

# EB tresos Bootloader



Elektrobit





# Agenda

1

Use Cases

2

Overview



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Use Cases

2

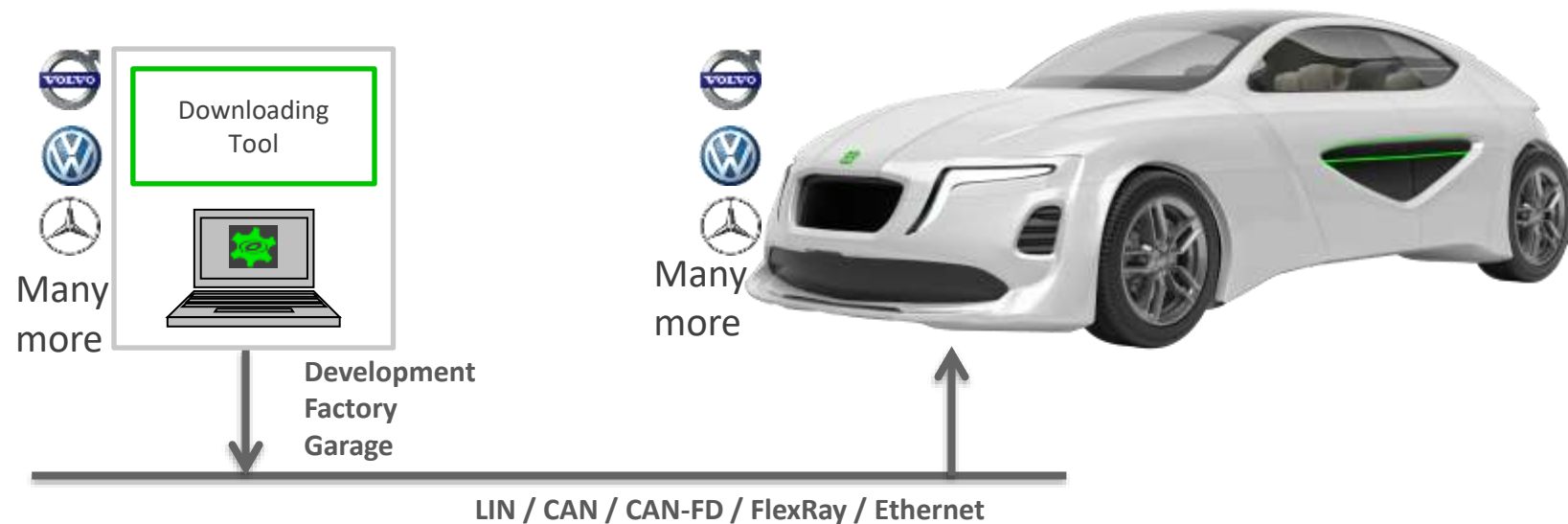
Overview



## What is a bootloader ? 1. Wired update

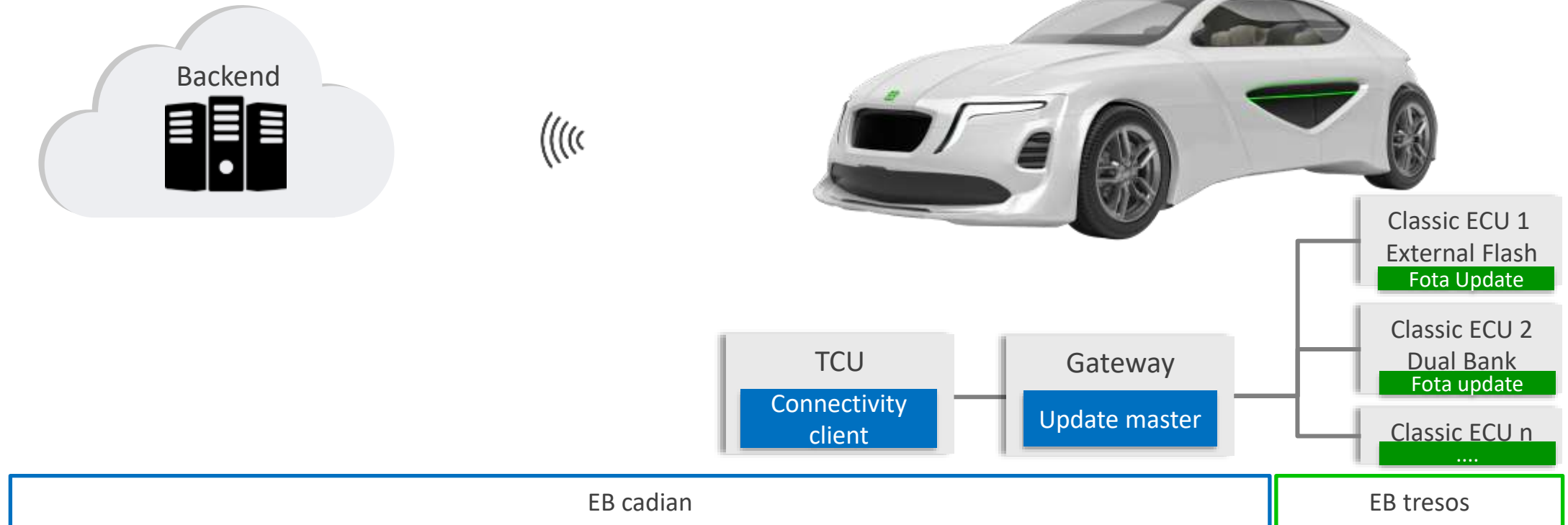
- “EB tresos Bootloader” : Provides the ability to **update** the Software of **Classic AUTOSAR & OSEK ECUs** inside a vehicle using a **downloading tool** via communication bus (Ethernet, CAN, LIN, FlexRay) based on UDS (ISO14229) protocol.

A Bootloader is OEM  
Specific



## What is a bootloader ? 2. Wireless update

- EB tresos Bootloader “Fota update” solution for updating **Classic ECUs (AUTOSAR & OSEK)**
- Various strategies are defined by the OEMs :
  - Dual bank mechanism (A/B)
  - External Flash (A/B/A')



# EB tresos Bootloader in a nutshell



## Features

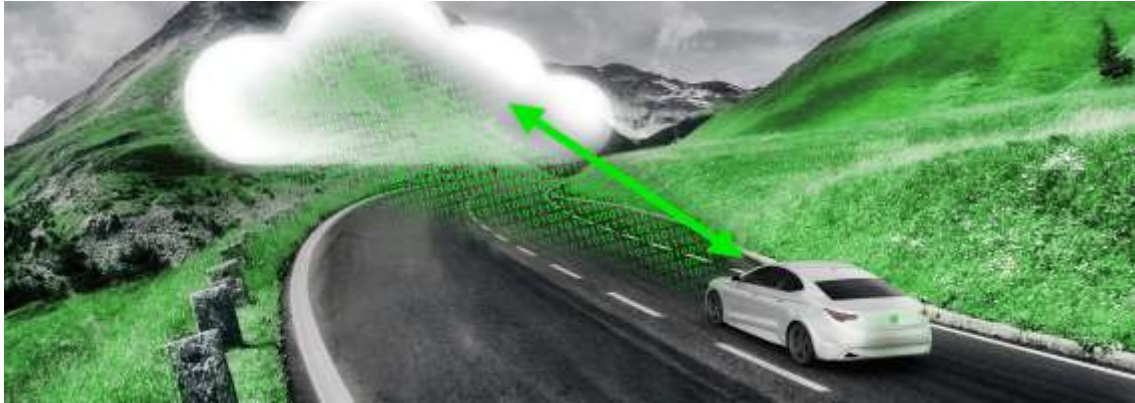
- EB tresos Bootloader (without Fota)
  - Classic ECUs reprogramming (AUTOSAR and Osek)
  - Secure Bootloader
  - Fast programming (compression, multi- buffers)
  - Resumable programming
  - Master/Slave programming
  - Bootloader updater
  - Standard product core for cross OEMs
- Firmware Over the air (FOTA) updates for A/B and A/B/A' target ECUs



## Benefits

- Update the ECUs during development phase
- Update the ECUs during and after manufacturing
- High security levels
- Available in ReadyForManufacturing-Quality (Fota currently under development – ask EB sales if interested)
- Flexibility of Bootloader features by configuration

# EB tresos Bootloader „Fota update“ – 2 strategies



## Car on the road

- The installation is done while driving your Car
- Requires new generation of bootloaders
  - EB tresos Bootloader for Fota updates
  - Identified OEMs : Renault-Nissan, Fiat-Chrysler
- Advantage for the OEM:
  - Car is not available only for a very short time (~1min)



