



APP MANAGEMENT ON THE EDGE

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www.wibu.com/wibu-systems-webinars/app-management-on-the-edge/access.html



Overview and Introduction

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Technical Director

Open Industry 4.0 Alliance

App Management on Edge

Agenda

1. Welcome
2. Overview and introduction
3. App stores as one core element of industrial digitization
4. App management on the edge
5. Licensing and protection
6. Wrap Up – Takeaways
7. Questions and answers



Shortly explained: Open Industry 4.0 Alliance

Brochure available at:
<https://openindustry4.com/download-center/>

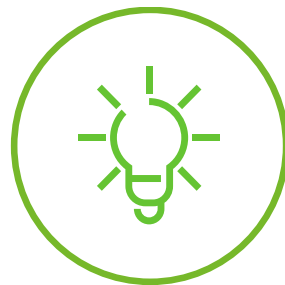
Goals & Vision

At the Open Industry 4.0 Alliance, we **create customer value** together by **implementing existing standards** and developing **interoperable Industry 4.0 solutions and services**.

To achieve this, we follow a **common framework**, co-developed and powered by a **group of industry leaders**, from sensor to the cloud.



DELIVER
CUSTOMER VALUE
TOGETHER



DEVELOP
INTEROPERABLE
PRODUCTS AND
SOLUTIONS



ENSURE
OPERATORS,
OEMs & OI4
ECOSYSTEM
COLLABORATE



ESTABLISH
A COMMON
FRAMEWORK
& SEMANTICS

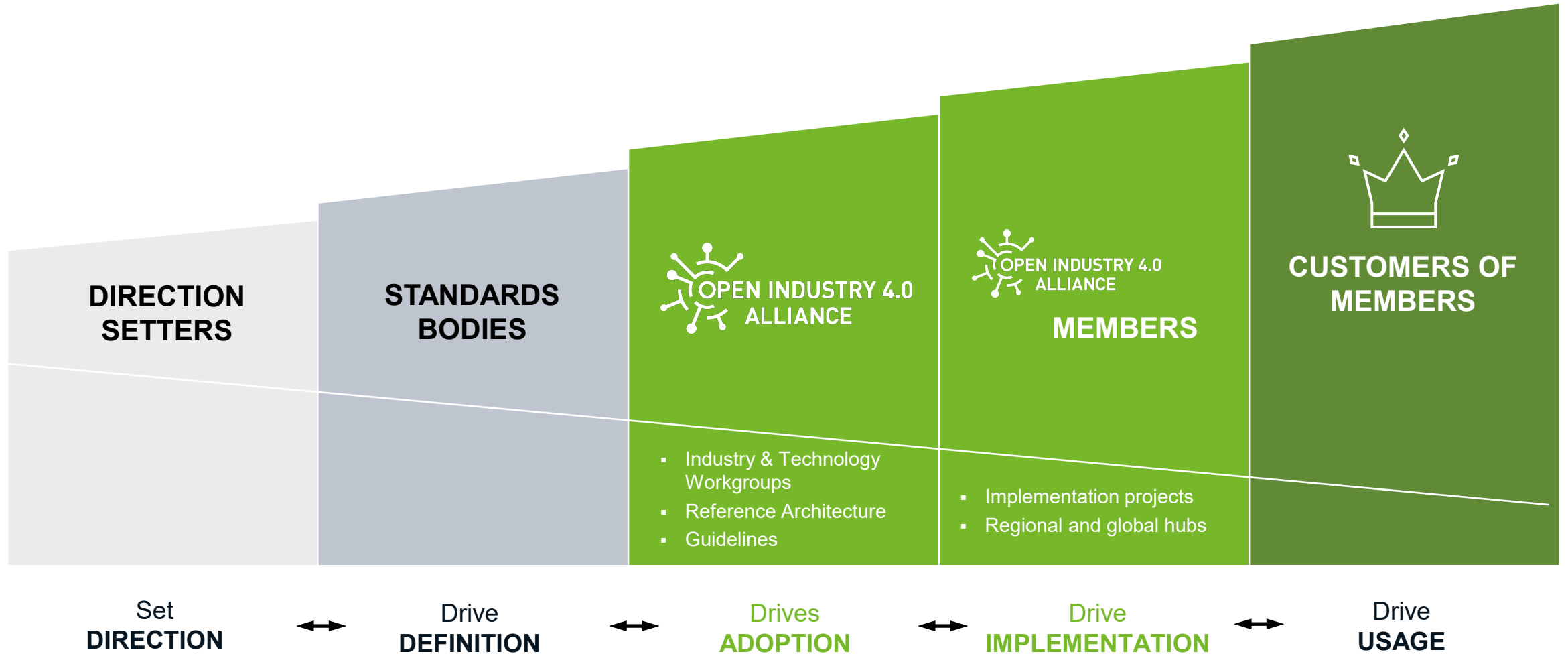


CREATE A
VIABLE
ECOSYSTEM

ADVANTAGES IN A NUTSHELL:

The **solutions** that OI4 Alliance members jointly develop are **easily deployed and integrated** in the factories, plants and warehouses of customers (operators and OEMs).

= **IMPLEMENTATION ALLIANCE**





*soon more

Status: March 2023

Brochure available at:
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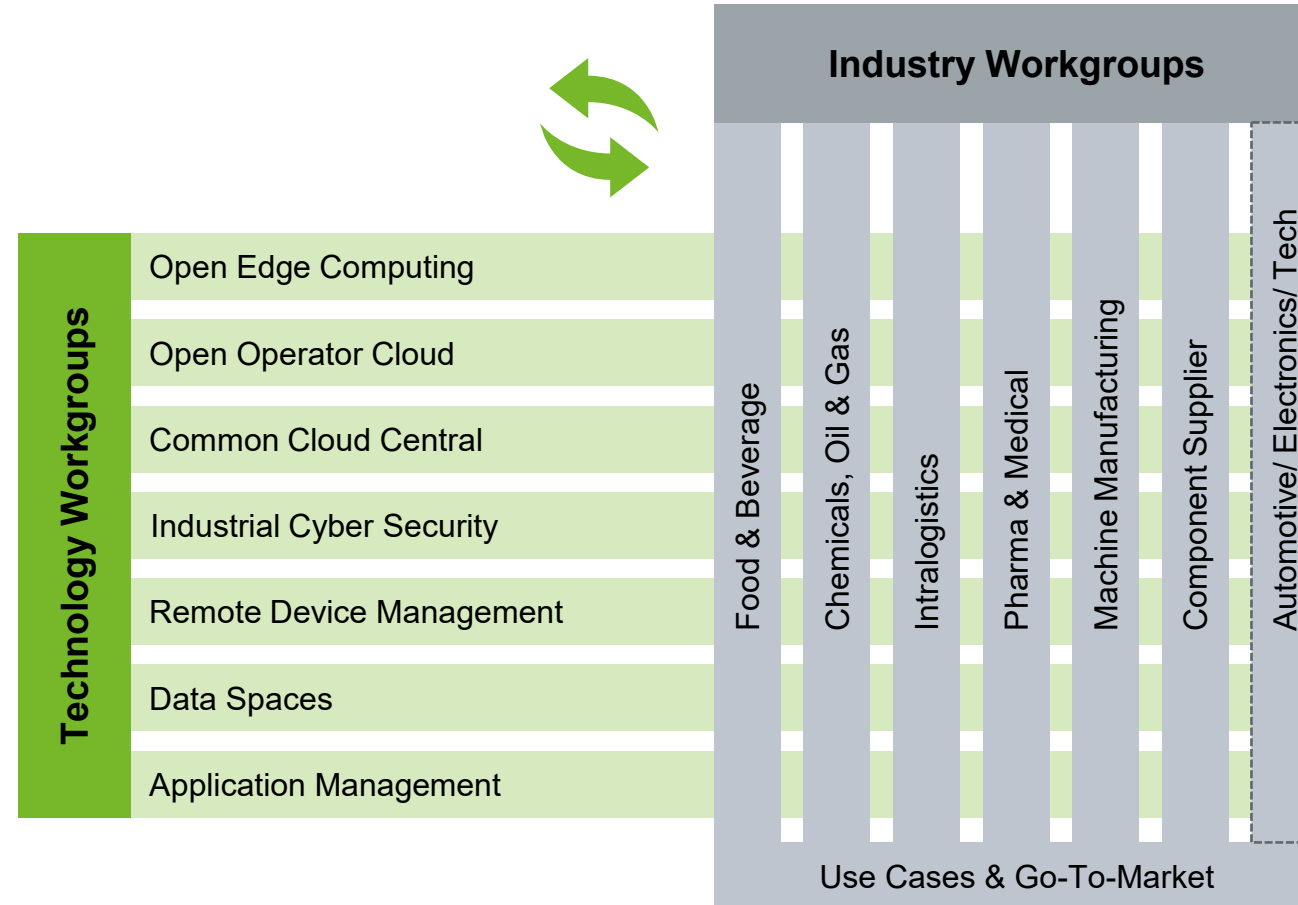
At this time the Open Industry 4.0 Alliance comprises of almost 100 companies



How does an App Store fits in there?

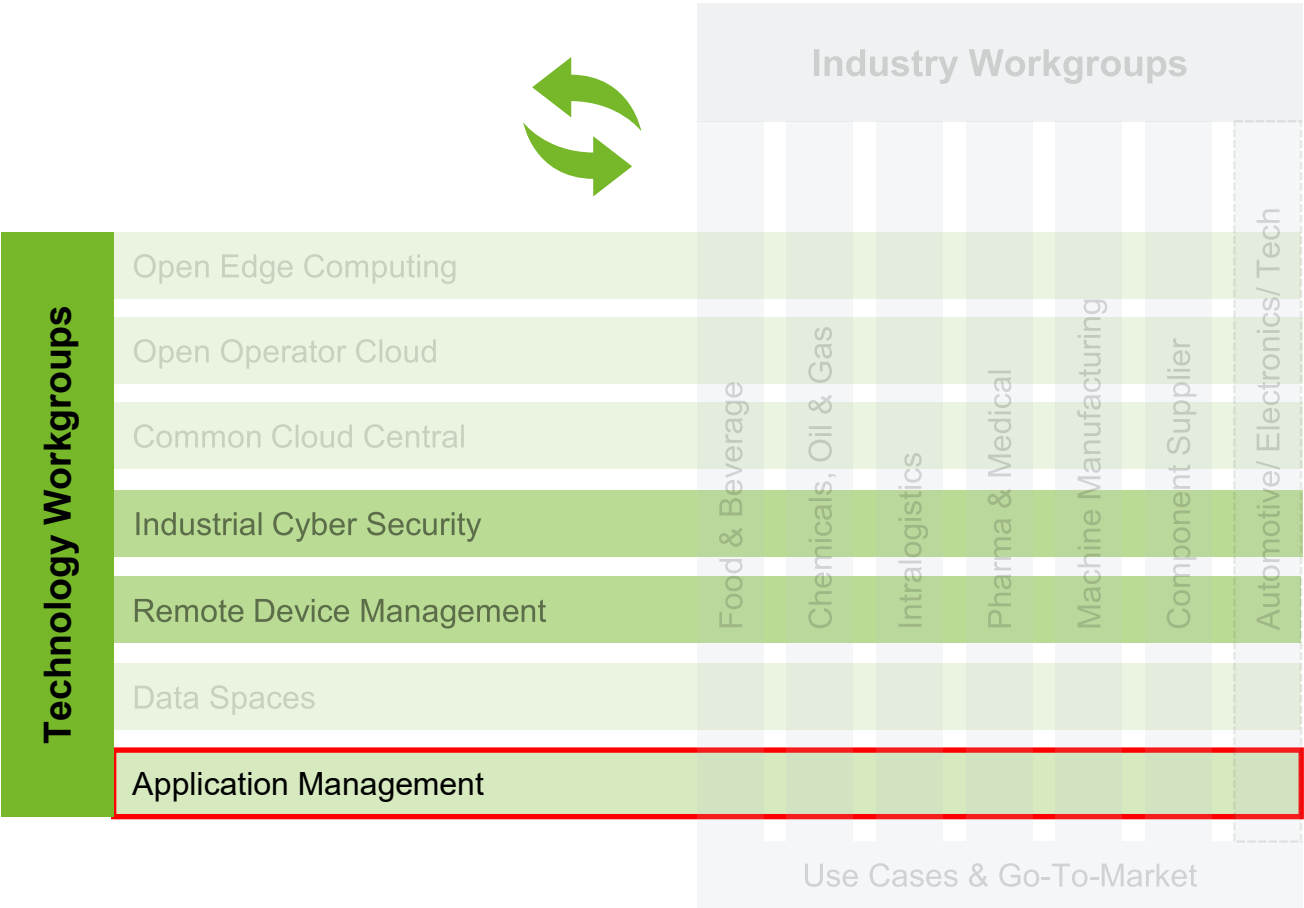
How We Work – Industry & Technology Workgroups

