



Digitalization

Industrie 4.0

Smart Production

E-Mobility

Smart Energy

Energy Efficiency

Smart Infrastructure

Smart Buildings

Renewables

Welcome

Webinars 2020

Introducción al ecosistema de plataforma abierta y flexible

PLCnext Technology



Introducción al ecosistema de plataforma abierta y flexible PLCnext Technology

Agenda

- What is PLCnext Technology:
 - Enhanced Connectivity
 - Enhanced Freedom
 - Enhanced Convenience
 - Enhanced Development
 - Enhanced Performance
 - PLCnext Runtime Architecture
 - Sites of Information
-



PLCnext Technology

enhance your automation thinking

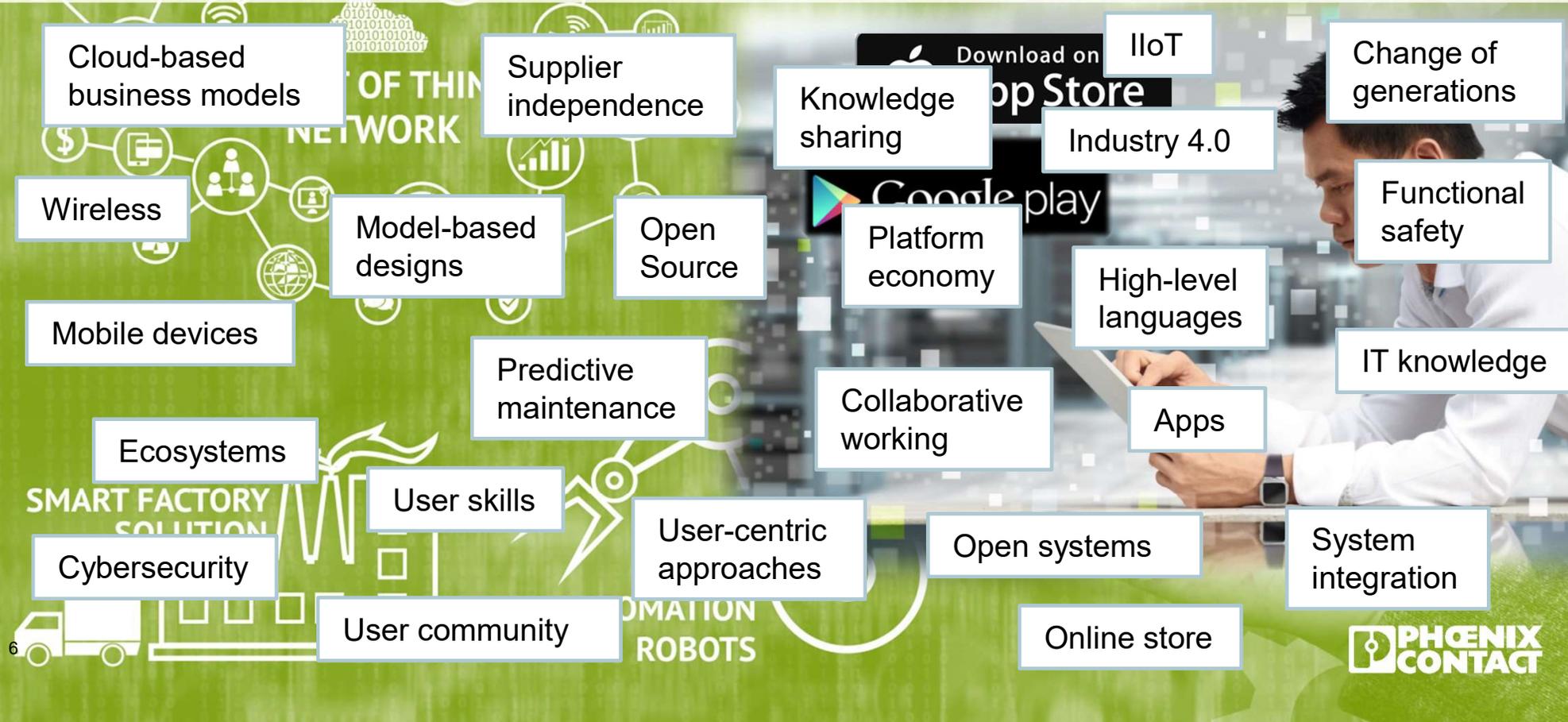
PLCnext Technology



Brief
Overview

What Is PLCnext Technology?

Digitalization – Changing Market & Customer Requirements



What Is PLCnext Technology?

Our Answer: An Open Ecosystem for Limitless Automation



PLCnext Technology in a nutshell

PLCnext Technology 
Designed by PHOENIX CONTACT

Our Answer: An Open Ecosystem for Limitless Automation

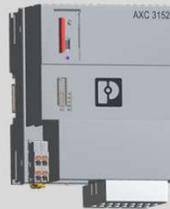
PLCnext Technology 
enhance your automation thinking

 **PHOENIX
CONTACT**

PLCnext Technology in a nutshell

Open Control Platform

PLCnext Control



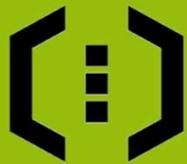
Open Control Platform

PLCs in various performance classes including
PLCnext Runtime System and accessories for PLCnext Technology

PLCnext Technology in a nutshell Engineering Software

PLCnext Technology
enhance your

PLCnext Control



PLCnext Engineering Software



Open Control Platform

PLCs in various performance classes including PLCnext Runtime System and accessories for PLCnext Technology



Engineering Software

Engineering tool for commissioning, configuring, and programming PLCnext Controls

PLCnext Technology in a nutshell

User Collaboration & Resources



Become a part of the PLCnext Community!

#plcnext #ampnext

-  Ask a question in the forum
-  Upload or download apps
-  Get technical support in the community
-  Watch a video for technical support
-  Use or share open source code
-  Share your experience on Instagram

PLCnext Technology
The ecosystem for limitless automation

In a rapidly changing world, in which more things are now networked together than there are people, industrial automation is also undergoing a fundamental shift: classic system structures are developing into cyber physical systems, and future-oriented automation systems must be flexible, open, and networked.



PLCnext Community

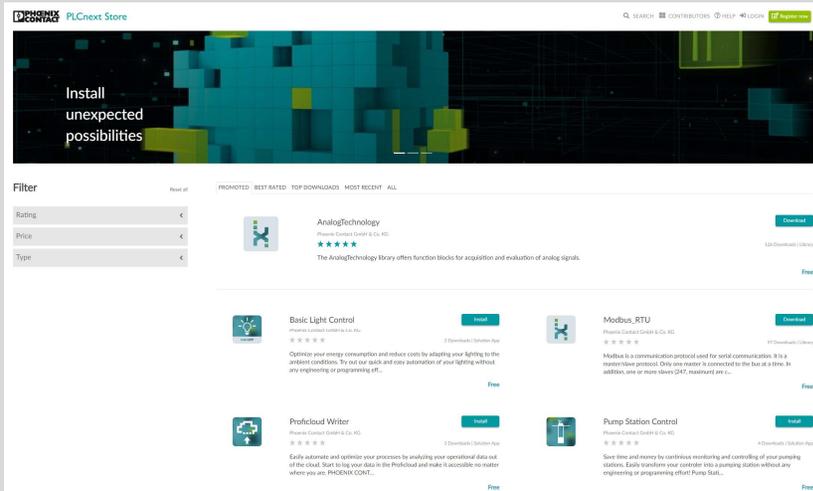


User Collaboration & Resources

Information, support, and helpful resources about PLCnext Technology including FAQs, forums, tutorials and a GitHub presence

