The Eclipse Foundation

Open Source Technologies for Smart Cities

www.eclipse.org

May 2019

The Eclipse Foundation - By the Numbers

360+
Projects

275+
Members

1550+
Committers

195M+
Lines of Code

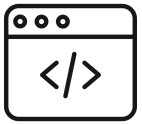
30
Staff Members

10+
Working Groups

Delivering Proven Business Value

Governance & Processes

Ecosystem Development & Marketing



IP Management & Licensing

Infrastructure

Strategic Focus Areas

Cloud Native Java

We provide a collaborative environment for the world's leading Java ecosystem players to advance open source enterprise Java technologies for the cloud.

IoT & Edge

We enable industry leaders to collaborate on an end-to-end IoT architecture that is secure, flexible, and fully based on open source and open standards.

Automotive

We provide leading automotive OEMs, their suppliers, and partners with a sustainable, transparent, and vendor-neutral platform to collaborate on open technologies and standards.

Tools

The Eclipse IDE is the critical development environment for more than 4 million active users. Our community is innovating on the next generation of cloud native developer tools.

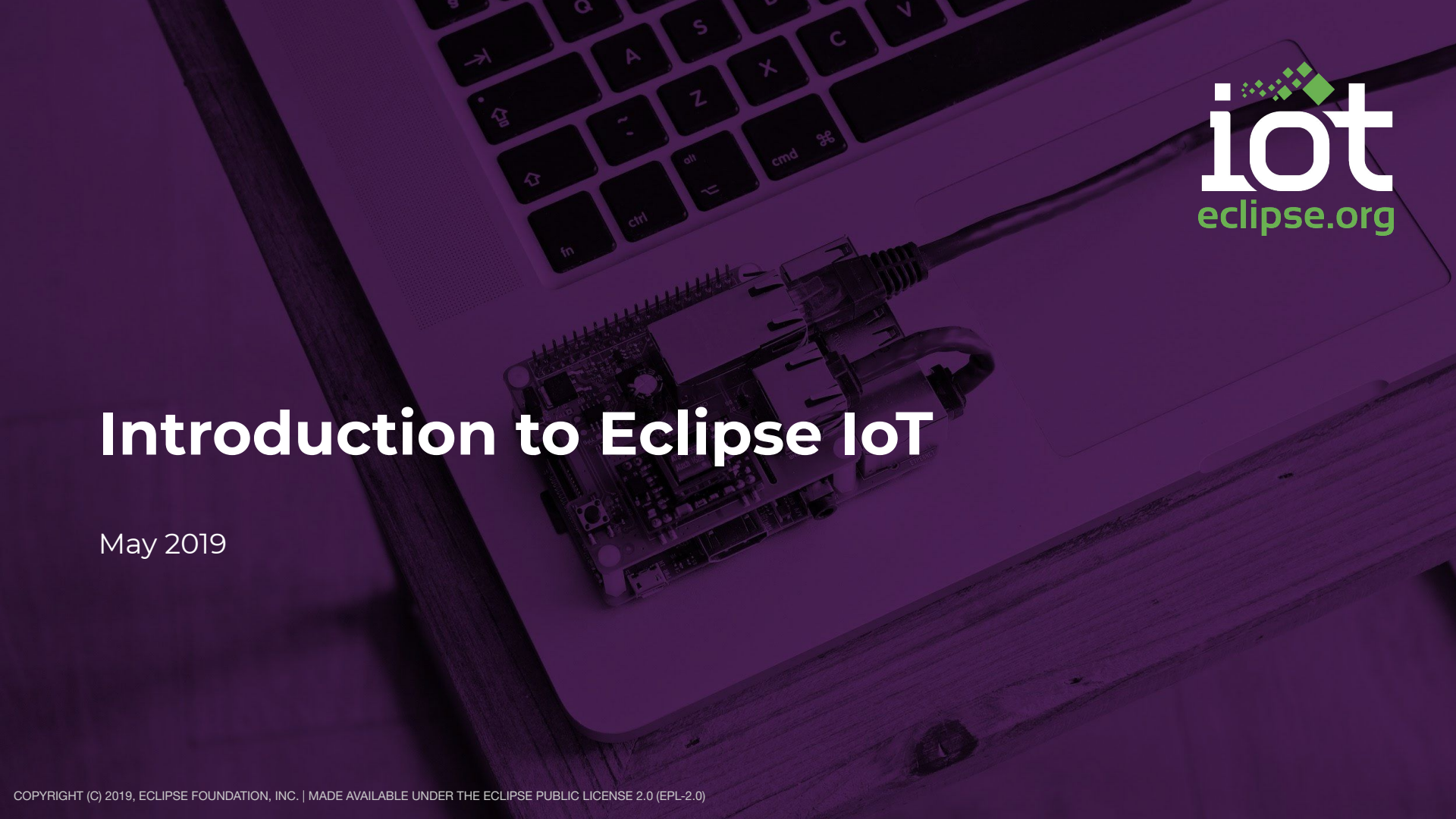
Research Projects: Funding Organizations

