SUSTAINABLE PLACES 2021
Sep. 28 - Oct. 1, 2021 | Rome, Italy

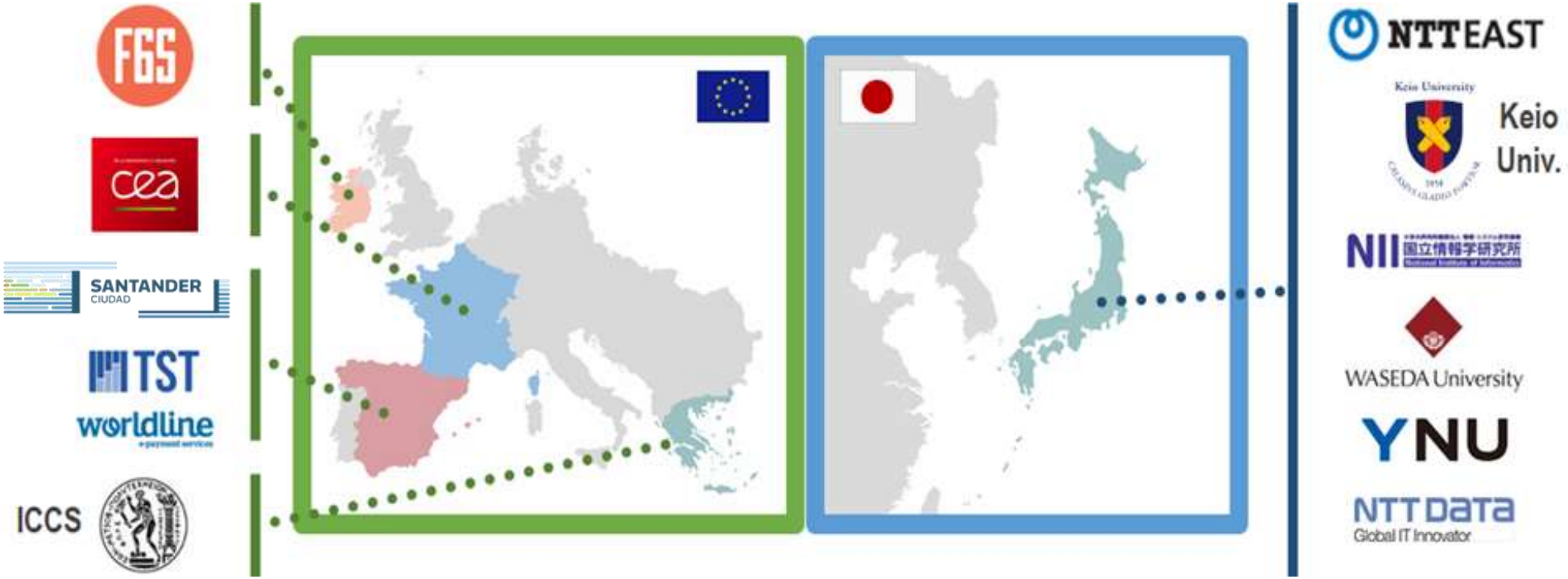
Multi-layered Security Technologies

for hyper-connected smart cities

A EU-Japan collaboration

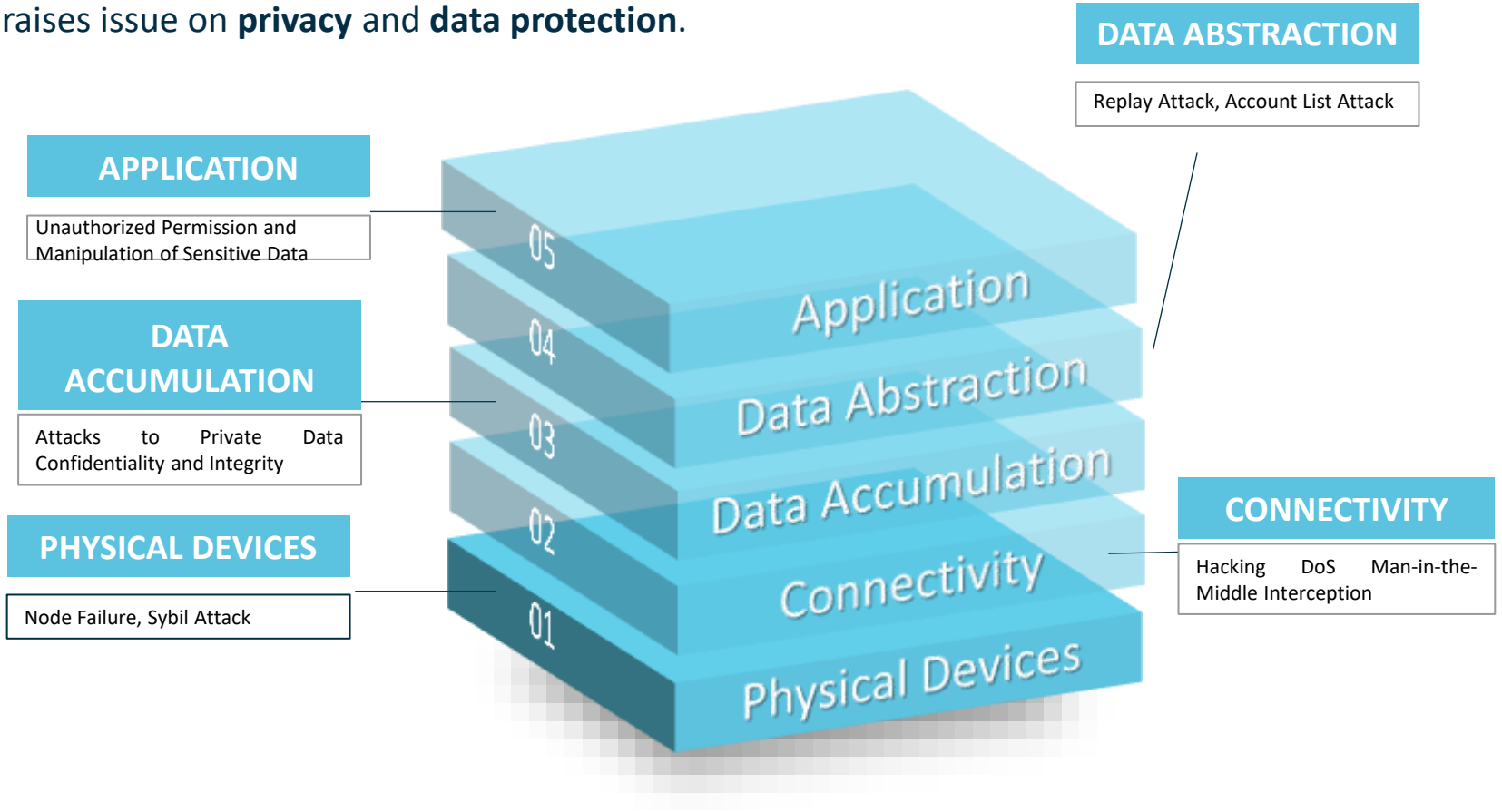
Vanessa Clemente, Worldline

The Consortium as a whole



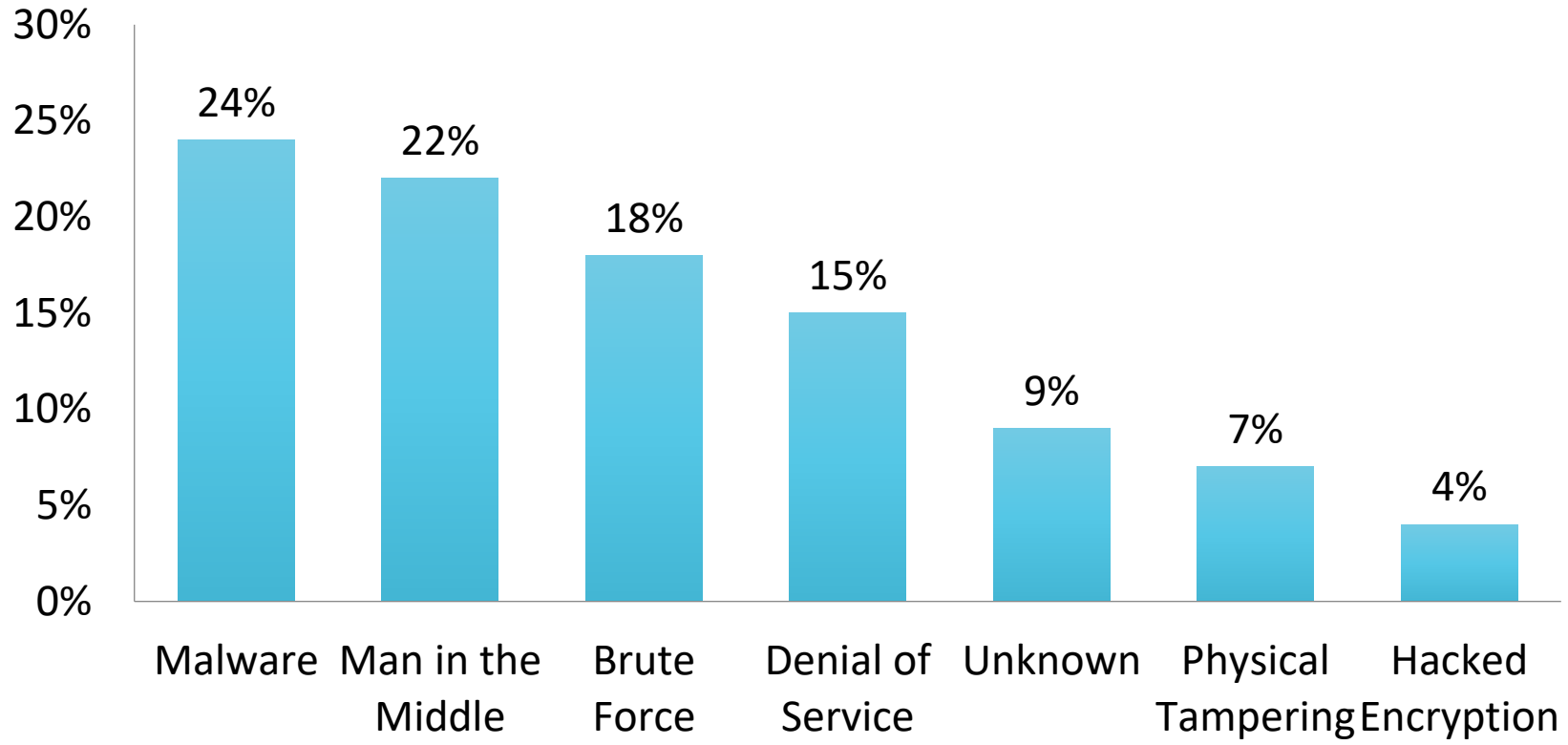
Problem Overview

- In modern smart city applications there is an emerging **need of end-to-end security** since many data sources may contain sensitive information that raises issue on **privacy** and **data protection**.



IoT Security Breaches

- According To the IoT Analytics Press Research, the most common IoT breaches that happened between 2015-2017 were caused by malware (24%), followed by human's factor "man in the middle" (22%), brute force (18%) and denial of service (15%).



Source: IoT Analytics Press Research