PLCnext Technology in a nutshell

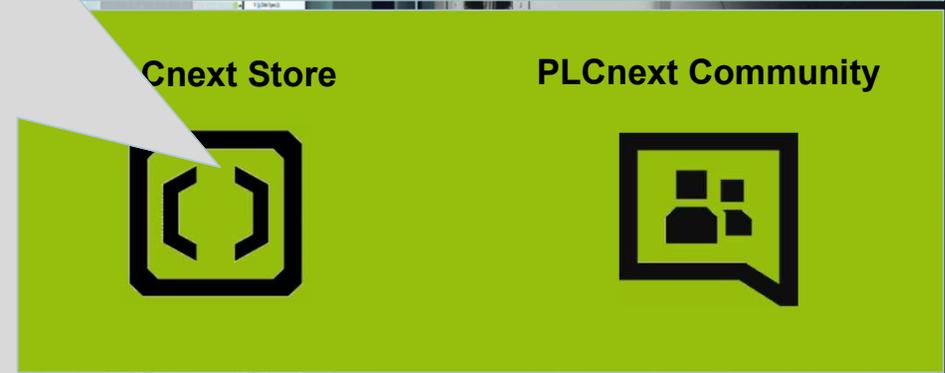
Software Store & Digital Marketplace for Automation



Software Store for Automation

Apps for functional extension of
PLCnext Control and PLCnext Engineer

PLCnext Technology
Innovation thinking



The image shows two banners. The top banner is green and features the text 'PLCnext Store' and 'PLCnext Community' with a stylized icon of a hexagon containing a double-headed arrow. The bottom banner is teal and features the text 'User Collaboration & Resources' with a speech bubble icon containing three stylized human figures.

User Collaboration & Resources
Information, support, and helpful resources
about PLCnext Technology including FAQs,
forums, tutorials and a GitHub presence

PLCnext Technology in a nutshell

PLCnext Technology 
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The Open Ecosystem for Limitless Automation

PLCnext Technology 
enhance your automation thinking

PLCnext Control



Open Control Platform

PLCs in various performance classes including PLCnext Runtime System and accessories for PLCnext Technology

PLCnext Engineer



Engineering Software

Engineering tool for commissioning, configuring, and programming PLCnext Controls

PLCnext Store



Software Store for Automation

Apps for functional extension of PLCnext Control and PLCnext Engineer

PLCnext Community



User Collaboration & Resources

Information, support, and helpful resources about PLCnext Technology including FAQs, forums, tutorials and a GitHub presence

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CONTACT**

PLCnext Technology

The reliability and robustness
of the classical PLC world



enhances

with the openness and flexibility
of Smart Devices.



The background of the entire image is a dark blue, almost black, space filled with a complex network of glowing white and light blue lines connecting various nodes. These nodes are represented by small squares and circles in shades of white, light blue, and yellow-green. The overall effect is that of a vast, interconnected digital or data network. In the lower right foreground, the silhouette of a person stands on a light-colored, reflective surface, looking upwards towards the glowing network, suggesting a human element in a high-tech environment.

PLCnext Technology 

Designed by PHOENIX CONTACT

enhance your automation thinking

PLCnext Technology makes it possible to implement automation projects without the limits of proprietary systems. You work freely with your favorite programming languages and development tools, open-source software and apps. You can also integrate cloud services and future technologies individually.

PLCnext Technology 

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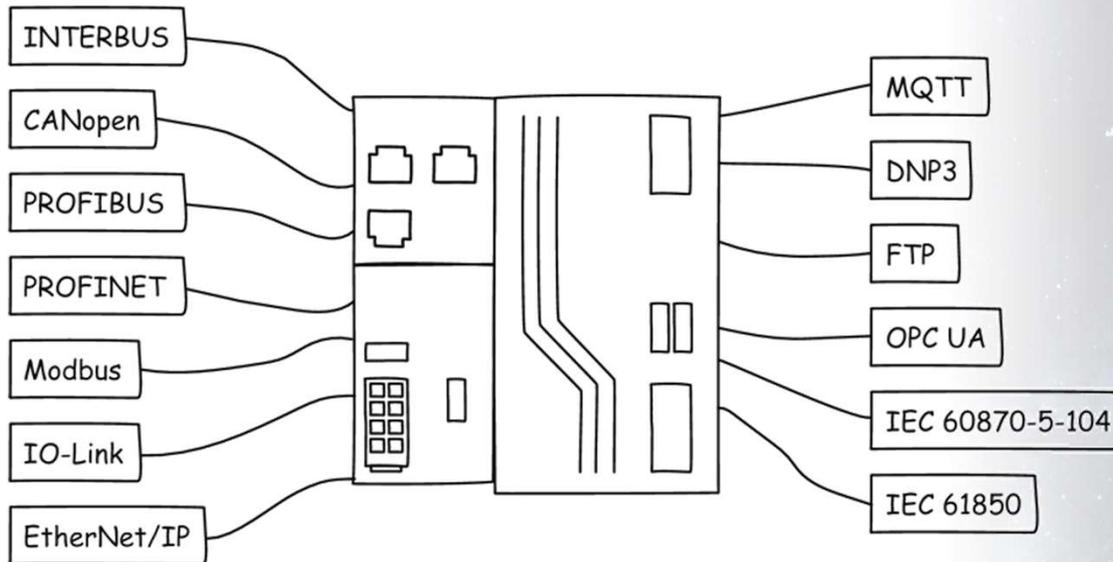
enhanced connectivity

Open interfaces and
cloud integration

PLCnext Technology enables the integration of current and future interfaces and protocols for open communication in highly networked automation systems. Implement new IoT-based business models through edge computing and/or direct connection to cloud-based services and databases.

enhanced connectivity – Intelligent Networking

Future-proof Connectivity

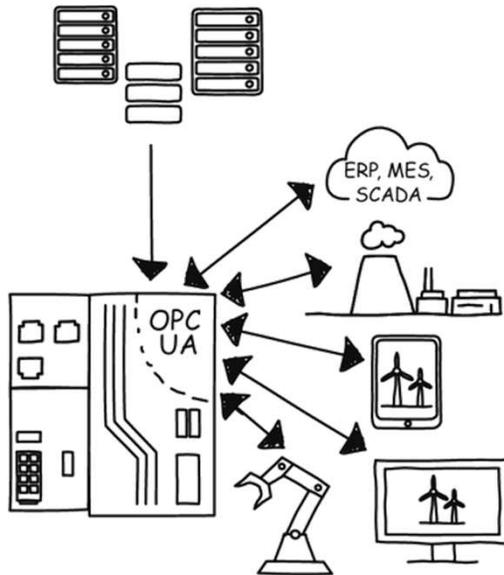


PLCnext Technology enables the integration of current and future interfaces and protocols for open communication in highly networked automation systems.

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enhanced connectivity – Intelligent Networking

Integrated OPC UA Server



PLCnext Technology 
* Designed by PHOENIX CONTACT

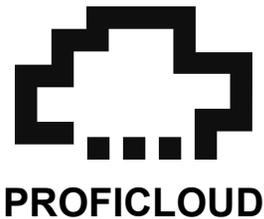
OPC UA

Data Access, Alarms and Conditions, Programs, Historical Access, Global Discovery Server

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enhanced connectivity – Intelligent Networking

PROFICLOUD, Public Cloud, Private Cloud – any Cloud!