Adding value by vertical and horizontal integration



How We Work – Industry & Technology Workgroups

Adding value by vertical and horizontal integration



Application Management: Current situation

Separation of ecosystems

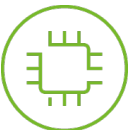
Application



App Store



Deployment



Provider 1



Application Management: Current situation

Separation of ecosystems

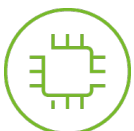
Application



App Store



Deployment



Provider 1



Provider 2



Provider 3



Application Management: Current situation

Separation of ecosystems

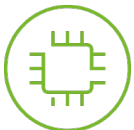
Application



App Store



Deployment



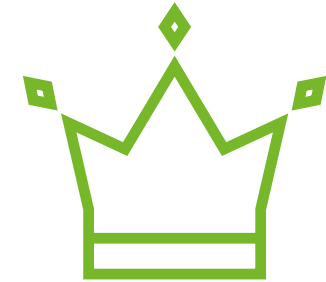
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Provider 1



Provider 2



Provider 3



Application Management: Current situation

Separation of ecosystems

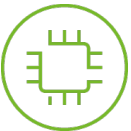
Application



App Store



Deployment



Provider 1



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Provider 2



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Provider 3



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Application Management: Future situation

Ecosystems merger

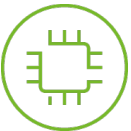
Application



App Store



Delivery



Provider 1



Provider 2



Provider 3

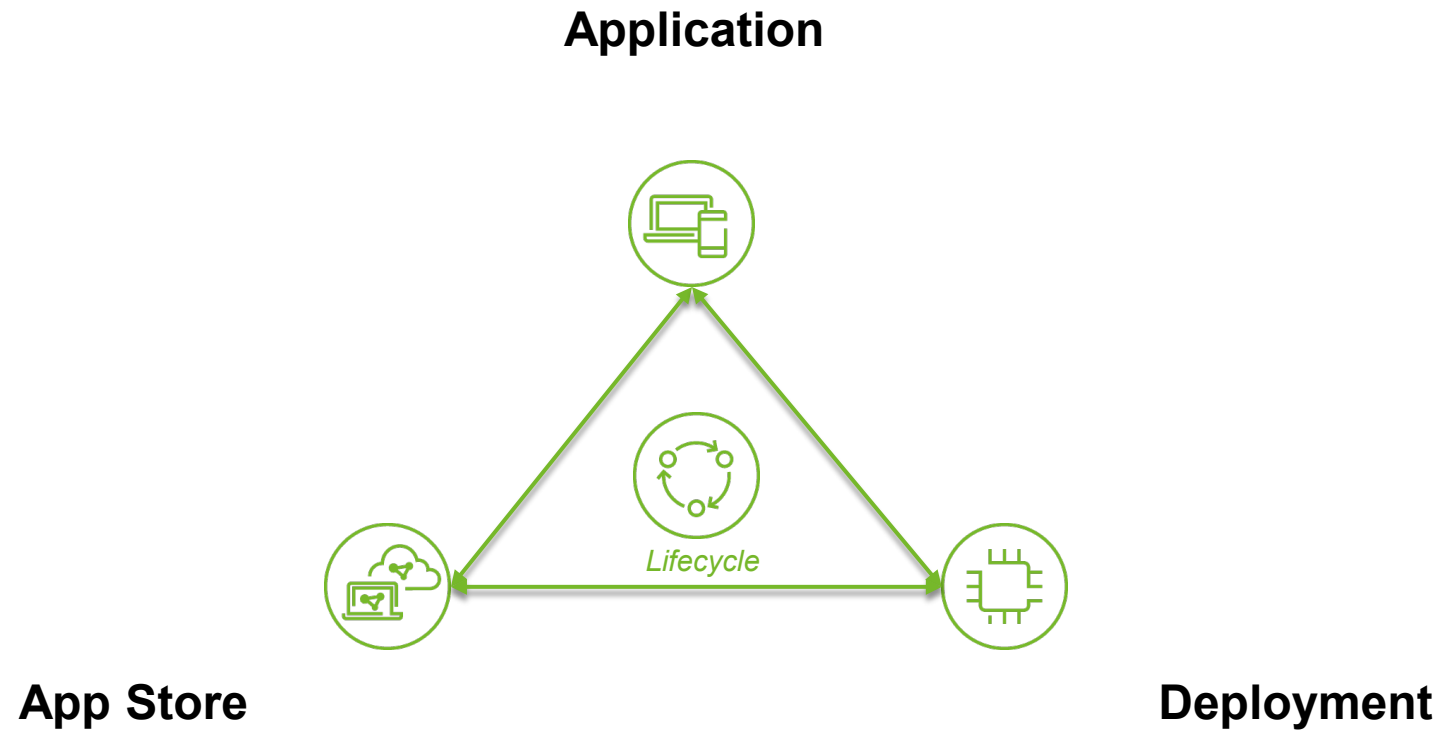


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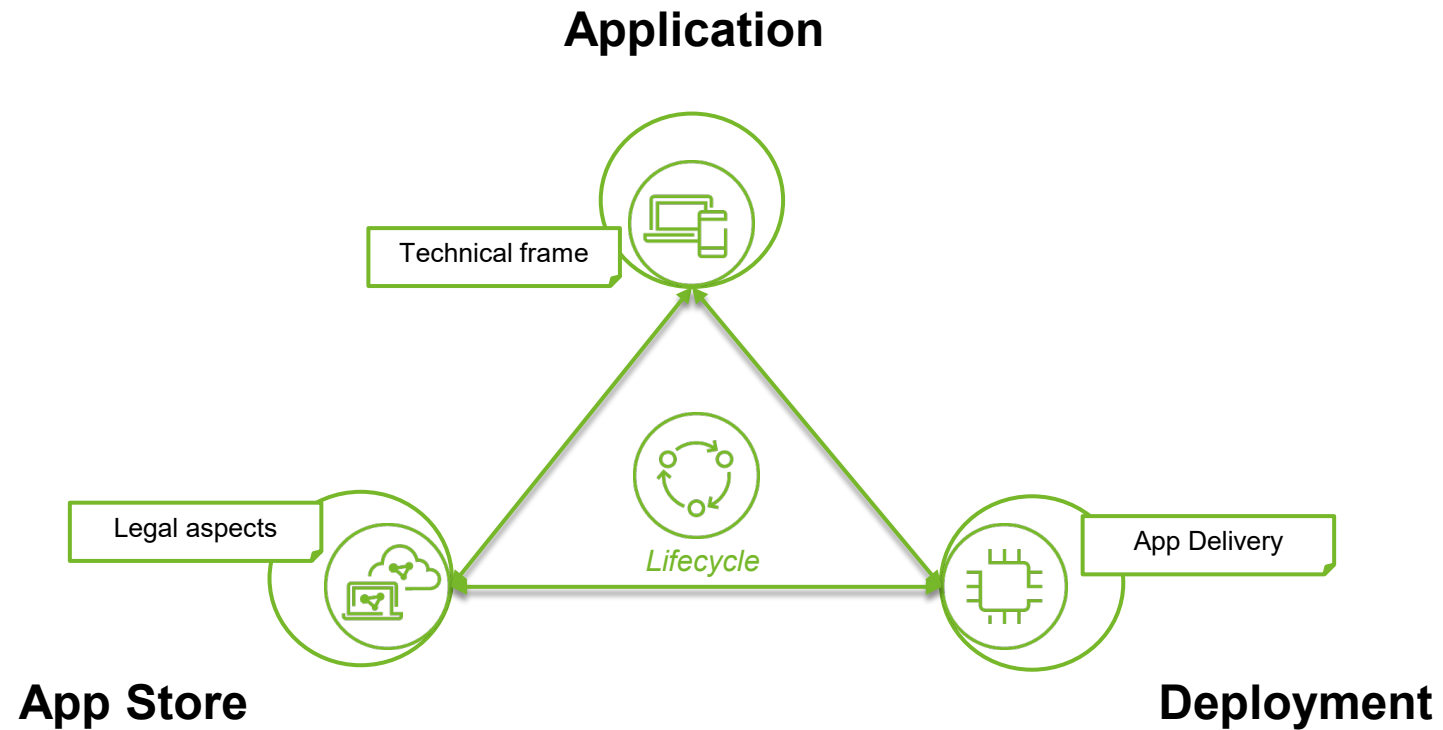
Application Management: Shell Concept