HORIZON 2020

ITEA 3

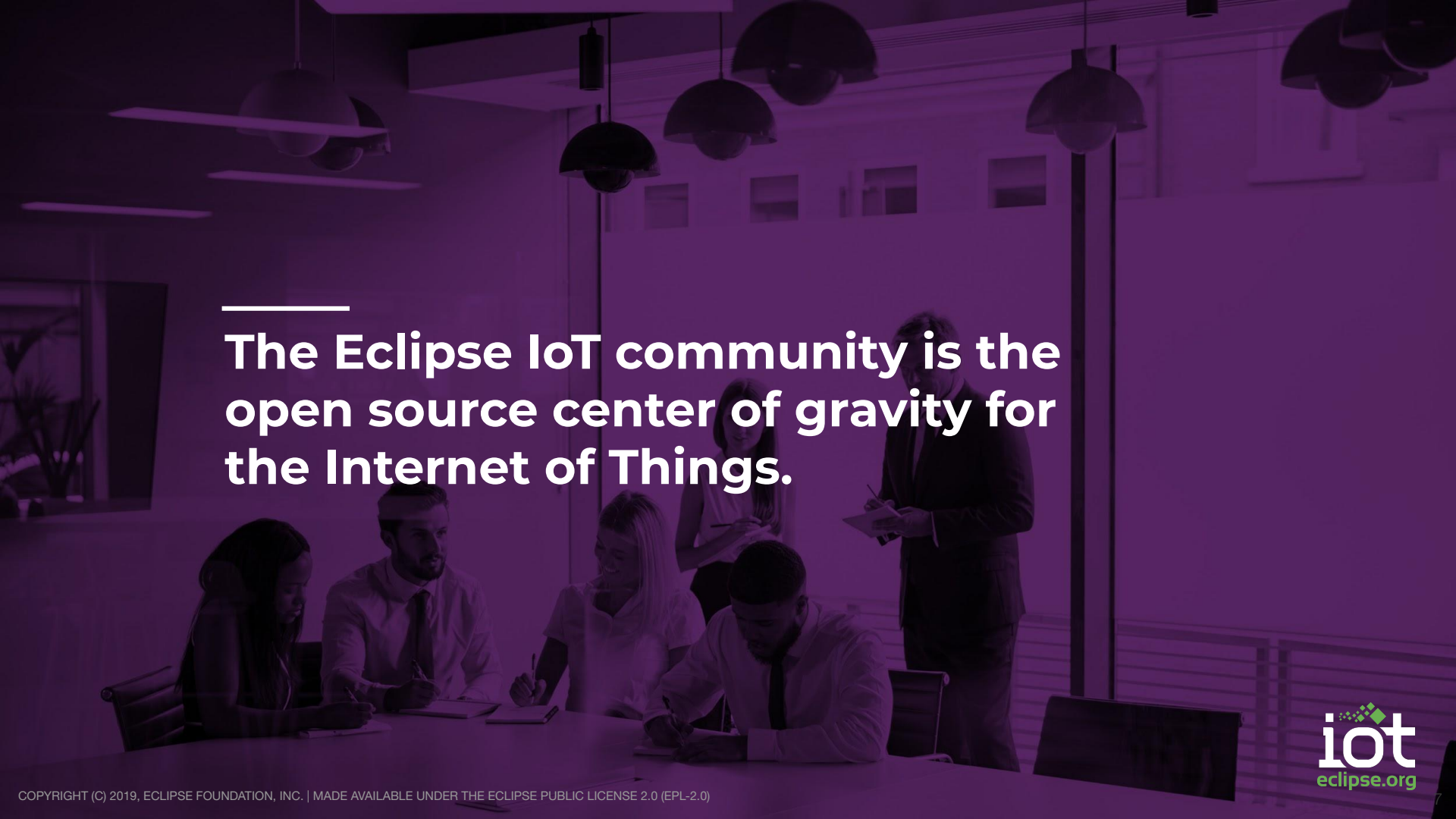
ECSEL Joint Undertaking

Bundesministerium für Bildung und Forschung



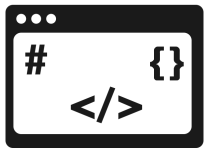
Introduction to Eclipse IoT

May 2019



The Eclipse IoT community is the open source center of gravity for the Internet of Things.

Eclipse IoT Community



3.9M

lines of code

38

projects

350+

contributors

43

member companies

iot
eclipse.org

Protocols & Standards

Protocol or standard	Projects
MQTT	Paho, Mosquitto
Sparkplug	Tahu
CoAP	Californium
LWM2M	Wakaama, Leshan
DDS	Cyclone
DTLS	TinyDTLS
PPMP	Unide
W3C Web of Things	ThingWeb
oneM2M	OM2M
OPC-UA	Milo

Eclipse IoT Ecosystem

	OEMs	Software Vendors	IoT HW Manufacturers
	• Achieve **interoperability** in **Industry 4.0** thanks to open source technology • Enable **on-premise** deployments of IoT platforms	• Provide **commercial support** for Eclipse IoT technologies • Promote the value of open IoT ecosystems through **testbeds**	• **Device Management** • Establish Eclipse IoT projects as **reference implementations** of IoT standards (e.g. LWM2M)
Examples	BOSCH Invented for life SIEMENS	Red Hat, CANONICAL influxdata, cloudera CONTACT Software, AZUL SYSTEMS	SIERRA WIRELESS, EUROTECH Imagine. Build. Succeed. intel

iot eclipse.org

Eclipse IoT Ecosystem

	Telcos	IT Services Companies	Research Institutes
	• Promote IoT cloud **interoperability** through open standards (ex. **OneM2M**)	• Provide **support and services** around Eclipse IoT technology	• Partner with Eclipse IoT member companies on **IoT research projects** (ex. Smart Cities) • **Disseminate** the results though Eclipse IoT projects
Examples	orange™ QIVICON powered by T	itemis V2COM	FONDAZIONE BRUNO KESSLER fortiss LAAS-CNRS list CEA tech