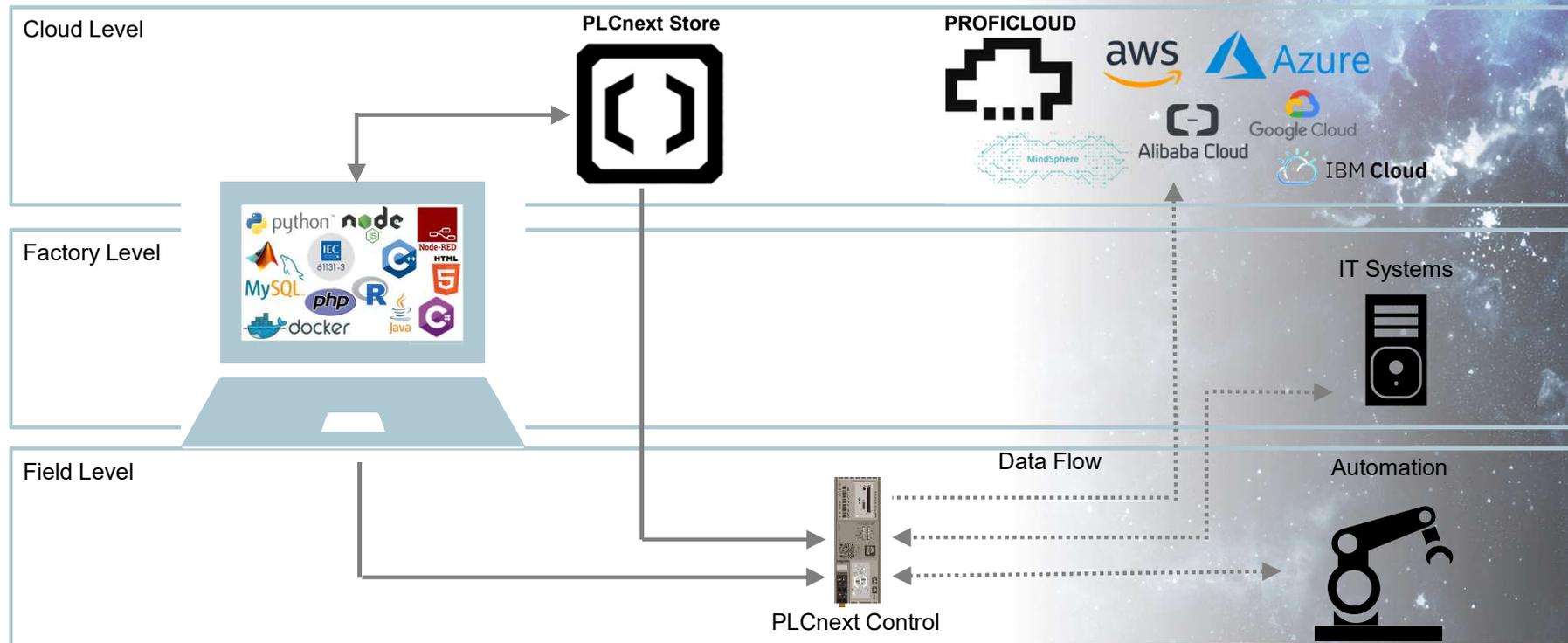


Implement new IoT-based business models through direct connection to cloud-based services and databases. Benefit from the seamless integration of Phoenix Contact's PROFICLOUD and a cloud-agnostic strategy where the PLCnext Store delivers cloud connectors for every cloud. PLCnext Technology supports any customer cloud implementation – public, private, hybrid - including AWS, IBM, Azure, Alibaba, and MindSphere.

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enhanced connectivity – Edge Device or PLC connecting all Levels

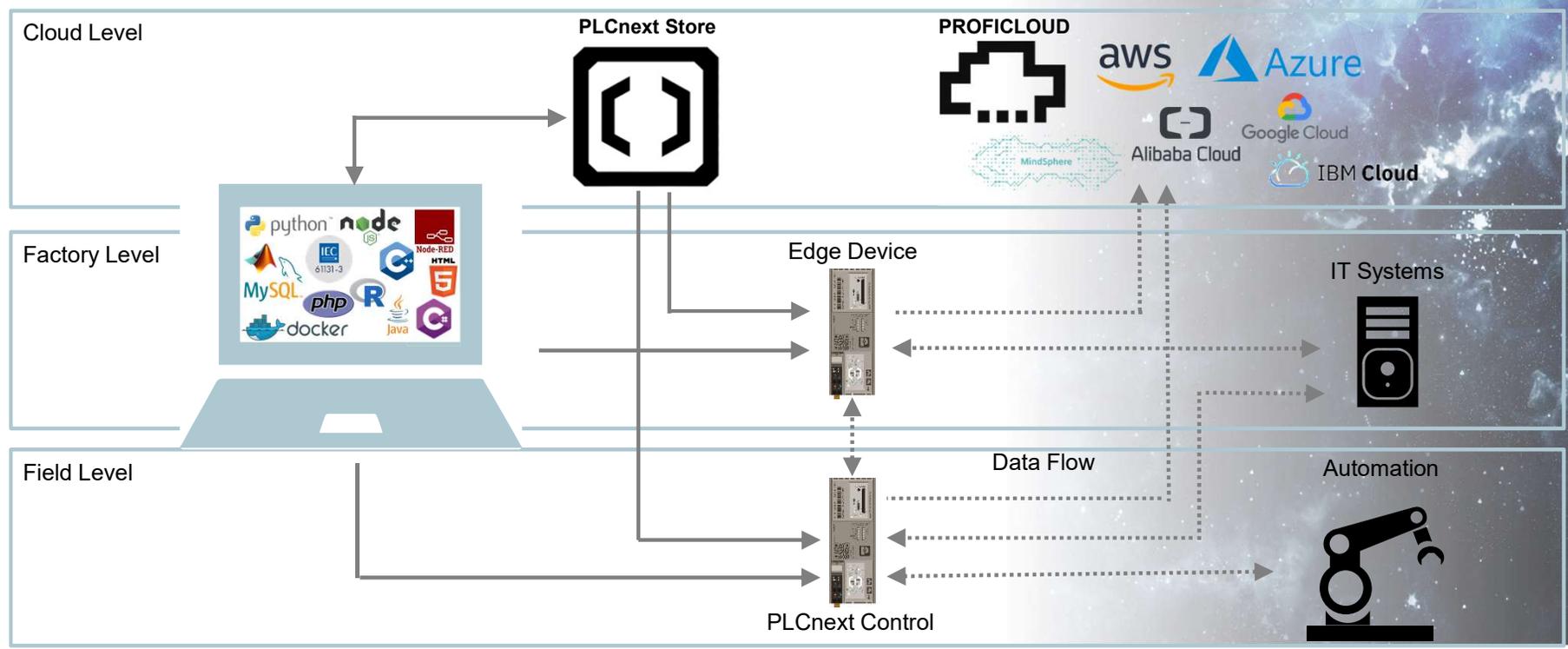
PLCnext Control as PLC



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enhanced connectivity – Edge Device or PLC connecting all Levels

