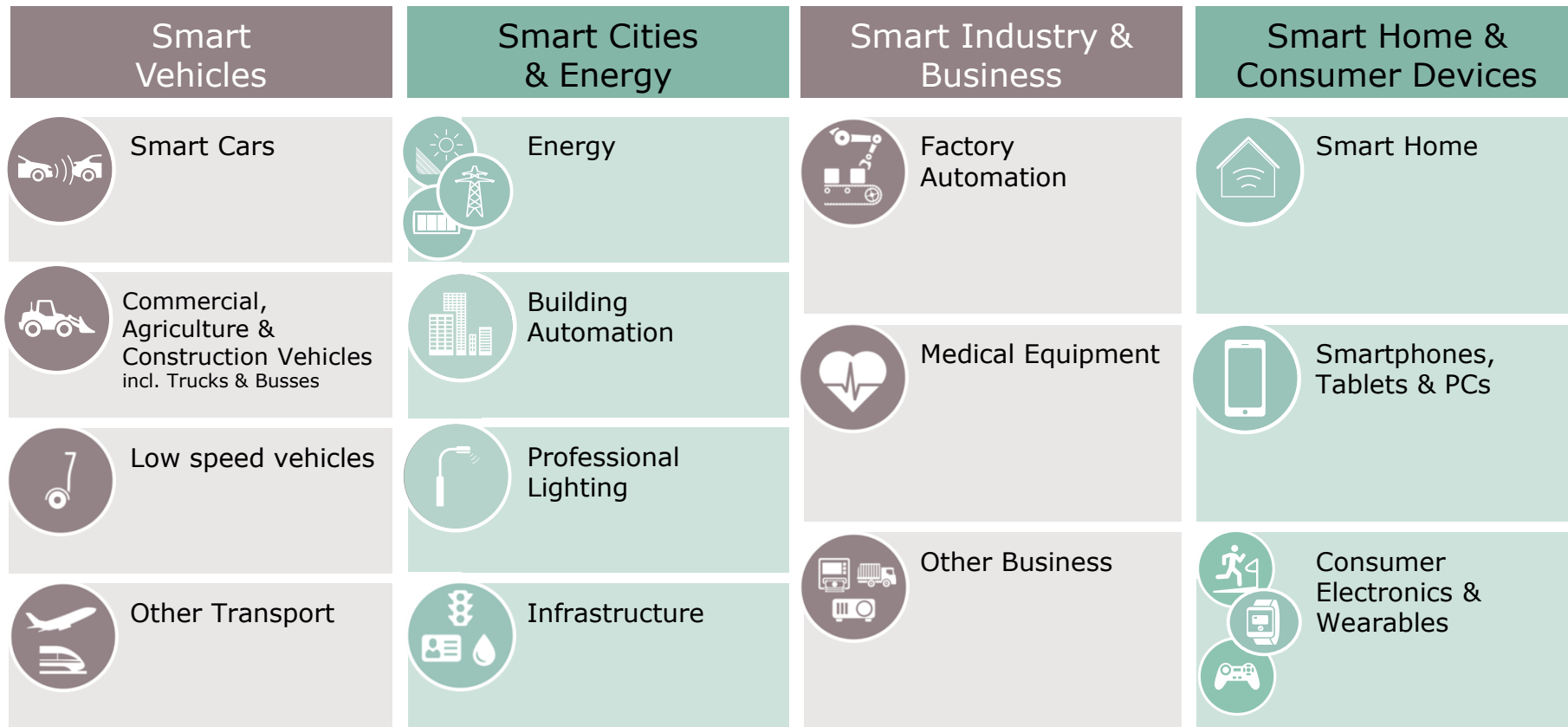


Infineon security solution update for V2x

Gordon Song
Jun27, 2016



IoT Trend Affects All Markets



Internet of Things (IoT) offers broad opportunities

Smart Home



Automotive



Industrial



ICT

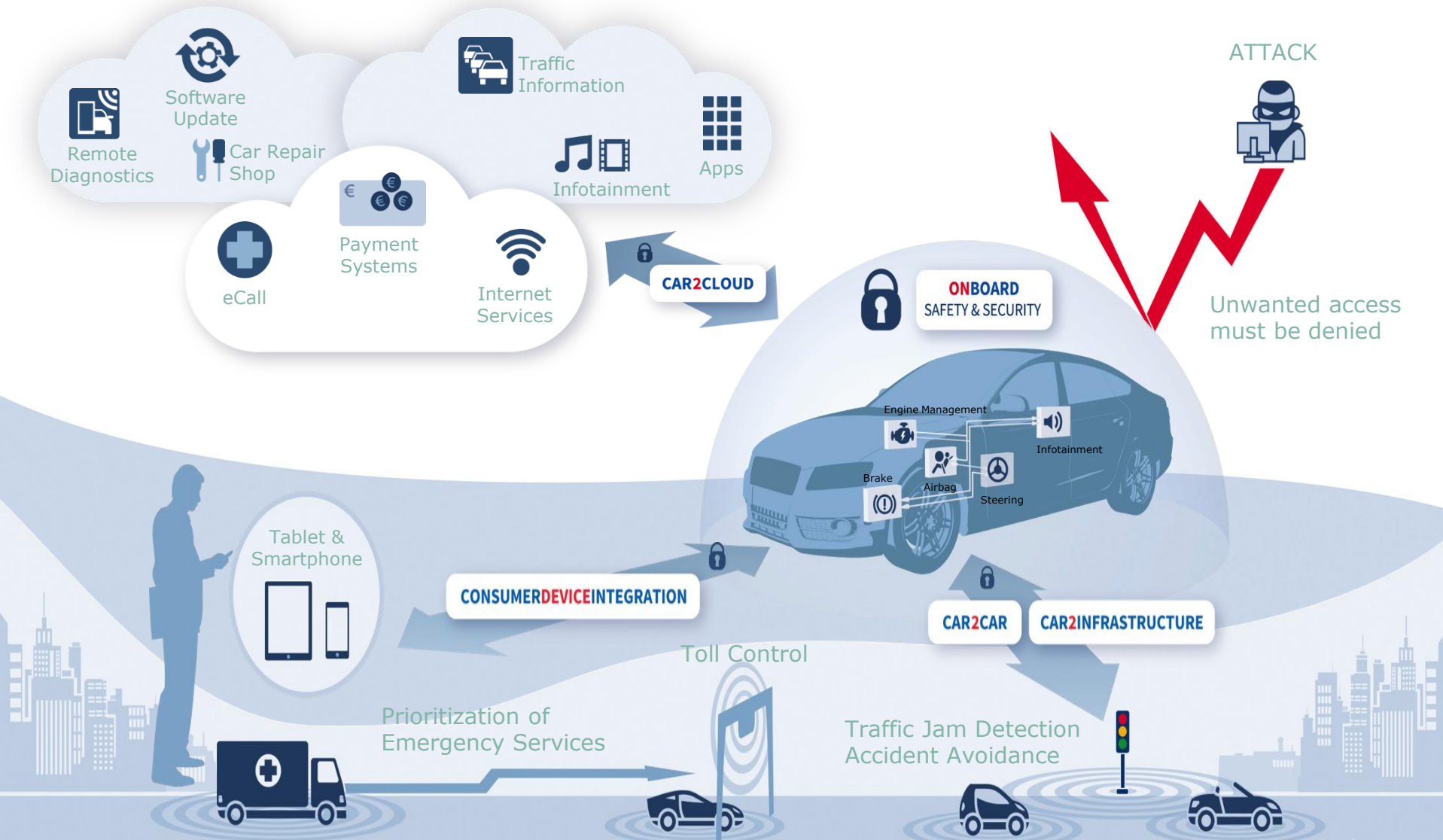


1 New capabilities and services

2 Greater efficiency

3 Increased flexibility and customization

Overall Security Architecture inside the car & with controlled interfaces to the outside world



The Chrysler Impact

With 'recall,' Fiat Chrysler makes its car hack worse



Credit: Image: Jeep

Or, how not to handle a software patch.

