

Marc Reitmaier

PLCnext Technology – Die Plattform für grenzenlose Automatisierung



Agenda

- PLCnext Architektur
- PLCnext Store
- Applikationsbeispiele

PLCnext Technology

IEC 61131



enhances

C / C++

C#

MATLAB Simulink

Microsoft Visual
Studio

Eclipse

enhanced development

Connected coworking

PLCnext Technology[®]

Designed by PHOENIX CONTACT



PLCnext Technology[®]

Designed by PHOENIX CONTACT

Combine program sequences in different languages into tasks as desired. The task-handling of the PLCnext Technology (patent applied for) lets program routines of different origin run like a classical IEC-61131-PLC-code – Your high-level language programs become automatically deterministic. The platform ensures consistent data exchange and synchronous execution of the program code.

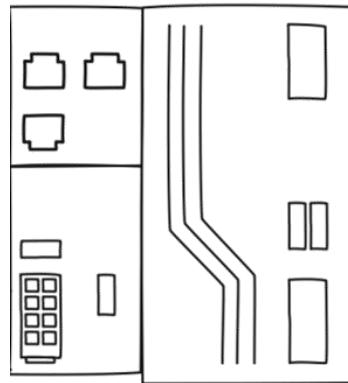
enhanced performance

Real-time execution across different programming languages



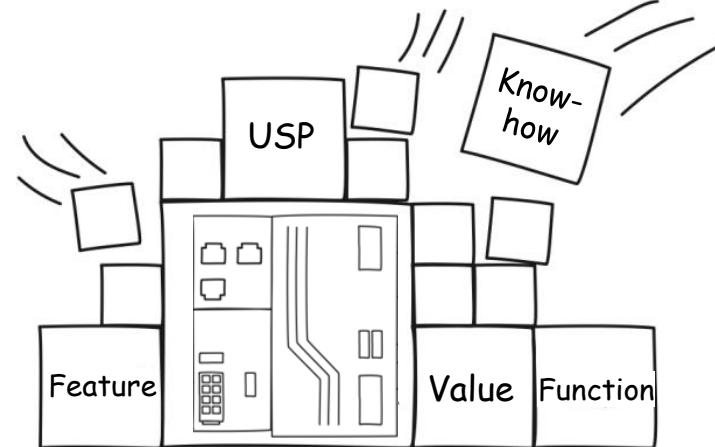
Reasons for a New Automation Solution

Industrial Controls in a Value Added Chain



Phoenix Contact

Controller with initial
function / feature set



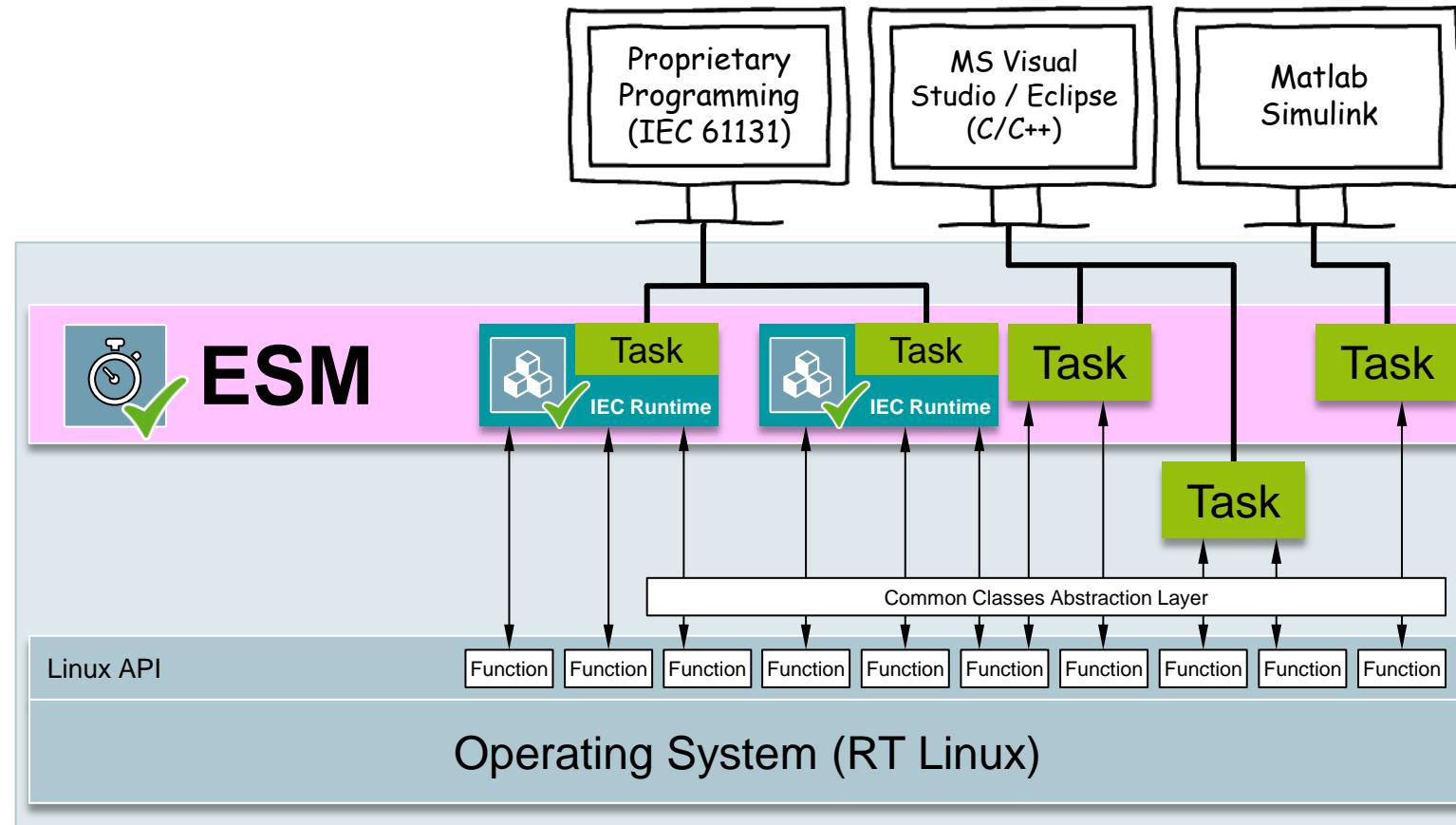
**Vertical Market Specialists,
System Integrators, end users, ...**

Application knowledge, algorithms,
processes, analysis, recipes, ...