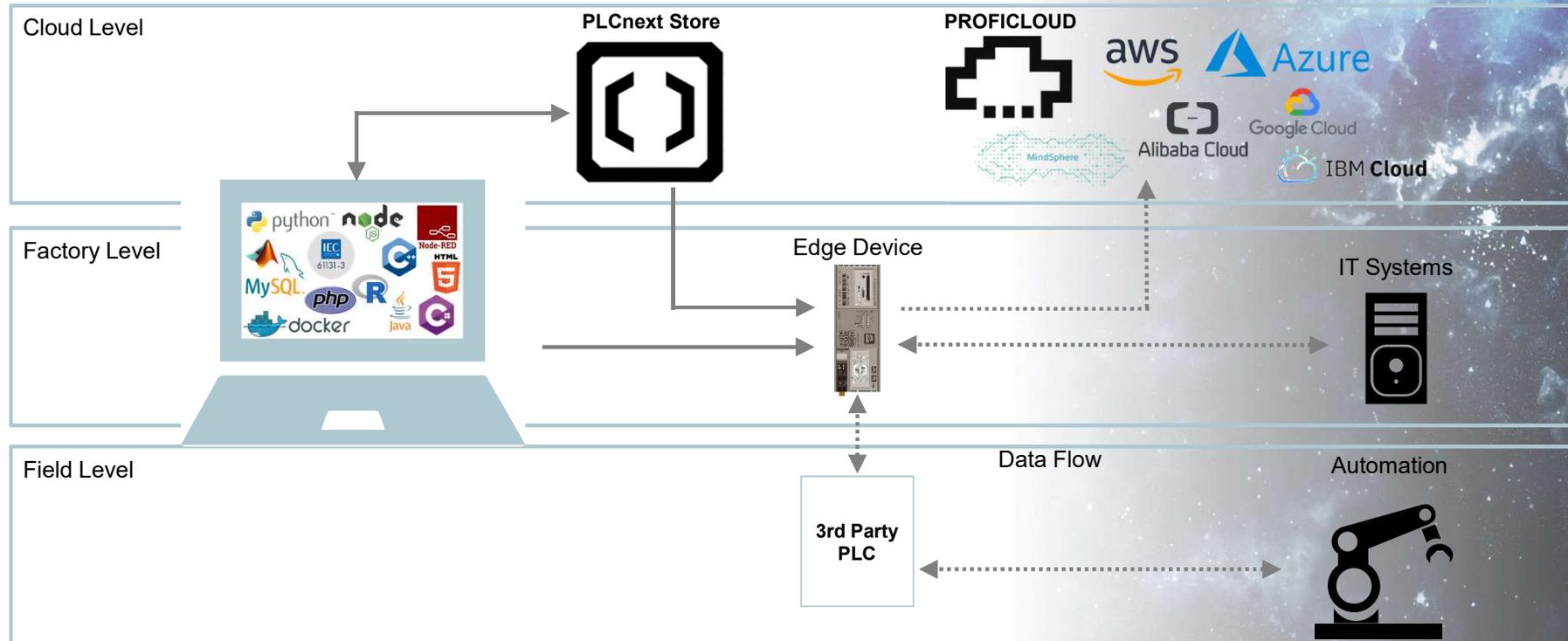
PLCnext Control as PLC and Edge Device



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enhanced connectivity – Edge Device or PLC connecting all Levels

PLCnext Control as Edge Device



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enhanced freedom

Flexible integration of
open source software and apps

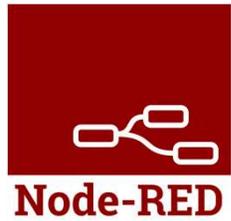
PLCnext Technology enables any desired combination of independently created program parts and complete applications. The use of open-source software and apps, e.g. from our PLCnext Store, improves the efficiency of your development processes. The sky is the limit when it comes to future expansions.

PLCnext Technology 
Designed by PHOENIX CONTACT



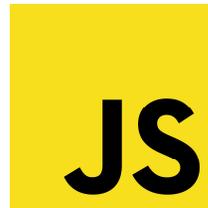
enhanced freedom

Limitless Adaption Capability



PLCnext Technology 
Designed by PHOENIX CONTACT

docker



python TM



PLCnext Technology enables any desired combination of independently created program parts and complete applications. The use of open-source software and apps improves the efficiency of your development processes.



PLCnext Technology 

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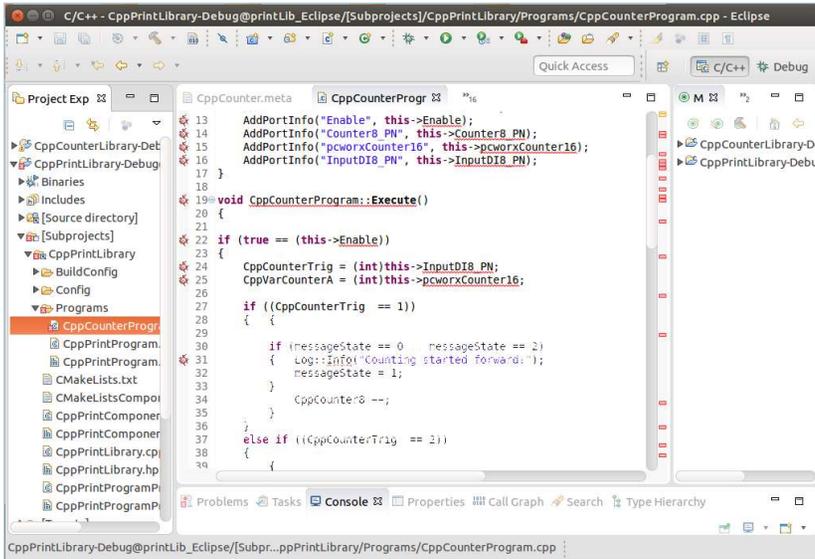
The openness of PLCnext Technology makes it possible to use your favorite programming language, be it IEC 61131 or high-level language. Develop your individual solution comfortably in a familiar development environment, such as PLCnext Engineer, Matlab Simulink, Eclipse, or Visual Studio.

enhanced
convenience

using your favorite
programming tool

enhanced convenience

Programming – C/C++



The screenshot shows the Eclipse IDE interface. The main editor displays C++ code for a program named 'CppCounterProgram.cpp'. The code includes port information and a main execution loop. The left sidebar shows a project tree with folders like 'Binaries', 'Includes', and 'Programs'. The bottom status bar shows 'Problems', 'Tasks', 'Console', 'Properties', 'Call Graph', 'Search', and 'Type Hierarchy'.

```
13 AddPortInfo("Enable", this->Enable);
14 AddPortInfo("Counter8_PWM", this->Counter8_PWM);
15 AddPortInfo("pcworxCounter16", this->pcworxCounter16);
16 AddPortInfo("InputD18_PWM", this->InputD18_PWM);
17
18
19 void CppCounterProgram::Execute()
20 {
21
22 if (true == (this->Enable))
23 {
24     CppCounterTrig = (int)this->InputD18_PWM;
25     CppVarCounterA = (int)this->pcworxCounter16;
26
27     if ((CppCounterTrig == 1))
28     {
29
30         if (messageState == 0 messageState == 2)
31         { Log::Info("Counting started forward.");
32           messageState = 1;
33         }
34         CppCounter8 --;
35
36     }
37     else if ((CppCounterTrig == 2))
38     {
39
```

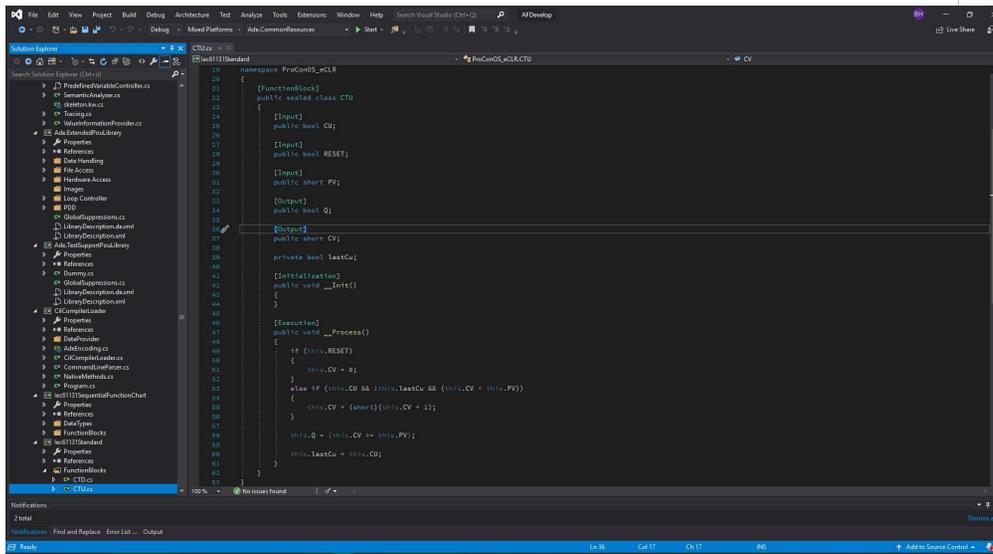
C/C++ acc. to standard, easy interface to the PLCnext Technology platform, support of remote debugging – use the tool you are familiar with.