iot eclipse.org

The 3 IoT Software Stacks

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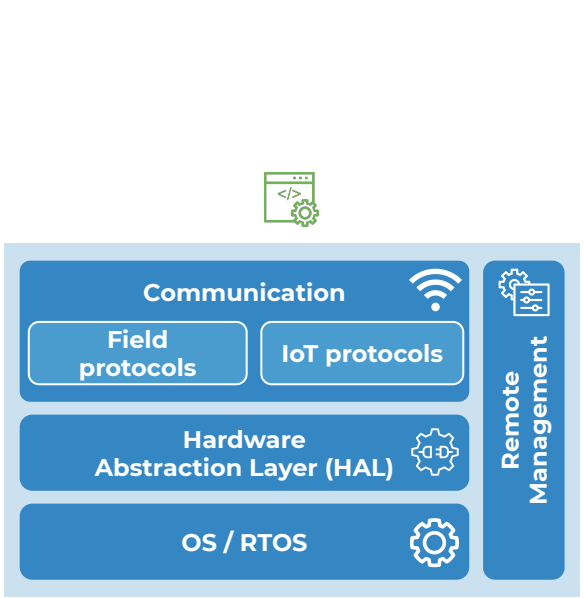
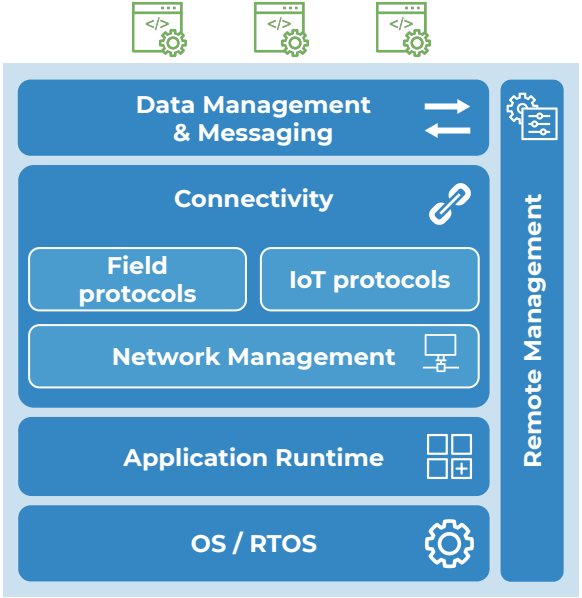
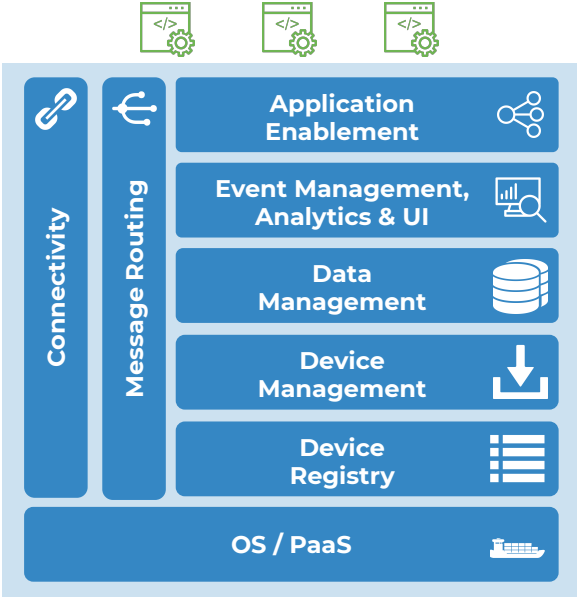
SECURITY | ONTOLOGIES | TOOLS & SDKs