Most diverse applications
in various industries

D: PLCnext Technology Architecture Advantages – ESM



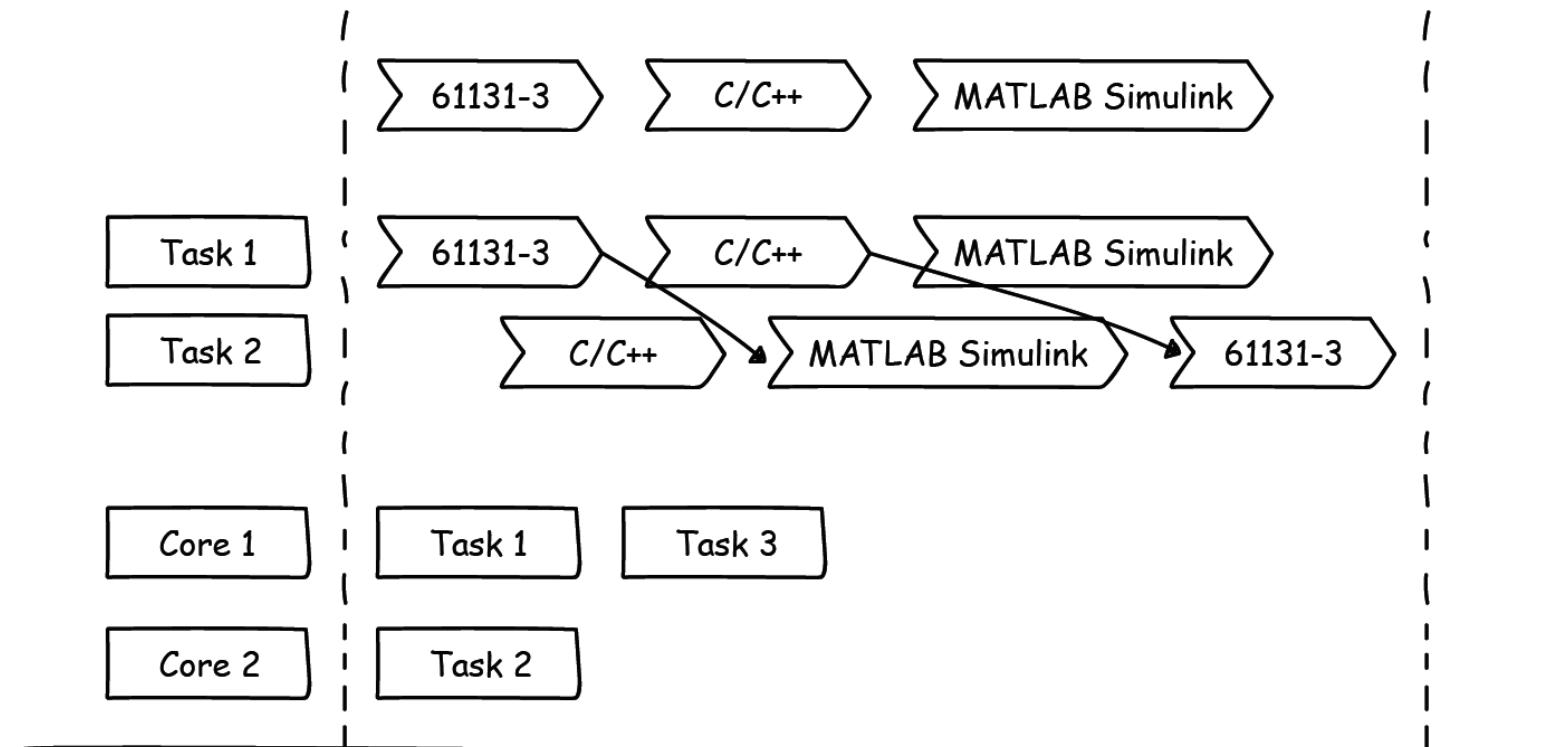
ESM Execution & Synchronization Manager

- Real-time scheduler for all Linux tasks
 - Separated from IEC 61131 runtime – no mutual dependencies
- Tasks can run inside or outside the real-time context
- Open source and HLL programs are based on Linux
 - Unlimited access to Linux API – directly or via Common Classes
- HLL or Simulink applications possible, also combined with IEC 61131 programs
- No need for in-depth Linux knowledge to implement PLC-like real-time
- Easy configuration via PC Worx Engineer or XML files

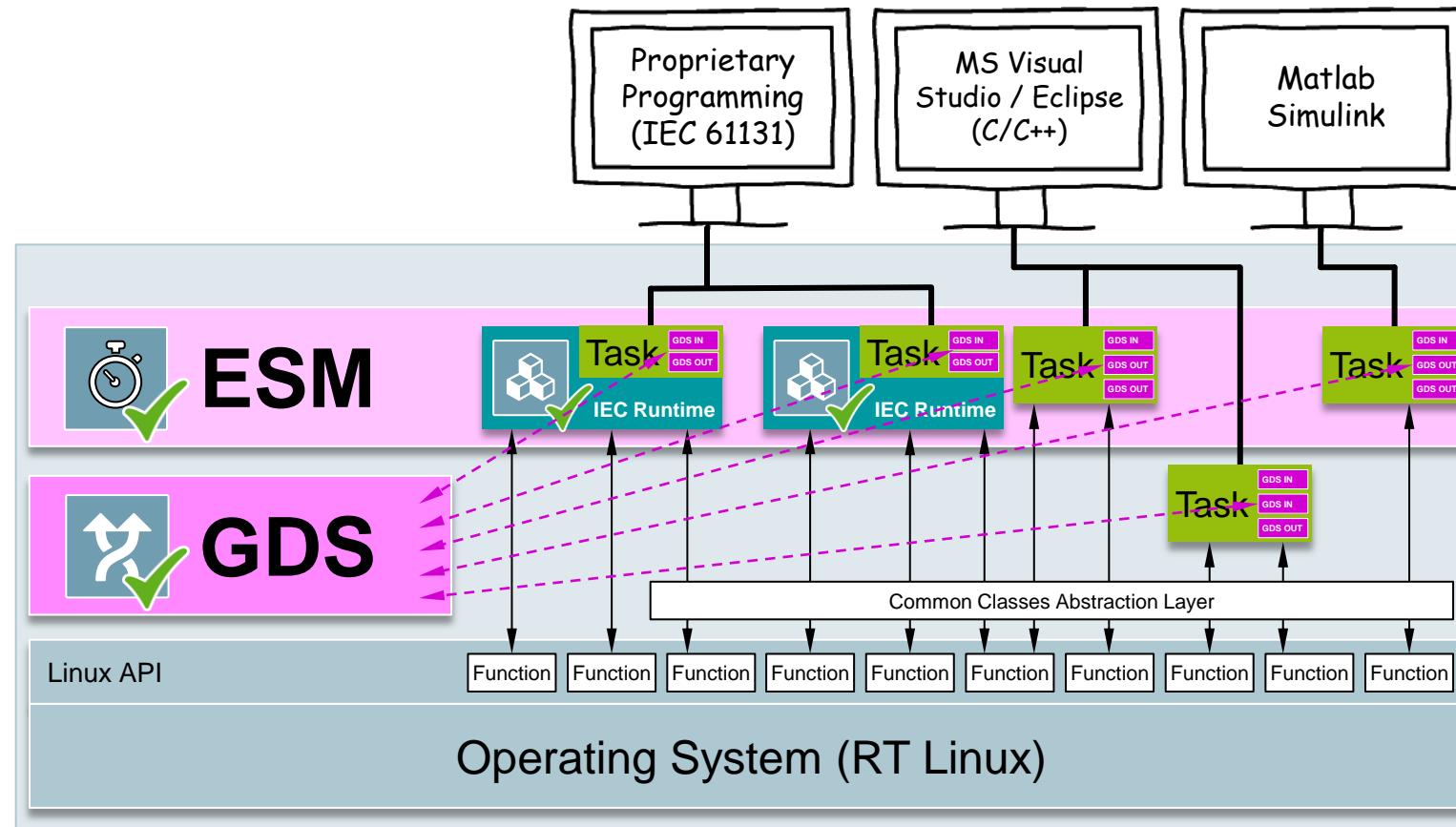
enhanced performance – PLC-typical Real-time Performance & Data Consistency

Execution & Synchronization Manager

- Combine program sequences in different languages into tasks as desired
- The task-handling of the PLCnext Technology (patent applied for) lets program routines of different origin run like a classical IEC-61131-PLC-code
 - Your high-level language programs become automatically deterministic
- The PLCnext Technology platform ensures consistent data exchange and synchronous execution of the program code



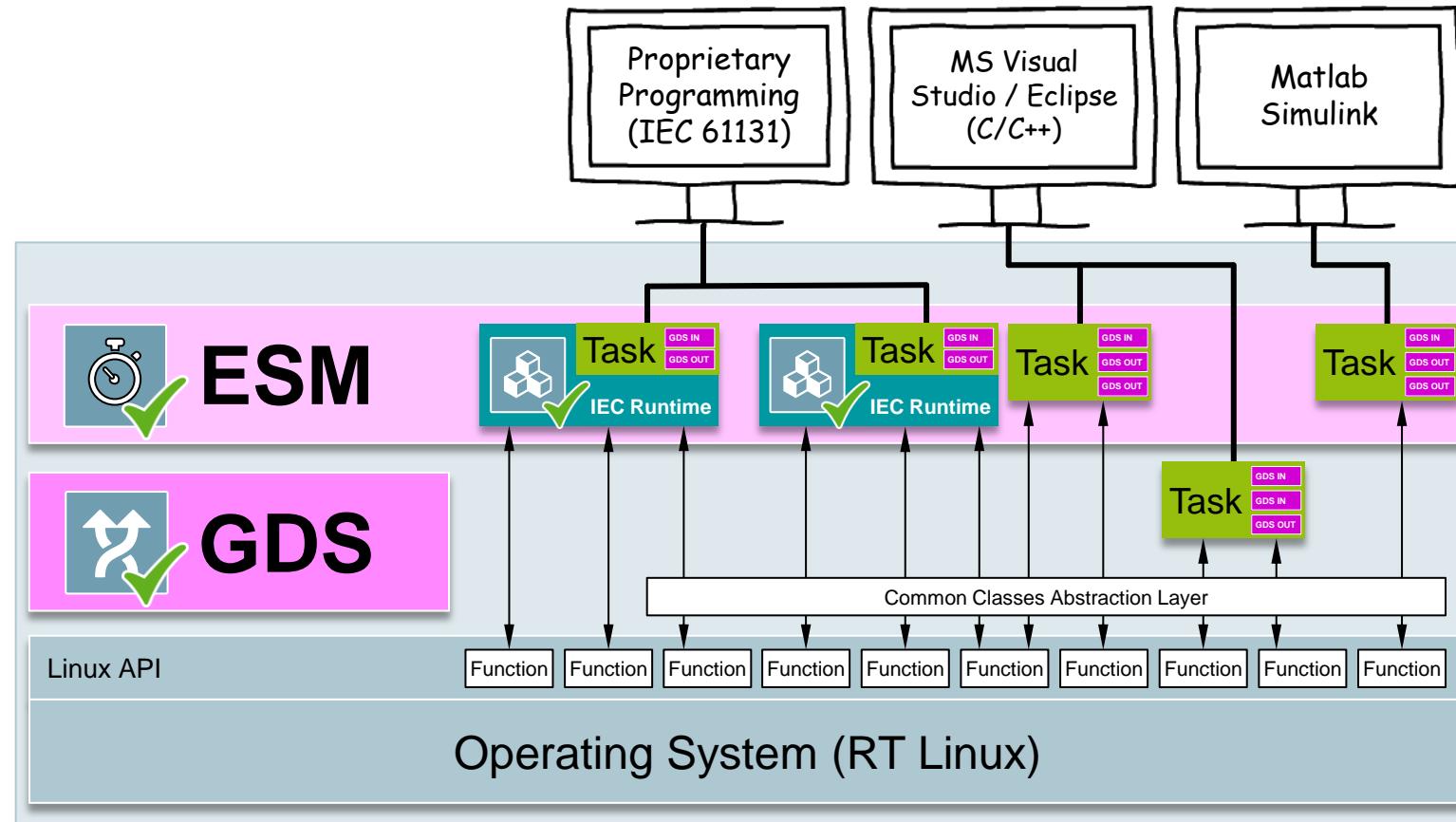
D: PLCnext Technology Architecture Advantages – GDS