RELATED

- Car hacking news: Ransomware threat could reach auto dealerships
- Car hackers urge you to patch your Chrysler, Ram, Durango, or Jeep
- Firewalls can't protect today's connected cars
- on IDG Answers  How to backup PS4 internal drive to external 2TB HDD when I'm getting "file..."

BUSINESS | AUTOS & TRANSPORTATION | AUTOS

Regulators Investigating Fiat Chrysler Cybersecurity Recall

Recall comes days after researchers demonstrated ability to remotely control a moving Jeep

Fiat Chrysler buyback, fines could surpass \$1 billion

 Brent Snively, Detroit Free Press 12:02 p.m. EDT July 28, 2015

NHTSA Administrator Mark Rosekind said Fiat Chrysler Automobiles must offer buybacks for nearly 200,000 recalled Ram pickups and Dodge SUVs because the company failed to offer an effective repair.

MORE STORIES

 3 dead in multi-car crash

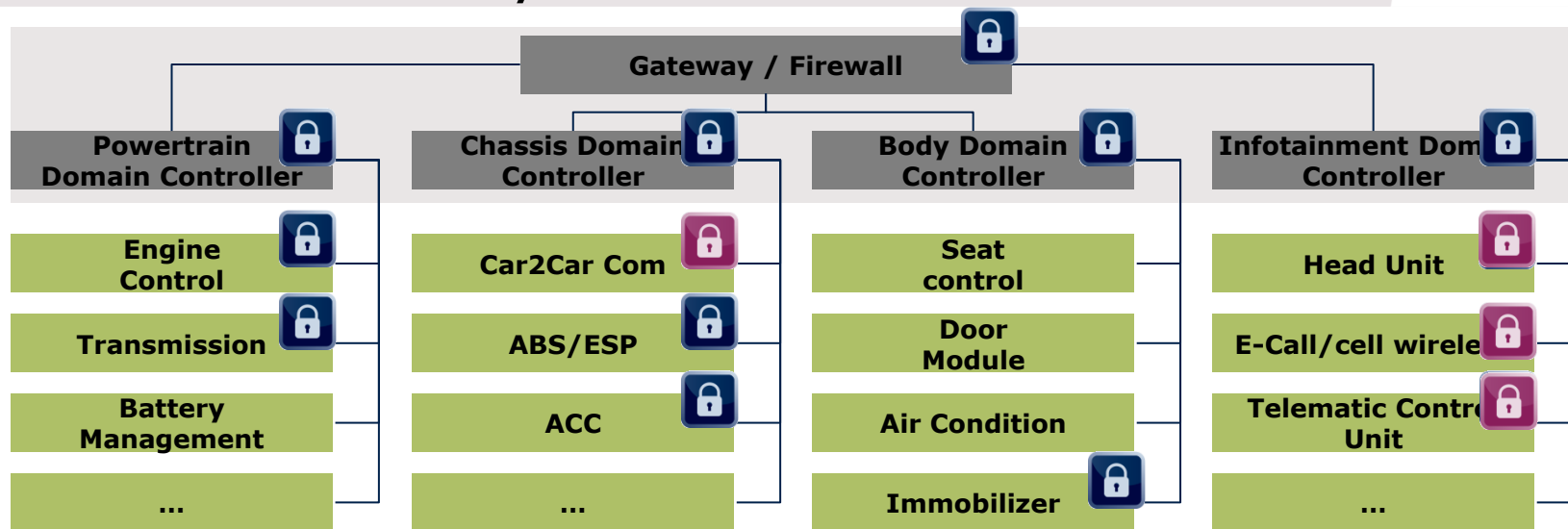
First time in automotive history that Cyber Security created a massive damage.