PLCnext Technology 
Designed by PHOENIX CONTACT



enhanced convenience

C# Function Blocks



The screenshot shows the Visual Studio IDE with a C# code file open. The code defines a class `CTU` (Counter Up) with the following structure:

```
[FunctionBlock]
public sealed class CTU
{
    [Input]
    public bool CU;

    [Input]
    public bool RESET;

    [Input]
    public short PV;

    [Output]
    public bool Q;

    [Output]
    public short CV;

    private bool lastCu;

    [Initialization]
    public void __Init()
    {
    }

    [Execution]
    public void __Process()
    {
        if (this.RESET)
        {
            this.CV = 0;
        }
        else if (this.CV <= 0 || this.lastCu && (this.CV < this.PV))
        {
            this.CV = (short)(this.CV + 1);
        }
        this.Q = (this.CV >= this.PV);
        this.lastCu = this.CU;
    }
}
```

PLCnext Technology 
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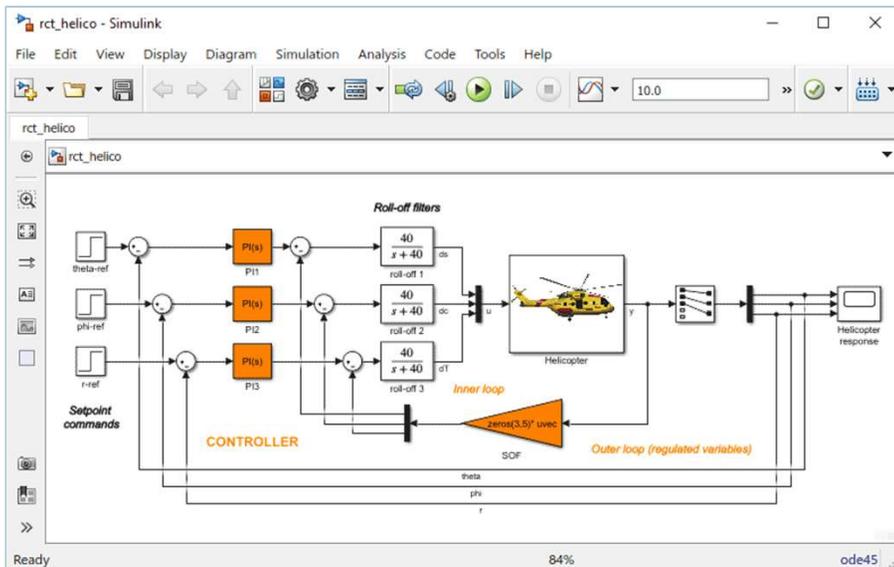


Visual
Studio

Development and integration of function blocks with C# with a dedicated plug-in for Visual Studio.
Create IEC 61131 function blocks with C# and execute them in real-time with the eCLR runtime system.

enhanced convenience

MATLAB Simulink

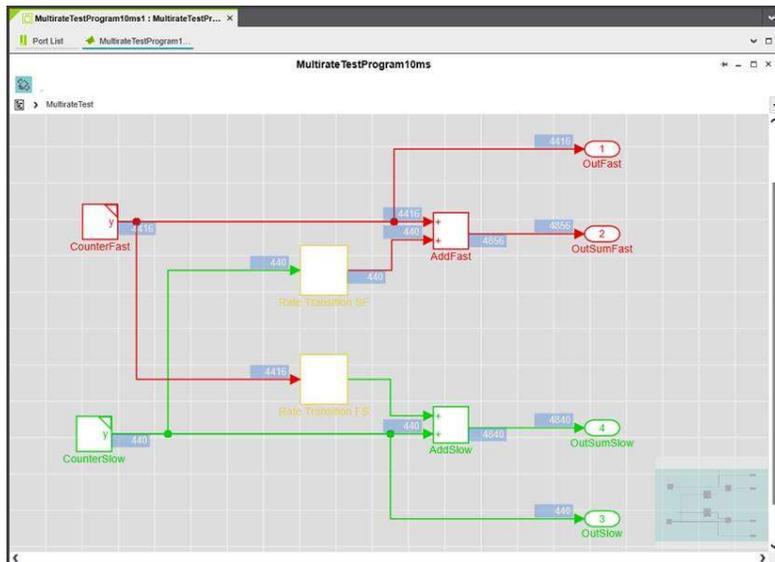


PLCnext Technology 
Designed by PHOENIX CONTACT

Seamless integration of model-based design & development with MATLAB Simulink.

enhanced convenience

MATLAB Simulink & PLCnext Engineer



PLCnext Technology 
Designed by PHOENIX CONTACT

Seamless integration of model-based design & development with MATLAB Simulink and PLCnext Engineer.

enhanced development

Connected coworking

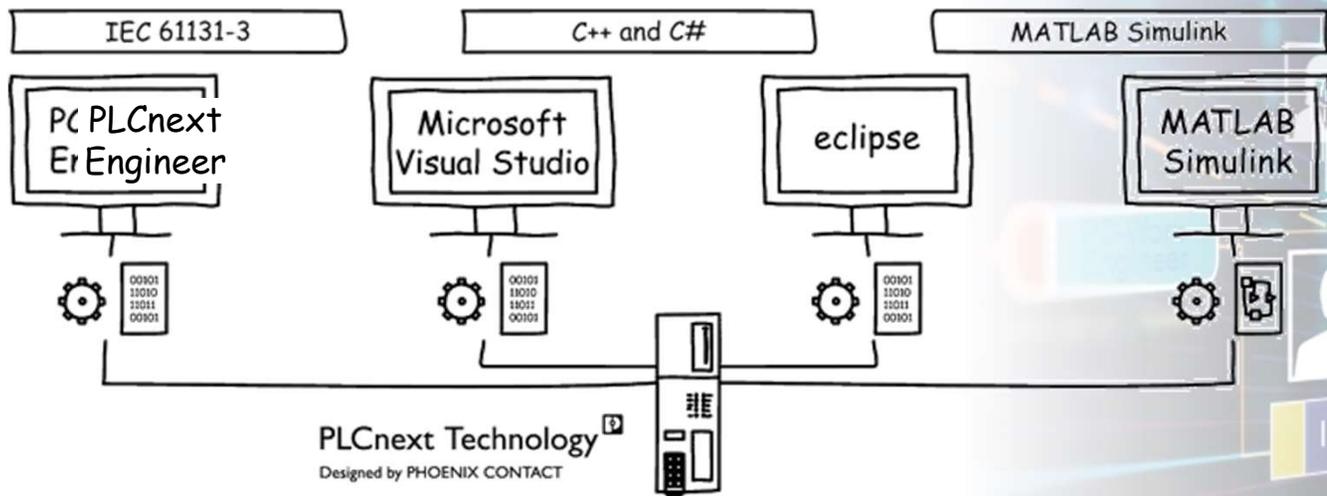
PLCnext Technology 
Designed by PHOENIX CONTACT

With PLCnext Technology, several developers from different generations can work on one controller program independently of each other using different programming languages. Thus, you can develop complex applications quickly using the advantages of the classic PLC world and the openness and flexibility of PLCnext Technology.

enhanced development

Convenient Engineering & Application Development

PLCnext Technology[®]
Designed by PHOENIX CONTACT



With PLCnext Technology, several developers from different generations, with different skill sets and expertise can work on one controller program, in parallel and yet independently, using different programming languages.