## Car parked

- The installation is only done when the car is parked
- Requires classic bootloader
  - EB tresos Bootloader
  - Identified OEMs : Peugeot, Volkswagen
- Advantage for the OEM:
  - Safer strategy than SW update within an application



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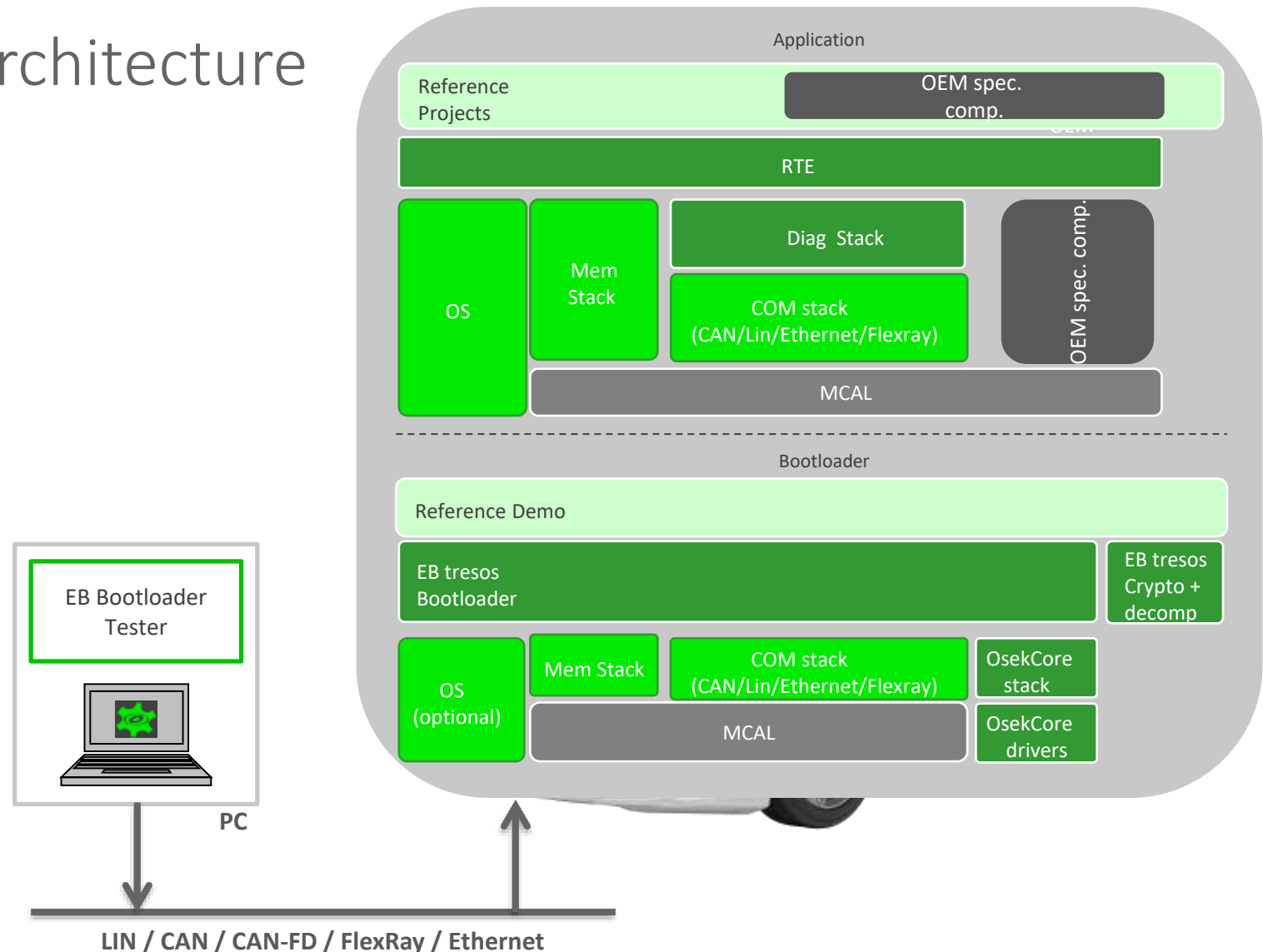
Overview





