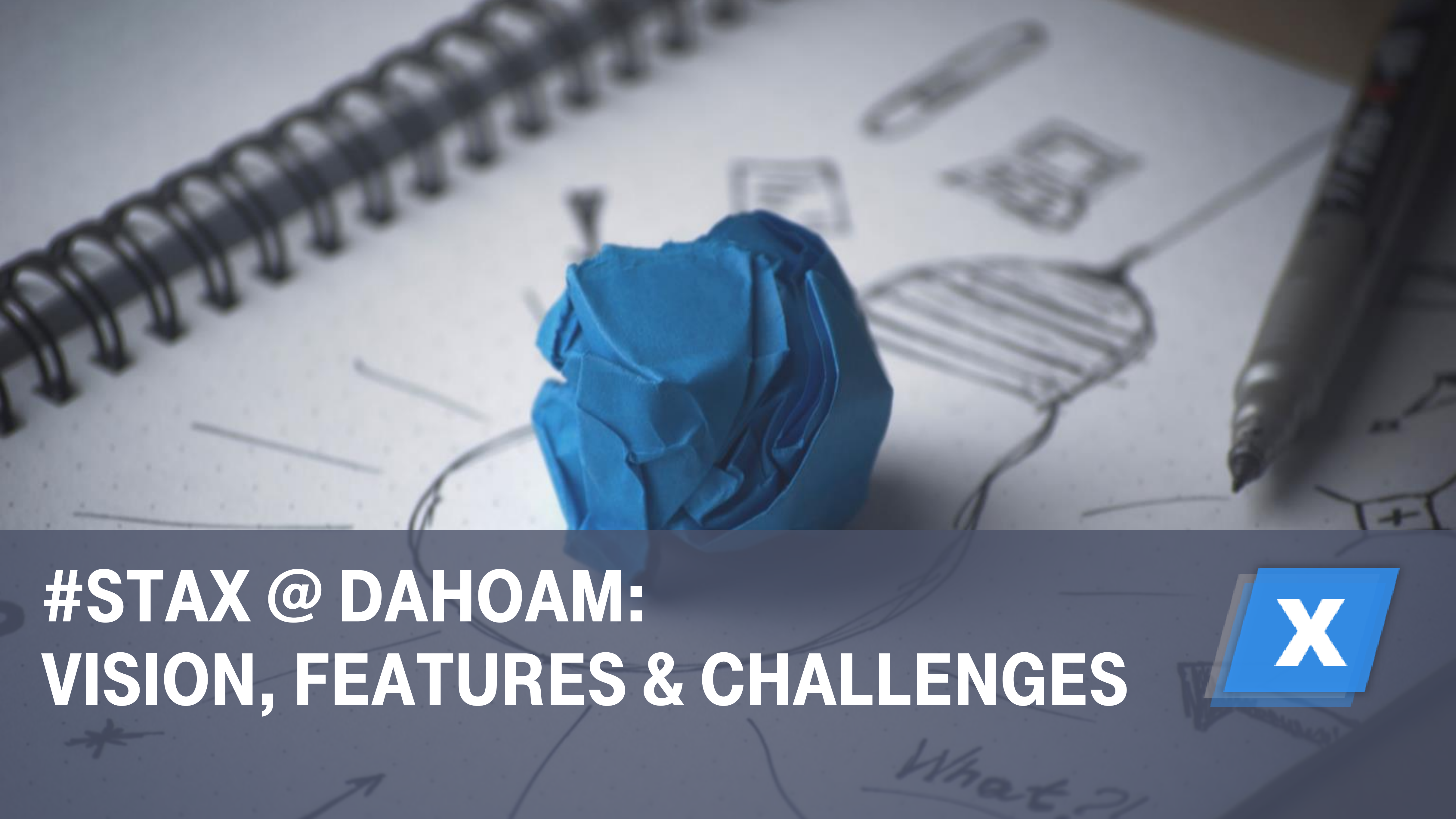

#STAX @ DAHOAM: VISION, FEATURES & CHALLENGES

AGENDA

01 HashstaX vision & benefits

02 Roadmap & current key features

03 How to use HashstaX?

04 How to use Riddle & Code?

05 Potential hackathon challenges

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01 **HASHSTAX VISION & BENEFITS**

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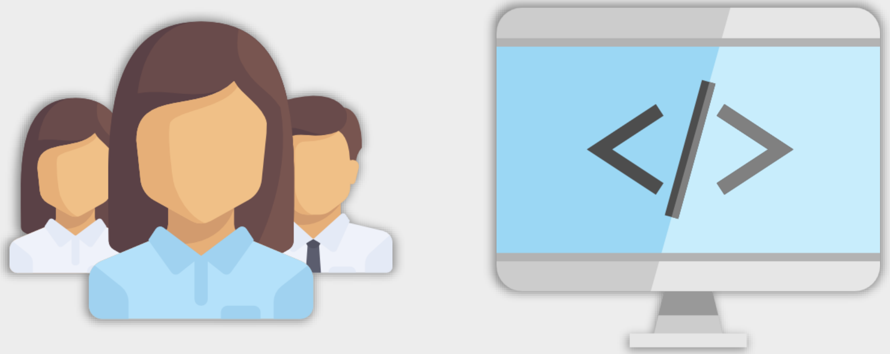
HASHSTAX VISION:
ENABLING FUTURE PROOF & DLT-AGNOSTIC DEVELOPMENT