PLCnext Technology[®]

Designed by PHOENIX CONTACT

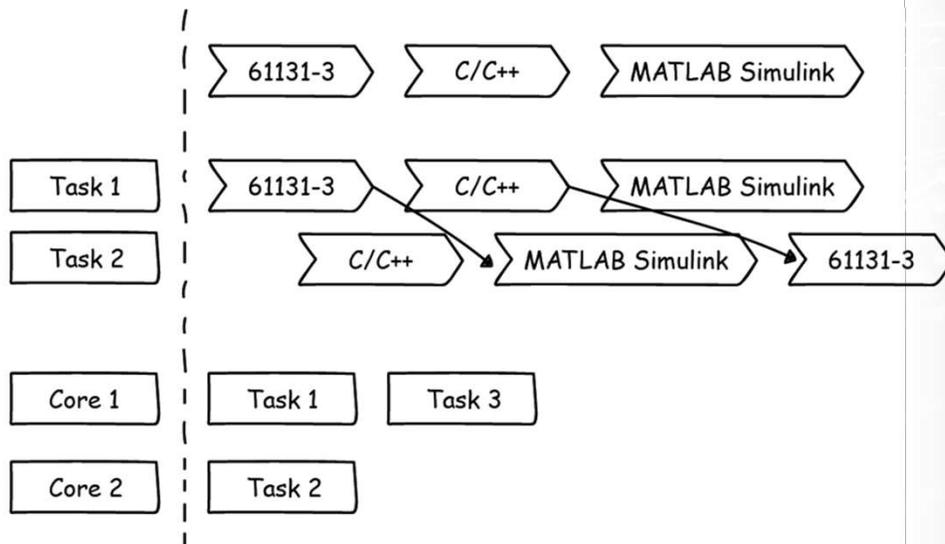
Combine program sequences in different languages into tasks as desired. The task-handling of the PLCnext Technology (patent applied for) lets program routines of different origin run like a classical IEC-61131-PLC-code – Your high-level language programs become automatically deterministic. The platform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

enhanced
performance

Real-time execution across different
programming languages

enhanced performance – PLC-typical Real-time Performance

Execution & Synchronization Manager

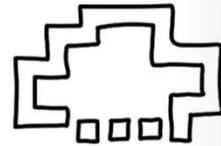


The patent-applied-for task handling of PLCnext Technology lets program routines of different origin run like classical IEC 61131 PLC code. Your high-level language programs become automatically deterministic.

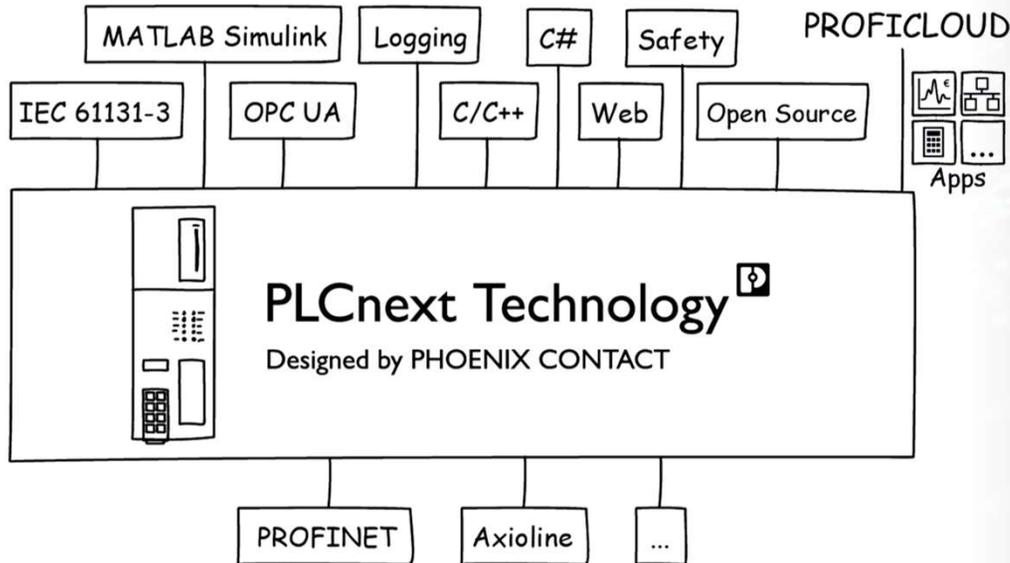
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enhanced performance – Data Consistency

Global Data Space



PROFICLOUD

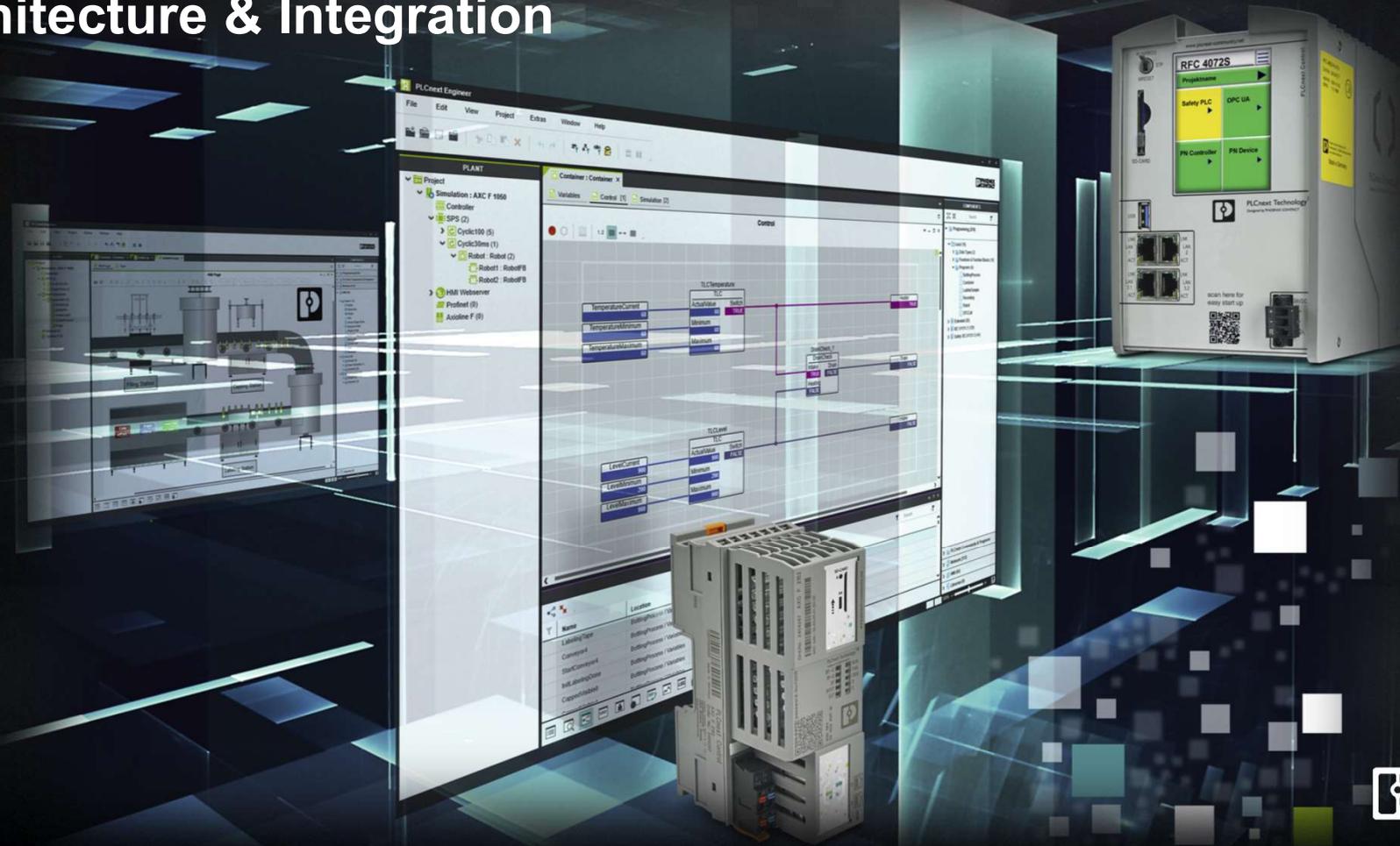


Fast and consistent data exchange between user programs, fieldbuses, and system programs.
Access via Data Logger, HMI, and OPC UA. Security aspects for user management.

