

FACTORYTALK OPTIX

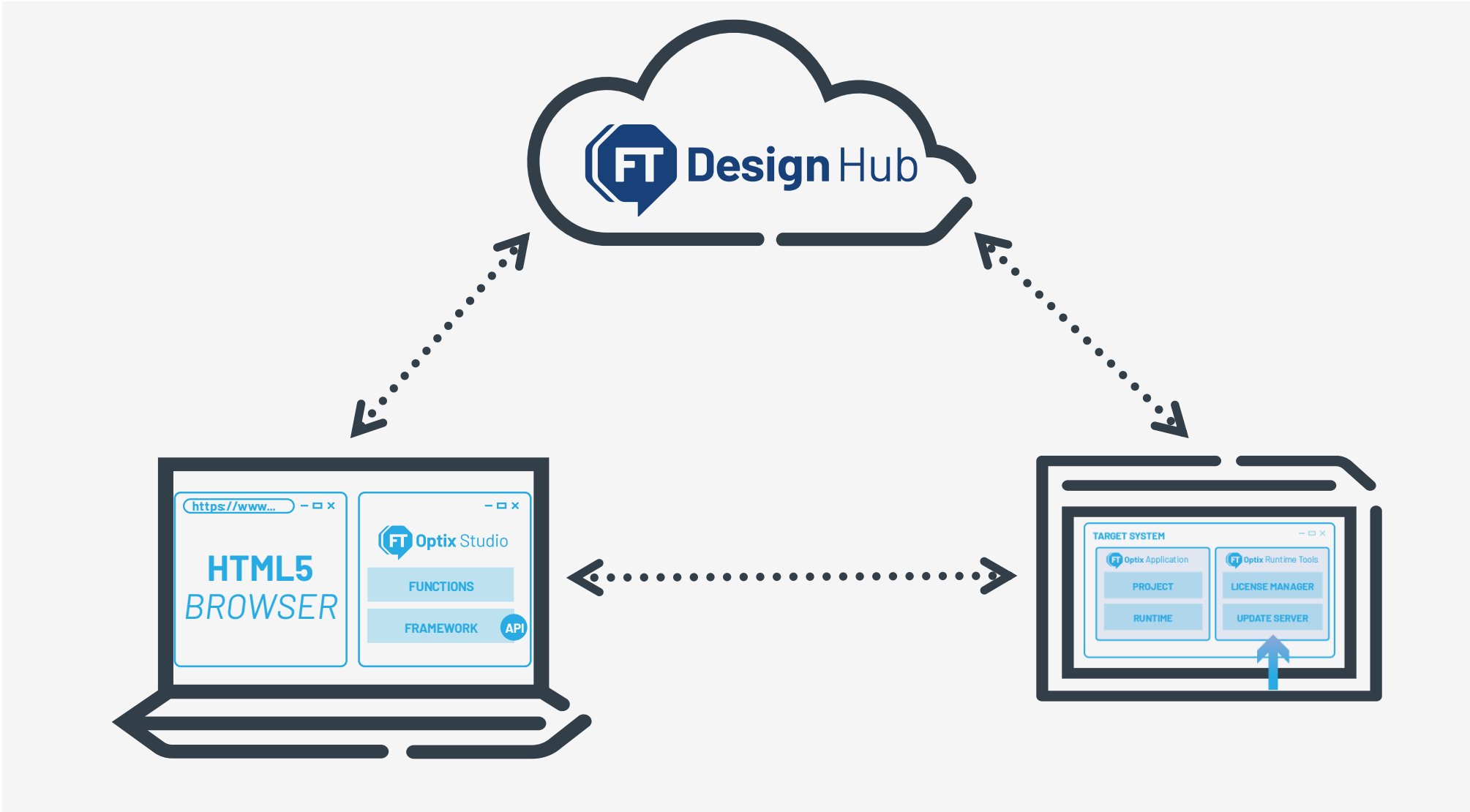


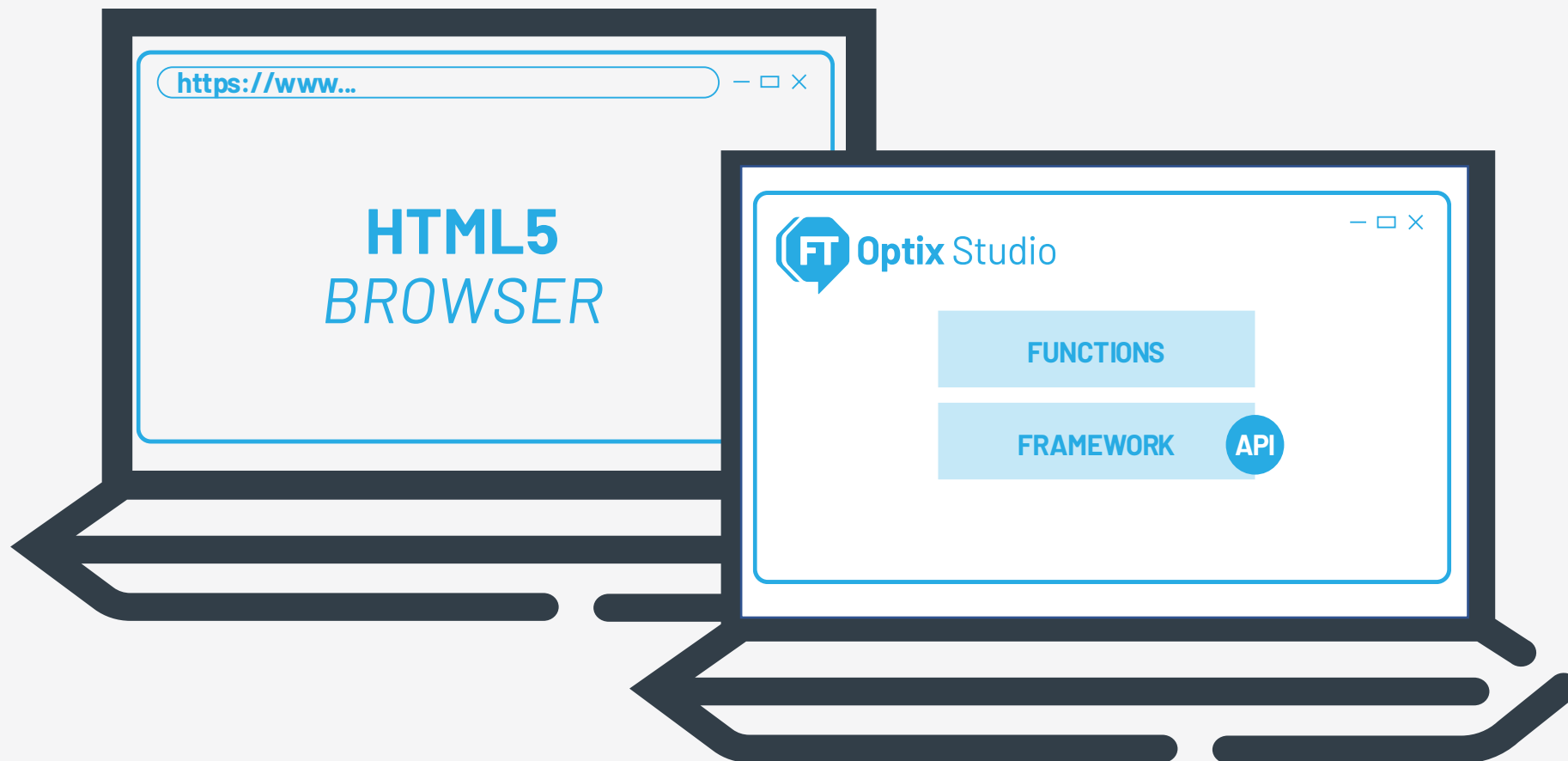


Open, scalable platform
with options



PLATFORM ARCHITECTURE





Design Hub

Design Studio™

Cloud-native industrial automation design

- Modern software development
- Multi-user Collaboration
- Multi-controller Management