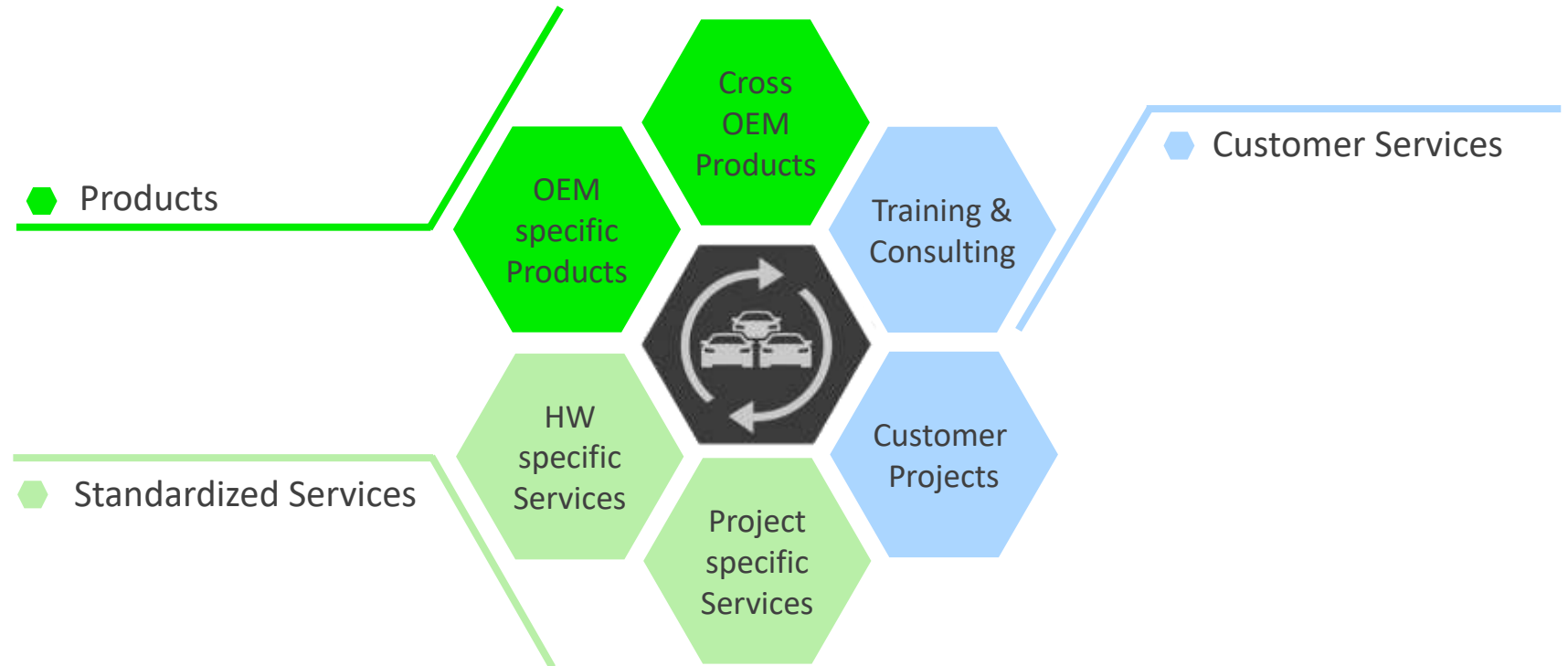
# EB tresos Bootloader Architecture

- Common modules between Application and Bootloader, Com Stack (e.g. CAN, Eth...)
- Bootloader requires HW specific components and services (Mcals, flash drivers...)



# EB tresos Bootloader Overview

- EB tresos Bootloader is also part of the **EB tresos Product line**.
- **Standardized Services** also applicable for EB tresos Bootloader.