M-Sec goals

We aim to research, develop, deploy and demonstrate **Multi-layered Security Technologies** to ensure hyper connected smart cities and empower IoT stakeholders with an innovative platform which leverages **Cloud, IoT, device, BigData, blockchain, and end-end security,** upon which they can build innovative smart city applications.

SUSTAINABLE PLACES 2021
Sep. 28 - Oct. 1, 2021 | Rome, Italy

M-Sec Framework

M-Sec Applications


Park Guide


Home Monitoring


Environment Monitoring


Citizen as Sensor


MarketPlace IoT Data

Development & Security Designing Tools

Set of methodologies and tools to support development of secure smart city applications and reduce number of tests to be conducted

- Security Analysis Tool / MTSA
- MTSA

IoT Data MarketPlace

IoT sensor data and media exchange platform based on blockchain technology and Trust and Reputation Model engine to ensure reliability, trustworthiness and reputation of the resources exchanged

- IoT Marketplace
- T&R Model engine/tool

Secure & Trusted Storage

Mechanisms to encrypt data off-chain and store the corresponding metadata and interactions-related data on-chain through Blockchain for data tamper proof.

- Crypto Companion DB
- Quorum Blockchain framework & Blockchain middleware

Secure City Data Access

Distributed and federated infrastructure for IoT sensor data with anonymous subscription function and interconnection of different networks to achieve secured access and communication with embedded devices.

- Eclipse sensiNact platform (and Studio)
- KEIO SOXFire

Privacy Managament Tool

Tool to automatically remove objects with privacy risk from image camera data based on advanced deep l[illegible]essing technology.