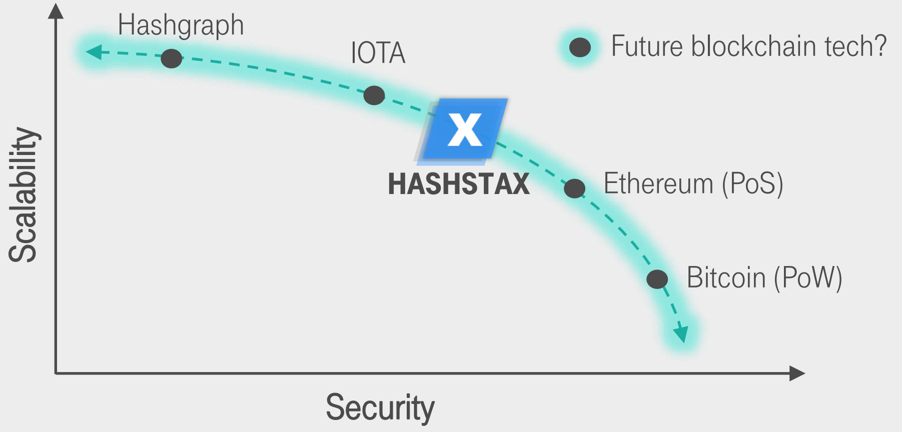
Challenge: Uncertainty & complexity



CHALLENGE: UNCERTAINTY & COMPLEXITY
- **Build knowledge :** Time needed to build know-how & develop dApps
- **Tech lock-in:** No DLT is future proof, but selection creates lock-in effect

⚠

Solution: HashstaX allows DLT-agnostic development

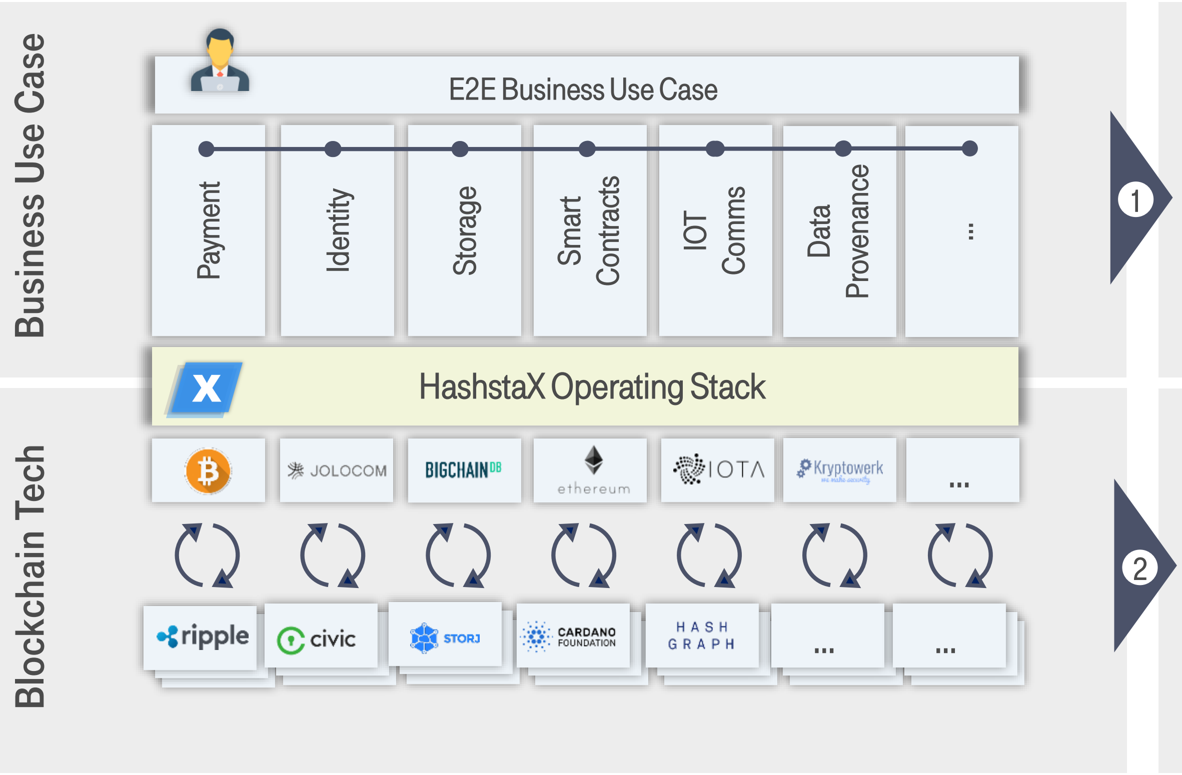


SOLUTION: HASHSTAX ALLOWS AGNOSTIC DLT DEVELOPMENT
- **Instant setup:** No DLT know-how needed for dApp development,.
- **Flexibility:** Development independent of underlying DLT technology.

