CONNECTED VEHICLES SOLUTION

BASED ON AZURE IOT SERVICES

SERVICE DELIVERY PLATFORM

The Service Delivery Platform approach enables the possibility to hide complexity and to deliver a unique master platform to support different business necessities.

The Platform is fed either by field devices and Enterprise Information Systems and guarantees consistency and data abstraction from the evolution of the underlying elements over time

SERVICE DELIVERY PLATFORM
AVAILABILITY & SCALABILITY

Geo-replication

- The architecture may **scale** by **distribution** of peripheral subset of components to **reduce latency** of communications
- This peripheral architecture is **flexible** and may be **extended** with partial/complete business logic and data layer components

Business Continuity

- To build a **resilient** solution that ensures your systems remain online and **always available**
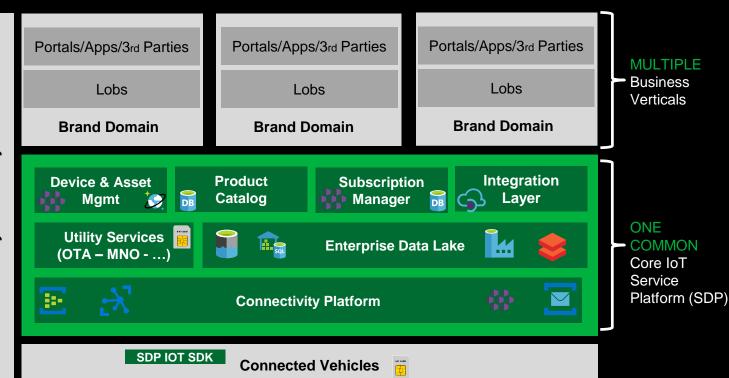- To **protect** the business from the risk of downtime

Auto-scaling

- to **automatically** perform **scalability** actions such as scaling up/down in an automated fashion based on workload demand
- to ensure the **right** amount of resources are available for the demands of the workload and **efficiency** in operations
- to **eliminate** wasted resources or unneeded resources and **calibrate** running costs depending on the real need

Scale Up & Down

- To **adjust** the platform depending on the increasing/decreasing number of users/devices and adjust **capacity** and **performances**
- to **adjust** resources and **calibrate** running costs depending on the real need
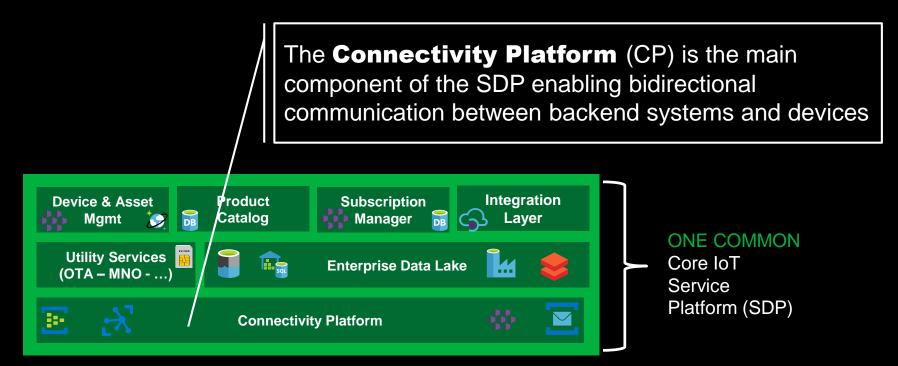
SERVICE DELIVERY PLATFORM
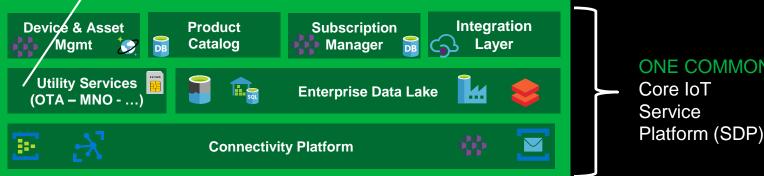
Cyber Security

Portals/Apps/3rd Parties	Portals/Apps/3rd Parties	Portals/Apps/3rd Parties
Lobs	Lobs	Lobs
Brand Domain	**Brand Domain**	**Brand Domain**

MULTIPLE
Business
Verticals

Device & Asset Mgmt

Product Catalog

Subscription Manager

Integration Layer

Utility Services (OTA – MNO - …)