Optix Studio™

Open, scalable, flexible cloud-hosted HMI platform

- New visualization portfolio addition
- Web browser design, test, deploy
- Build once, deploy anywhere

Twin Studio™

Digital Engineering software in the cloud

- Arena®
- Studio 5000 Logix Designer®
- FactoryTalk® Logix Echo
- Emulate3D™

Vault™

- Secure, cloud-native centralized storage
- Easily collaborate from a single source of truth

Remote Access™

- Secure connections to industrial equipment
- Rapidly respond to needs from anywhere

TARGET SYSTEM

 **Optix Application**

PROJECT

RUNTIME

 **Optix Runtime Tools**

LICENSE MANAGER

UPDATE SERVER



KEY FEATURES - SUMMARY

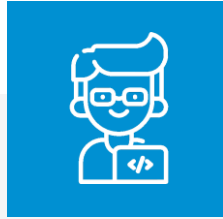


EXTENSIBILITY options

Natively OPC UA

Libraries

Scripting



DESIGN options

Object-oriented

Software As
A Service

Version Control



GRAPHIC & DEPLOYMENT options

Cross-platform

Universal UI

Audit

KEY FEATURES – EXTENSIBILITY OPTIONS

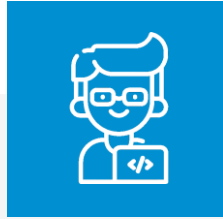


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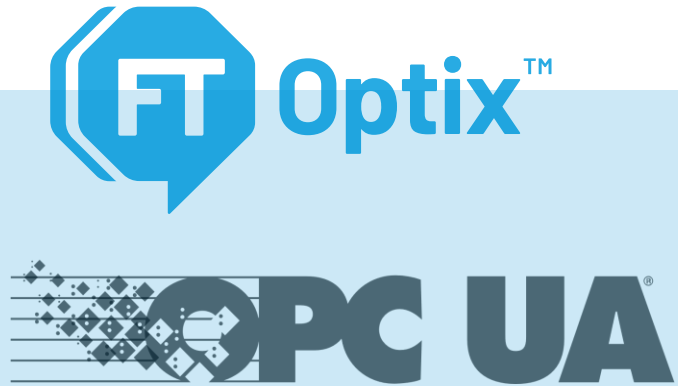
DEPLOYMENT & GRAPHIC options