PLCnext Technology in a nutshell

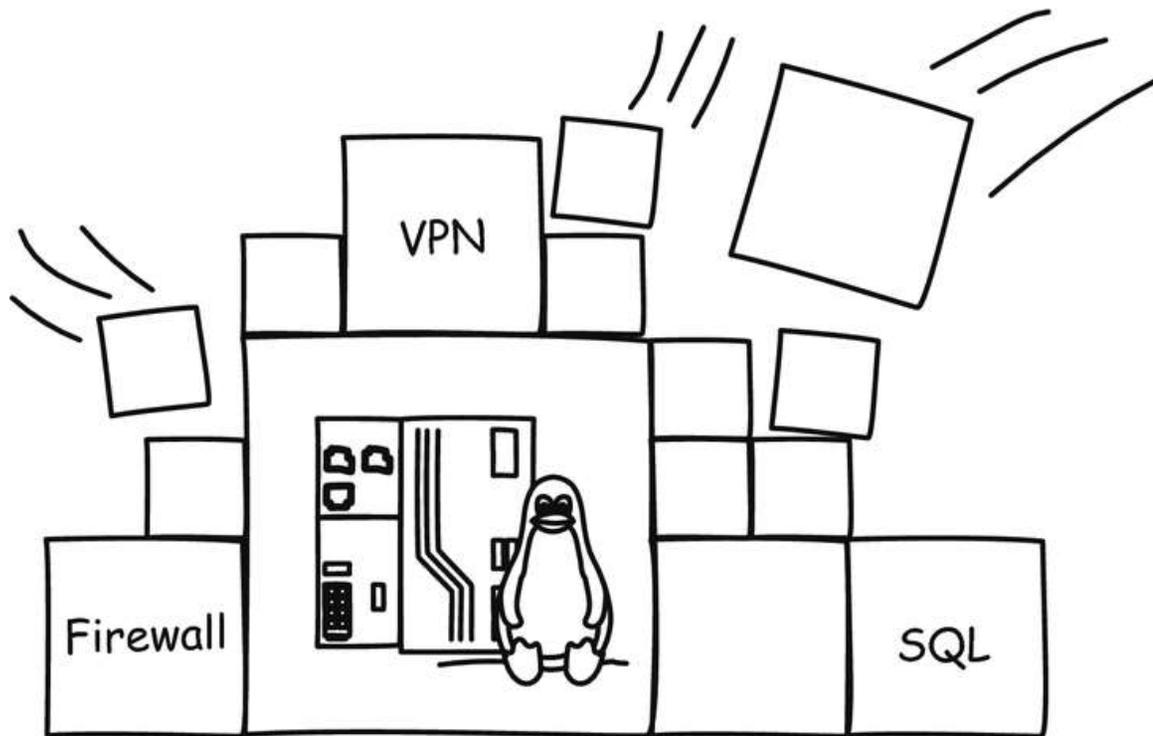
Architecture & Integration

PLCnext Technology 
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Flexibility of Linux plus the Reliability of a PLC



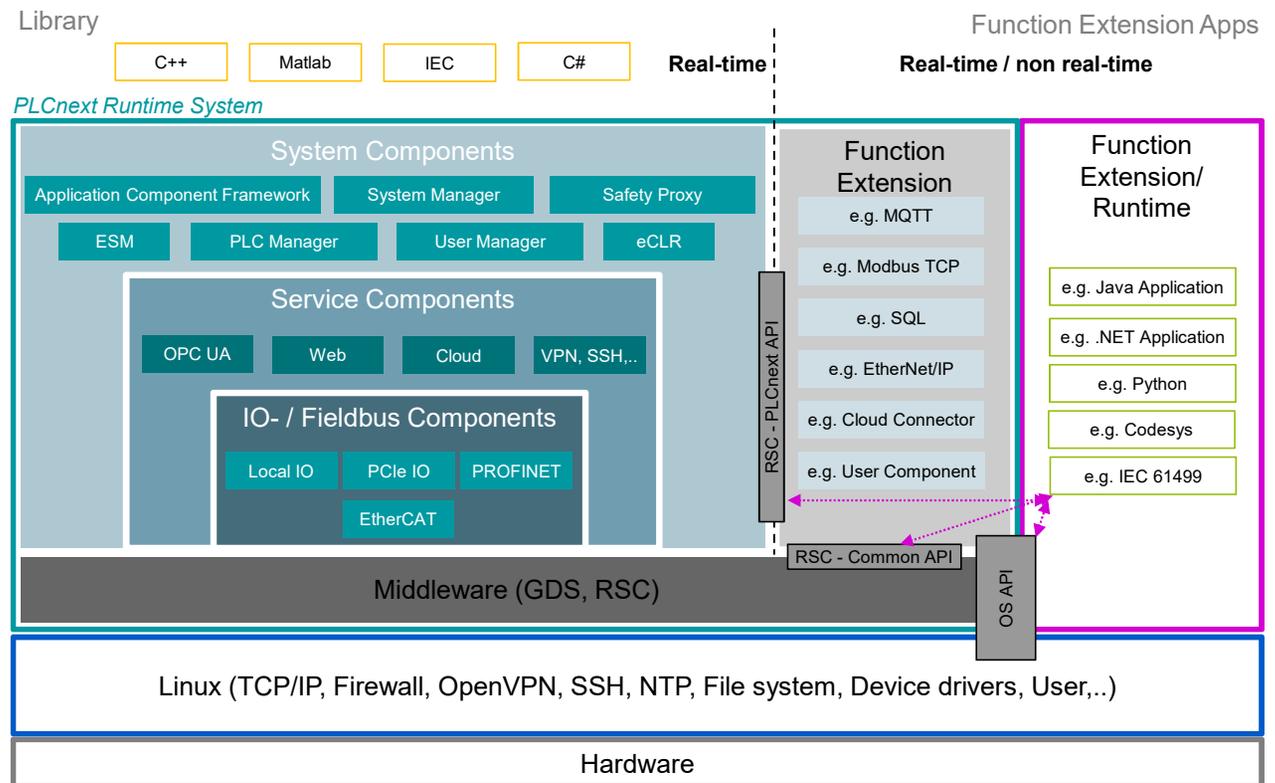
- **PLCnext Technology is based on Linux...**
 - Open source Linux Packages
- **... but as performant as a “classic” PLC!**
 - Easy task management
 - Precise synchronization
 - Cycle-consistent data exchange
 - No Linux knowledge needed