Enterprise Data Lake

Connectivity Platform

ONE COMMON
Core IoT
Service
Platform (SDP)

SDP IOT SDK   **Connected Vehicles**

→ **Pre-built in** Modules

→ **Tailored** and **Flexible** Platform

→ Easy to **Extend** and **Adapt**

→ High **Scalability**

SERVICE DELIVERY PLATFORM
COMPONENTS

The **Connectivity Platform** (CP) is the main component of the SDP enabling bidirectional communication between backend systems and devices

| Device & Asset Mgmt | Product Catalog | Subscription Manager | Integration Layer |

| Utility Services (OTA – MNO - …) | Enterprise Data Lake |

Connectivity Platform

ONE COMMON
Core IoT
Service
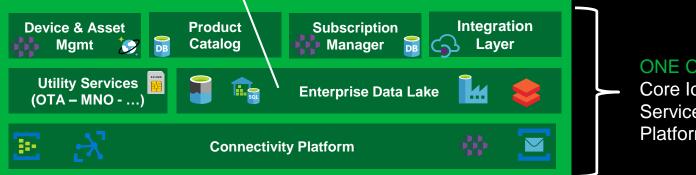Platform (SDP)

SERVICE DELIVERY PLATFORM
COMPONENTS

The **Utilities Services** (US) complements what is provided by CP in terms of Mobile Network Operator (MNO) integration and Firmware On The Air (FOTA) integration
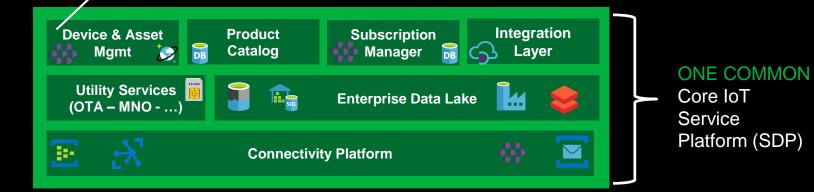
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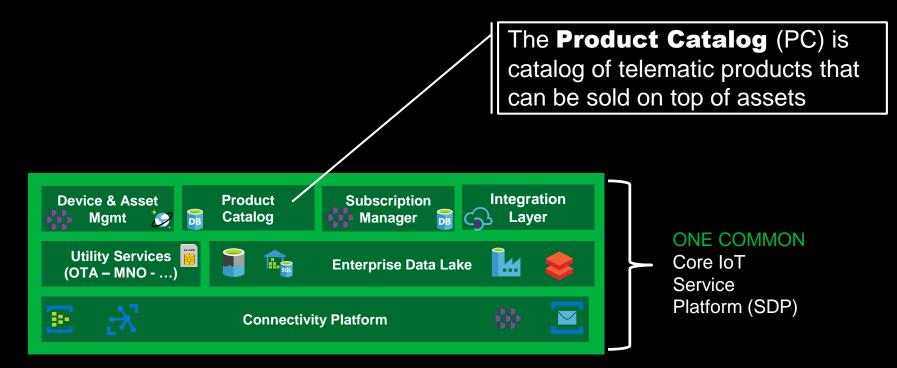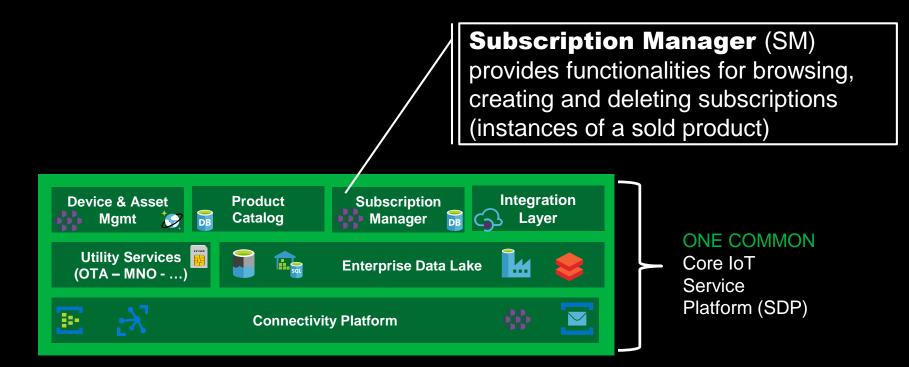Connectivity Platform