High level overview



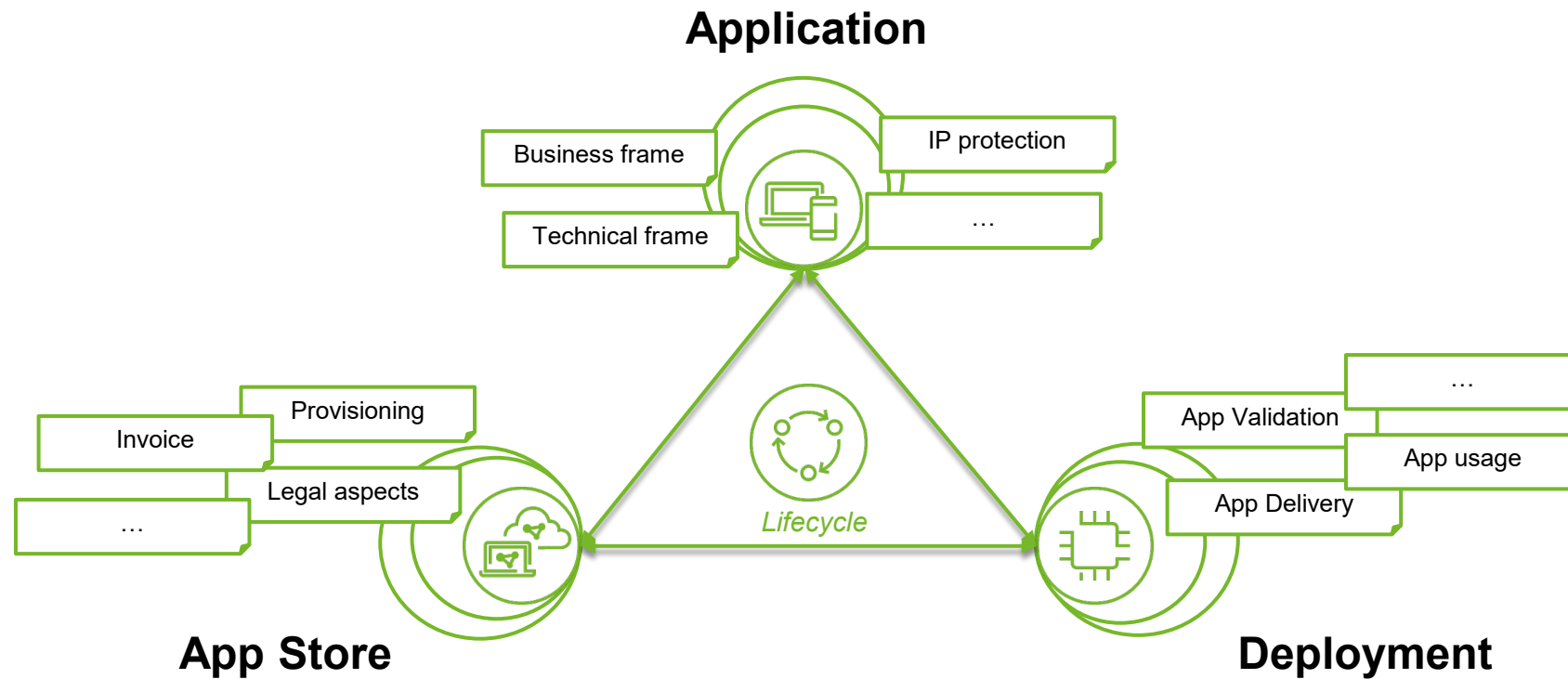
Application Management: Shell Concept

High level overview



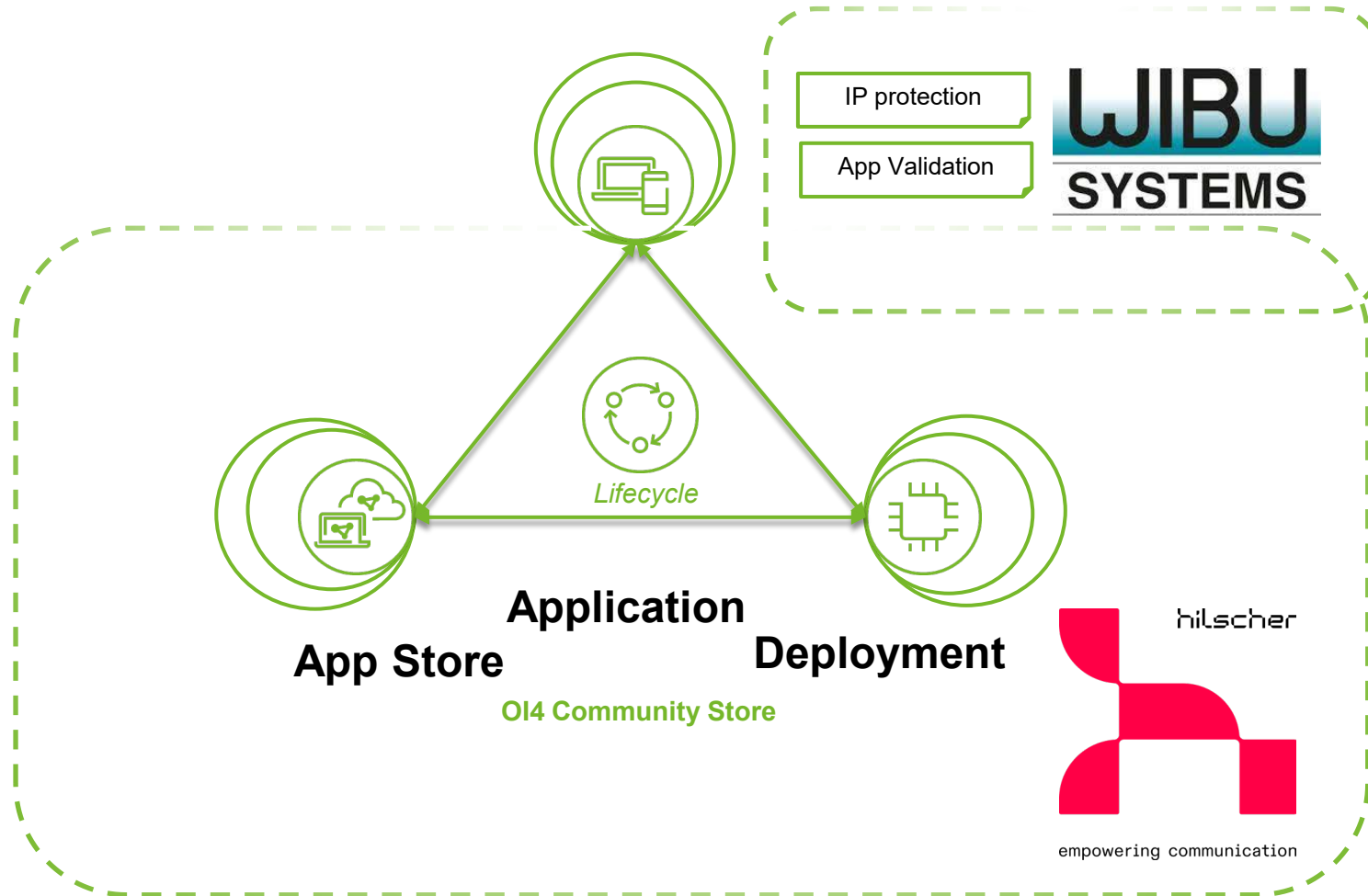
Application Management: Shell Concept

High level overview



Application Management: Orientation

Successful w/ strong partners





App Stores as One Core Element of Industrial Digitization

Niels Trapp

Chief Marketing Officer

Hilscher Gesellschaft für Systemautomation mbH

Challenges of the Production Industry in the Digitization Age

Companies continue to plan the digitization of their production lines and services to

- Improve production efficiency
- Increase transparency
- Offer improved services
- Launch new digital business models



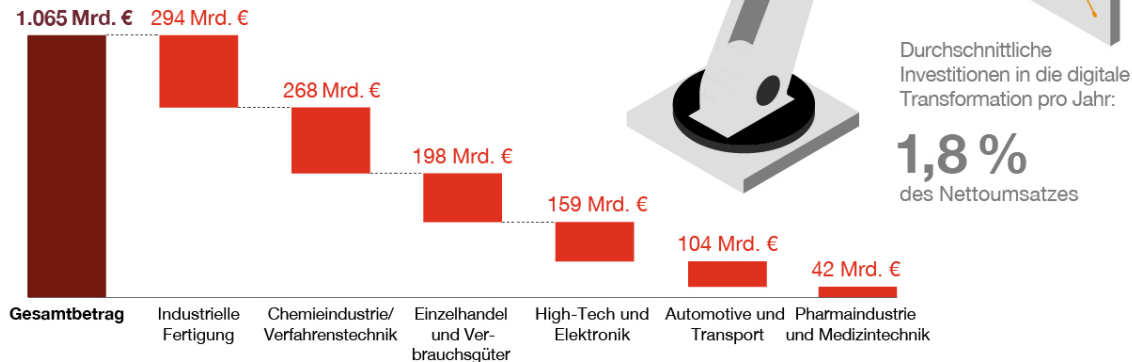
Industrial IoT gains Momentum

Significant investments into various industries – continued also during Covid-19 times

Investitionen in die digitale Transformation der Fertigung

Globale Ausgaben in sechs Schlüsselbranchen

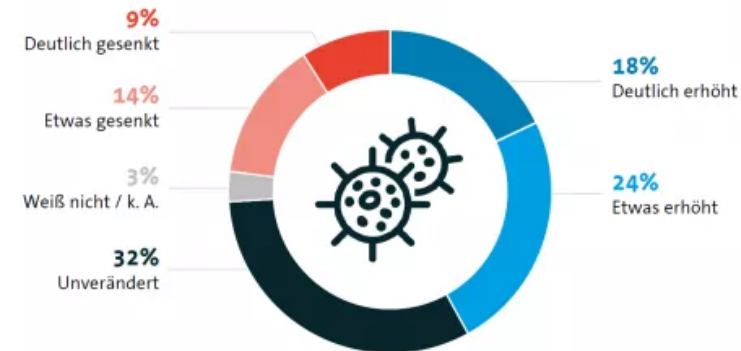
Wie viel investieren Sie in die digitale Transformation Ihrer Fertigung?



Quelle: PwC Industry 4.0: Building The Digital Enterprise/PwC Digital Factory Transformation Survey 2022/IHS Markit.

Investitionen steigen durch Corona – aber nicht überall

Welchen Einfluss hat die Corona-Pandemie auf Investitionen ihres Unternehmens in Industrie 4.0?



In Schnitt **investieren** die Unternehmen im Jahr 2021 **5%** ihres **Umsatzes** in Industrie 4.0

8 Basis: 457 Anwender und Planer von Industrie-4.0-Anwendungen ab 100 Mitarbeitern in Deutschland | Quelle: Bitkom Research 2021

bitkom

- Over a trillion € Invest globally in 2022 acc. to IHS Study
- ~30% into Digital Transformation of Industrial Production
- Another 30% into Process Industry

- Covid-19 has not delayed the digitization trend
- 42% of companies state they increased or significantly increased investments into Industrie 4.0 (German study of bitcom)

IT/OT Convergence – Industrial IoT Bridges Two Worlds

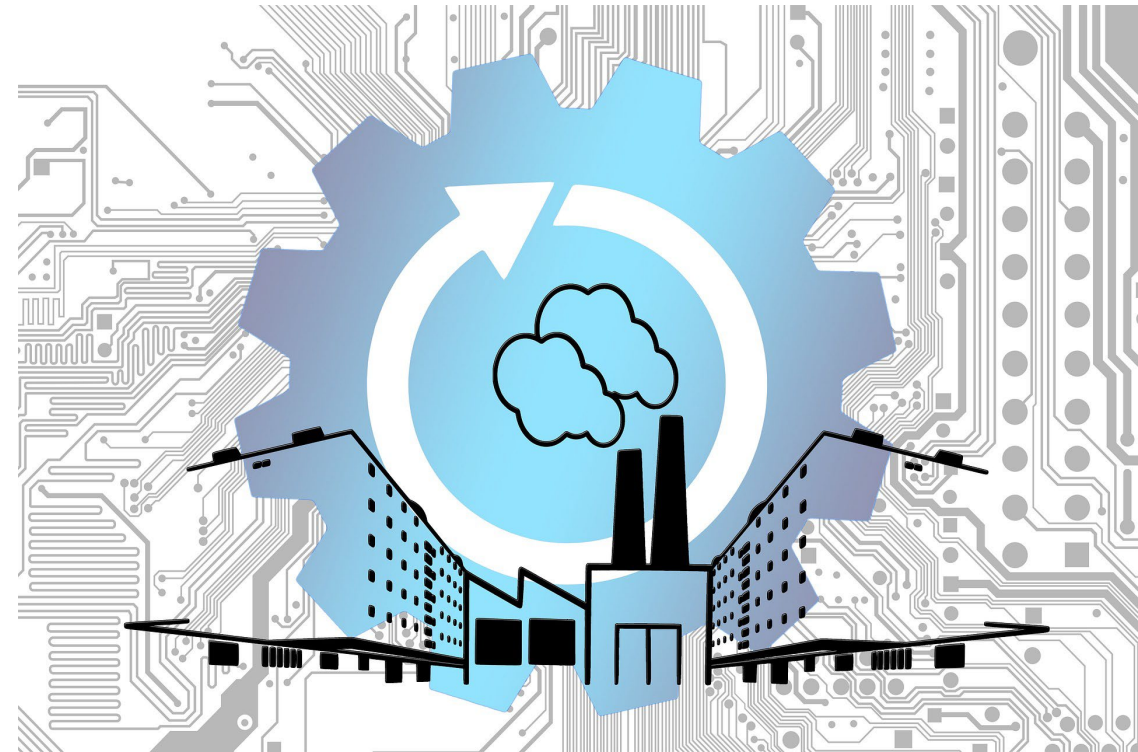
Industrial IoT applications require to **deeply integrate OT and IT**

OT knowledge is key to succeed with IIoT integration in order not to harm running OT systems

