Vision

Platform as a service

Mission

Long term sustainability of connected mobility business

Connected Services evolution

Portfolio, Market needs

Go-to-Market

Develop new business models

Leveraging partnerships

Technology
Connected Vehicle Services
The future of mobility – Customer/user at the center

Today

Vehicle as the central object

Future

Connected, intermodal transportation services
Connected Vehicle Services
Portfolio Overview

- Remote Lock/Unlock
- Remote HVAC Control
- Remote Engine Control

- Usage based insurance
- Fleet Management
- Driver/Operator Performance

Location based Services

- Geo fencing
- Acreage Calculation
- Nearest Petrol/Charging station

User Experience

- Vehicle & Content Personalization
- Connected App

Safety & Security

- eCall
- Stolen Vehicle Tracking
- Cyber security services

Enterprise System Services

- Enterprise Integration
- Service Configuration, Customization

Vertical Based Services

- Trip/Order Management
- Machine and Fuel Utilization

Remote Services

- Connected Parking
- Smart device connection
- Connected Horizon

V2X Communication

- Connected Parking
- Smart device connection
- Connected Horizon

Vehicle Software Management

- Configuration/Calibration update over the air
- Firmware update over the air
- CCU Self Update

Vehicle Health Monitoring

- Predictive Diagnostic
- Remoted Diagnostic
- Guided Troubleshooting

Connected Solution
Connected Vehicle Services
Portfolio – Automotive Services

Automotive Services for Connected Mobility
- Predictive/remote Diagnostics
- Map Matching Services
- BS6 Validation
- FOTA Firmware Updates Over The Air
- Real-time data acquisition and monitoring
- E-Call, B Call, iCall, Roadside assistance
- Bosch Mobility Cloud Suite (based on Bosch IoT Suite)
- SFDE, Injector use cases
- Accident recording

Electrified Mobility:
- E2E connectivity solutions
- Convenience Charging
- Battery in the Cloud

Automated Mobility:
- Automated Valet Parking
- Connected Horizon
- Road Condition Services

Shared Mobility:
- Smart Mobility Concierge
- Fleet management solutions
- Corporate Car Pooling

Mobility User Experience (MXP):
- Bosch Driving App
- Bosch mySPIN Smartphone Integration
- Perfectly Keyless
- Bosch myASSIST user interface
- Wrong-way driver warning
- Secure parking solution
Connected Vehicle Services
Passenger Cars segment

Automotive Cloud Suite Services

- Smart Home Integration
- Remote door open/close
- eCall, bCall
- Community based parking
- Interior Sensoring
- Personalization
- Audio/Video streaming
- MySpin
- FOTA
- User Monitoring
- Driver drowsiness
- Damage Detection
- Logger

Perfectly Keyless
Driving Score
Usage based insurance
Geo Fencing
Fleet Tracking
DTC trends
Vehicle Tracking
Logbook
Concierge
Public Charging

Traffic Management
I(o)T Solutions for Connected Mobility

- Corporate Car Pooling
- MyScotty
- Smart Mobility Concierge
- Carpooling
- MoveBW
- Usage based insurance
- Enterprise Charging
- Aftersales Telematics
- Parts management
- Warranty management

B2B
B2B
B2B2C / B2C

in the vehicle
at the vehicle
around the vehicle
with environment
Connected Vehicle Services
Topology and data flow

Data Acquisition & Transmission (Basic module)

- OEM Database
- Connectivity Unit’s
- Configuration module -> measuring jobs -> fleet management
- Functionality update -> SW-update

Data Management (Data Mgmt. Module)

- Data transfer and analytics methods
- Data Storage @ Bosch / 3’rd party cloud
- Data Based Services, Analytics, Statistics & Decision

3rd Party Tools

- 3rd Party Tools
- Data Management (Data Mgmt. Module)
Connected Vehicle Services
iTraMS Product Portfolio

**CCU Gen 1**
- Cellular: 2G/GSM/GPRS
- GNSS: GPS
- 1x CAN
- 10 I/Os
- 2 Freq inputs
- Configurable I/Os
- IP54 & IP67
- Voice Ckt, Secondary battery