✓

HASHSTAX BENEFIT:
HASHSTAX AIMS TO MITIGATE UNCERTAINTY & COMPLEXITY

HashstaX connects use cases with DLT technology



Benefit: Instant & DLT-agnostic development

Devs/Biz can **focus on creating** E2E use cases by building on....

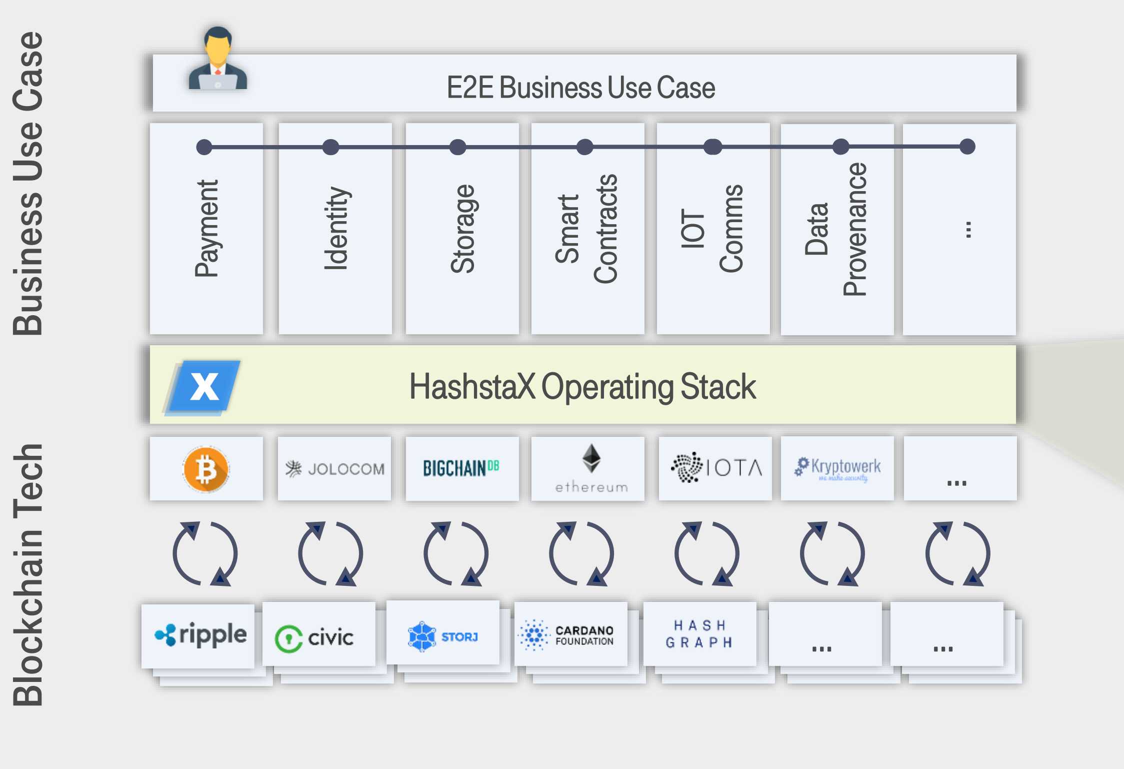
... HashstaX Operating Stack ...

... while DLT specialists integrate & enable functionalities of the underlying DLTs.

DLT-agnostic dApp development!

HASHSTAX ARCHITECTURE APPROACH:
AN ECOSYSTEM TO CONNECT DLT COMMUNITY WITH DEVS

HashstaX connects use cases with Blockchain technology



Business Use Case

E2E Business Use Case

Payment

Identity

Storage

Smart Contracts

IOT Comms

Data Provenance

...

HashstaX Operating Stack

Blockchain Tech

JOLOCOM

BIGCHAINDB

ethereum

IOTA

Kryptowerk

...