PLCnext Runtime System Architecture

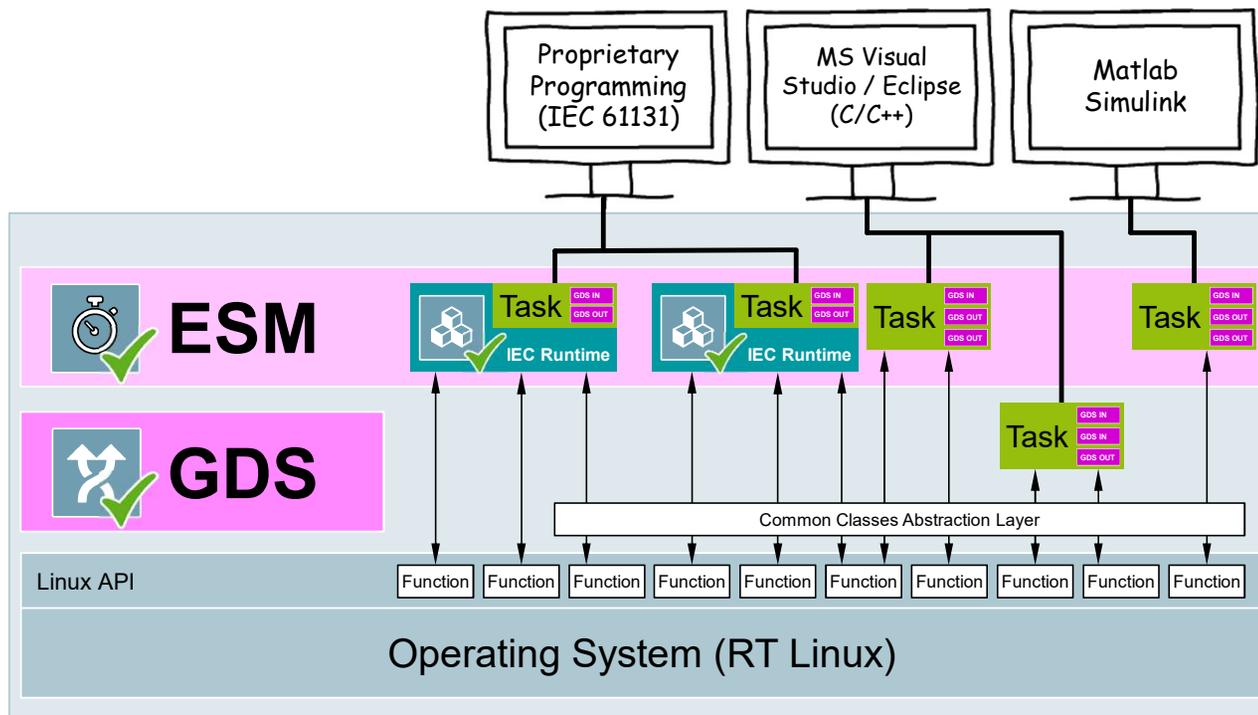
PLCnext Runtime System Architecture

PLCnext Runtime System Core Components

System Components	Service Components
<ul style="list-style-type: none"> • Execution and Synchronization Manager (ESM) • System Manager • PLC Manager • Device Interface • User Manager • Diagnostic Logger • eCLR • Application Component Framework • Safety Proxy • Event Manager • ... 	<ul style="list-style-type: none"> • OPC UA Server • PROFICLOUD Gateway • Web-based Management • PLCnext Engineer HMI • Data logger • Device HMI • Accessible via OS <ul style="list-style-type: none"> • DHCP, DCP • SFTP, VPN • SSH, NTP • Trace Controller
IO Components	Middleware
<ul style="list-style-type: none"> • Fieldbus Manager <ul style="list-style-type: none"> • PROFINET Controller • PROFINET Device • Axioline • ... 	<ul style="list-style-type: none"> • Global Data Space (GDS) • Remote Service Calls (RSC) • Commons Layer (Common Classes)



PLCnext Technology Architecture Advantages – Summary



- No vendor dependency
- Combined use of IEC 61131, 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



Video ESM and GDS explained



PLCnext Technology

Sites of Information



More about
PLCnext Technology



PLCnext Technology
on Instagram



PLCnext Technology
on LinkedIn



PLCnext Technology
on GitHub



PLCnext
Store



Technical
Tutorials



PLCnext Technology

Enhance your automation thinking

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Webinar IMA Septiembre 2020

Introducción al ecosistema de plataforma abierta y flexible PLCnext Technology



Fecha	23 Septiembre 2020
Hora	9:00
Hora	16:00
Duración	1 hora
Costo	gratuito

Conozca la nueva plataforma para desarrolladores de sistemas de automatización flexibles, abiertos, ilimitados con la esencia de sus componentes principales y las posibilidades ya existentes e innovaciones constantes para una nueva forma de realizar sistemas a futuro.

Descripción general del Sistema PLCnext Technology diseñado por Phoenix Contact. Descubra sus componentes esenciales, las mejoras en conectividad, conveniencias de programación, en desempeño, en desarrollo de aplicaciones, ventajas en su arquitectura. PLCnext representa el siguiente paso a sistemas de automatización inteligentes, flexibles y abiertos con conectividad sin precedentes.



Webinar IMA Septiembre 2020

PLCnext Control nueva tecnología de plataformas de control probadas hacia el futuro



Fecha	24 Septiembre 2020
Hora	9:00
Hora	16:00
Duración	1 hora
Costo	gratuito

Aprenda a seleccionar el controlador correcto PLCnext para su próxima aplicación nueva o actualización de su plataforma existente para lograr mayores eficiencias en la forma de ejecutar sistemas de automatización y control probados en conectividad e inteligencia a futuro

Descubra las características que diferencian a cada uno de los nuevos controladores PLCnext control para su utilización. Aprenda los primeros pasos y herramientas disponibles para poner en marcha un PLCnext Control así como las posibilidades de conectividad a PROFICLOUD y OPC UA de manera sencilla. Identifique los Starterkit disponibles, sistemas de I/O's posibles, elementos de conectividad a buses de campo y redes industriales así como un panorama de los sitios de ayuda para su próxima aplicación en Sistemas de control flexible y abiertos.



Webinar IMA Septiembre 2020

PLCnext Engineer nueva herramienta de programación, integración y desarrollo eficiente



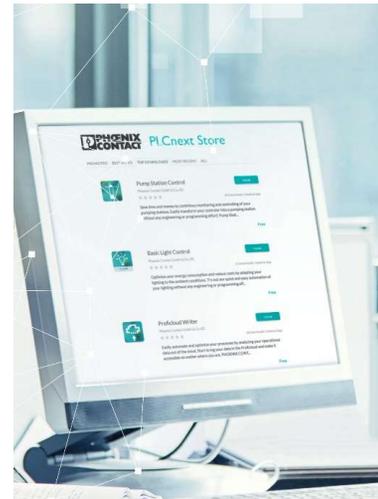
Fecha	29 Septiembre 2020
Hora	9:00
Hora	16:00
Duración	1 hora
Costo	gratis

Lograr identificar los elementos primordiales de la plataforma PLCnext Engineer así como las posibilidades de integración y desarrollo de una manera más eficiente en la integración de otros lenguajes de programación y apps específicas para la plataforma PLCnext Technology

Con PLCnext Engineering usted aprenderá las áreas básicas de esta herramienta de programación, sus posibilidades de programación en control, visualización, integración de programaciones desarrolladas en lenguajes de alto nivel. Una búsqueda intuitiva y fácil de desarrollar, diagnóstico para aplicaciones de control probados a futuro y con mucho mejor posibilidad de integración de ideas y desarrollos a futuros por medio de apps.

Webinar IMA Septiembre 2020

PLCnext Store nuevo mercado digital para desarrollar y utilizar Apps en PLCnext Control



Fecha	30 Septiembre 2020
Hora	9:00
Hora	16:00
Duración	1 hora
Costo	gratuito

Conozca una nueva posibilidad para desarrolladores de Apps para controladores PLCnext. Lograr identificar las apps disponibles y la oportunidad para mejorar la conectividad y eficiencia digital a través de desarrollos de apps y su forma de comercialización en el mercado.

Durante este Webinar exploraremos las apps disponibles, ya sea por extensión de función, runtime, librería y las de selección de aplicación. Un mundo de posibilidades en la conectividad a otros controladores, nubes, softwares, digitalización, almacenamiento de información y mejoras en eficiencia para usted.

Webinar IMA Septiembre 2020

PLCnext Community y ejemplos de aplicaciones PLCnext Technology



Fecha	1 Octubre 2020
Hora	9:00
Hora	16:00
Duración	1 hora
Costo	gratuito

Conozca, descubra y utilice esta nueva comunidad que permite a los desarrolladores nuevos de Sistemas de Automatización probados a futuro el utilizar todos los componentes de la tecnología PLCnext.

Presentaremos durante la sesión el sitio de la comunidad PLCnext Community, donde podrá obtener novedades, blogs de ambiente de negocios en tecnología, fórums para ideas y soluciones, conocimientos básicos que incluyen: webinars específicos, guías de inicio, tutoriales, manuales, e-learning, preguntas frecuentes, roadmap, Información central sobre PLCnext y PLCnext Store, preguntas frecuentes, videos, etc.,...

También durante la sesión se presentarán ejemplos representativos de aplicaciones con PLCnext Technology.



Webinar IMA 2020

Mayor información



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Actividades 2020

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