P&PM

Solutions & Consulting

P&PM´s Device Package Manager

Packaging & Supplying compatible Device Software to Flash Events in Production & Service leveraging Cloud Technology

Embedded Software drives innovation speed and customer recognition of products & assets.

**Software enables diverse features that make products and assets significantly more valuable for customers.
Without embedded software, products and assets are rarely competitive. Embedded Software therefore is a key differentiator.**

Production as well as installation, repair and modification events of smart products and assets require the delivery of the right device software and device parameterization. Update and upgrade strategies of device software enable the automatic configuration of devices without special expertise – reducing the duration of production and service events. Facing an increased complexity of software functions, the more relevant become rule based update strategies leveraging cloud technology.
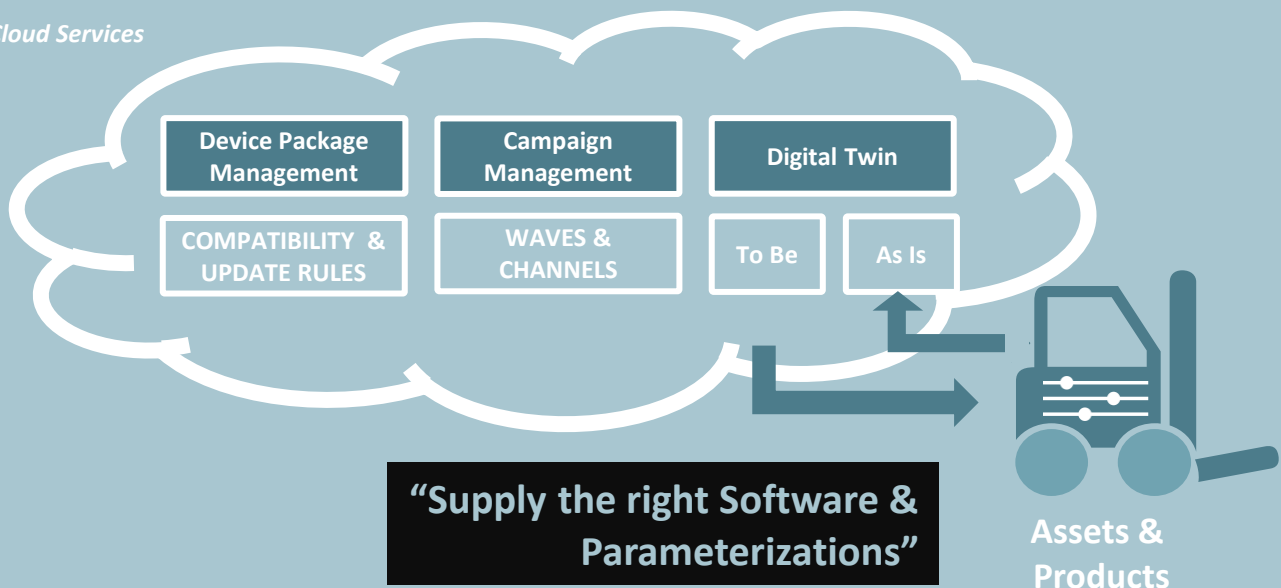
The ability to repair and modify software of smart devices becomes a key capability.

Reducing operating costs and enabling new business potentials during aftersales:
Rule-based update & upgrade of device software

Business Events

| Field Campaigns | Sales Events | Service Event Planning | Service Event Execution | … |

Cloud Services

| Device Package Management | Campaign Management | Digital Twin |

| COMPATIBILITY & UPDATE RULES | WAVES & CHANNELS | To Be | As Is |

"Supply the right Software & Parameterizations"

Assets & Products

Opportunities:

>>> CUSTOMIZING SMART PRODUCTS & ASSETS BY RE-CONFIGURATION

Resulting Benefits:

REVENUE GROWTH OPPORTUNITIES AT NEW PRODUCT SALES & SERVICE BUSINESS
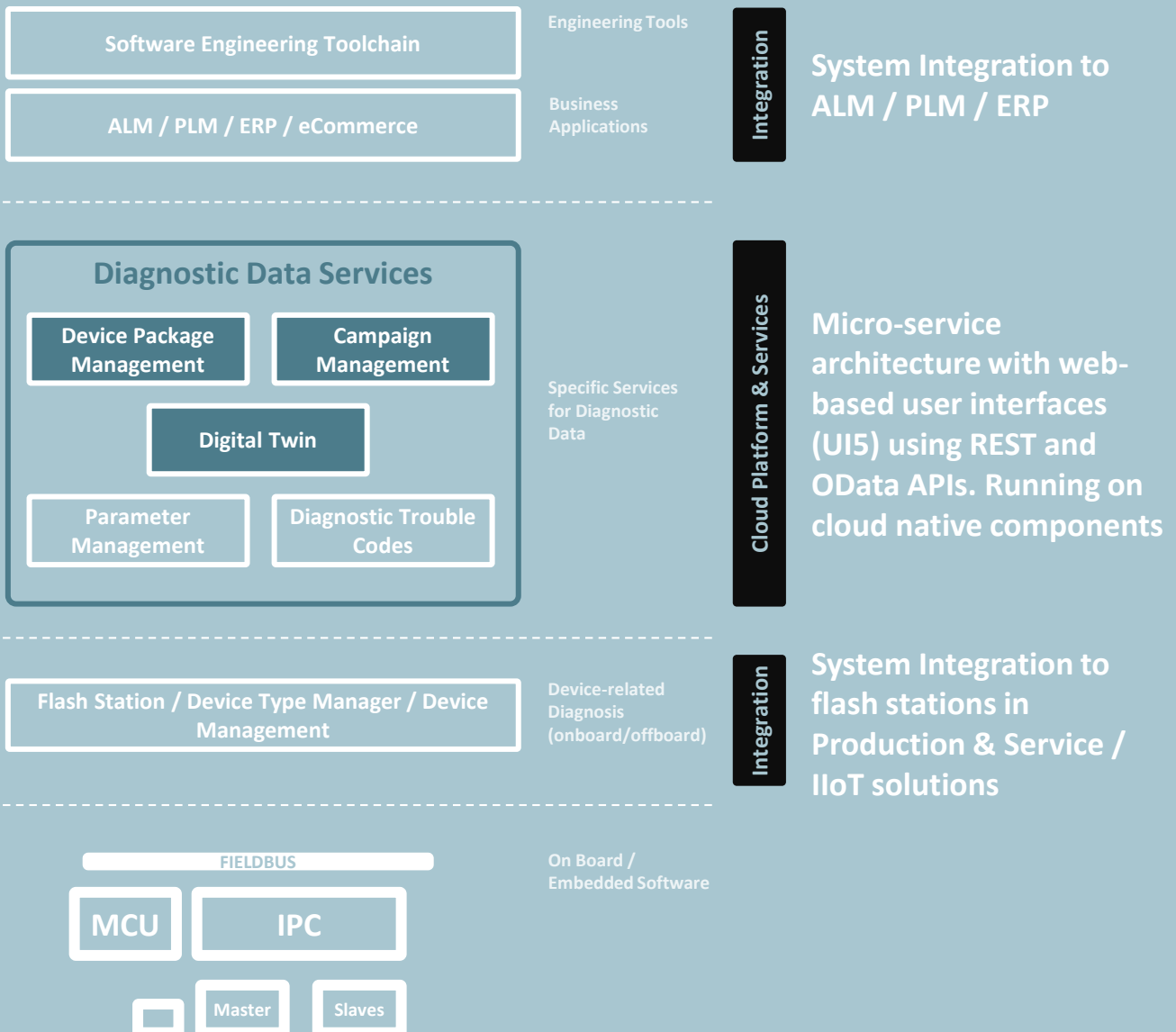
>>> CONTINUOUS ENRICHMENT OF FUNCTIONS AT OPERATIONS

REDUCED OPERATING COSTS DURING PRODUCTION & SERVICE EVENTS

>>> SPEED & QUALITY OF FLASH & PARAMETERIZATION EVENTS

Centralized Diagnostic Data & Services as key enabler for Flash Events.