ONE COMMON
Core IoT Service Platform (SDP)

SERVICE DELIVERY PLATFORM
COMPONENTS

The **Device and Asset Management** (DAM) is the component responsible to maintain information related to asset and device managed by the SDP

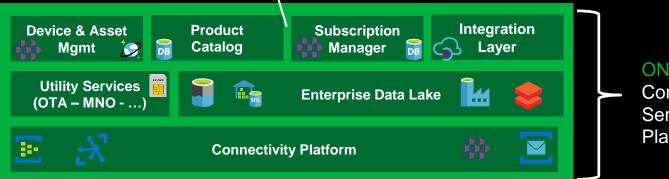| Device & Asset Mgmt	Product Catalog	Subscription Manager	Integration Layer
Utility Services (OTA – MNO - …)	Enterprise Data Lake		
Connectivity Platform			

ONE COMMON
Core IoT Service Platform (SDP)

SERVICE DELIVERY PLATFORM
COMPONENTS

The **Product Catalog** (PC) is catalog of telematic products that can be sold on top of assets

Device & Asset Mgmt

Product Catalog

Subscription Manager

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Enterprise Data Lake

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ONE COMMON
Core IoT Service Platform (SDP)

SERVICE DELIVERY PLATFORM
COMPONENTS

Subscription Manager (SM) provides functionalities for browsing, creating and deleting subscriptions (instances of a sold product)

Device & Asset Mgmt

Product Catalog

Subscription Manager

Integration Layer

Utility Services (OTA – MNO - …)

Enterprise Data Lake

Connectivity Platform

ONE COMMON
Core IoT Service Platform (SDP)

SERVICE DELIVERY PLATFORM
PLATFORM SECURITY

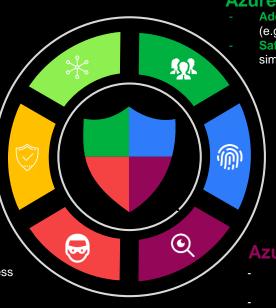### Azure IoT Hub Connector
- **Secure communication** with devices (Certificates, Shared Access Key, etc.)

Azure Security Center
- Security posture management and **threat protection**
- **AI** and **automation** to cut through false alarms, quickly identify threats, and streamline threat investigation
- Central management of **security policies**

Azure Defender
- **Protect data** and **detect** unusual attempts to access Azure Storage
- **Protect** Azure **Kubernetes** Service instances
- **Safeguard** Windows **servers** and **clients**
- **Monitor** the security state of workloads via one console.

Azure Multi-Factor Authentication
- **Additional** form of **identification** during user sign-in process (e.g. to enter a code, to provide a fingerprint scan)
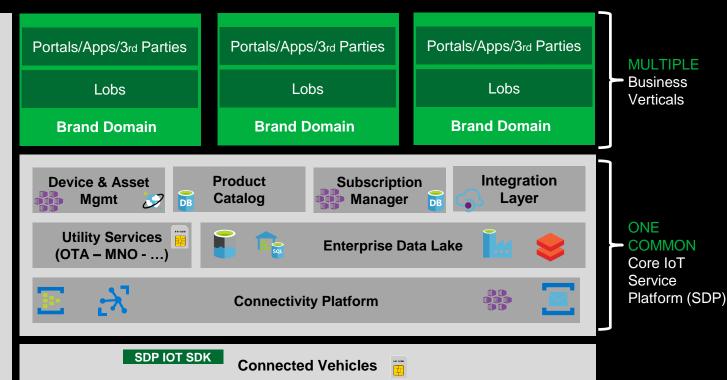- **Safeguard access** to data and applications while maintaining simplicity for users

Azure DDoS
- **Protect** Azure resources from denial of service threats
- **Automatically mitigate** the attack as soon as it's detected.
- Get detailed **reports** and a complete summary after the attack ends