GDS Global Data Space

- Intelligent shared memory
- Port-based process data exchange among tasks via intelligent automatic buffer generation
- No programming effort for consistent and task-synchronous process data exchange (e.g. semaphores, resource blocking, ...)
- No need for in-depth Linux knowledge
- Easy configuration via PC Worx Engineer or XML files

D: PLCnext Technology Architecture Advantages – Summary



- No vendor dependency
- Combined use IEC61131, HLL, and model-based programs
- Built-in real-time and data consistency for IEC 61131, HLL, and Matlab
- Unlimited OS API access

EVALUATION

- ✓ Open programming tools
- ✓ Open application & network interfaces
- ✓ Open source & apps integration
- ✓ Real-time HLL programs can use OS API
- ✓ Future-proof through modular extensibility
- ✓ Integrated real-time capability
- ✓ Cloud connectivity integrated
- ✓ Security integrated

Agenda

- PLCnext Architektur
- PLCnext Store
- Applikationsbeispiele



Automation ecosystem

- Open ecosystem for the distribution of Apps for PLCnext Controls
- Flexible integration of Open Source software and Apps

World of Applications

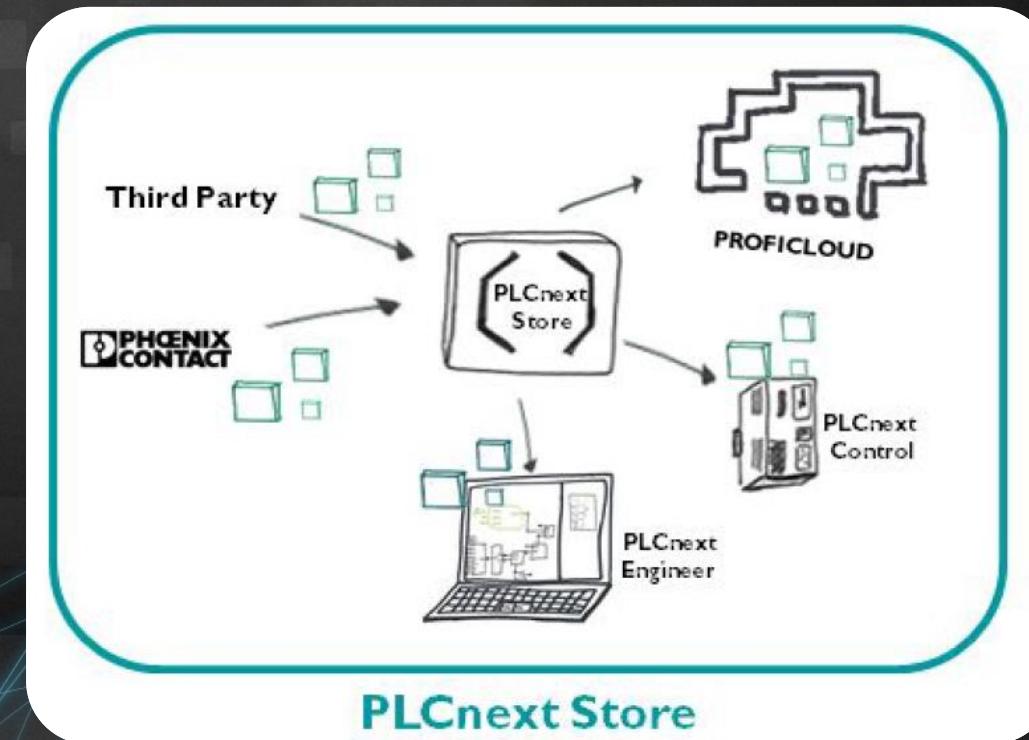
- Extends the PLC with the openness and flexibility of smart devices
- App variety from different vendors
- Apps suitable for your needs

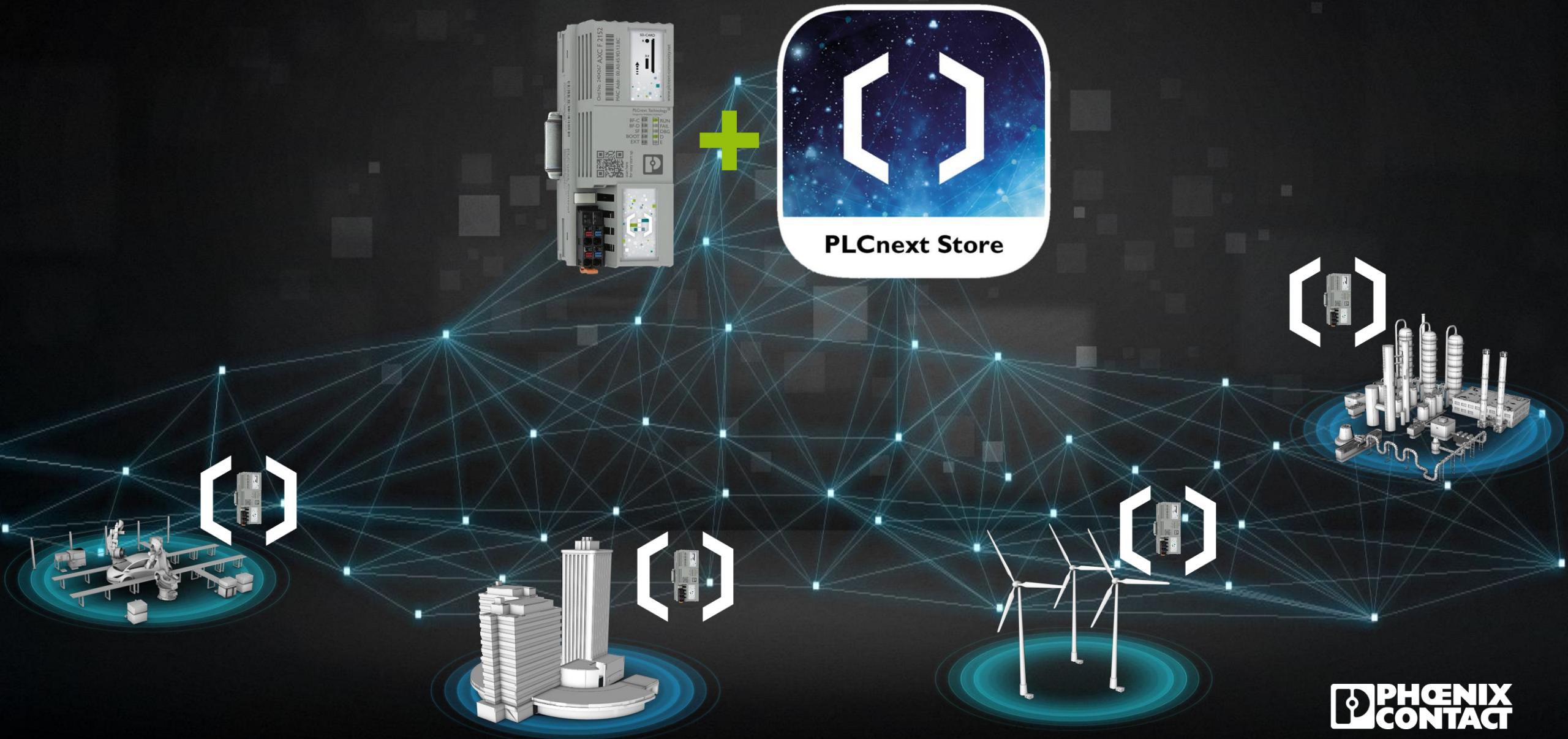
Faster solution building

- Apps as ready-to-use solutions
- No programming, only parameterization
- Plug & Work: customize your PLCnext Controller in minutes

What is the Goal of an App?