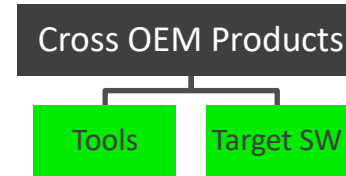


# Cross OEM Products

## “Generic Bootloader”

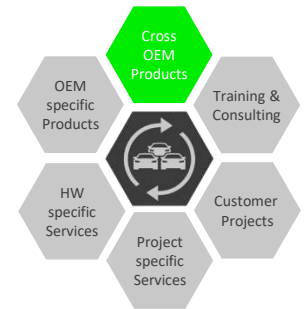
Quick response to customer requests

- For OEMs without strong bootloader constraints, EB can offer a Generic Bootloader solution
- Success stories:
  - Honda
  - McLaren



### EB tresos Bootloader for Essentials

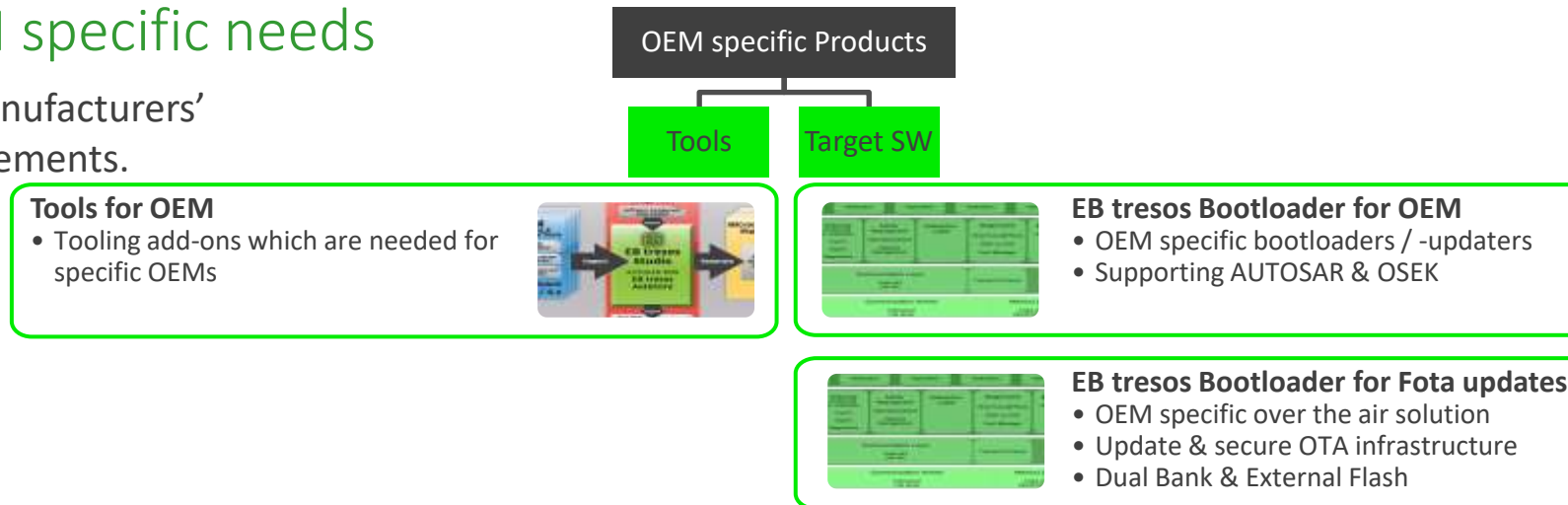
- EB own specifications
- Acceptable for OEMs without strong bootloader constraints