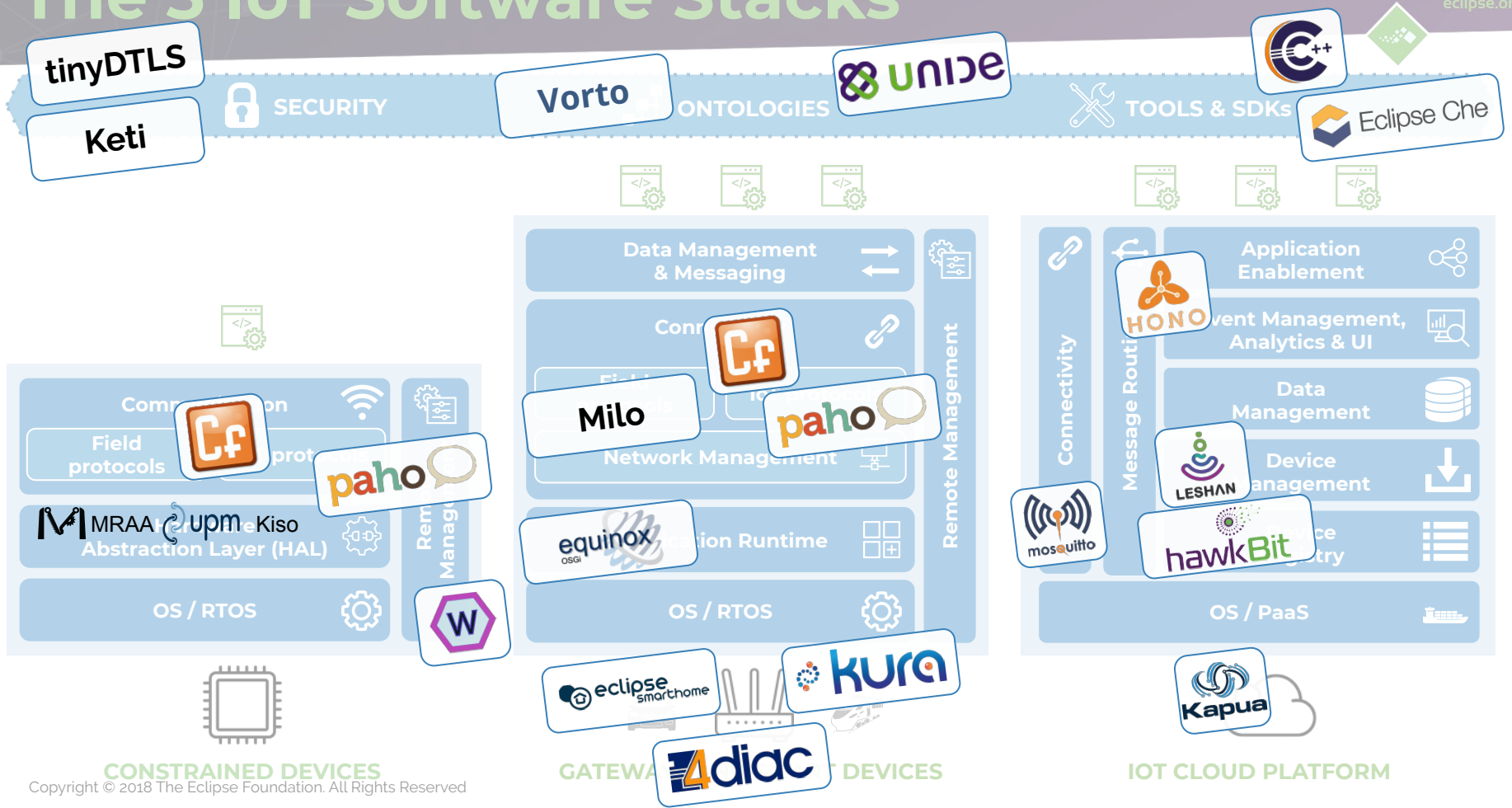


CONSTRAINED DEVICES

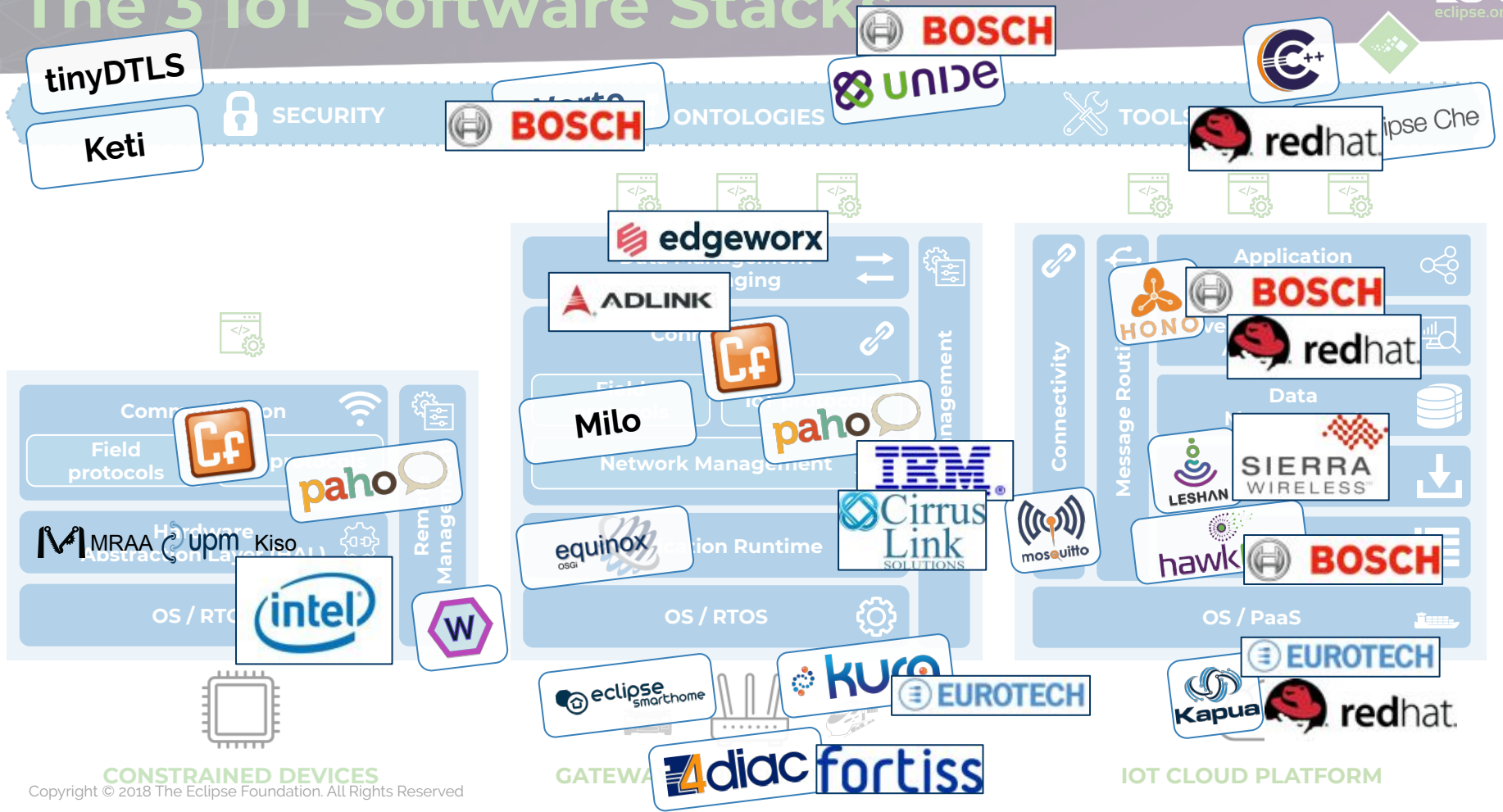
GATEWAYS AND SMART DEVICES

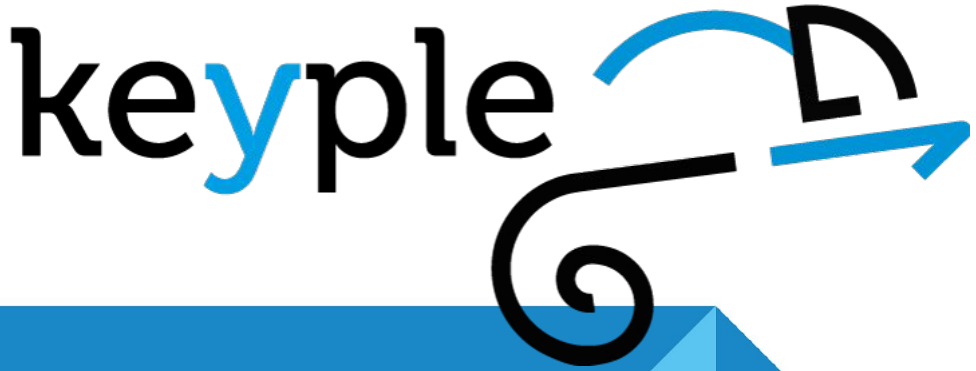
IOT CLOUD PLATFORM

The 3 IoT Software Stacks



The 3 IoT Software Stacks





Eclipse Keyple™ the open source SDK for ticketing

FROM A PATENTED TECHNOLOGY

Calypso®

Used by 20 % of the market of contactless cards & mobile app for transportation

Open to all manufacturers and providers

Managed by an non profit association, represented by a board of Operators:
RATP – SNCF – STIB – ACTV – OTLIS
GIE CB – 5T – Interparking – RigasKarte

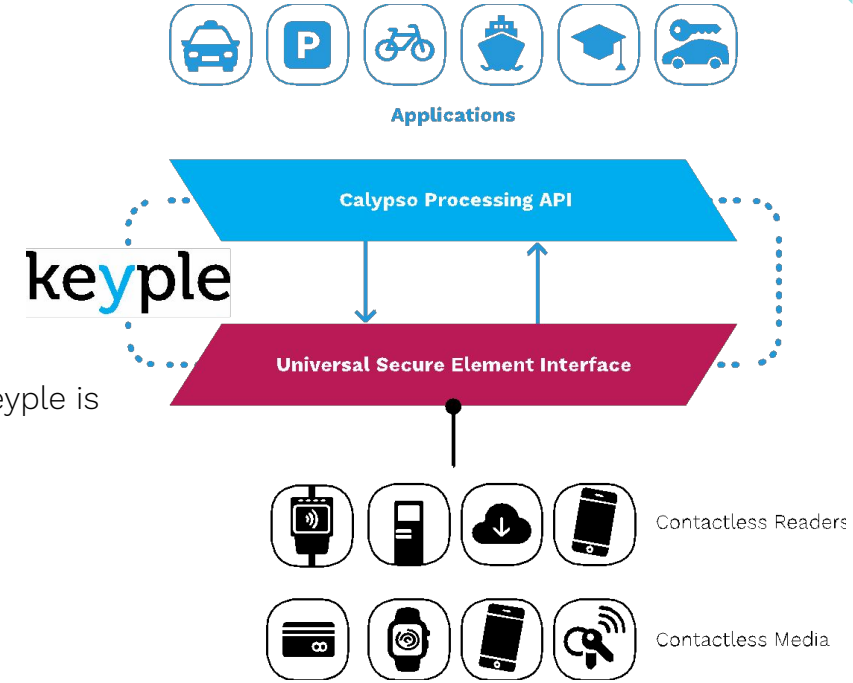
Technology very difficult to address

TO AN OPEN SOURCE SDK: ECLIPSE KEYPLE

Eclipse Keyple is built on the solid foundation of Calypso's ticketing standards. It makes it easier, faster and less complex to build a contactless ticketing application for access control: Mobility, Events, buildings, and can be intagrated in any form of NFC reader or portable object (card, mobile phone, wearable...)

The Code source and documentation of the Java Version of Keyple is available today on the ECLIPSE Github repository: https://github.com/eclipse/keyple-java

Already integrated by some start up and mobility actors



SO WHAT DOES THE FUTURE LOOK LIKE WITH KEYPLE?

The power of a modular architecture

RATP SMART SYSTEMS is using keyple to build a remote fare collection service for retailers

RATP
SMART SYSTEMS

SO WHAT DOES THE FUTURE LOOK LIKE WITH KEYPLE?

Standardized terminals natively ready for Maas

Famoco integrates Keyple in all their Android ticketing terminals

famoco

SO WHAT DOES THE FUTURE LOOK LIKE WITH KEYPLE?

Optimized systems + integration of all your terminals under a secure ticketing standard

SNCF is building a test and integration application for Calypso systems based on Keyple on Android devices.

The Platform for Open Innovation and Collaboration