ripple

civic

STORJ

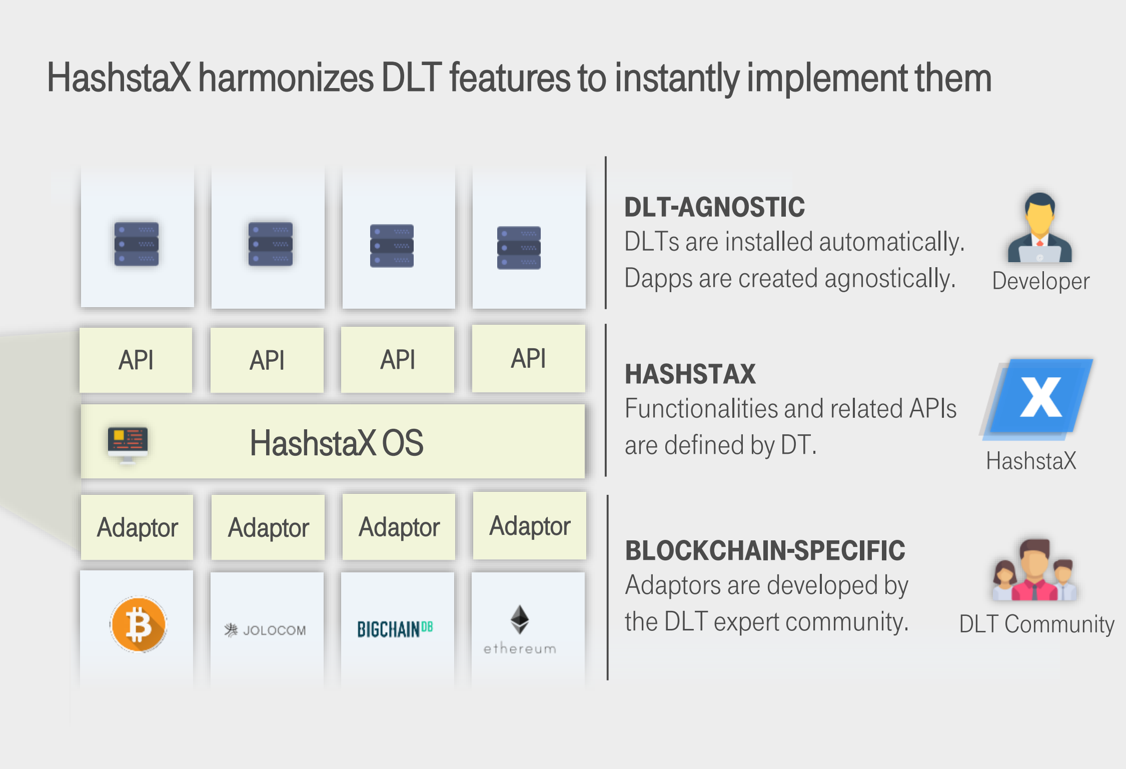
CARDANO FOUNDATION

HASH GRAPH

...

...

HashstaX architecture approach in Detail



HashstaX harmonizes DLT features to instantly implement them

API

API

API

API

HashstaX OS

Adaptor

Adaptor

Adaptor

Adaptor

JOLOCOM

BIGCHAINDB

ethereum

DLT-AGNOSTIC
DLTs are installed automatically.
Dapps are created agnostically.

Developer

HASHSTAX
Functionalities and related APIs
are defined by DT.

HashstaX

BLOCKCHAIN-SPECIFIC
Adaptors are developed by
the DLT expert community.

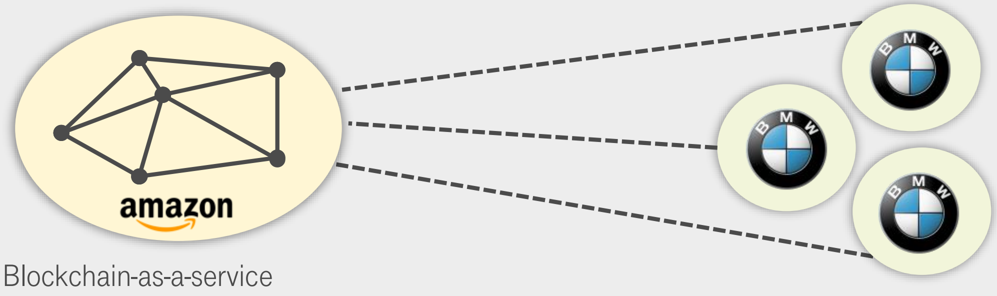
DLT Community

DLT-agnostic dApp development!

WHY HASHSTAX?
BECAUSE WE DO PROVIDE DLT DECENTRALLY

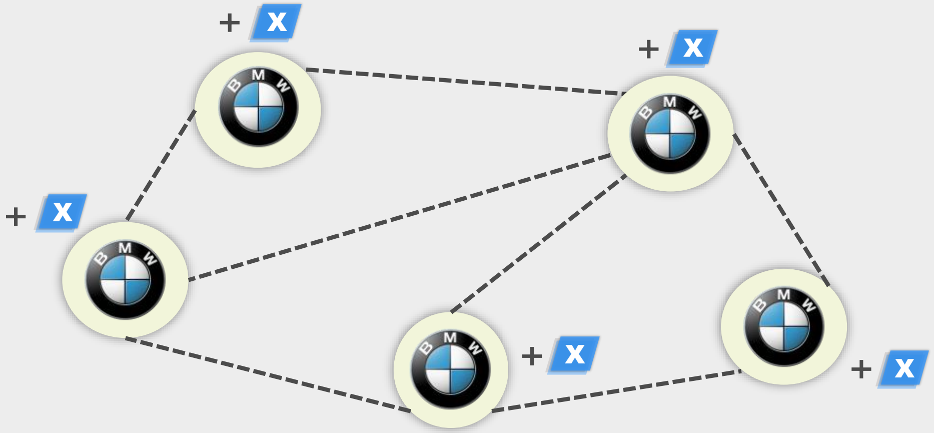
Centralized Decentralization (typical BAAS)