An App as an application package for industrial automation solutions





App Types available with the first Release (SPS IPC Drives 2018)

	Solution App	PLCnext Engineer 61131 Libraries
Description	Automation solution consisting of different components with Web pages for parametrization	Function as a part of a PLC Program
Users Skill Level		
Example	Fill level monitoring, pump automation, protocol conversion	Data logger, Protocol (Resy, -101/-104) PID-Modulator

New Possibilities – Faster to the finished Application

- Trading platform for industrial automation - limitless possibilities
- Central, cataloged software store for the PLCnext Control family
- Wide range of apps: from software that transforms a standard PLC into a special controller (without programming skills) to small features that can accelerate application creation or post-installable runtime environments for more convenience
- Accelerated development → Faster to the finished application
- Convenient access to new possibilities and innovative software functions
- Evaluation and commenting system makes customer experiences transparent
- Easy access also to special software
- Customization possibilities

New sales channel – new revenue model

- Programmers, software developers and e.g. even system integrators can provide once conceived solutions to a broad customer group and sell their know-how as an app
- New distribution channel for software providers
- Easy access to a global audience from different industries

*This is just the beginning
of the AppStore and a new
world of open automation ...*





PLCnext Store

Welcome to the App Store

Filter

Compatibility, Industries, Rating, Price, Phoenix Contact Certified

Search: Search

Or browse: Our Favorites, Top Downloads, Best rating, Most recent update

EM Logger: Vendor of the app, 5 stars, 96 Downloads, Buy

CloudWriter: Vendor of the app, 4 stars, 13 Downloads, Buy

Solar Track & Adjust: Vendor of the app, 5 stars, 8 Downloads, Buy

MQTT Dash: Vendor of the app, 5 stars, 96 Downloads, Last Update: 25.11.2017, Customize App, Additional services

EM Logger: Vendor of the app, 5 stars, 96 Downloads, Last Update: 25.11.2017, Add to wishlist

EM Logger

Detailed app description: EM Logger turns your PLCnext Control into a datalogger. Capture, monitor and log, e.g. Energy data in automation systems and evaluate them in a cloud system. With EM Logger, you can read data from measuring devices via pulses, analog values, Modbus / RTU. The web-based interface on the PLC can be used to configure the channels / devices and the connection to a higher-level system. Programming skills are not required.

