SODA-IIoT4ConnectedCars: Spread updates between cars with limited Internet access

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Accélérateur de la transformation numérique

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SODA-IIoT4ConnectedCars: Spread updates between cars with limited Internet access

Aymen Boudguiga, Flavien Quesnel and Nabil Bouzerna

A **blockchain** infrastructure, combined with cryptographic signatures, can improve **availability** and **accountability** for the deployment of **IoT updates**.

However, cars with limited or intermittent Internet access may have difficulties in downloading full updates from the blockchain.

Therefore, we allow cars that successfully downloaded updates to share them with other cars by means of a **Peer-to-Peer** (P2P) mechanism.

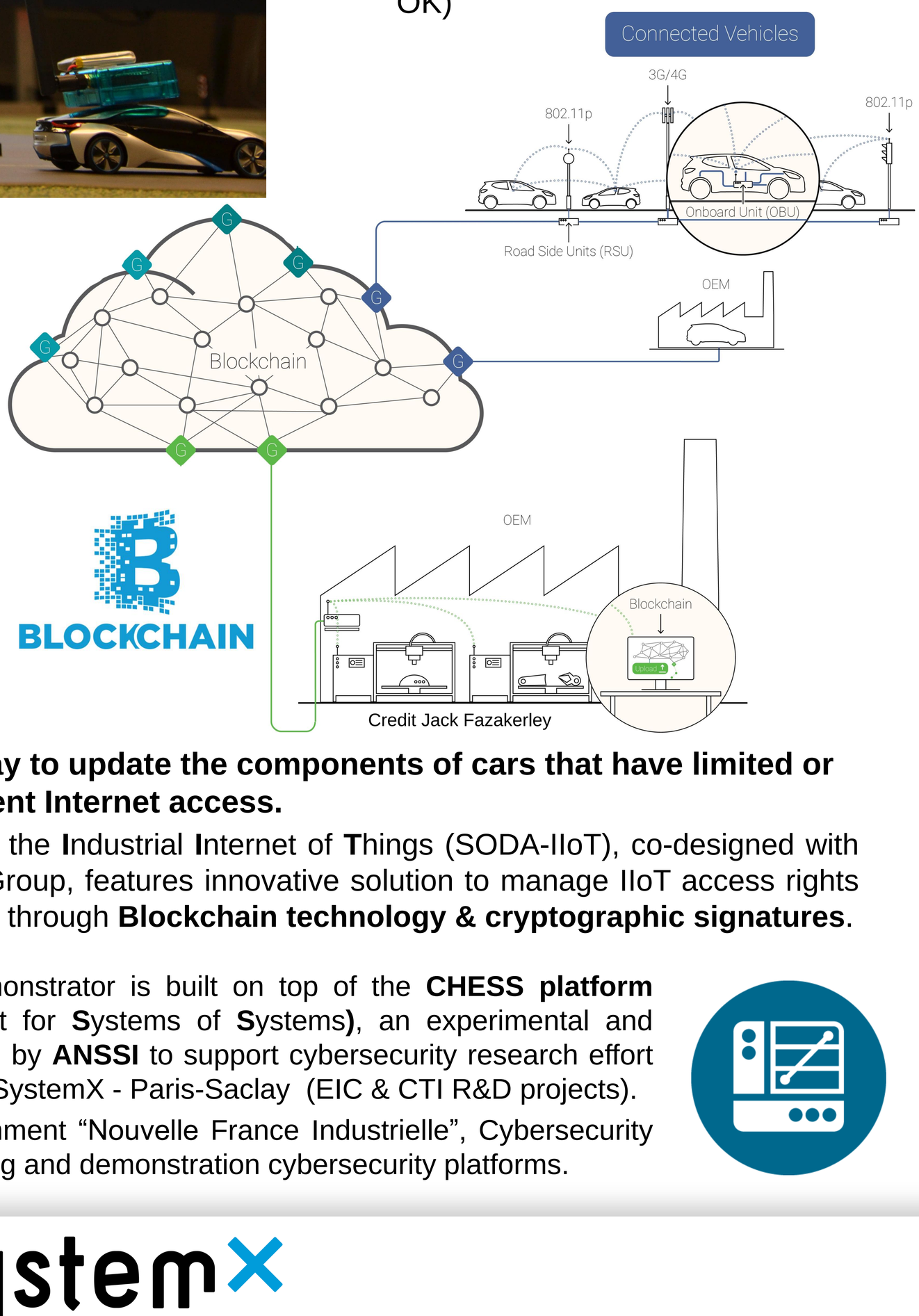
Credit Flavien Quesnel

Cars with *full* Internet access:

1. Download updates
2. Check updates integrity
3. Install updates (if integrity is OK)
4. Notify the blockchain about the installation results (depending on updates integrity)
5. Broadcast update notifications to surrounding cars (if integrity is OK)

Cars with *limited* Internet access:

1. Receive update notifications (from other cars)
2. Download updates (from other cars)
3. Check updates integrity (against the blockchain)
4. Install updates (if integrity is OK)
5. Notify the blockchain about the installation results (depending on updates integrity)
6. Broadcast update notifications to surrounding cars (if integrity is OK)



SODA-IIoT4ConnectedCars offers a secure way to update the components of cars that have limited or intermittent Internet access.

Secured **O**n-the-pouce **D**ecentralized **A**rchitecture for the **I**ndustrial **I**nternet of **T**hings (SODA-IIoT), co-designed with IRT SystemX, CEA Tech List and Airbus Innovation Group, features innovative solution to manage IIoT access rights management & secure software and firmware updates through **Blockchain technology & cryptographic signatures**.

The **SODA-IIoT4ConnectedCars** demonstrator is built on top of the **CHESS platform** (**C**ybersecurity **H**ardening **E**nvironment for **S**ystems of **S**ystems**)**, an experimental and technical cybersecurity platform funded by **ANSSI** to support cybersecurity research effort at Institute for Technological Research SystemX - Paris-Saclay (EIC & CTI R&D projects).

This platform is part of French Government “Nouvelle France Industrielle”, Cybersecurity plan, action 8: set up one or more testing and demonstration cybersecurity platforms.

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