Cross-platform

Universal UI

Audit

NATIVELY OPC UA



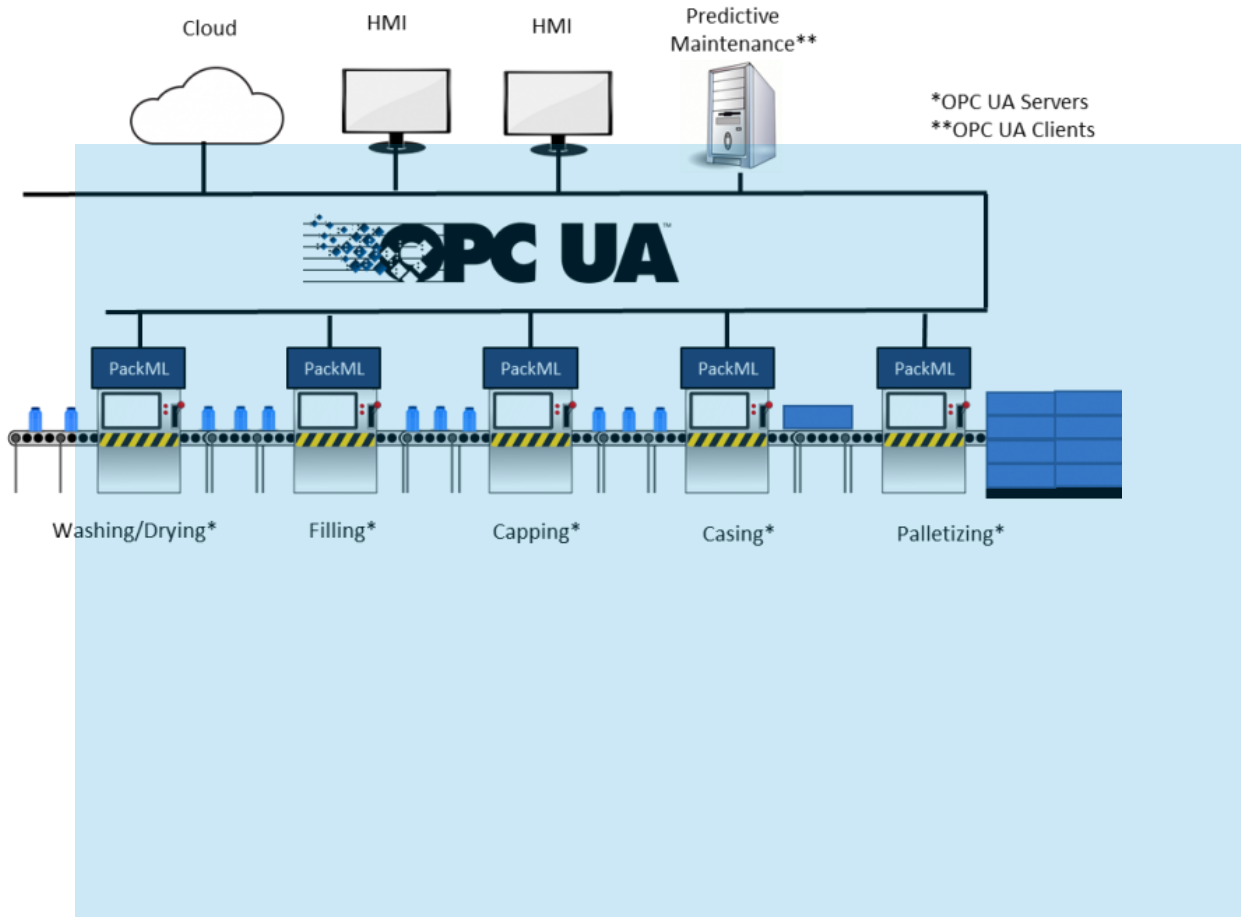
- **Natively based** on the OPC-UA standard
 - Data Access
 - Alarm and Conditions
 - Historical Access
- All **project's resources** can be exposed as **OPC UA objects** by the OPC UA Server

NATIVELY OPC UA



- FT Optix applications as **Client-Server** architectures
- Full support of **Companion Specifications**
 - MTP, PackML, Machinery...