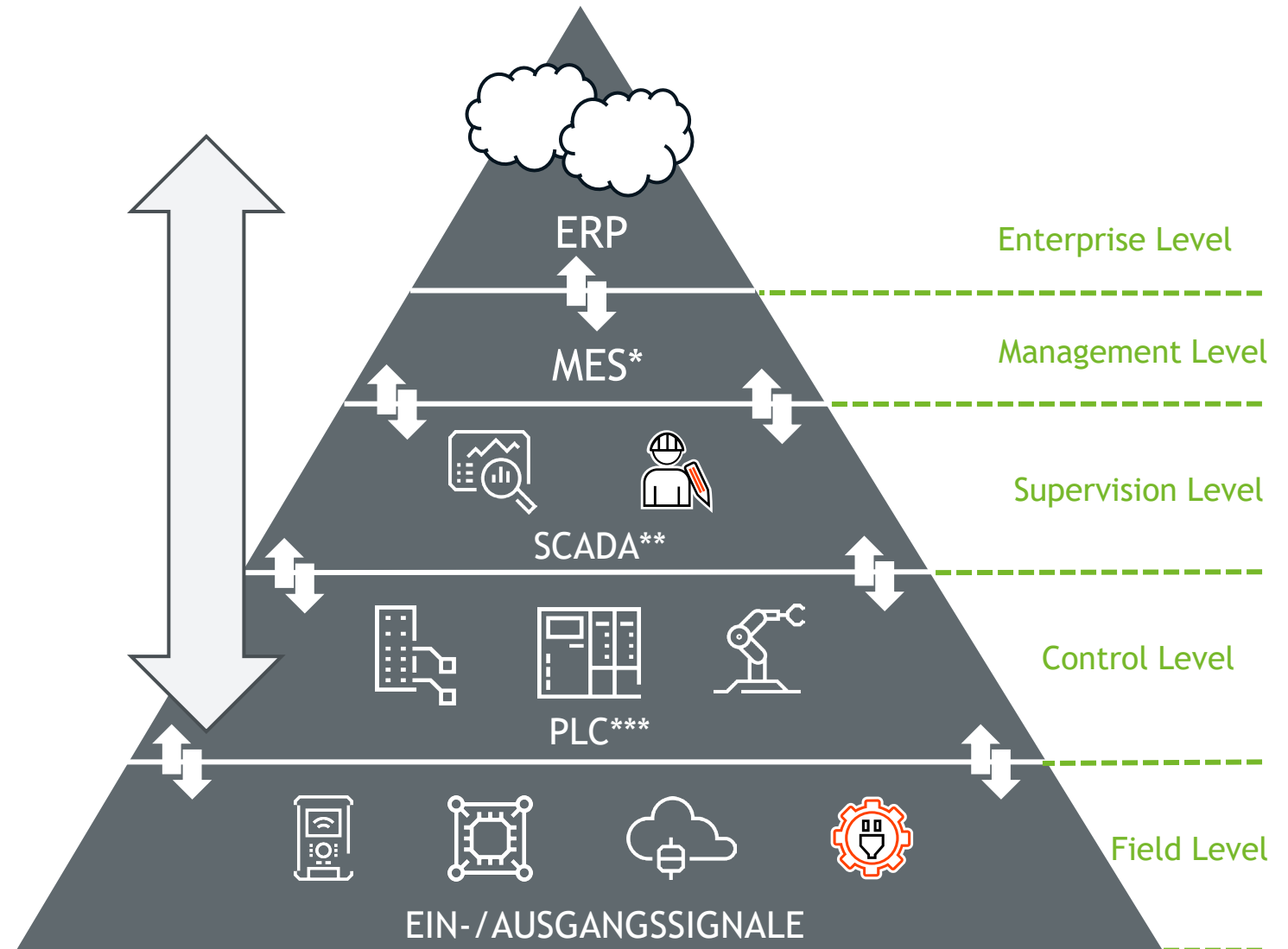
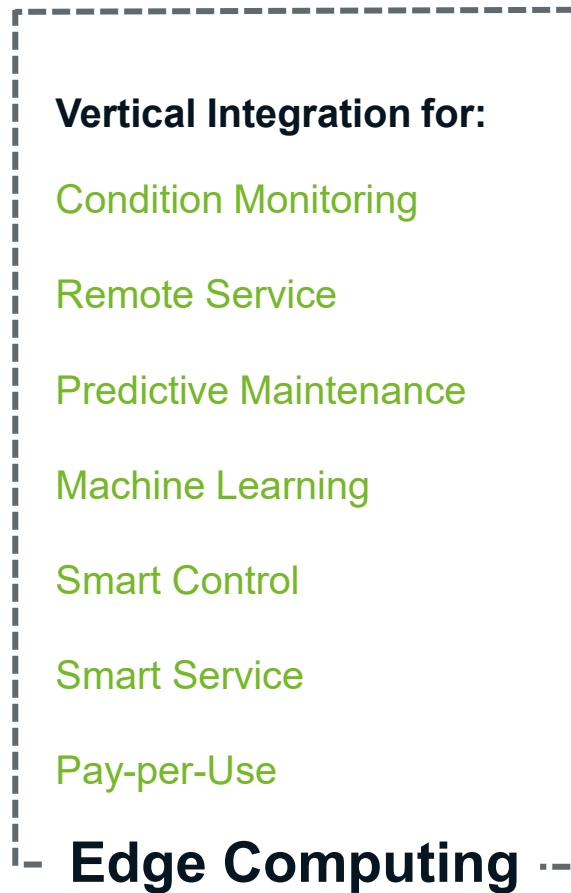
Industrial IoT is **inherently hybrid** – synergies of edge computing and cloud computing

Complex to operate and scale - requires a sound strategy, managed IIoT infrastructure, and reliable ecosystem partners

Cyber security has become a major concern



Vertical Integration for Industry 4.0 / Industrial IoT



* Manufacturing Execution System

**Supervisory Control And Data Acquisition

***Programmable Logic Controller

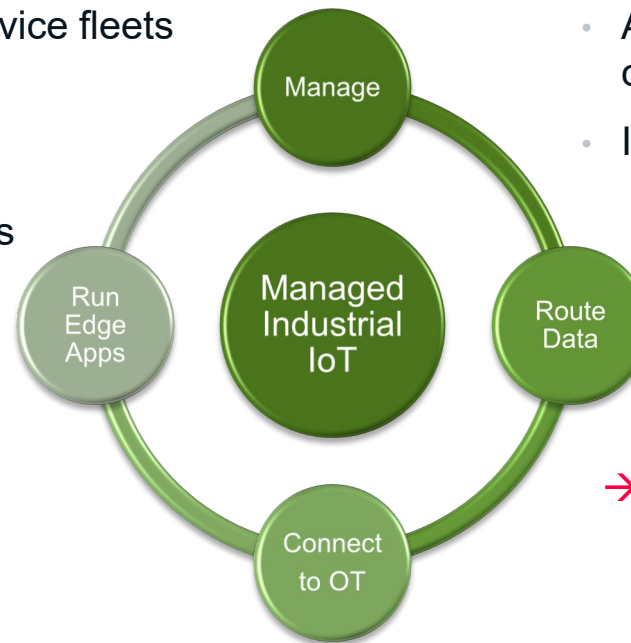
Edge Management – Key Capabilities

→ Centrally manage all your edge devices

- Simple and secure provisioning of industrial edge devices
- Efficiently organize and manage your device fleets
- Monitor device health and status
- Remote configuration and updates
- Remote access to edge and field devices

→ Secure OS for edge devices

- Linux-base OS tailored for IIoT usage
- Keep OS and software up-to-date to prevent and mitigate vulnerabilities
- Run your IIoT apps as Docker containers



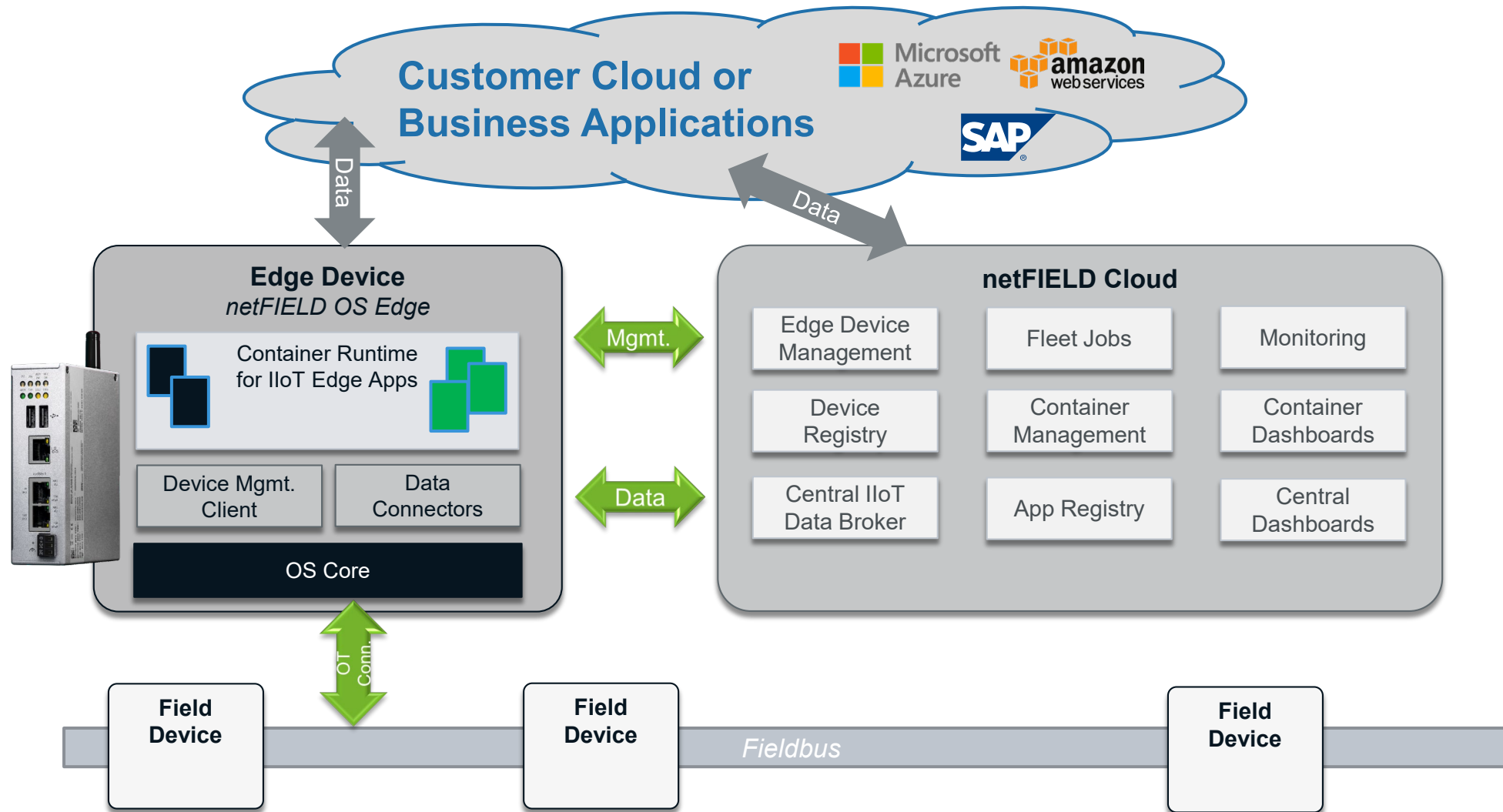
→ Manage your distributed IIoT applications

- Distribute software components and configuration to edge devices
- All software applications managed and versioned in container repositories
- Integrate app UIs into central edge management

→ Governance for your IIoT data flows

- Configure IoT data flow on a per-topic basis
- Supports industry standards, such as MQTT, OPC-UA, OI4, etc.