- Retrieval & Packaging of Software & Parameters for subsequent business events
- Rule definitions for update & upgrade strategies and compatibilities
- Channel & delivery control (onsite/offsite etc.)
- Planning & simulation of target states via Campaign Management and Digital Twins
- Central, cloud-based services to request the correct software package for restore, update and modification events

Software Engineering Toolchain	Engineering Tools
ALM / PLM / ERP / eCommerce	Business Applications

Integration

System Integration to ALM / PLM / ERP

Diagnostic Data Services

Device Package Management	Campaign Management
Digital Twin	
Parameter Management	Diagnostic Trouble Codes

Specific Services for Diagnostic Data

Cloud Platform & Services

Micro-service architecture with web-based user interfaces (UI5) using REST and OData APIs. Running on cloud native components

Flash Station / Device Type Manager / Device Management	Device-related Diagnosis (onboard/offboard)

Integration

System Integration to flash stations in Production & Service / IIoT solutions

FIELDBUS

On Board / Embedded Software

MCU

IPC

Master

Slaves

SOFTWARE AND PARAMETER PACKAGES

Manage device packages of diagnosis, flash and parameter files across the lifecycle and configure valid functions & releases for Production & Service offsite via Cloud Services

CAMPAIGN MANAGEMENT

Plan and define target states of device software and parameterizations and trace the implementation of updates in the field.

DEVICE PACKAGE MANAGER

RULE & CONSTRAINT MANAGEMENT

Manage rules & constraints for updates / retrofits to enhance quality and speed of operations during flash events as well as re-parameterizations

DIGITAL TWIN OF DIAGNOSTIC DATA

Use Digital Twins for restore, carry over and simulations of software & parameter settings

Capabilities

"MANAGE"
DEVICE PACKAGE REPOSITORY

"CONFIGURE"
FUNCTION BUILDING & LIBRARIES

"INTEGRATE"
OPERATIONS OF PLM / ERP / IoT

"AUTOMATE"
RULE BASED UPDATE STRATEGY

"EXCHANGE"
PUBLISH PACKAGES TO RETRIEVING EVENTS

Packaging and retrieval of device software & parameter centrally via cloud services - integrated to your operations.

P&PM´s Device Package Manager enables customers to configure packages of device software and parameters for publication to downstream production and service events.

Via its cloud services, configured packages are made retrievable via defined update rules to automize flash & parameterization events.