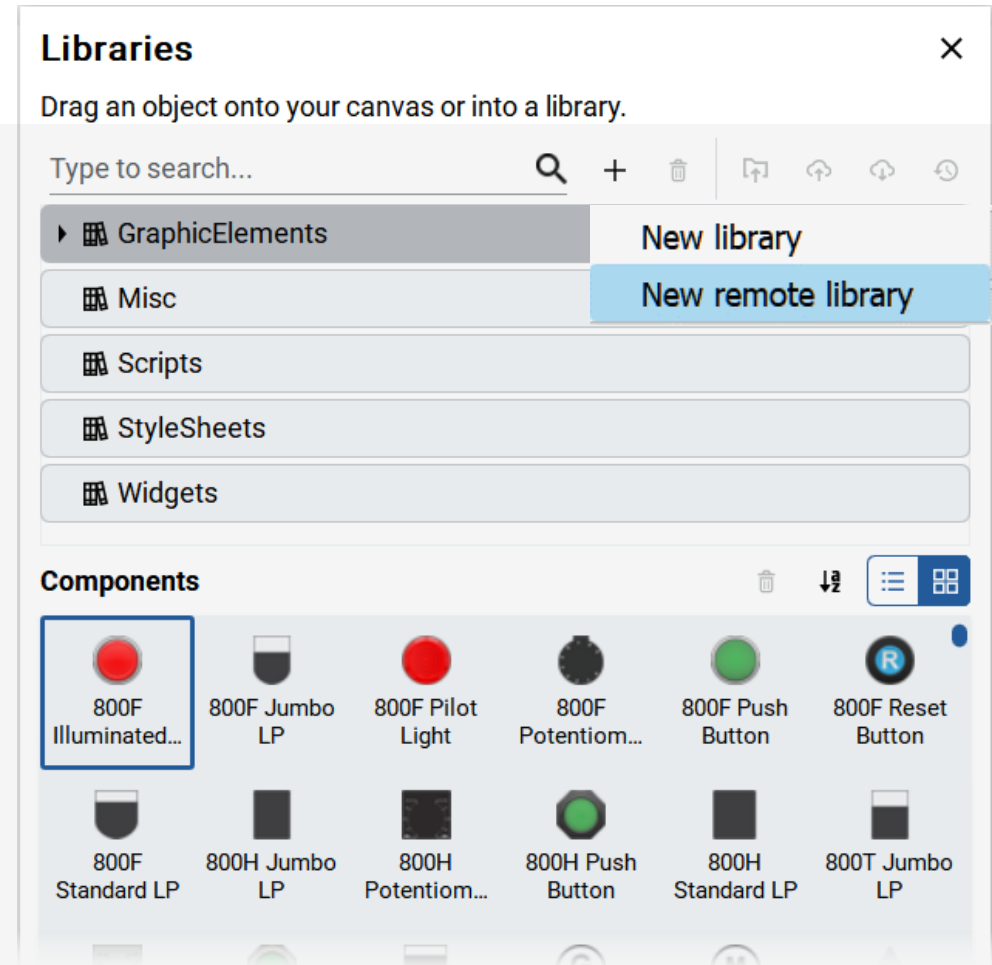
NATIVELY OPC UA – COMPANION SPECIFICATIONS



- The Companion Specifications are **information models** built by industry groups on the basis of the OPC UA Standard Model.
- They define:
 - Data types
 - Methods
 - State Machines
- for **industry-specific** applications and objects.

LIBRARIES

- Widgets, Scripts and **Graphic Elements**
- Search to quickly find and filter objects
- Custom libraries with Multi-user collaboration through Git integration



