5 and potential other SOFIE users).

The SW produced in WP2 is deployed in containers, initially Docker but also Kubernetes can be supported.

Jenkins is used for Continuous Integration and Atlassian Jira for backlog management and trouble ticketing. Continuous integration of new and updated solution components is supported up to a level of daily builds. The integration tests cover component startup, interfaces and interoperability between components.

Agile methodology is applied with tight collaboration across WP2 and WP3 for development and integration. Initial sprint cycles are 4 weeks.

For more details on tools and practices, see [2].

In the initial release, the continuous integration environment and initial automated tests for component startup are developed for the Release components #2, the Interledger demo. As WP2 commits new features to WP3 for Continuous Integration, all three business platforms (Release components #3, #4, and #5) will be integrated to support all properties described by [1], and automated tests are further developed to cover SW component API interoperability.

Software that has passed all integration tests is continuously deployed in the staging environment for further validation and evaluation in WP4.

2.5 Known issues

The initial Business Platform Lab Prototype release is demo quality and may contain unresolved defects and vulnerabilities.

Trouble ticketing tool support will be introduced the first quarter in 2019. Until then, for any identified defects or software faults, the following contacts can be reached:

- Main SW architect: Santeri Paavolainen (santeri.paavolainen@aalto.fi)
- WP2 leader: Tommi Elo (tommi.elo@aalto.fi)
- WP3 leader: Mikael Jaatinen (mikael.jaatinen@ericsson.com)

2.6 Deployment and user information

SOFIE deliverable D2.3, chapter 2 [1] presents the applicable protocols (general and IoT device specific), and DLTs that are valid for the Business Platform Lab Prototype Release.

The Offer Marketplace Business Platform, Release Component #1, is initially not ready for continuous integration. The conceptual principles described in [1] chapter 4 are however ready to be applied for the pilots.

The Interledger Demo, Release Component #2, is used for initial development of the continuous integration environment. The demo is custom built for a specific IoT device and is not possible to deploy outside of the integration environment. As part of the SW development in WP2, applicable parts of the Interledger demo will however become part of the business platform SW. A presentation of the Interledger demo can be requested from Santeri Paavolainen (AALTO).

From December 2018 until September 2019, the Business Platforms referred to as Release Component #1, #3, and #4 will be developed, integrated and made gradually available according to the principles discussed previously in this document.

3. References

[1] S. Paavolainen et al. "Federation Framework, 1st version", SOFIE deliverable D2.3, October 2018. Available at: https://media.voog.com/0000/0042/0957/files/SOFIE_D2.3-Federation_Framework_1st_version_v1.00.pdf.

[2] M. Jaatinen. "Integration Plan", SOFIE deliverable D3.1, June 2018. Available at: https://media.voog.com/0000/0042/0957/files/SOFIE_D3.1-Integration_Plan.pdf.

[3] V. A. Siris et al. "Validation and Evaluation Plan", SOFIE deliverable D4.1, October 2018. Available at: https://media.voog.com/0000/0042/0957/files/SOFIE_D4.1-Validation_and_Evaluation_Plan-v1.00.pdf.

[4] Interledger Demo, material available on a need to know basis from Santeri Paavolainen (santeri.paavolainen@aalto.fi).