# OEM specific Products

## Achieving OEM specific needs

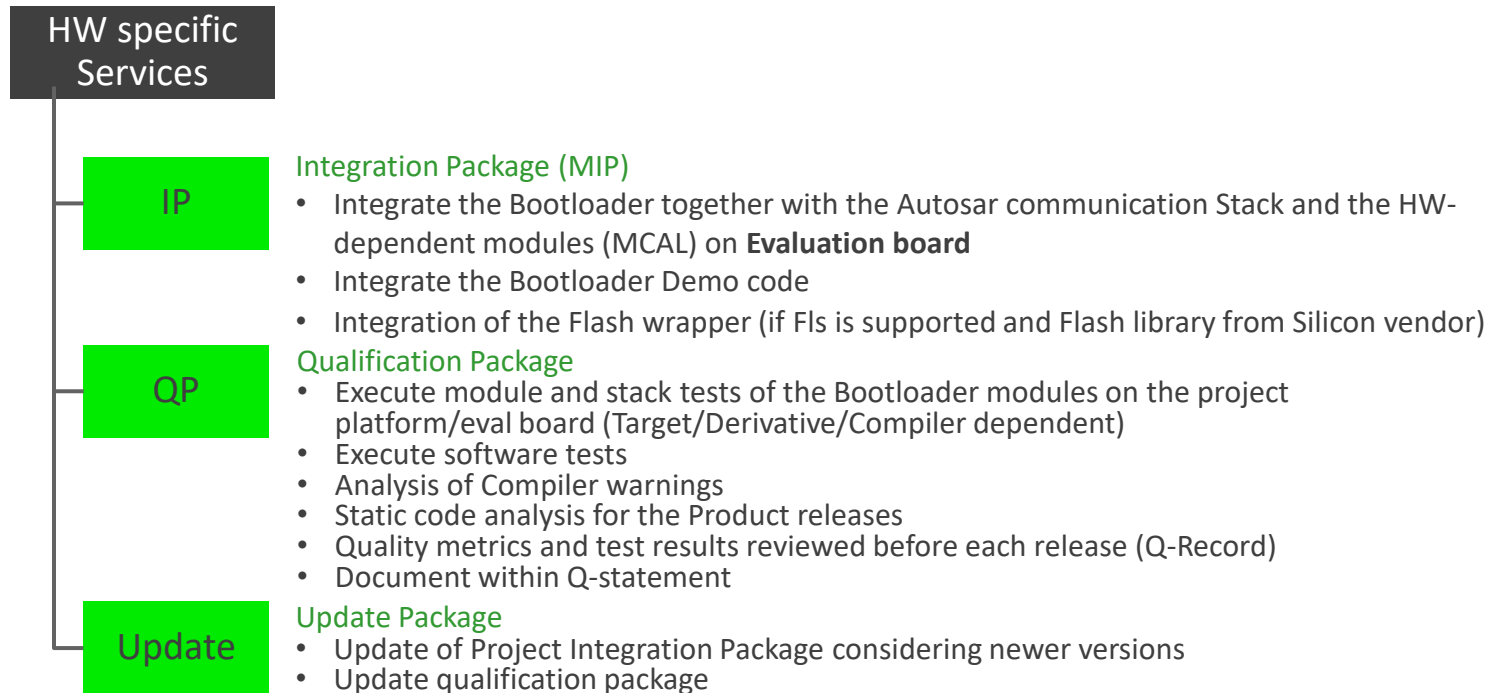
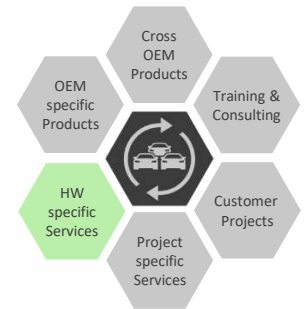
We implement car manufacturers' bootloader SW requirements.





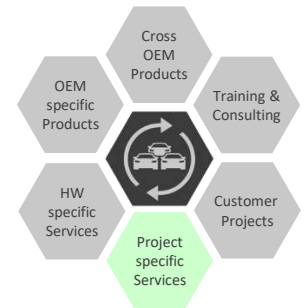
# HW specific Services

Validate the products on the customer HW



# Project specific services

We provide a pre-integration for an easy project start



## Project specific Services

### Startup

#### Startup Package

- Bootloader configuration using project-specific EcuExtract/DiagExtract
- Pre-Integration of an Application and a Bootloader based on Project specific extracts
- Configure the memory mapping according to the application startup package
- Integration of the NVM stack
- Completion of some callout to save data in NVM
- Performing reprogramming tests using the application startup package
- Performing Acceptance tests
- OEM specific Test-Suite (according to availability)
- EB developed Test-Suite (e.g. Downloading tool)
- Pre-requisites:  $\mu$ C Bootloader IP/QPs , Application startup package

### Update

#### Update Package

- Update of startup Package considering newer versions

1) OEM approval/acceptance tests are already included in Cross-OEM product license (for available EB tresos Solution platforms)

# Customer specific services Training & Consulting

We offer additional project support on demand

## Customer specific services

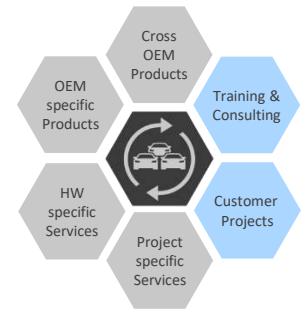
### Custom

- Porting into the customer's Ecu
- Developing specific features
- Additional support hours

### Trainings Consulting

- Trainings for customers
- Create concepts with customers

This is customer specific and  
handled in EB's **Customer Centers**





# Get in touch!



Elektrobit

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