96 Downloads, Last Update: 25.11.2017, more...

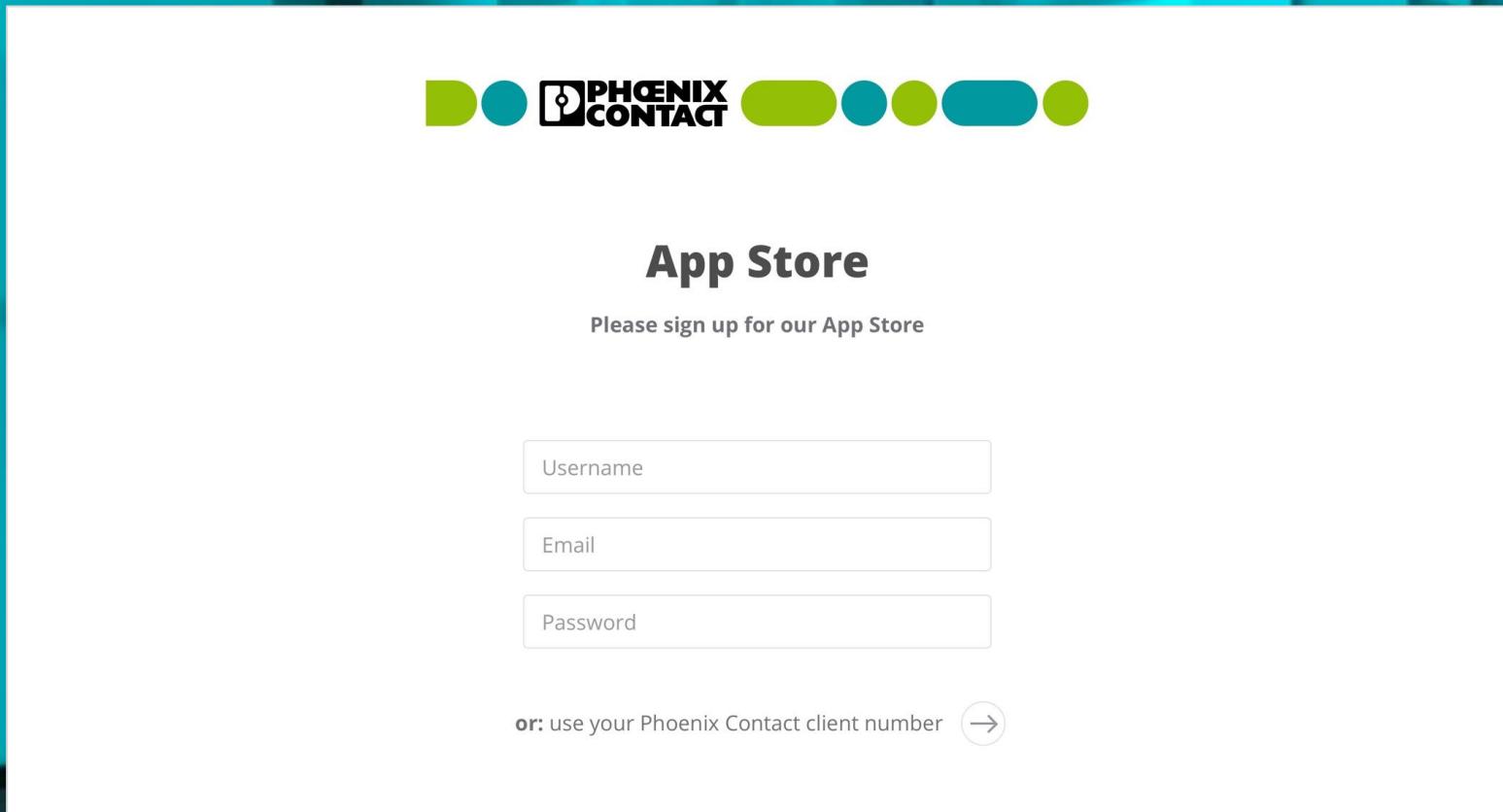
Demos, Screenshots & Use Cases

PHOENIX CONTACT

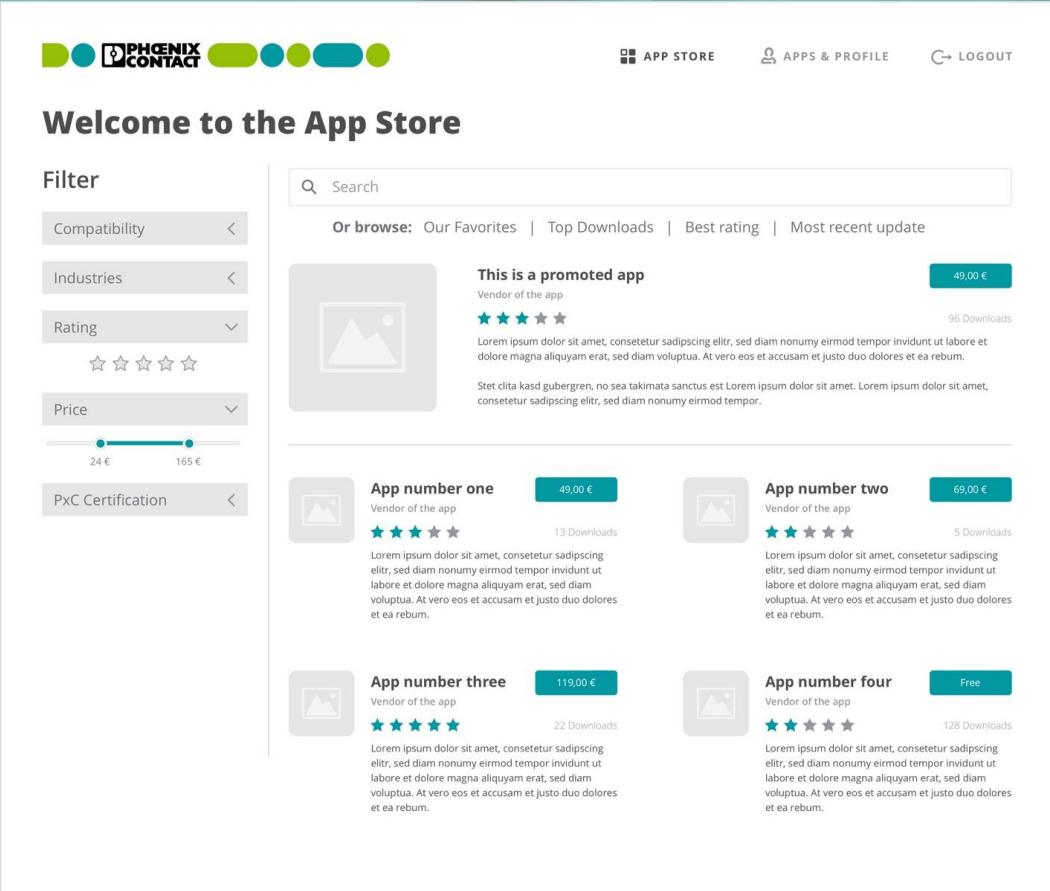


PHOENIX
CONTACT

PLCnext Store –Sign-Up Screen



PLCnext Store –Landing Page



The screenshot shows the 'Welcome to the App Store' page. At the top, there's a navigation bar with the Phoenix Contact logo, an 'APP STORE' button, an 'APPS & PROFILE' button, and a 'LOGOUT' button. On the left, a 'Filter' sidebar includes dropdowns for 'Compatibility', 'Industries', 'Rating' (with a star rating selector), 'Price' (a range slider from 24 € to 165 €), and 'PxC Certification'. The main content area features a search bar and links to 'Our Favorites', 'Top Downloads', 'Best rating', and 'Most recent update'. Below this, there's a section for a 'promoted app' with a placeholder image, a 4.5-star rating, and 96 downloads. Four other apps are listed below: 'App number one' (4.5 stars, 13 downloads, 49.00 €), 'App number two' (4.5 stars, 5 downloads, 69.00 €), 'App number three' (4.5 stars, 22 downloads, 119.00 €), and 'App number four' (4.5 stars, 128 downloads, Free). Each app listing includes a placeholder image, its name, vendor, price/rating, download count, and a short description.

Ecosystem & PLCnext Store

PLCnext Store –App Details Page

App detail view

Vendor of the app

49,00 €

96 Downloads Last Update: 25.11.2017

Add to wishlist

Customize App Additional services ...

Detailed app description

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Demos, Screenshots & Use Cases

more ...

Technical Details

Item Name	Value 1	Value 2
Item 1	Value 1	Value 2
Item 2	Value 1	Value 2
Item 3	Value 1	Value 2
Item 4	Value 1	Value 2
Item 5	Value 1	Value 2

Download technical specification

Download API documentation

Download installation guide

Ratings & Reviews

3.2 of 5 stars 26 reviews in total

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Customer questions and answers

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Comparable apps

App name App name App name App name

App name App name App name App name

Hardware recommendations

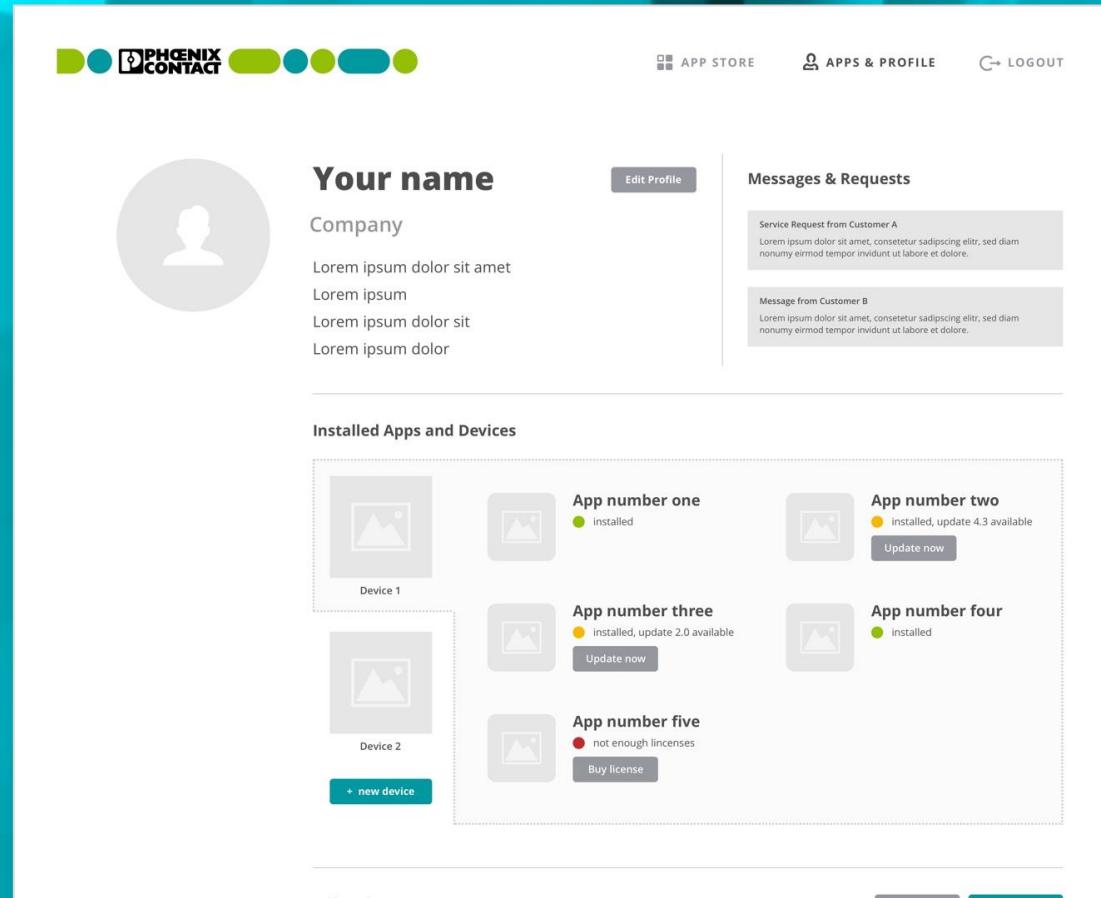
Hardware item Sed diam nonumy eirmod tempor invidunt ut labore et dolore magna.

Hardware item Sed diam nonumy eirmod tempor invidunt ut labore et dolore magna.