P&PM´s Device Package Manager is based on a micro-service architecture with web-based user interfaces (UI5) using REST and OData APIs. Running on cloud native components, customers can install it on diverse cloud platforms leveraging full potentials for diverse integration scenarios using different IoT hubs or Diagnosis Systems as well as core systems like ERP or ALM/PLM or MES systems.
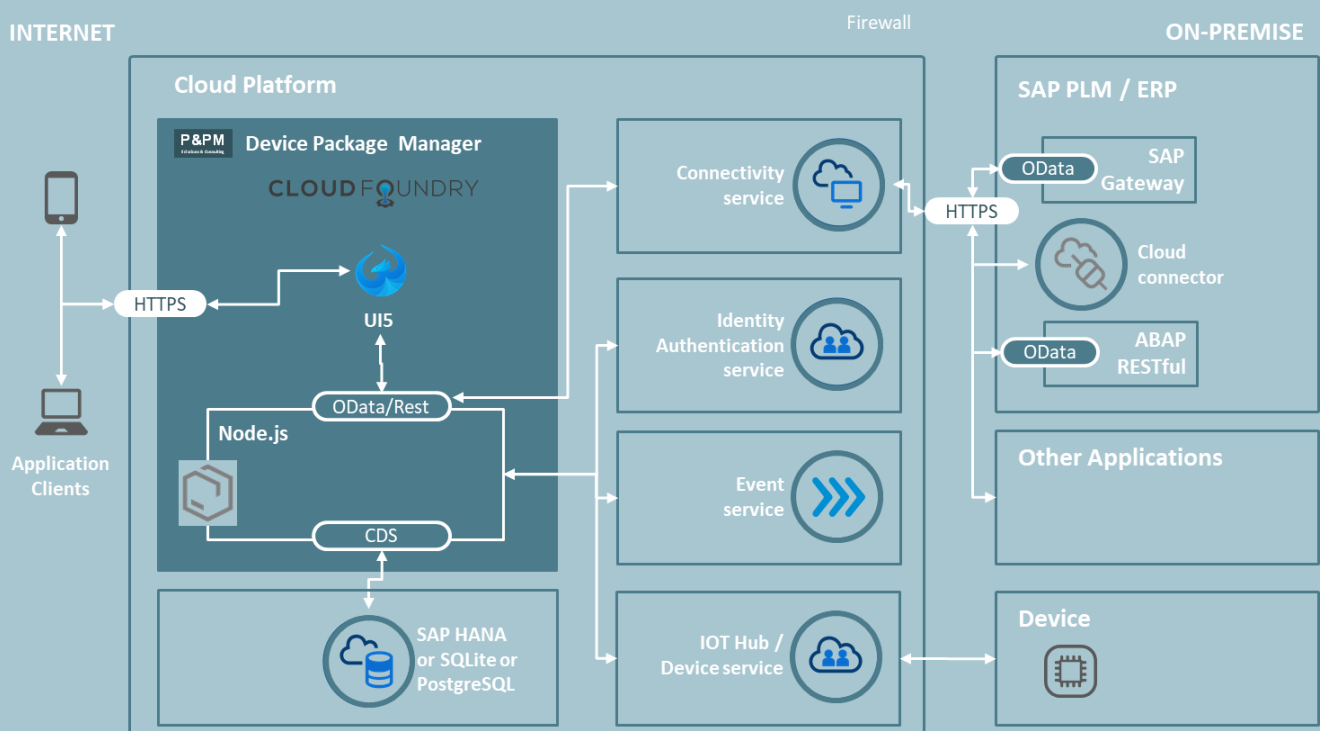
Manage Compatibilities and Update Rules and control the Deployments via active Campaign Management in combination with a Digital Twin
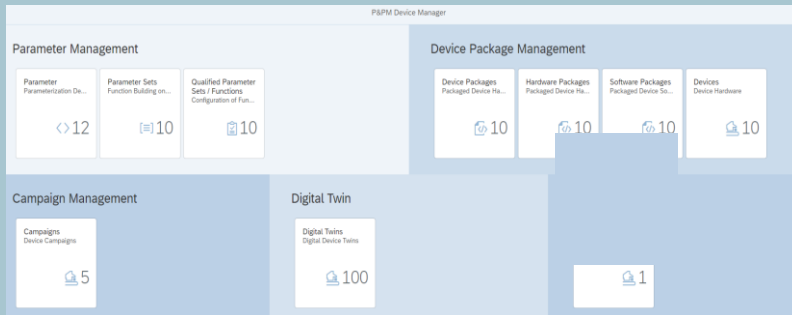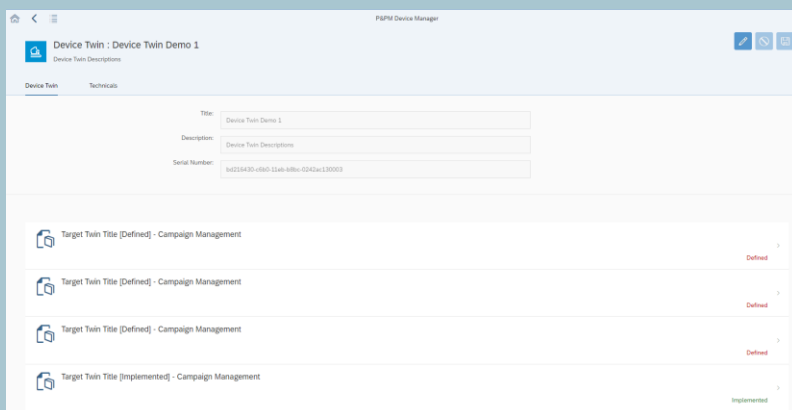