Example: netFIELD Edge Management – High Level Architecture



IloT App's as Qualified Adjustments to the Current Automation Task

Challenges for OT engineering

- **App economy well established in IT industry**
 - Different risk management and risk awareness
- **OT world challenges include**
 - Reliability topics
 - Machine up-time
 - Production throughput and efficiency
 - Compatibility of technology components
 - Cyber security protection
- **Industrial App's need to support all these concerns**



App Stores as one Core Element of Industrial Digitization

Future Edge Installations Benefit from Access to a wide Knowledge and Expertise

- **Compatibility: Standardized App inputs**
App's share same input format based on Ol4 techn. frame
- **Reliability: Standardized deployment process**
App's deployed seamlessly fit to EDGE Architectures
- **Use shared knowledge of a large community**
Ol4 community to share expertise with App's and to host numerous App and service providers
- **Clear roles and responsibilities for purchase process**
- **Security by design**
Wibu Software Protection for the end-2-end process





Demo

"App Management on the Edge"

Uwe Schnepf

Business Development IIoT Platforms

Hilscher Gesellschaft für Systemautomation mbH

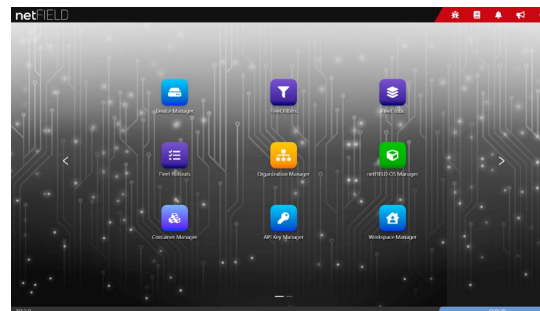
Overview of Demo

Cloud

3 OI4 Community App Store



2 Open Operator Cloud



Shop Floor

1 Edge Device



An abstract geometric diagram on the left side of the page. It features three green circular nodes. One node is at the top left, another is at the bottom left, and a third is to the right of the bottom-left node. These nodes are connected by green lines. The top-left node is connected to the bottom-left node and the middle-right node. The bottom-left node is connected to the top-left node, the middle-right node, and several other lines extending outwards to the left. The middle-right node is connected to the top-left node and the bottom-left node. The word "Video" is positioned to the right of this diagram.