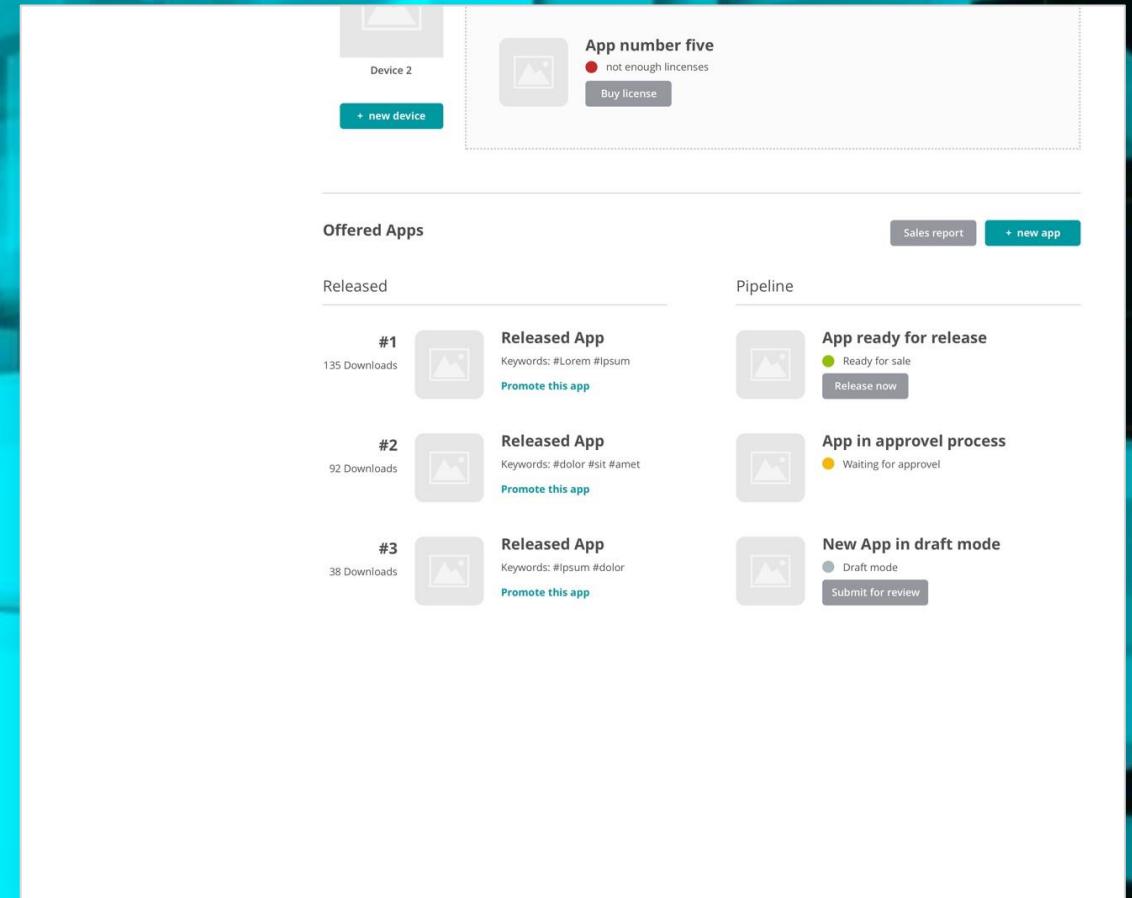
Hardware item Sed diam nonumy eirmod tempor invidunt ut labore et dolore magna.

Ecosystem & PLCnext Store

PLCnext Store – User Profile

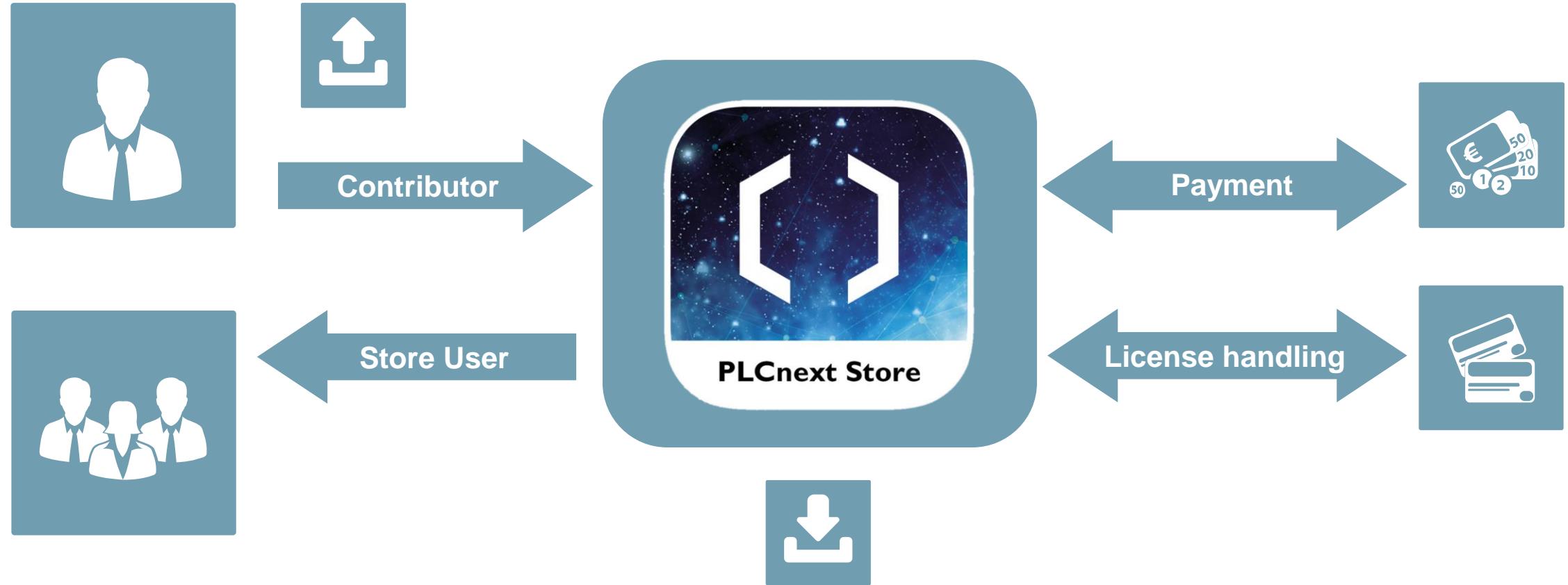


The screenshot shows the User Profile page of the PLCnext Store. At the top, there's a navigation bar with the PHOENIX CONTACT logo, 'APP STORE', 'APPS & PROFILE', and 'LOGOUT'. Below the navigation, the user's name 'Your name' is displayed with a 'Edit Profile' button. A large circular placeholder for a profile picture is shown. Under 'Company', there are five entries of placeholder text: 'Lorem ipsum dolor sit amet', 'Lorem ipsum', 'Lorem ipsum dolor sit', 'Lorem ipsum dolor', and 'Lorem ipsum dolor sit amet'. In the 'Messages & Requests' section, there are two items: 'Service Request from Customer A' and 'Message from Customer B', both with placeholder text. The 'Installed Apps and Devices' section lists five apps: 'App number one' (installed), 'App number two' (installed, update 4.3 available), 'App number three' (installed, update 2.0 available), 'App number four' (installed), and 'App number five' (not enough licenses). Each app entry includes a small icon, the app name, its status, and an 'Update now' or 'Buy license' button. A 'Device 1' and 'Device 2' are also listed under the device section, each with a placeholder image icon and a '+ new device' button.



The screenshot shows the 'Offered Apps' pipeline interface. It has two main sections: 'Released' and 'Pipeline'. The 'Released' section displays three apps: '#1 Released App' (135 Downloads), '#2 Released App' (92 Downloads), and '#3 Released App' (38 Downloads). Each app entry includes a placeholder image icon, the app number, the release status, download count, keywords, and a 'Promote this app' button. The 'Pipeline' section shows three stages: 'App ready for release' (Ready for sale, Release now), 'App in approval process' (Waiting for approval), and 'New App in draft mode' (Draft mode, Submit for review).

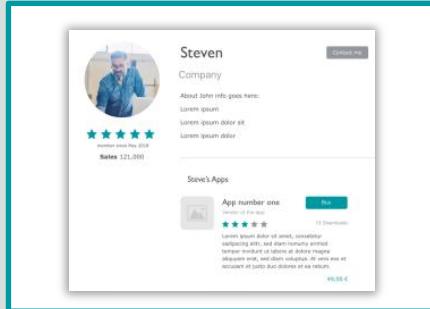
Overview: PLCnext Store + PLCnext Apps Business Model



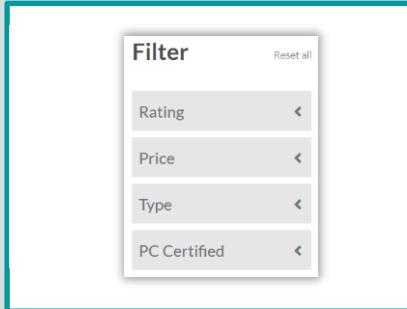
PLCnext Technology[®]

Designed by PHOENIX CONTACT

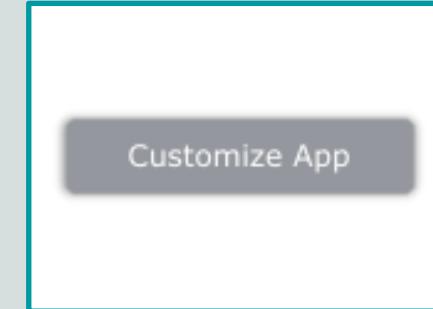
PLCnext Store Highlights SPS IPC Drives 2018