- › No ability to patch software update over the air
- › Cost of fixing bug: > 1 B US \$
- › Exploit only used by "white hat" hackers.
- No cost** covering damage by attacks

Wakeup Call for the industry

- Increased interest of SOTA (software of the air updates)
- Poor security costs money

Automotive security Architecture



Trust anchors



Protected Execution
Environments hosting

- › Key storage and related cryptographic operation
- › Security Applications

1

Integrated on MCU

- › High speed
- › Secured Onboard Communication
- › Logical security

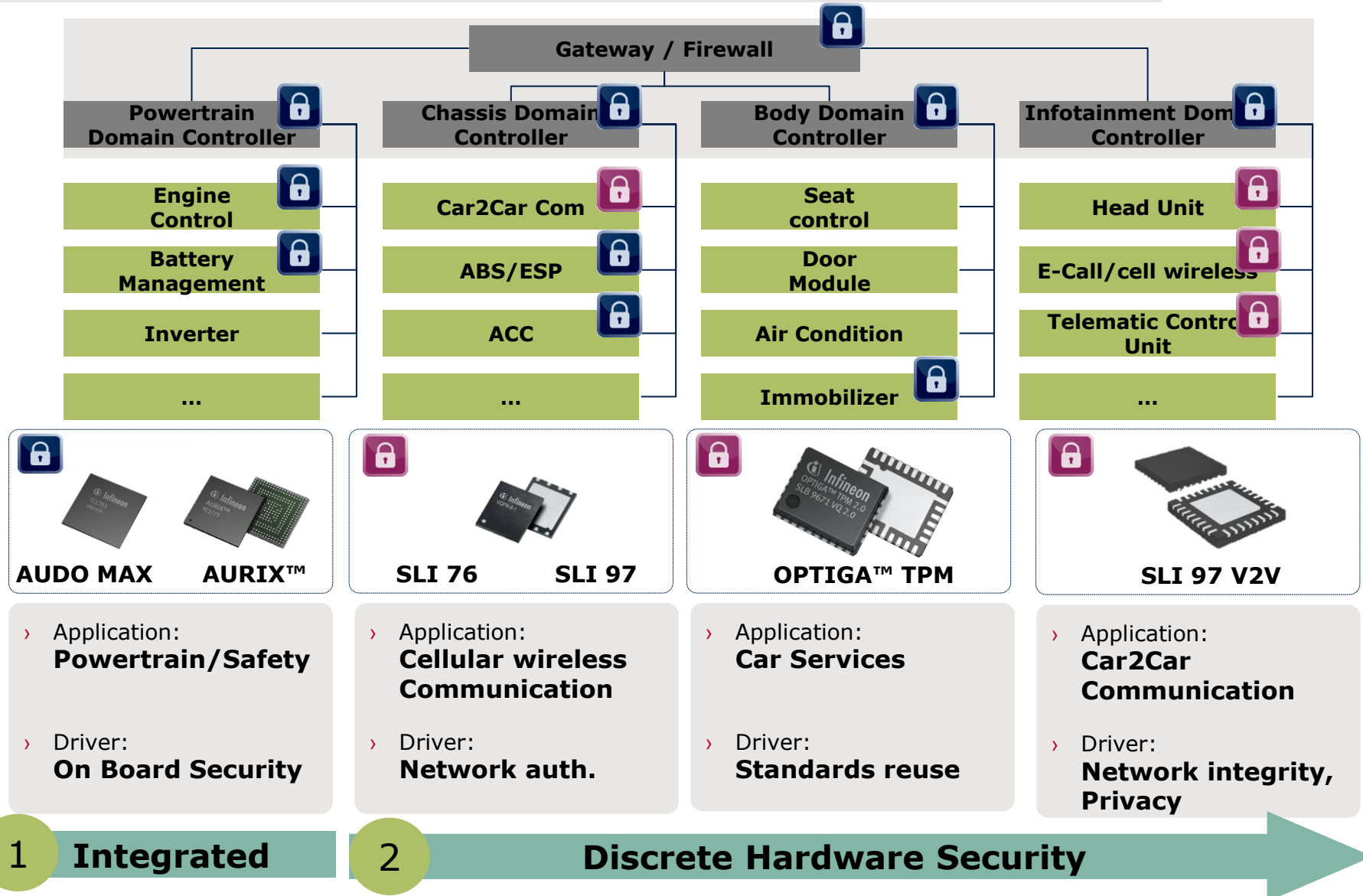
2

Discrete Security Controller

- › External communication
- › Protecting high value
- › Certified hardware security