Azure Sentinel
- Smarter and faster **threat detection** and response with artificial intelligence (AI)
- Detect threats and **minimize false positives** using analytics
- **Respond** to incidents **rapidly** with built-in orchestration and automation of common tasks
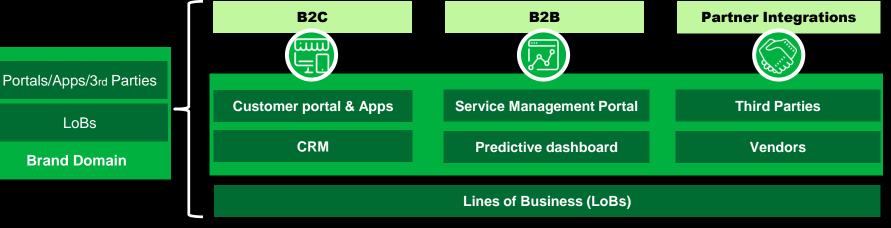
USER CHANNEL & DASHBOARD

SERVICE DELIVERY PLATFORM

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SERVICE DELIVERY PLATFORM
USER CHANNEL & DASHBOARDS

B2C

B2B

Partner Integrations

Portals/Apps/3rd Parties

LoBs

Brand Domain

Customer portal & Apps	**Service Management Portal**	**Third Parties**
CRM	**Predictive dashboard**	**Vendors**

Lines of Business (LoBs)

BUSINESS LOGIC AND API LAYER
Implement the business logic Microservices and provides APIs for:
- Enterprise Internal Systems (ERP, EOL, etc.)
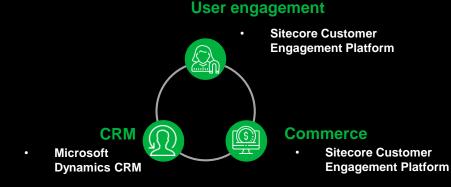- Administrative and Service Portals

DATA STORE
Data Layer specific for Vertical Business Applications

USER CHANNEL & DASHBOARD
B2C PORTALS & APPS

B2C Customer Portal & APPs

Purchasing Journey
Pre-Sales ① Sales ② Aftersales ③

1 • **Navigation pattern**, **interaction history** and back end data (CRM integration) to propose **products/discounts** fitting with the context

2 • Check order **status** in **realtime**
• Propose **additional services** (e.g. Insurances) and up-selling
• Propose **targeted promotions** on offline channels

3 • Check **trips**, **GPS** and other **KPIs** (e.g. Wheels consumption)
• **Collect** drivers **information** and apply **machine learning** and **big data** features to provide tips
• Propose **targeted** promotions depeding on KPIs collected and user behvaior
• **Alerts** when **breakdown** occurs and directly contacts the technical support team and propose specific services

User engagement

• Sitecore Customer Engagement Platform

CRM
• Microsoft Dynamics CRM

Commerce
• Sitecore Customer Engagement Platform

USER CHANNEL & DASHBOARD

B2B PORTAL & DASHBOARDS

B2B Portal & Dashboard

Business Value Chain

| R&D and Tech Service | Production & Operations | Logistics | Marketing & Sales | Aftersales & Customer Service |

- **Live/Remote** diagnostics and operations
- **Predictive** maintenance
- **Targeted** Customer support
- Performance and product quality **monitoring**
- Products **KPIs monitoring** and improvements
- Production and sales **forecast** and improved **planning**
- **E2E** Product **tracking**

Microsoft Azure Marchine Learning Studio

- **Robust and E2E ML capabilities**
- **Rapidly build and deploy ML models using tools**

Microsoft PowerBI

- **Ease of use**
- **Interactive reports and real-time dashboards**
- **Wide coverage of data sources**

Microsoft Azure Databricks

- **Reliable data engineering**
- **Analytics**
- **Accelerate data science on large datasets**

USER CHANNEL & DASHBOARD
PARTNERSHIP INTEGRATIONS

- Integration with **social networks** (e.g. Facebook, Instagram, etc.)
- Integration with **other systems**, such as Google Maps

THIRD PARTIES

VENDORS

- Third parties **data sales**
- **Partnership** with insurance companies, workshop service booking (wheels, etc.)

Microsoft Azure API Management

- Secure communication with external systems (Certificates, Subscription Key, etc.)
- Manage traffic to web applications

Microsoft Azure EventHub

- Quickly and easily build real-time data pipelines
- Protect real-time data
- Adjust and scale dynamically based on customer needs
- Ingest data from qnywhere and develop across platforms

Microsoft Azure Data Share

- Intuitive interface to foster all data sharing relationships
- Secure data sharing service
- Automated data sharing processes

Microsoft Azure Data Factory

- Easy to use
- Cost-effective and scale on demand
- Powerful and more than 90 built-in connectors

THANK YOU

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