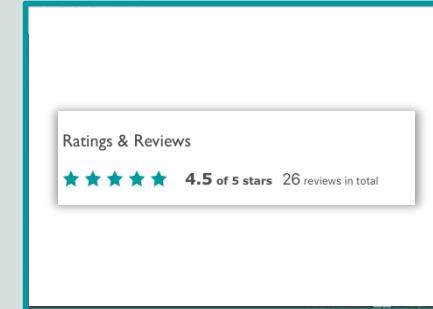
1. User / Developer Profile



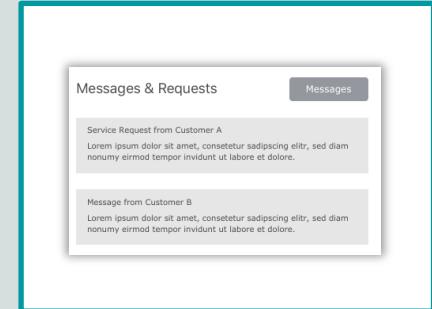
2. App Filter



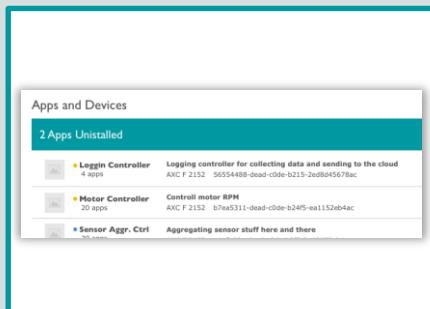
3. Customize App Button



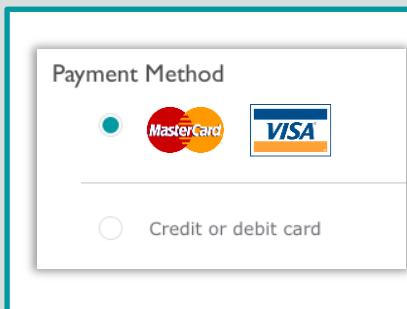
4. App Rating



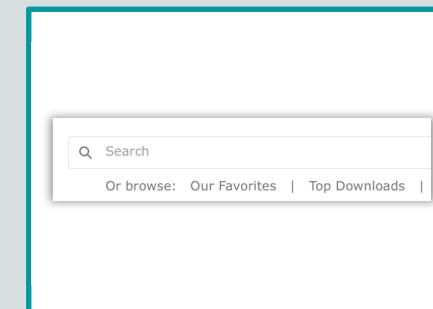
5. Messaging



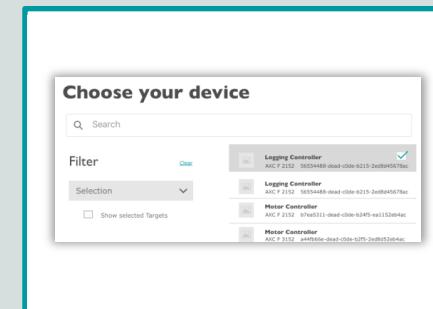
6. App Management



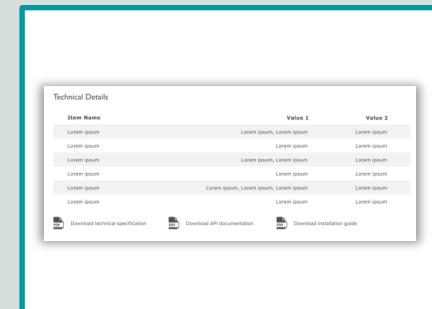
7. Payment



8. App Search



9. Device Selection



10. App Description



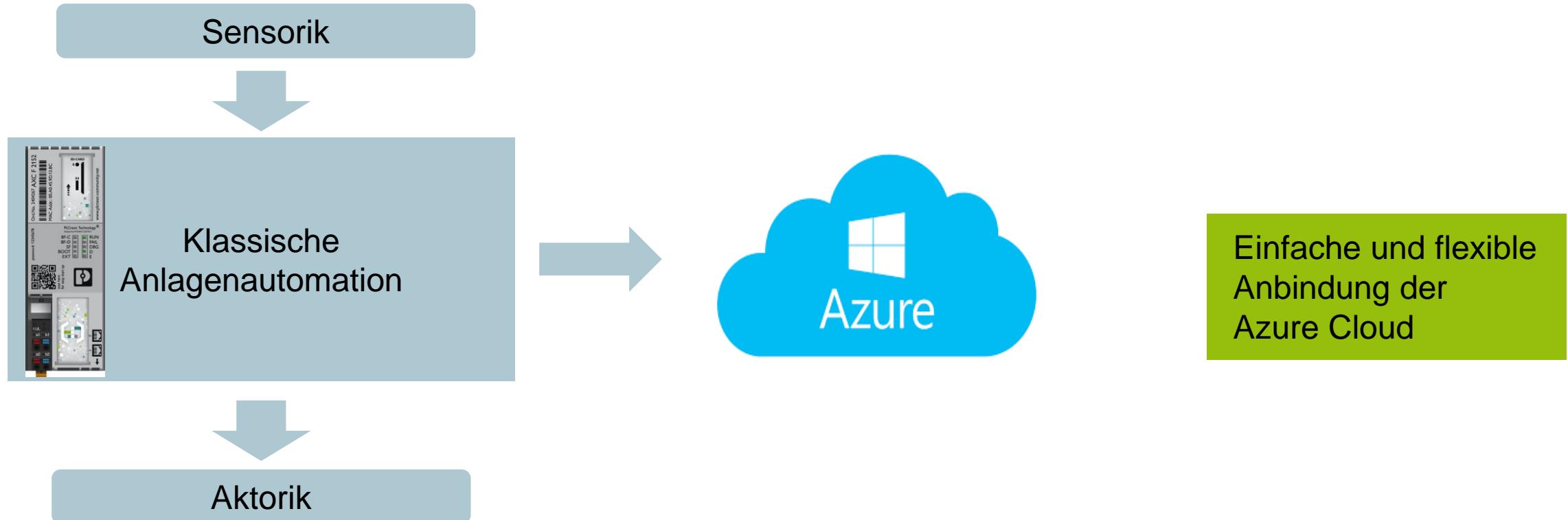
PLCnext Store

Agenda

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- PLCnext Store
- Applikationsbeispiele