Enabling the root of trust for internal and external communication

Infineon's Product Portfolio for a Security Architecture 2018++



Secured SOTA architecture

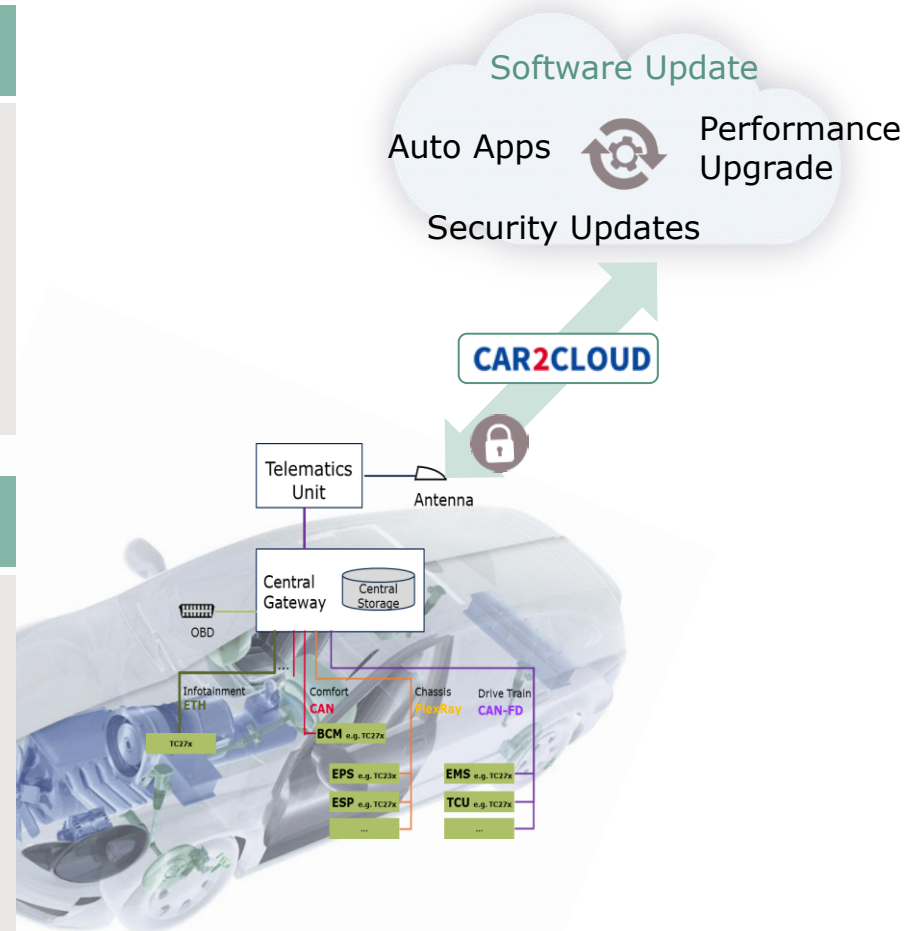
A brief explanation

Step 1: Download while driving

- › Software download to central storage
- › Unnoticed by the customer
- › Vehicle shall be at any time safe and operational