**CCU Gen 2**
- 4G / LTE Cat 4
- Integrated Appl. Proc. + Modem
- Wi-Fi + BT/BLE (4.2)
- USB 2.0
- Ethernet (Automotive)
- e-SIM / eUICC (MFF2)
- 2x CAN-FD (5 Mbps, 2 Mbps)
- Partial Networking (CAN)
- 1x LIN, 1x RS-485
- e-Call, b-Call, i-Call
- Java + OSGi frame-work
- FOTA
- Support for External Antenna (opt.)
- 10 I/Os
- 1 Freq inputs
- IP52 & IP67
- Secondary battery

**CCU Gen 2A**
- 4G / LTE Cat 1
- (Opt. Design Protection for Cat 4)
- Discrete Solution
- Supports Edge Processing Capabilities
- Wi-Fi + BT/BLE (4.2)
- USB 2.0
- Ethernet (4-wire, 100-Base-TX) (opt.)
- 2x CAN-FD (5 Mbps)
- RS-485 / MODBUS
- Java + OSGi frame-work
- Support for External Antenna (opt.)
- FOTA
- e-SIM / eUICC
- Embedded Linux OS
Connected Vehicle Services

Technology – Architecture for telematics services

User

App
Smartphone

Portal
Web Server

Service Provision

Vehicle Management Solution
Perfectly Keyless
Community based Parking
Road Condition Services/Wrong Driver Warning
Conv. Charg.

Bosch IoT Suite

Permissions
Rollouts
Remote Manager
Analytics

Bosch IoT Cloud

Storage
Network
Security
Compute

Safety & Security Concept

Customer IT systems

Call Center

3rd Party Services

Bosch agent based services (eCall, Concierge)
Connected Vehicle Services
Business Model

Option 1
Bosch Cloud
FOTA Services* on Bosch IoT Cloud

SaaS
PaaS
IaaS

Option 2
3rd Party Cloud
FOTA Services* on 3rd party cloud (e.g., AWS, Azure)

SaaS
PaaS
IaaS

Option 3
Private Cloud / On-premise
FOTA Services* on infrastructure hosted by customer

SaaS
PaaS
IaaS
Customer infrastructure

Option 4
Hybrid Clouds
FOTA Services* exchanging data between different deployments

SaaS
PaaS
IaaS
Data Forwarding

SaaS
PaaS
IaaS

*FOTA Services = Update Package / Vehicle / Campaign / Device Management
CONNECTED SERVICES

DETAILED OVERVIEW
OF KEY USE CASES
Connected Vehicle Services
FOTA: System Overview

From authoring to embedded – OTA optimized

Vehicle Management
Firmware Management
Rollout Management
Reporting and Analytics

Key Management
Certificate Management
Rights Management
Encryption and Decryption

Authoring

Vehicle

TCU / CGW

Device Mgmt Client

DL Client

Vehicle Content Mgmt
Vehicle Update Client
FW Update Client

ECU1 ECU2 ECU:n

Content package

Log information

Metainformation
Diagnostic Sequence
Flashware

Diag.data e.g. box
Flash data

Bosch IoT Cloud

Content package

From authoring to embedded – OTA optimized

Vishwas V S
Connected Vehicle Services
SFDE: Usage scenario

- Engineering data from field vehicles used to optimize the existing and future products

Benefits
- Usage based design – improve products
- Fulfil legal requirements (e.g. liability, field monitoring)
- Provide data for new services

Possibility of re-estimating the lifetime based on real world data
Connected Vehicle Services
Predictive Diagnostics

No more breakdowns? A car damage occurs always untimely.

Now Bosch introduces a new smart data & AI-based service, which predicts your car’s health constantly while driving.

It informs you – in time – about the remaining lifetime for all relevant systems & components.

OEM Loyalty & Cost Reduction
Mobility User Efficient & Enjoy
Connected Vehicle Services
Perfect Keyless Entry

Unlocking of vehicle

Starting of vehicle

Locking of vehicle
THANK YOU