- Ganonymizer
- Stealth Security

Secure Devices

Hardware based solution to provide embedded security layer for IoT devices and software-based solution to provide secure IoT mobile sensing platform by monitoring and preventing cyber attacks

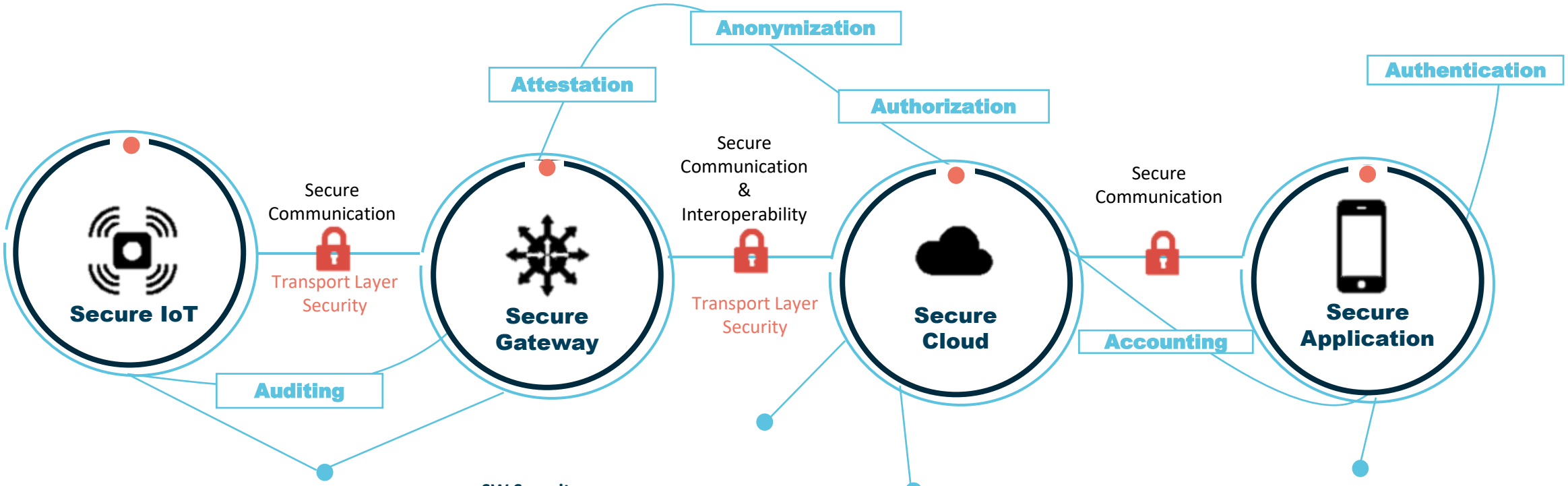
- Secured components for devices
- IoT Intrusion Detection System
- Stealth Security
- Monitoring & Visualisation Tool

End to End Security

Fully interoperable security backend that enables authentication of parties, encryption of data, attestation of devices and anonymization of data sources.

- Security Management Tool

Advancing to end-to-end IoT Security Application



HW Security

- **Secure, robust , distributed and encrypted data Storage**
- **Remote attestation platform**
- **Secure boot mechanism**
- **Secure encryption and decryption of data**
- **Intrusion Detection System**
- **Zero Day threats**

SW Security

- **Image Privacy,** removing personal data in streaming
- **Visualization Tool for threat monitoring & health check**
- **Vulnerability assessment mechanisms**

Secure, robust , distributed and encrypted data Storage

- **Encrypted Storage** of sensitive data **with asymmetric**
- **public/private key pair**
- **Smart Contracts where to store transactions, hashes**
- from data encrypted for data **tamper proof reasons**
- **Data Access Control Authentication & Authorization mechanisms**

Application Security Guidelines & Secure City Data Access

- **Abstraction layer** to hide the heterogeneity of IoT devices
- **Exchange data with anonymous subscription function.**
- **Client/server and publish/subscribe access protocols**
- **Northbound access security**
- **Mechanisms to analyze security requirements**
- **A Modal System Transition Analyzer** to eliminate both human errors in designing the application logic

Do you want to know more?

www.msecproject.eu

….and don’t forget to follow us on

linkedin.com/company/msecproject

@MSecProject

Multi-layered Security Technologies for hyper-connected smart cities

Thank you!

SUSTAINABLE PLACES 2021
Sep. 28 - Oct. 1, 2021 | Rome, Italy

www.msecproject.eu

www.f6s.com/iot

@MSecProject

linkedin.com/company/msecproject

The M-Sec project is jointly funded by the European Union's Horizon 2020 research and innovation programme (contract No 814917) and by the Commissioned Research of National Institute of Information and Communications Technology (NICT), JAPAN (contract No 19501).