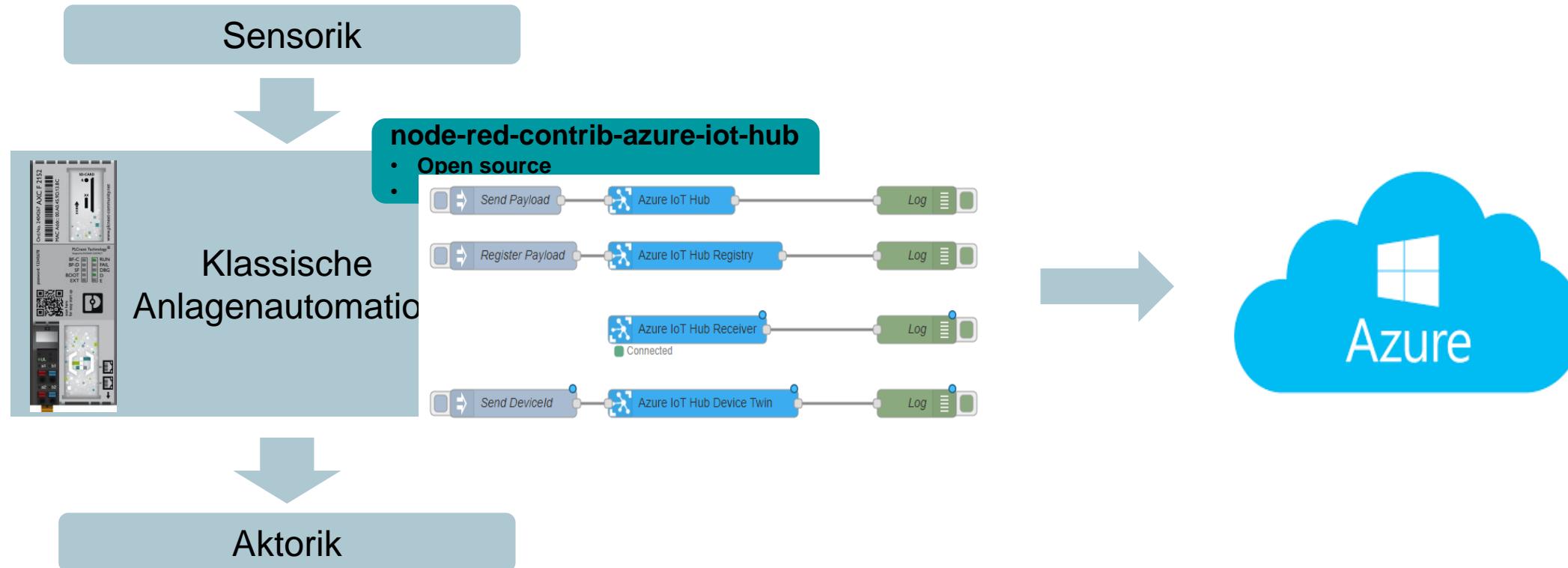
Applikationsbeispiele

Aufgabenstellung



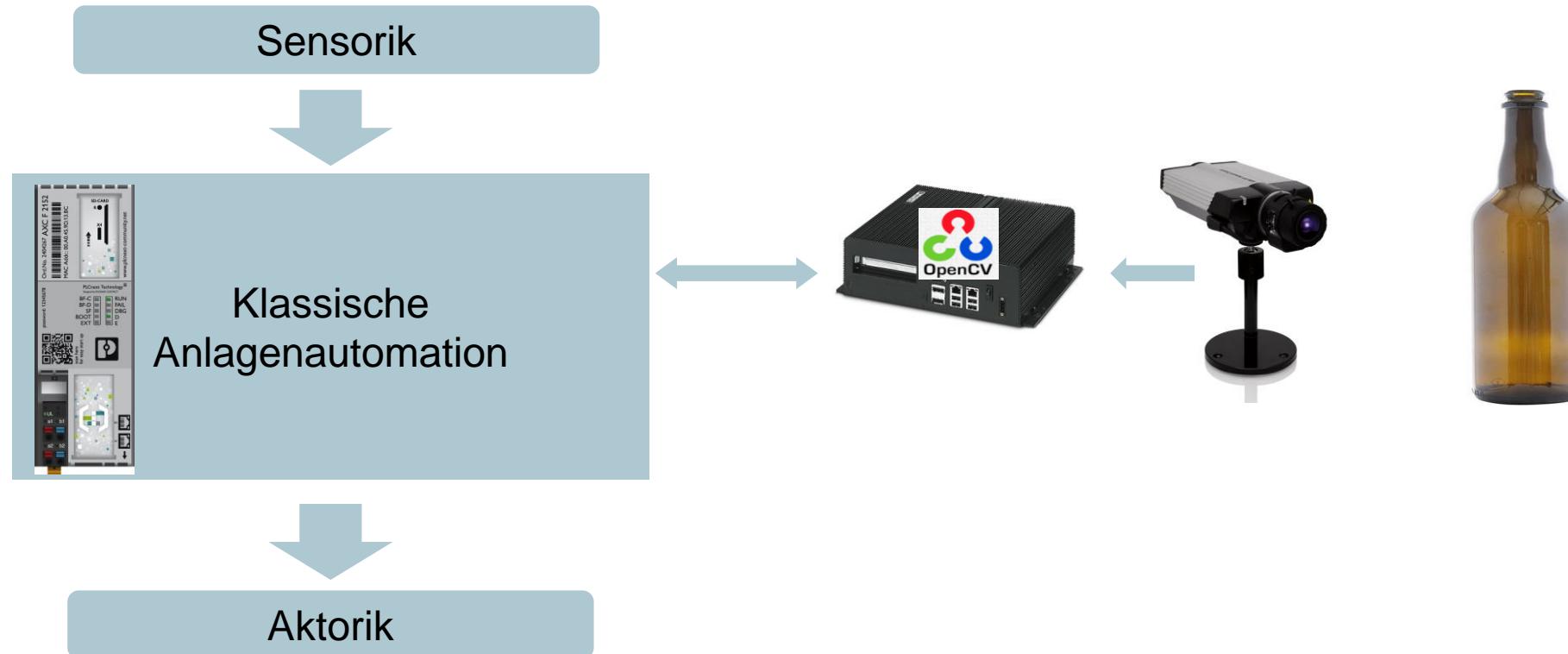
Applikationsbeispiele

Lösung



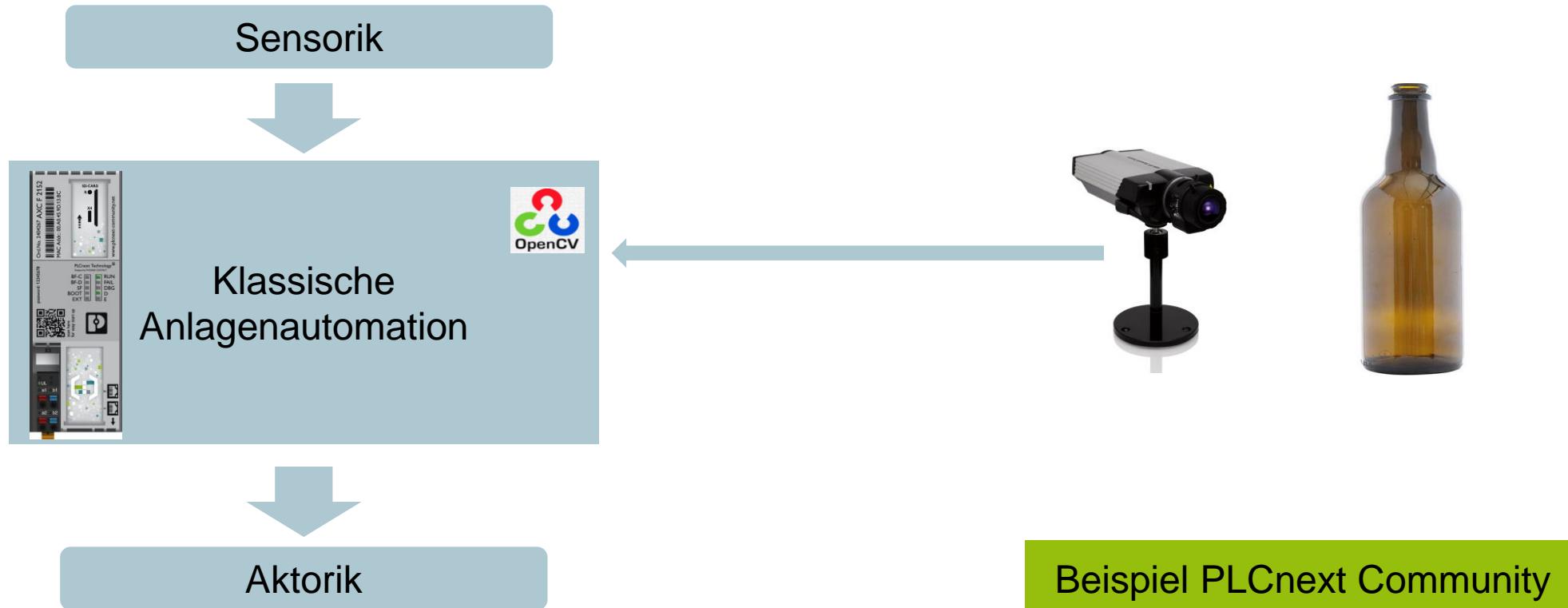
Applikationsbeispiele

Kamerabasierte Objekterkennung



Applikationsbeispiele

Kamerabasierte Objekterkennung



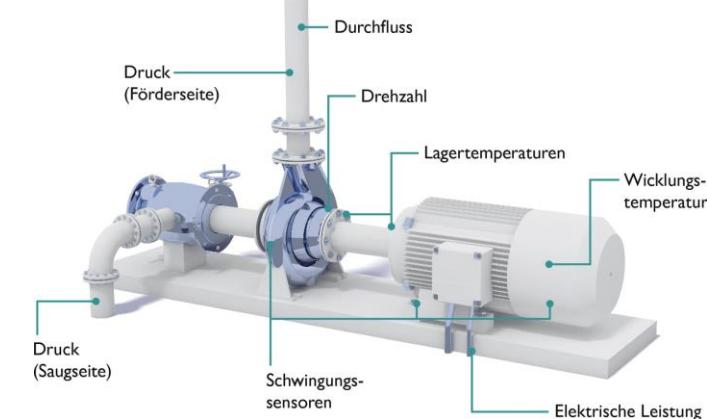
Pump Station, Water Supply Well, and High-level Tank

Wastewater pump station App

- Complete **Solution App** including visualization
- Turns a PLCnext Device into a ready-to-use pump station

Water supply well & high-level tank App

- For use with a high-level tank or well
- 2 PLCnext Controls are needed for operation
- Both communicate with each other



Thank you