Typical BAAS models are in fact centralized approaches



Decentralized Decentralization (HashstaX)

HashstaX enables DLT implementation on premise



+ X HashstaX Meta Code to implement DLTs on premise

X **DLT-agnostic dApp development!**

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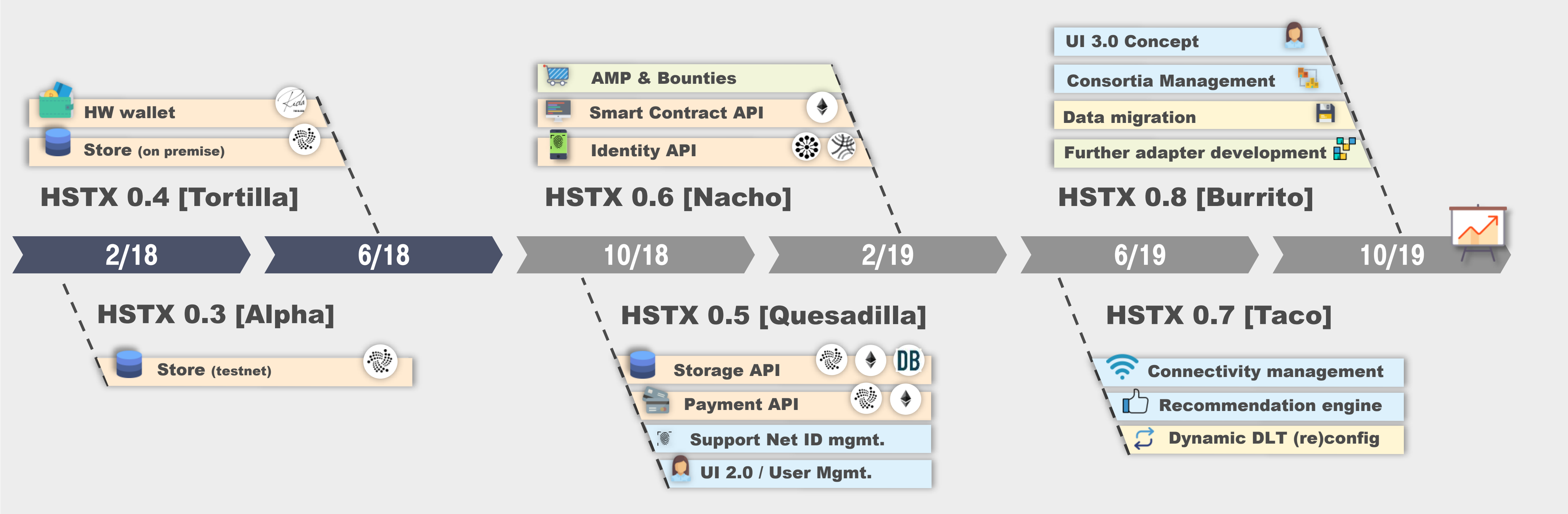
RELEASE ROADMAP

ROADMAP VIEW REGARDING KEY FEATURES

Key feature roadmap



2/18

HSTX 0.3 [Alpha]

- Store (testnet)

6/18

HSTX 0.4 [Tortilla]

- HW wallet
- Store (on premise)

10/18

HSTX 0.5 [Quesadilla]

- Storage API
- Payment API
- Support Net ID mgmt.
- UI 2.0 / User Mgmt.

2/19

HSTX 0.6 [Nacho]

- AMP & Bounties
- Smart Contract API
- Identity API

6/19

HSTX 0.7 [Taco]

- Connectivity management
- Recommendation engine
- Dynamic DLT (re)config

10/19

HSTX 0.8 [Burrito]

- UI 3.0 Concept
- Consortia Management
- Data migration
- Further adapter development

DLT-agnostic dApp development!

HASHSTAX: TORTILLA RELEASE KEY FEATURES

SECURELY INTEGRATE IOT DEVICES IN LOCAL IOTA TANGLE

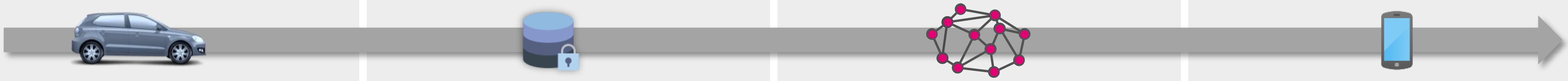
Example: Car mileage verification

CAR DATA SIMULATION
Generate car data from an OBD2 or CAN-BUS simulator.