Video



Licensing and Protection

Rüdiger Kügler

VP Professional Services

WIBU-SYSTEMS AG





Licensing Basics

Integrate Once – Deliver Many

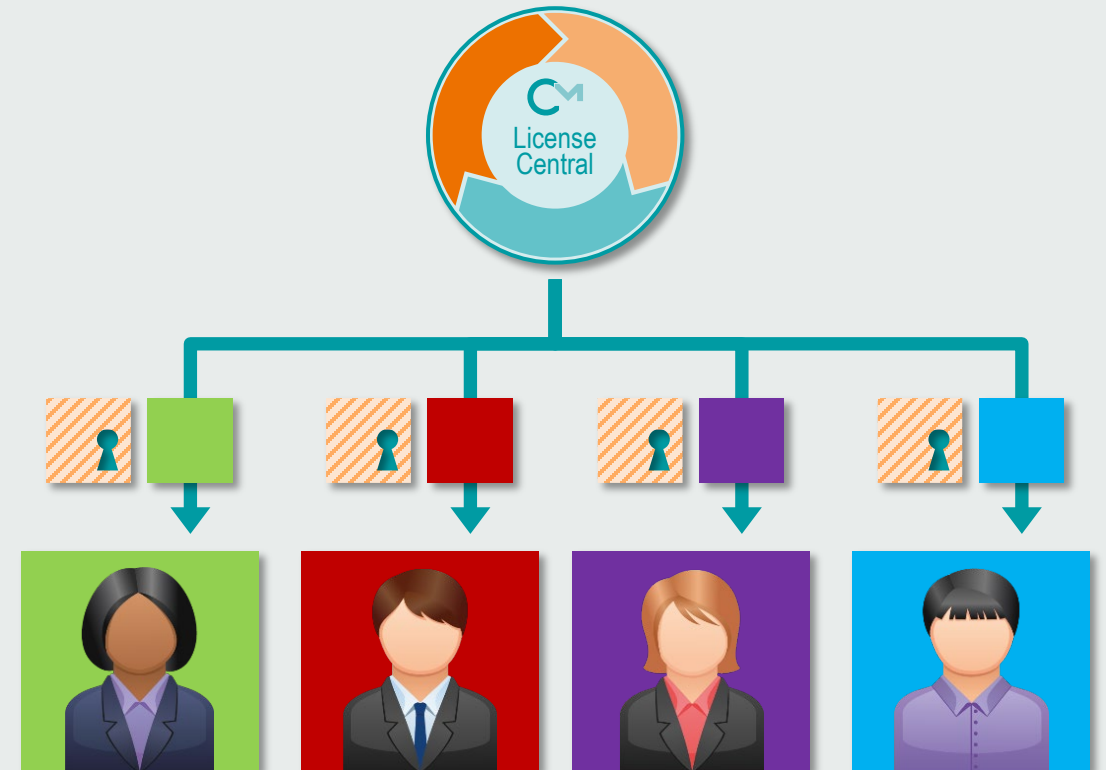
Integration into software



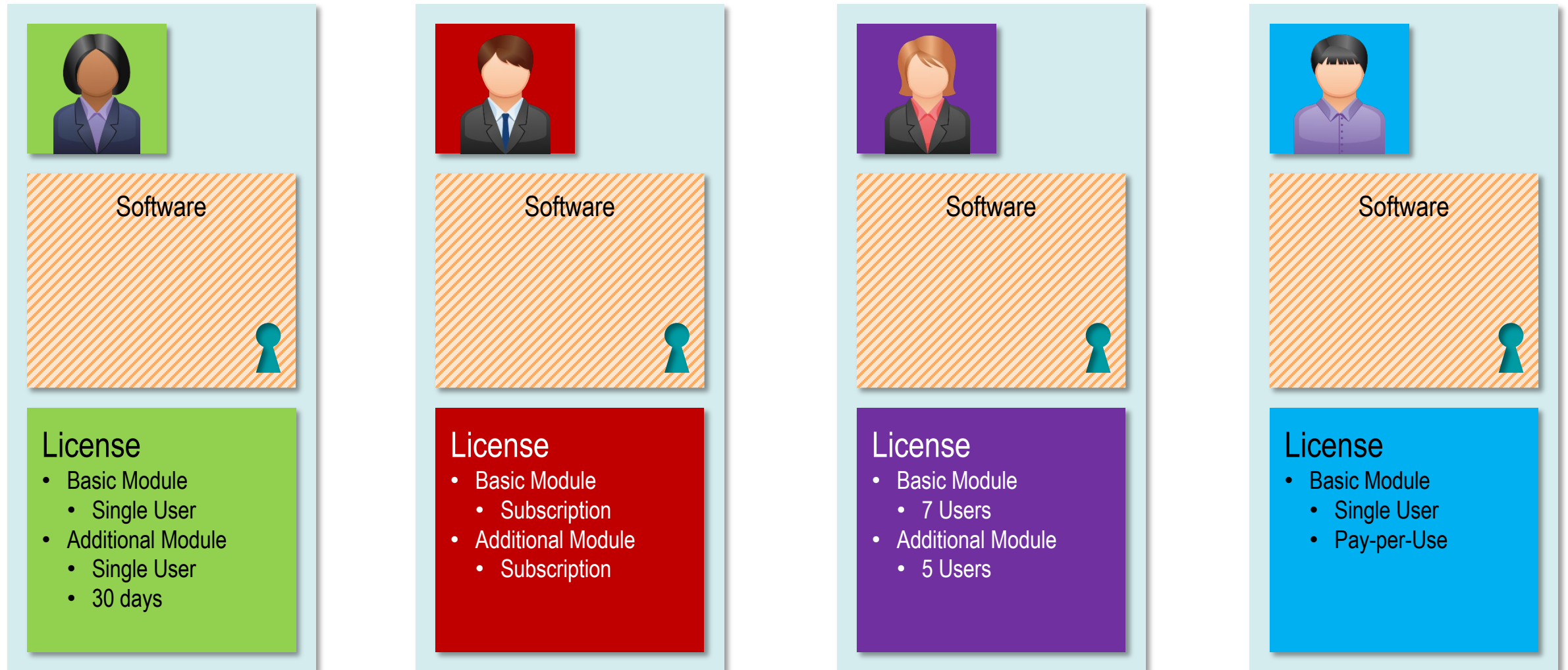
Integration into processes



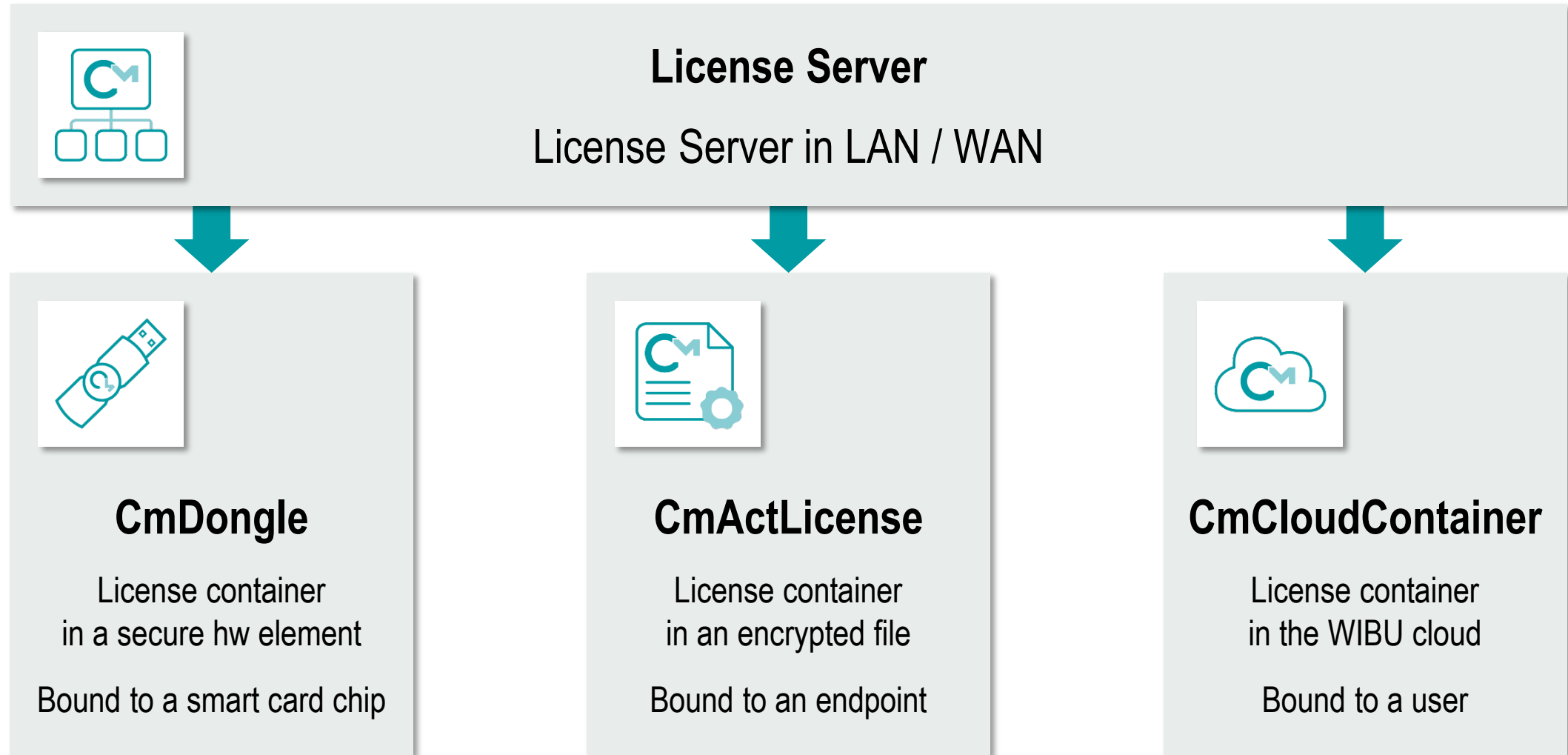
Delivery to the user



Integrate Once – Deliver Many



CodeMeter Licensing Systems

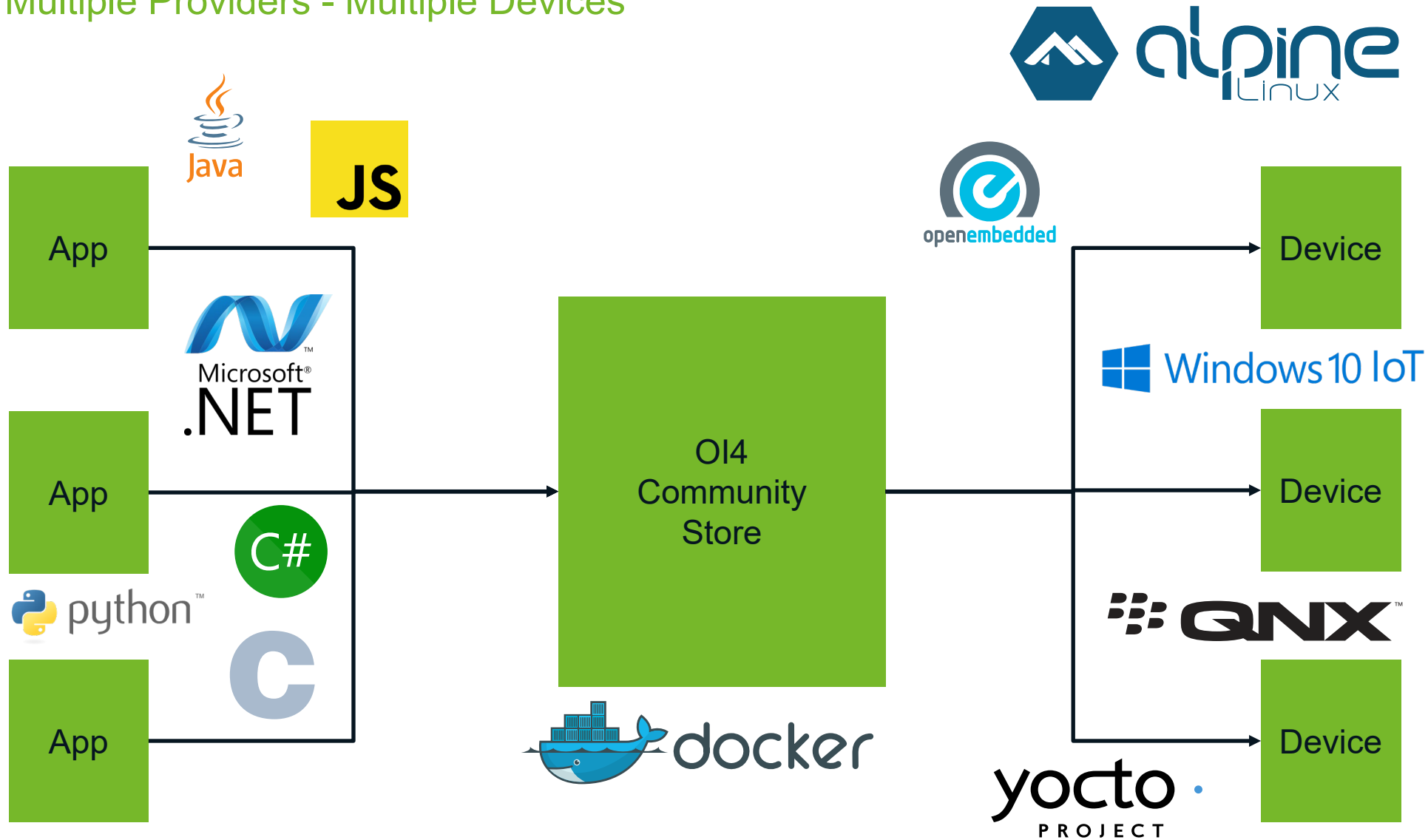




Ol4 Community Store Challenges

Challenges for the OI4 Community Store

Multiple Providers - Multiple Devices



Challenges for the IO4 Community Store

Technical Challenges

- Multiple Application Providers
 - Protection mechanisms for different programming languages
 - API for different platforms
- Multiple Devices and Users
 - Unknown platforms
 - Docker Containers
 - Runtime for any device
 - Secure anchor for licensing
- Automatic License creation and distribution

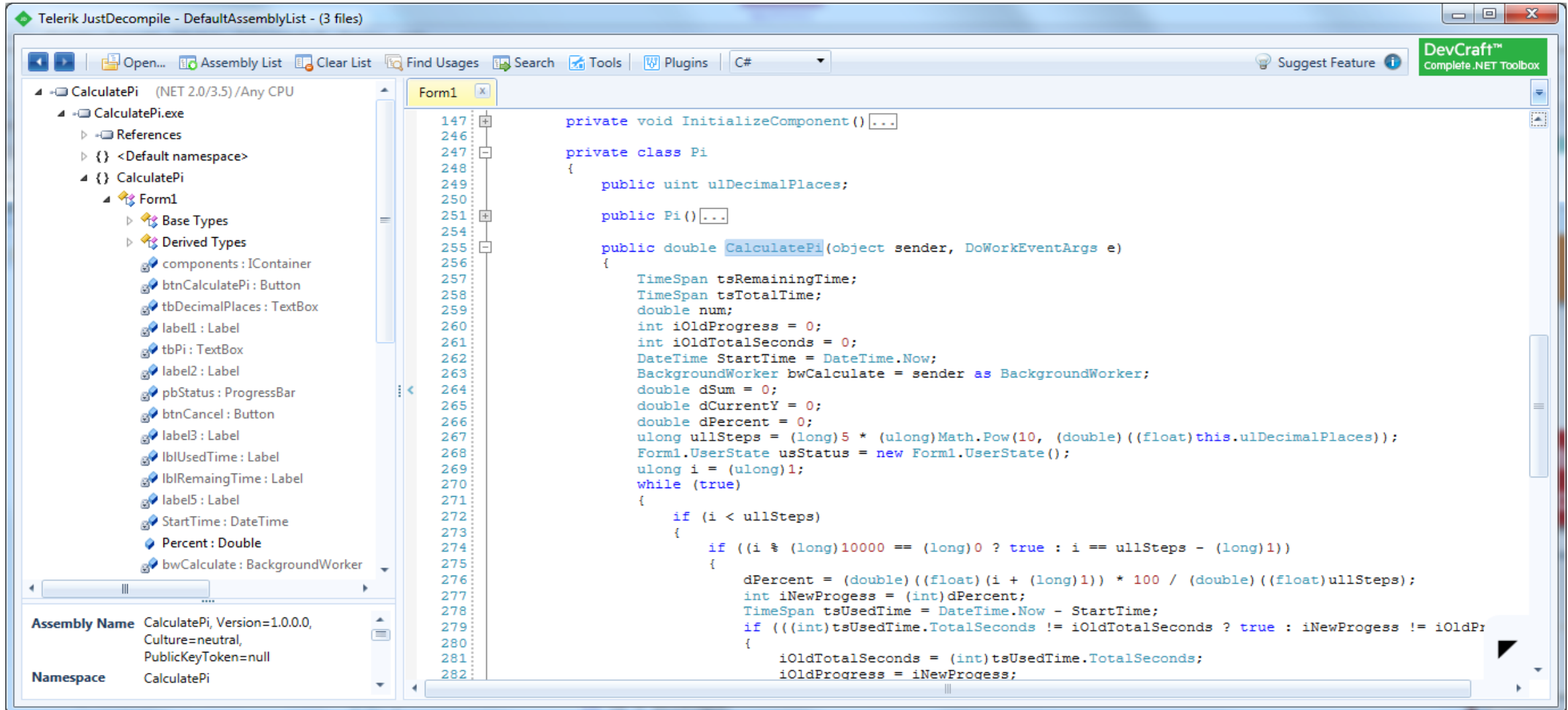


An abstract geometric pattern composed of green lines and dots. It features a central point connected to several other points, forming a network of triangles and quadrilaterals. The lines extend outwards from the central area, creating a sense of expansion and connectivity.

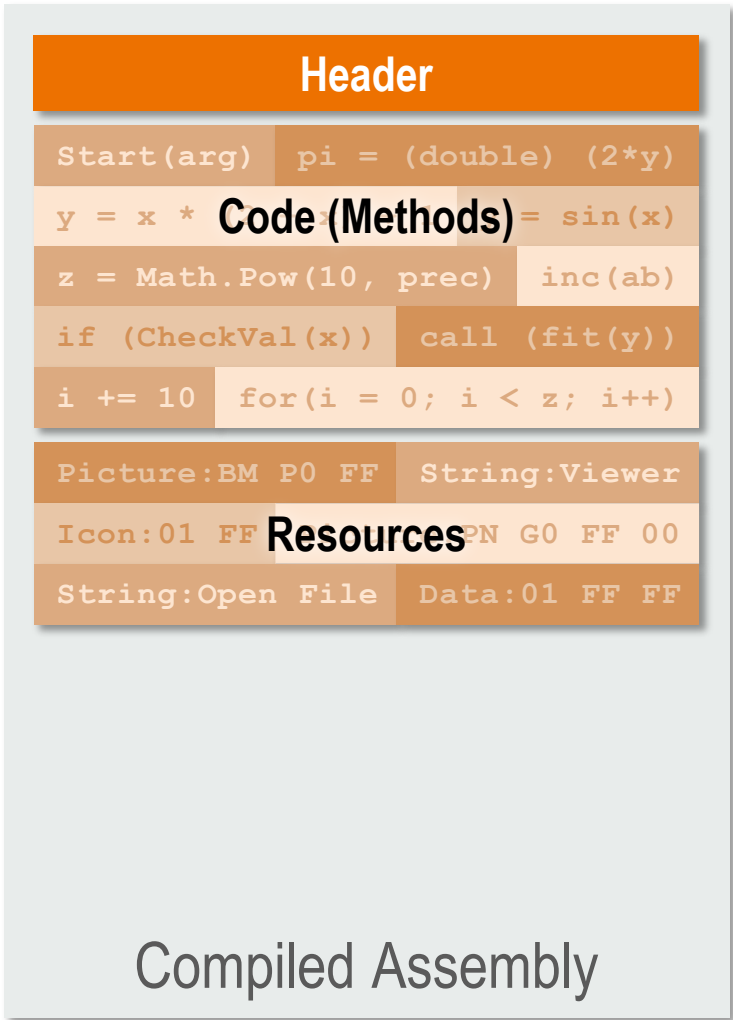
The Solution

1. Easy Integration

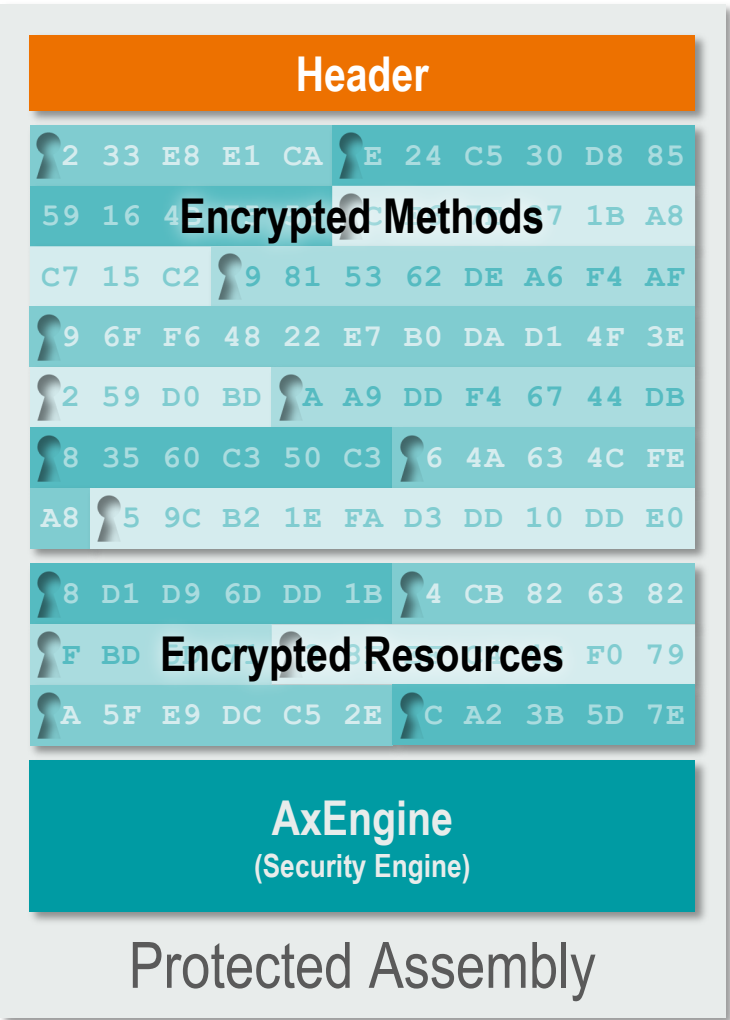
Just Decompile: Unprotected .NET Assembly