Manage Software Packages, Compatibility Rules and Update Strategies

Maintain Campaigns to steer Updates in the field
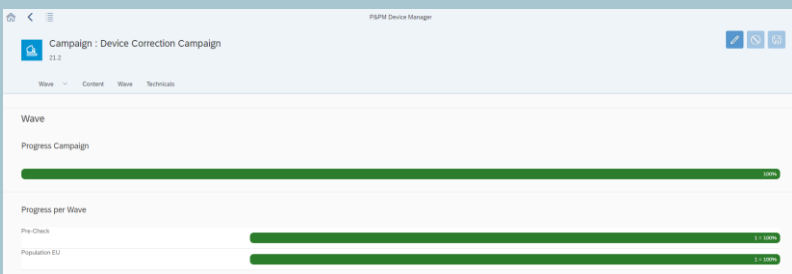
Analyze Target States as well as As Maintained States via a Digital Twin of Diagnostic Data
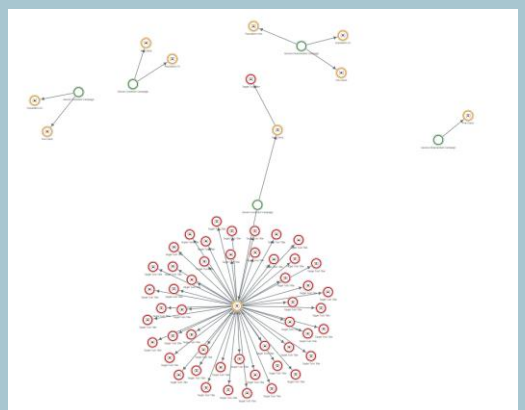
DEVICE PACKAGE MANAGEMENT

SOFTWARE PACKAGES

RELEASES

PACKAGES

HARDWARE PACKAGES

HARDWARE

HARDWARE ALTERNATIVES

COMPATI-BILITIES

HARDWARE TO SOFTWARE

SOFTWARE TO SOFTWAR

UPDATE STRATEGIES

RULE ENGINE

CONSTRAINT MGMT

PARAMETER MANAGEMENT

PARAMETER PACKAGES

TRANSFORMATION RULES

CAMPAIGN MANAGEMENT

CAMPAIGN SCOPE

CAMPAIGN WAVES

TRACKING

DIGITAL TWIN

STATE MACHINE

TARGETS

CONSTRAINTS

AS IS

DEVICE HARDWARE

SOFTWARE

PARAMETER

Integration

OPERATIONS INTEGRATION

REQUIREMENTS MANAGEMENT

SOURCE MANAGEMENT

...

PLM / ERP INTEGRATION

MASTER DATA

ORDER MGMT

CHANGE MGMT

VARIANT MODEL

DEVICE RELATED DIAGNOSIS

FLASH STATION / DEVICE TYPE MANAGER / DEVICE MGMT

FIELDBUS

MCU

IPC

Master

Slaves

Mission

Enhance quality and speed of operations during flash events of device software updates by rule-based update strategies based on defined update packages. Automation of flash events without user interaction.

Cap-abilities

Retrieval & Packaging of Software & Parameters for subsequent business events

Rule definition for update & upgrade strategies and compatibilities

Channel & delivery control (onsite/offsite etc.)

Planning & simulation of target states via Campaign Management and Digital Twins

Central, cloud-based services to request the correct software package for restore, update and modification events

Use Cases

Offline Engineering of software and parameter packages by defining compatibility and update strategy constraints

Flash events at Testing, Production, Service & Aftersales - delivery of valid software and parameter packages to downstream events

Configuration of products (vehicles etc.) and assets (machines, sensors etc.) with the right compatible software

Stake-holder

Diagnosis / Application Engineers as well as Product Managers

Production Engineers and Operations Manager

Service Engineers (Retrofit Design) as well as Service Technicians

Customers buying Software Features

Tech-nology

Micro-service based architecture with web-based user interface (UI5)

REST and OData APIs

Runs on any **Cloud Platform** with Cloud Foundry Runtime

Flexible Integration into existing IT landscapes (PLM/ERP/MES/IOT Hubs etc.)

About P&PM

P&PM designs and implements solutions to manage Software within your Products & Assets along their lifecycle.

P&PM was founded by experienced consultants in 2012 leveraging knowledge both from diverse operations transformation and application implementation projects especially within the Engineering and Service domain.

P&PM´s office in Rösrath, near Cologne, Germany

P&PM
Solutions & Consulting

P&PM is a special expertise consultancy
in the area of PLM – Product Lifecycle Management
– and SAP / Cloud Technology.

P&PM supports you in transitioning your operations
to manage the growing complexity
of software in your products along the
value chain and product lifecycle.

P&PM - Product Lifecycle & Program Manufactory

www.p-and.pm.com
info@p-and-pm.com

P&PM
Solutions & Consulting

www.p-and-pm.com
info@p-and-pm.com