SIGN MILEAGE WITH CAR ID
Sign data with Riddle & Code hardware on a Raspberry PI.

SAVE MILEAGE IN BLOCKCHAIN
Save data in an a private IOTA tangle via HashstaX software.

DEVELOP A DAPP
Develop a decentral application that solves customer problems.



HASHSTAX KEY FEATURE: SECURE IOT DEVICE INTEGRATION

- Integrate IoT devices with HashstaX light clients.
- Secure IoT devices with Riddle & Code hardware modules.

HASHSTAX KEY FEATURE: SETUP ON YOUR OWN SERVERS

- Keep the ownership of your data & enable onsite data control.
- Choose the location of your nodes to enable performance increases (e.g. latency reduction).

HASHSTAX: TORTILLA RELEASE KEY FEATURES

ACCESS SENSORS & DEVELOP DAPPS WITH SIMPLE APIS

Example: Car-related use case

CAR DATA SIMULATION
Generate car data from an OBD2 or CAN-BUS simulator.

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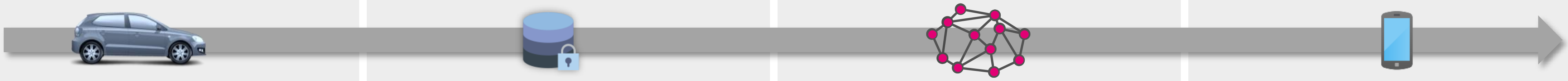

HASHSTAX KEY FEATURE: SECURELY ACCESS CAR SENSORS

- Sensors can be connected securely to IOT devices.
- Securely connecting the data of many sensors enables entirely new use cases.

HASHSTAX KEY FEATURE: REST API-BASED DEVELOPMENT

- With our simple Rest-APIs you can rapidly develop dAPPs .
- Actually no DLT-based knowledge is neded.

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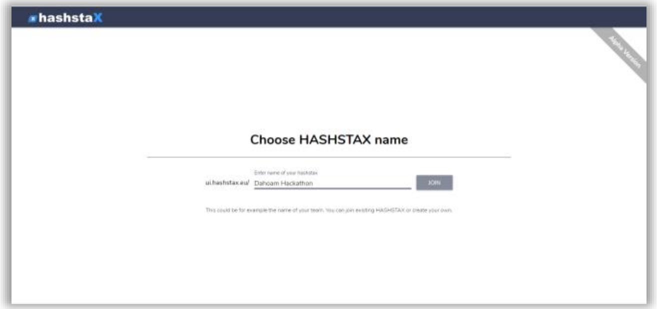
HASHSTAX QUICK GUIDE

HOW TO USE HASHSTAX?

Quick guide to use HashstaX

1. LOGIN TO „DAHOAM HACKATHON“

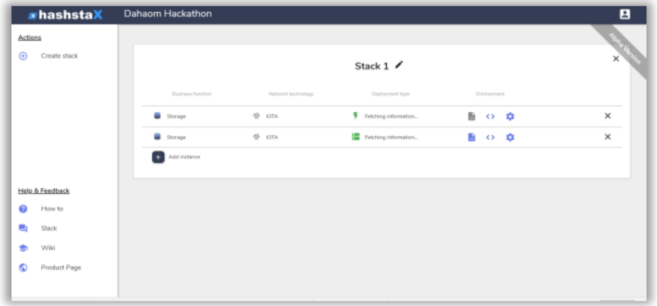


Choose HASHSTAX name

Enter name of your hashstax: ui.hashstax.eu/ Dahoam Hackathon

This could be for example the name of your team. You can join existing HASHSTAX or create your own.

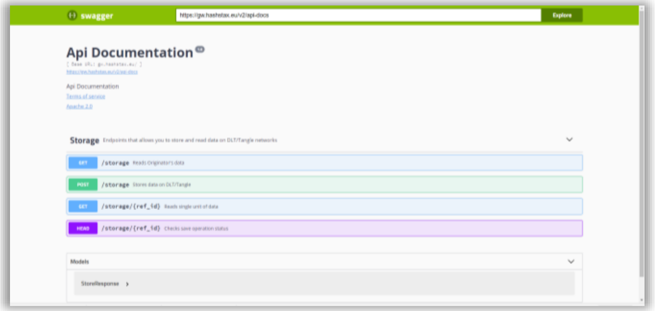
2. SELECT THE IOTA TESTNET SETUP



Stack 1

Business function	Network technology	Deployment type	Environment
Storage	IOTA	Fetching information...	
Storage	IOTA	Fetching information...	