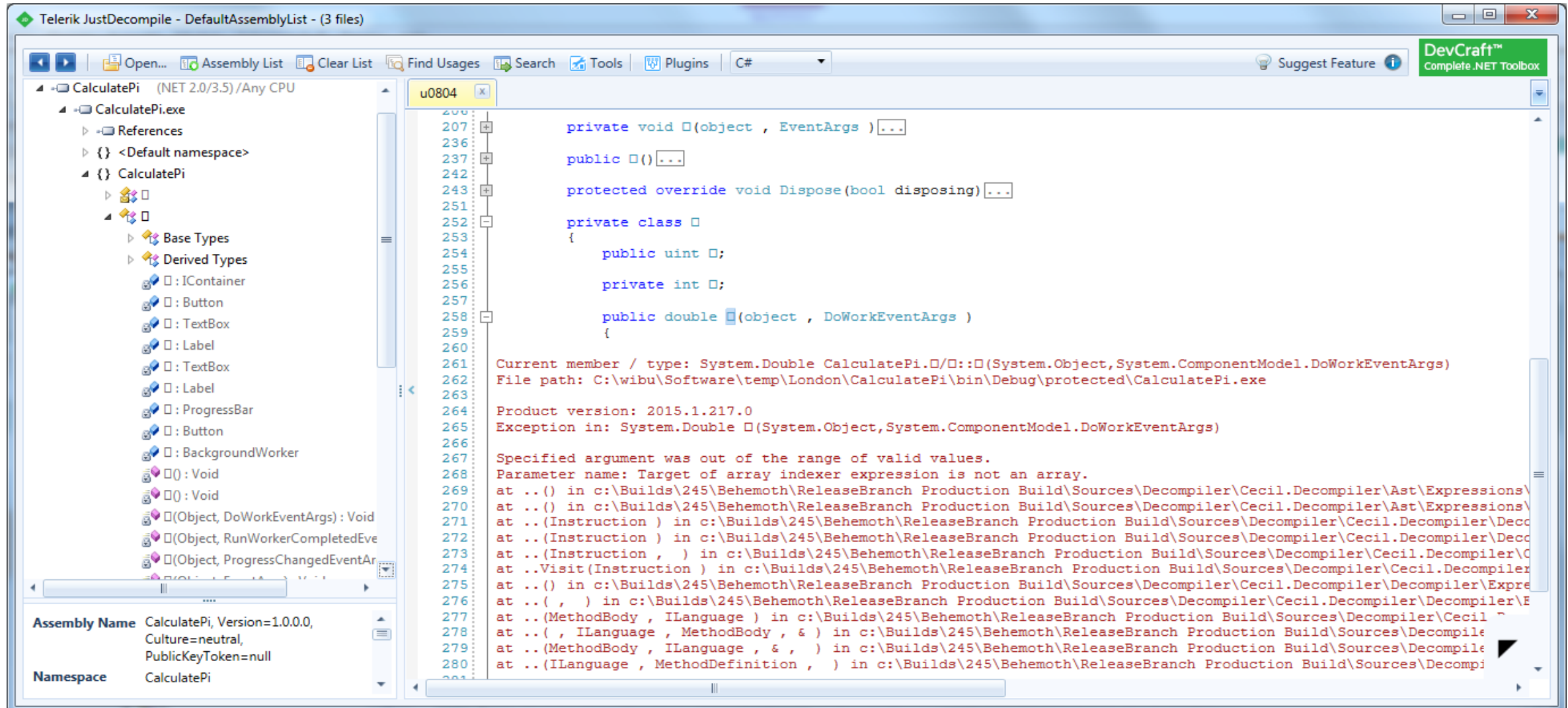
Operating Principle of AxProtector .NET



- Firm Code
- Product Code
- ...



Just Decompile: Protected .NET Assembly

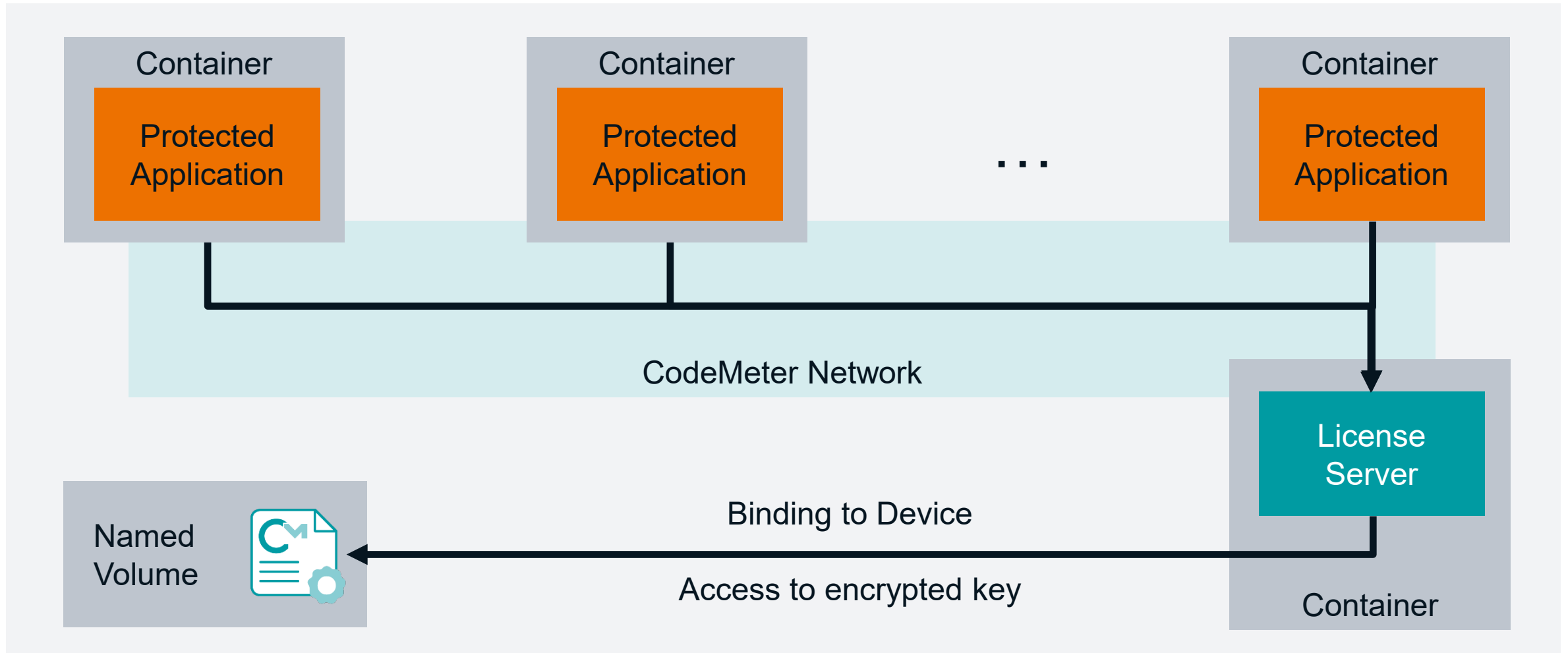


An abstract geometric pattern composed of green lines and dots. It features a central point connected to several other points, forming a network of triangles and polygons. The lines extend towards the edges of the frame, creating a sense of depth and connectivity.

The Solution

2. Docker Support

CodeMeter and Docker



An abstract graphic on the left side of the slide, consisting of several green dots connected by thin green lines, forming a network or web-like structure. The dots are located at various points, with some lines extending towards the edges of the frame.

The Solution

3. Integrated Activation

Integrated Activation

Sample: CodeMeter License Portal



CodeMeter
License Portal

Resellers

|

Licenses

Tickets

CmContainers



Licenses

Ticket	Name	Activated On	CmContainer	Status
2R6WE-N4KQJ-ARPM-DJ424T-DCBB6	SampleNotePad - Single User (All Features)	-		Available