Step 2: Update from central storage

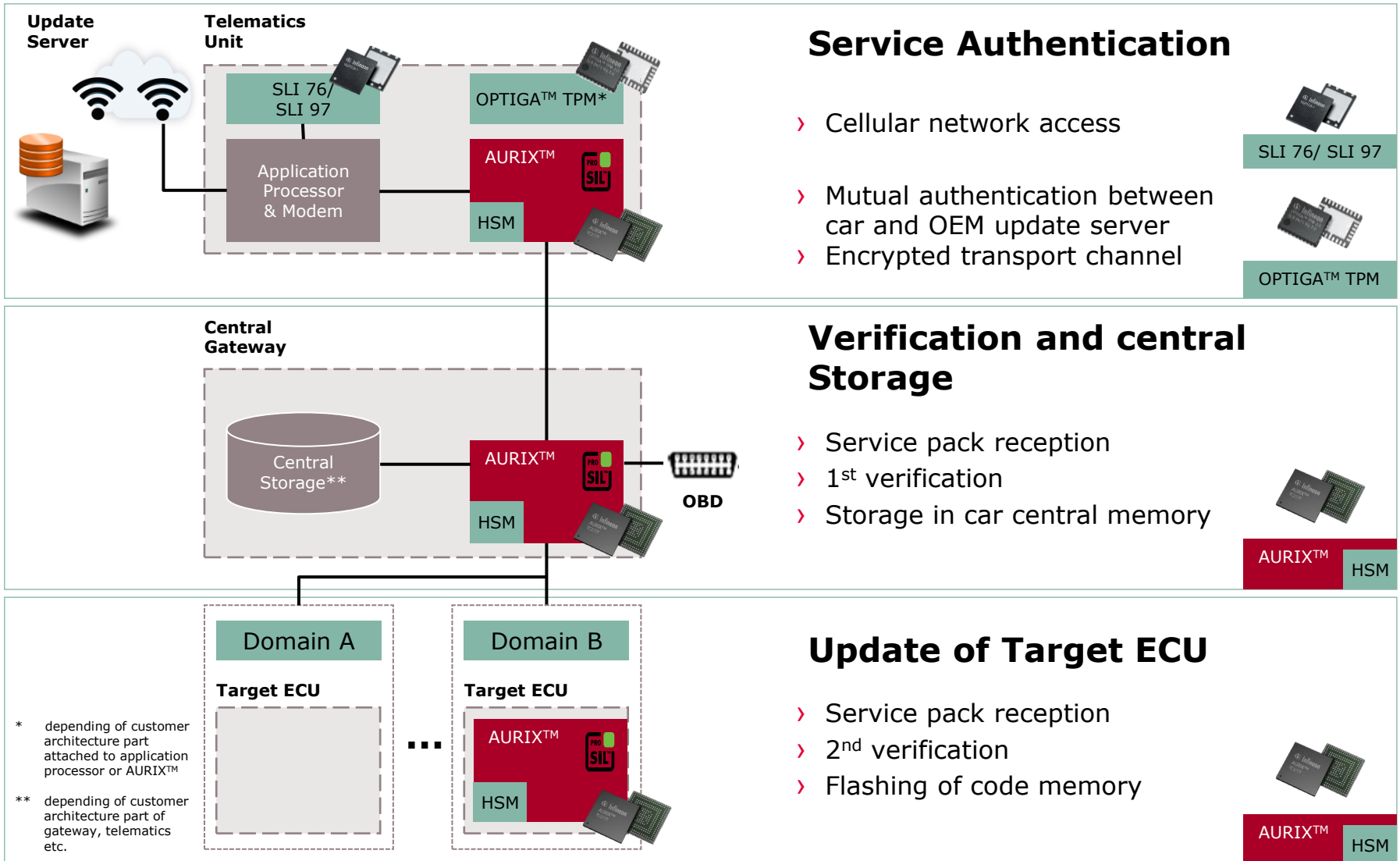
- › After customer approval
- › In the background or at key-off
- › Permissible update time (100s to 15min)
- › Confirmation to backend



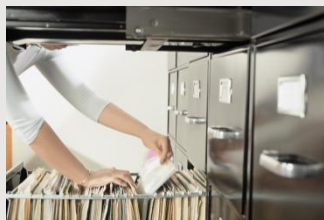
Safety and **security** must be ensured throughout the process

Secured SOTA architecture

Security partitioning – IFX offering



Bad-Better-Best: Options for IoT Security



No SECURITY

Everything open
for all to see



SOFTWARE ONLY

Secures against casual
intrusion and basic software
attacks



HARDWARE SECURITY

Secures against hardware
attacks and hardens against
software attacks

Reading

Software code easily readable by
hackers

Hardware chip protects itself
against code reading

Copying

Software code easily copied and
shared by hackers

Secure hardware cannot be
easily copied. Must be
extensively reverse engineered
and remanufactured.

Analyzing

Software code easily analyzed
and understood using standard
tools

Secure hardware use proprietary
designs and non-standard code
that is not easily understood

Root of Trust

Software has no "Root of Trust",
recovery of broken system
practically impossible

Secure hardware provides "Root
of Trust" anchor for system,
providing detection, recoverability,
secured updates



Part of your life. Part of tomorrow.