3. START CODING VIA SIMPLE APIS



https://gw.hashstax.eu/v2/api-docs

Api Documentation

[Base URL: gw.hashstax.eu/]

https://gw.hashstax.eu/v2/api-docs

Api Documentation

Terms of service

Apache 2.0

Storage Endpoints that allows you to store and read data on DLT/Tangle networks

- GET /storage Reads Originator's data
- POST /storage Stores data on DLT/Tangle
- GET /storage/{ref_id} Reads single unit of data
- HEAD /storage/{ref_id} Checks save operation status

RELEVANT LINKS:

- Website: https://hashstax.eu/
- HashstaX web interface: https://ui.hashstax.eu/#/
- Explanatory video: https://youtu.be/fcCmBxCFKKk

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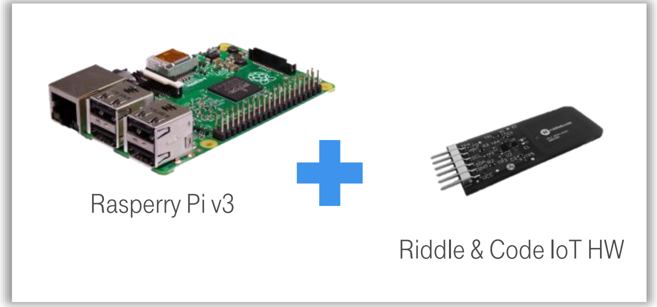
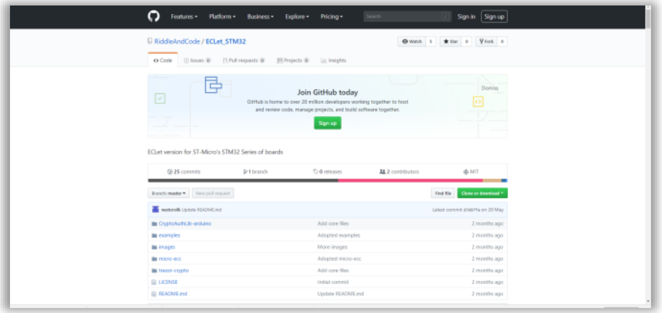
RIDDLE & CODE QUICK GUIDE
SECURELY CONNECT IOT DEVICES TO DLTS

Quick guide to use the Riddle & Code hardware module

1. GET A ‚PI‘ & R&C HW FROM US



2. DOWNLOAD SOFTWARE FROM GH



RiddleAndCode / ECLet_STM32

Join GitHub today

GitHub is home to over 28 million developers working together to host and review code, manage projects, and build software together.

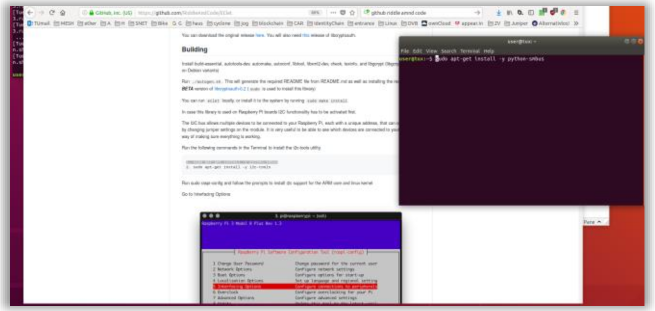
ECLet version for ST-Micro's STM32 Series of boards

25 commits | 1 branch | 0 releases | 2 contributors | MIT

nestorsilk Update README.md — Latest commit d%b0f1a on 20 May

CryptoAuthLib-arduino	Add core files	2 months ago
examples	Adopted examples	2 months ago
images	More images	2 months ago
micro-ecc	Adopted micro-ecc	2 months ago
trezor-crypto	Add core files	2 months ago
LICENSE	Initial commit	2 months ago
README.md	Update README.md	2 months ago

3. INSTALL ECLET SOFTWARE



You can download the original release here. You will also need this release of libcryptoauth.

Building

Install build-essential, autotools-dev, automake, autoconf, libtool, libxml2-dev, check, texinfo, and libgcrypt

on Debian variants)

Run ./autogen.sh . This will generate the required README file from README.md as well as installing the re

BETA version of libcryptoauth-0.2 (sudo is used to install this library)

You can run eclet locally, or install it to the system by running sudo make install.

In case this library is used on Raspberry Pi boards I2C functionality has to be activated first.

The I2C bus allows multiple devices to be connected to your Raspberry Pi, each with a unique address, that can

by changing jumper settings on the module. It is very useful to be able to see which devices are connected to you

way of making sure everything is working.

Run the following commands in the Terminal to install the i2c-tools utility.

```
$ sudo apt-get install -y i2c-tools
```

Run sudo raspi-config and follow the prompts to install i2c support for the ARM core and linux kernel

Go to Interfacing Options

```
user@tux:~$ sudo apt-get install -y python-smbus
```

```
Raspberry Pi 3 Model B Plus Rev 1.3

┤ Raspberry Pi Software Configuration Tool (raspi-config) ├

1 Change User Password        Change password for the current user
2 Network Options             Configure network settings
3 Boot Options                Configure options for start-up
4 Localisation Options        Set up language and regional settings
5 Interfacing Options         Configure connections to peripherals
6 Overclock                   Configure overclocking for your Pi
7 Advanced Options            Configure advanced settings
```

RELEVANT LINKS:

- Riddle & Code website: https://www.riddleandcode.com/vision/
- Ridlde & Code software: https://github.com/RiddleAndCode/ECLet_STM32
- Riddle & Code IoT article: https://drive.google.com/file/d/1uYucqNOXJg0w_7Geu7q6_j0CY2JQcg32/view?usp=sharing

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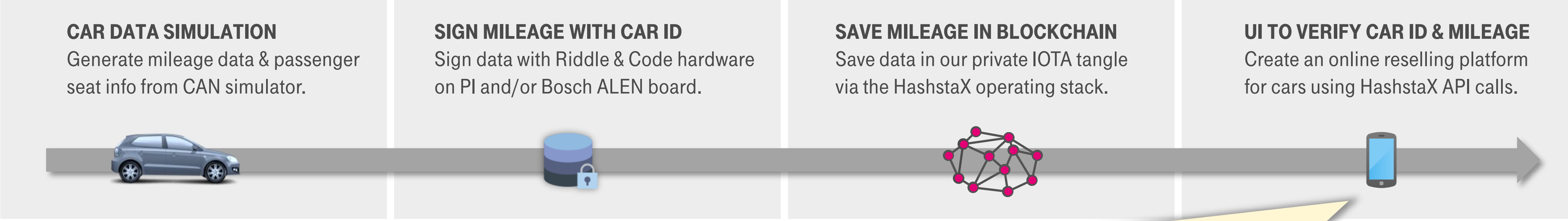
# 1. THE UBER KILLER CHALLENGE:
CREATE A P2P CARPOOLING APP

Challenge: Create a carpooling app to match drivers and passengers to share a ride



CAR DATA SIMULATION
Generate mileage data & passenger seat info from CAN simulator.

SIGN MILEAGE WITH CAR ID
Sign data with Riddle & Code hardware on PI and/or Bosch ALEN board.

SAVE MILEAGE IN BLOCKCHAIN
Save data in our private IOTA tangle via the HashstaX operating stack.

UI TO VERIFY CAR ID & MILEAGE
Create an online reselling platform for cars using HashstaX API calls.

CHALLENGE:

- Create a carpooling App to allow people to join your car trips.
- Drivers earn miles when sharing their ride. The miles act as a currency to buy new trips as a passenger. This way there is an intrinsic motivation to increase the platform growth.

2. CAR WALLET CHALLENGE:

SECURE E2E CAR DATA EXCHANGE VIA DPKI* & HW WALLETS**

Challenge: Create a car wallet that allows the storage of tokens and data exchange (mileage) via E2E encryption & DPKI

CAR DATA SIMULATION
Generate mileage data from an OBD2 or CAN-BUS simulator.

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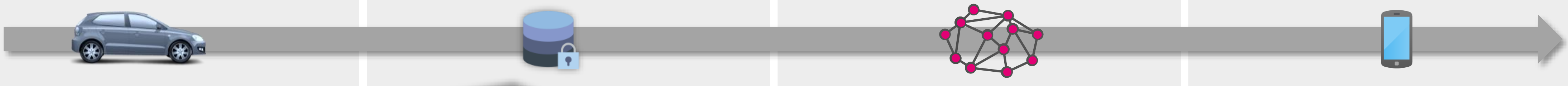


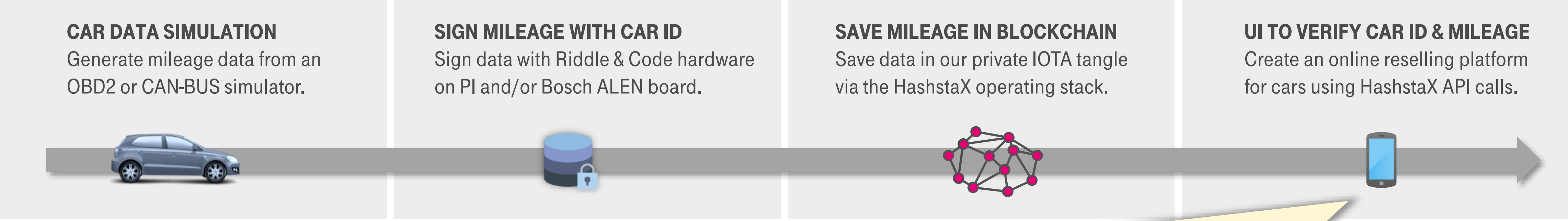
CHALLENGE:

- Create an online platform for used cars that digitally verifies the ID and mileage of a car.
- Enable E2E encryption & the secure storage of tokens via R&C HW modules.

*Decentralized public key infrastructure; **Hardware wallets

3. TWIN OF THINGS CHALLENGE:
CREATE A RESELLING PLATFORM FOR USED CARS

Challenge: Create a car reselling platform for used vehicles which verifies the mileage & the identity of a car



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CHALLENGE:

- Create an online platform for used cars that digitally verifies the ID and mileage of a car.
- How can a buyer of a car really match the digital identity and physical identity of a car?