Activate Licenses



Wrap Up – Takeaways

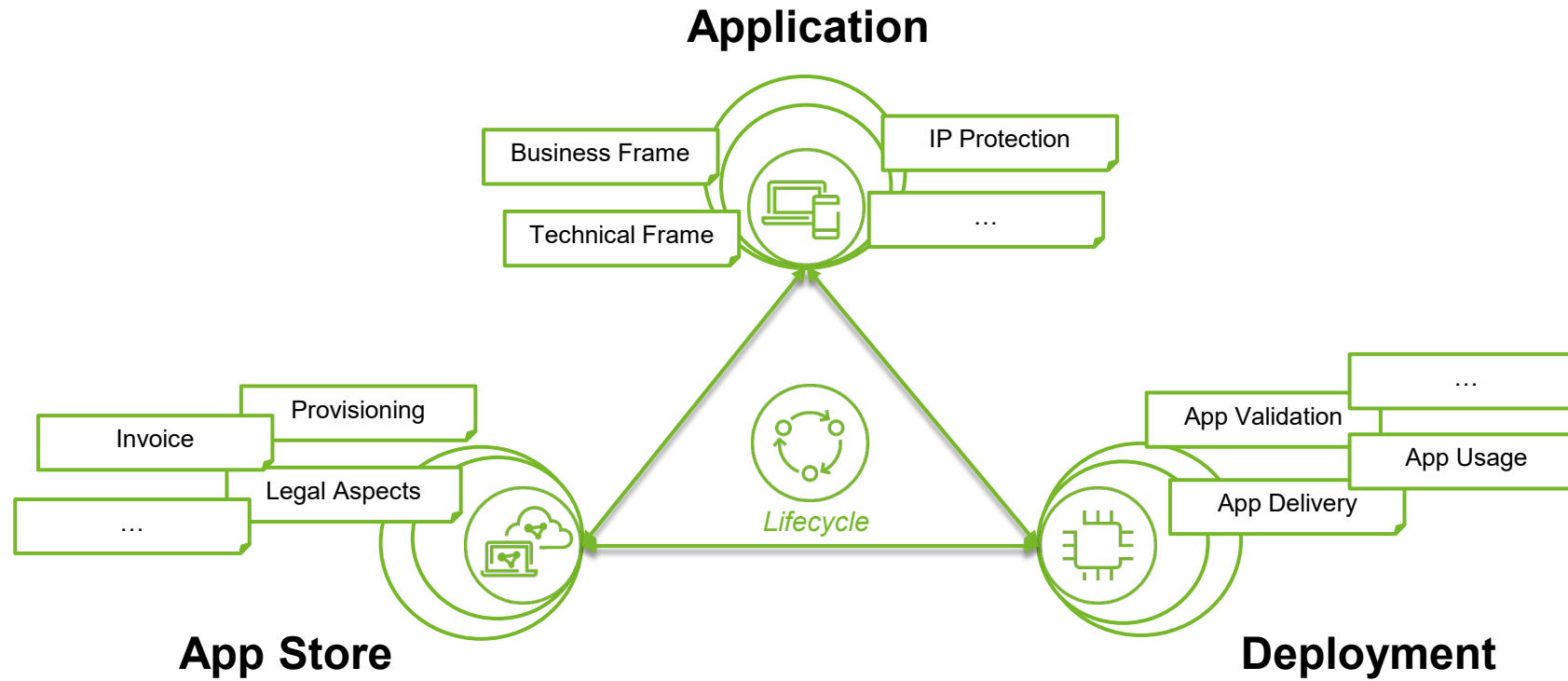
Ricardo Dunkel

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Open Industry 4.0 Alliance

Wrap Up

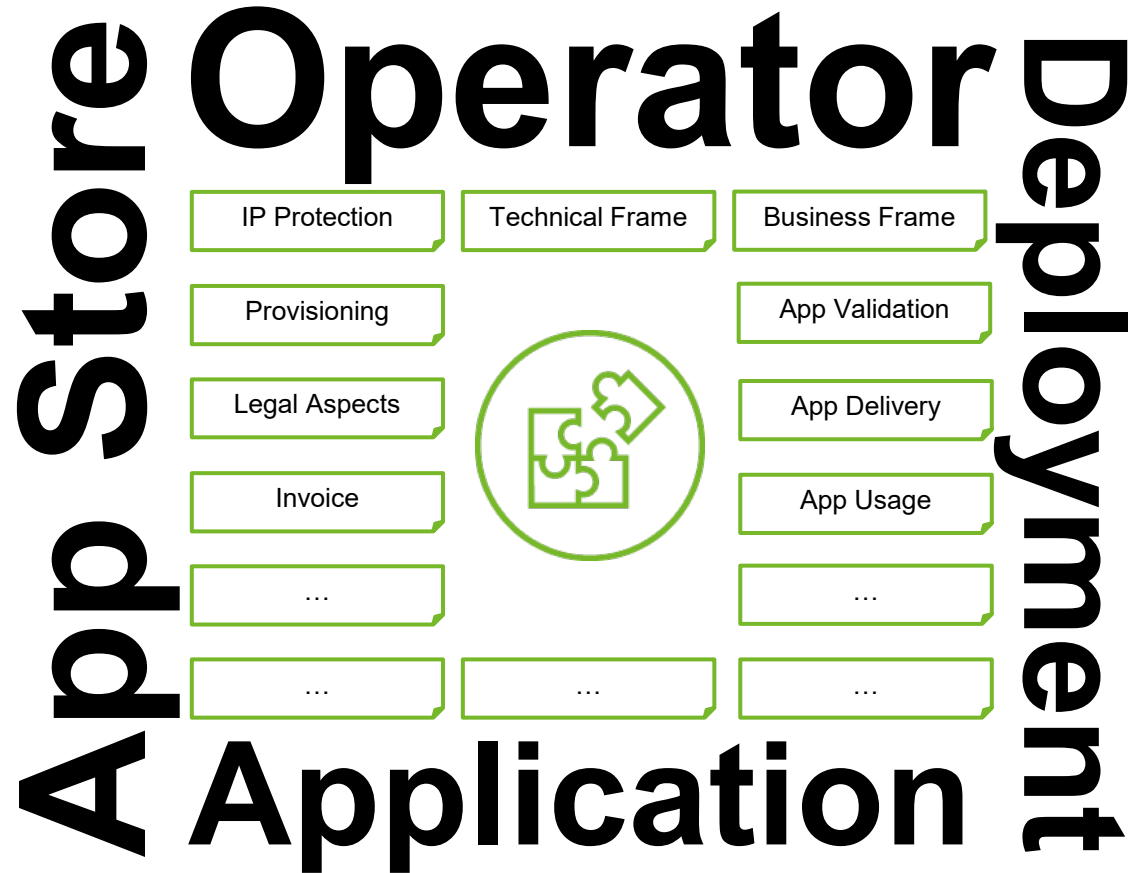
Let's sum it up!



wrap up

Wrap Up

Do the puzzle!



wrap up

Wrap Up

Let's sum it up: What's next?



- Extend store environments
- Call to action: Store providers
- App manifest and beyond



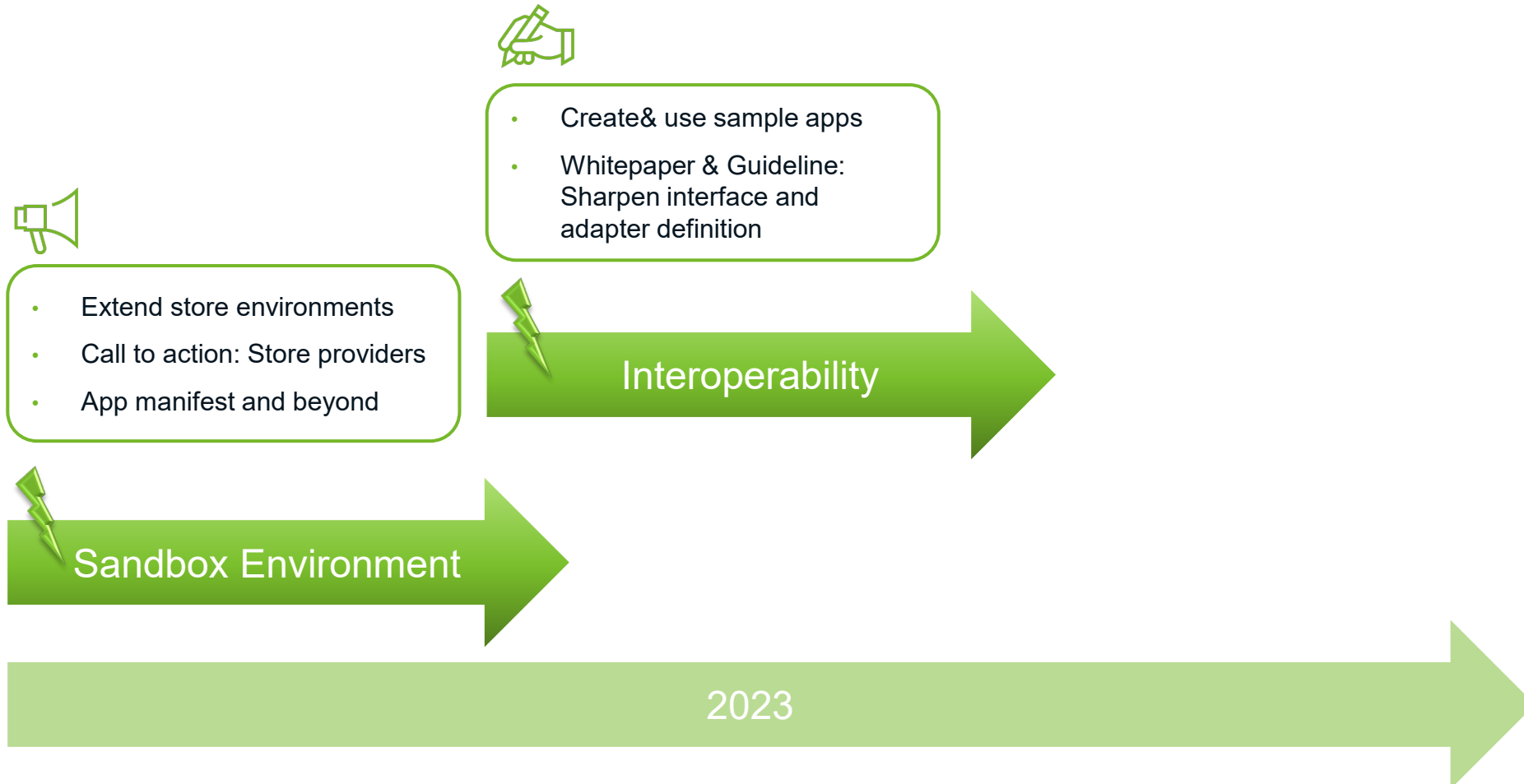
Sandbox Environment

2023

2024

Wrap Up

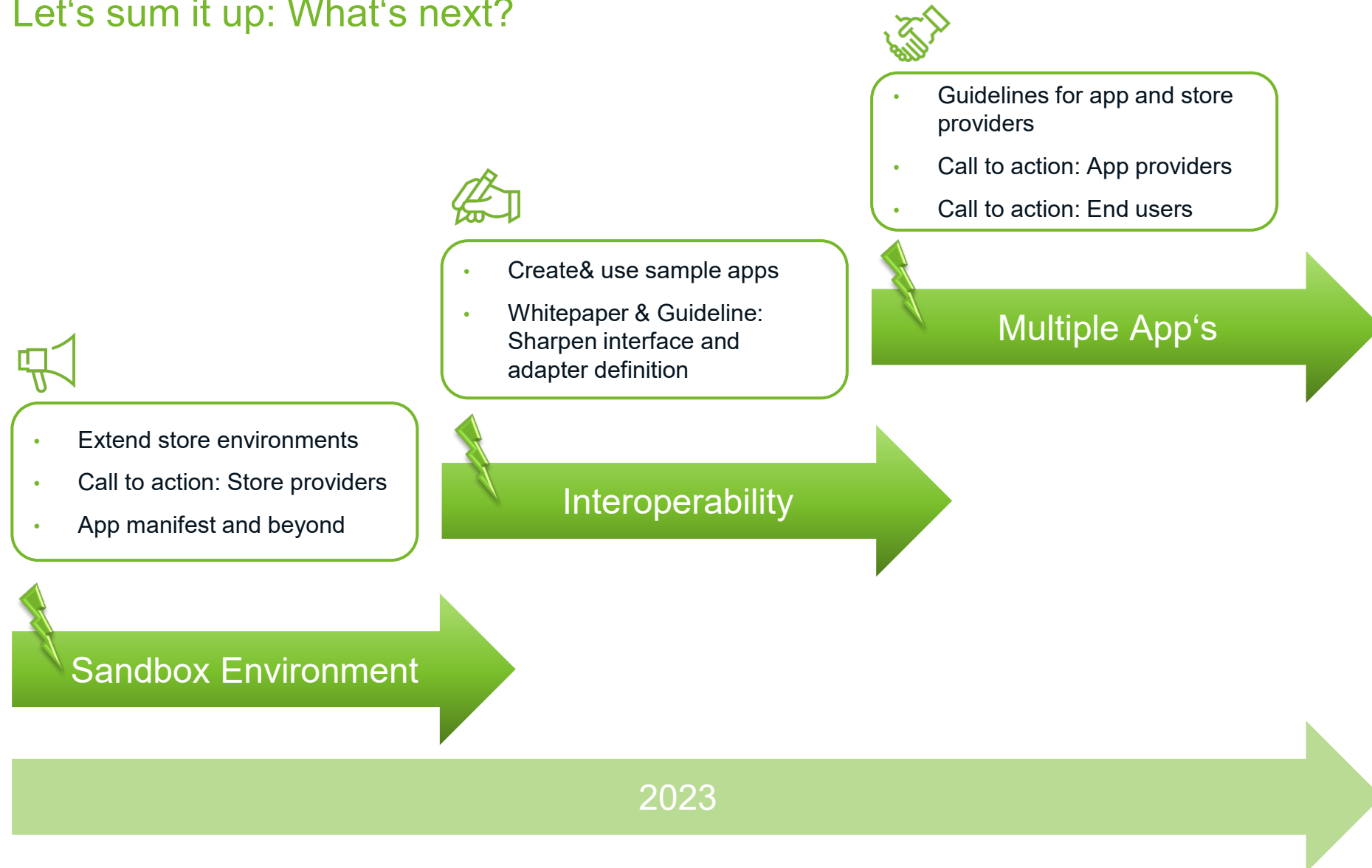
Let's sum it up: What's next?



2024

Wrap Up

Let's sum it up: What's next?



Ecosystem transformation

‘24

App burst!

‘25

An abstract geometric pattern consisting of white lines and dots on a dark blue background. The pattern is located on the left side of the image, extending from the top-left towards the bottom-left. It features several interconnected lines forming a network of triangles and polygons, with three prominent white dots acting as vertices or nodes.

THANK YOU.



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**TALKERS TALK,
WE
IMPLEMENT**



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