SCRIPTING

OPEN API

C# language

Edit and **debug** via Visual Studio
or Visual Studio Code

CUSTOMIZATION

Create Runtime logic for
customized functionalities

Extend the source code
of native features

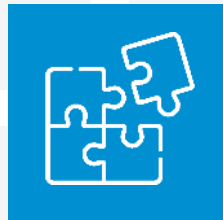
INTEGRATION

Integrate existing libraries
or **3rd party** code

AUTOMATION

Automate tasks by executing
scripts at **Design time**

Generate parts of the project
at **Runtime**

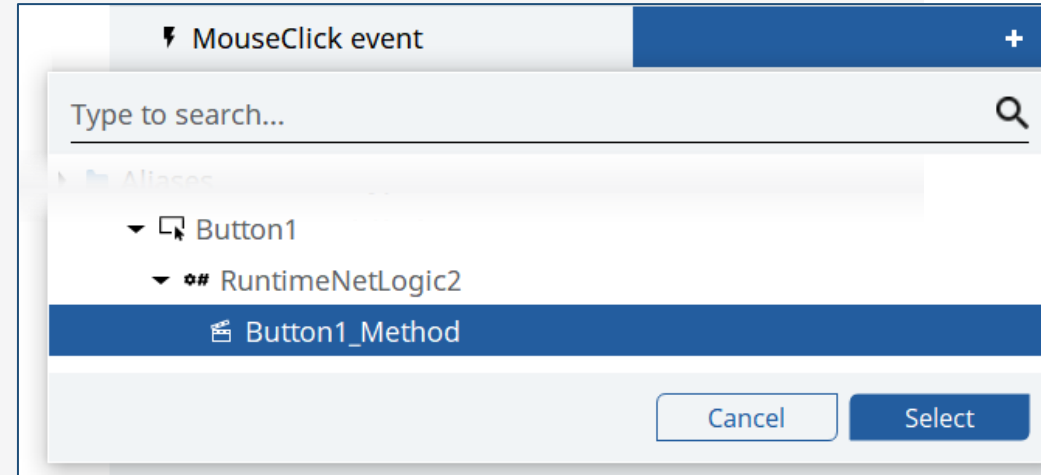


SCRIPTING - EXAMPLES

```
public class RuntimeNetLogic1 : BaseNetLogic
{
    public override void Start()
    {
        // code executed when the logic is started
    }

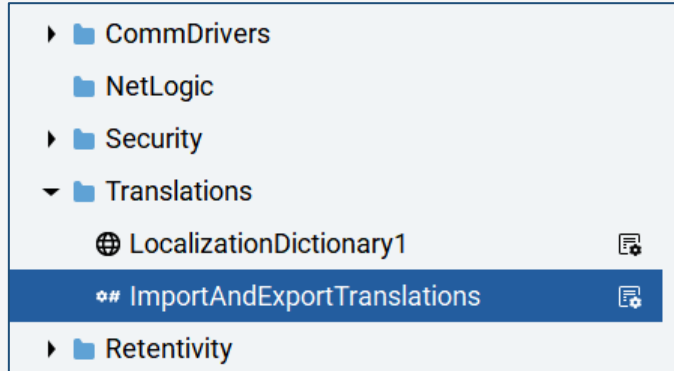
    public override void Stop()
    {
        // code executed when the logic is stopped
    }

    [ExportMethod]
    public void Button1_Method()
    {
        // code executed by the method
    }
}
```



Create Runtime logic for
customized functionalities

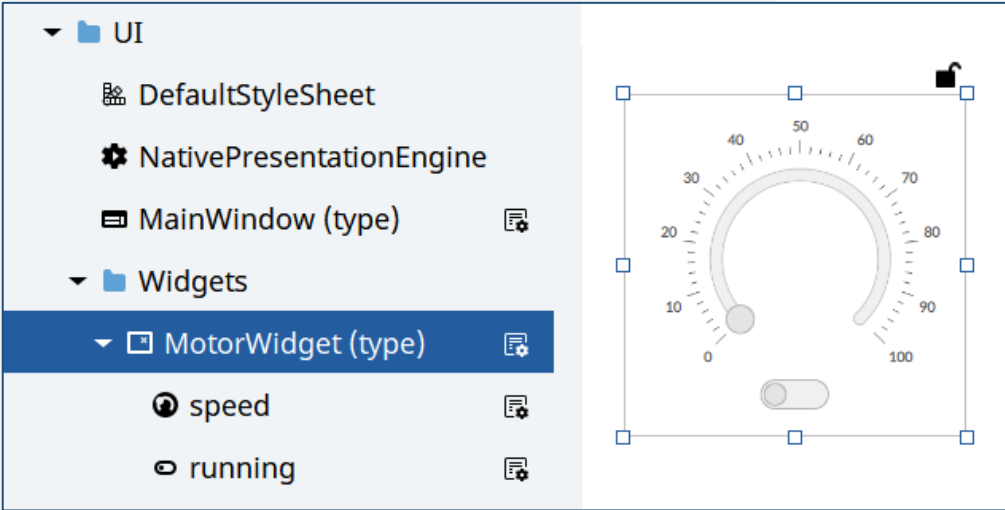
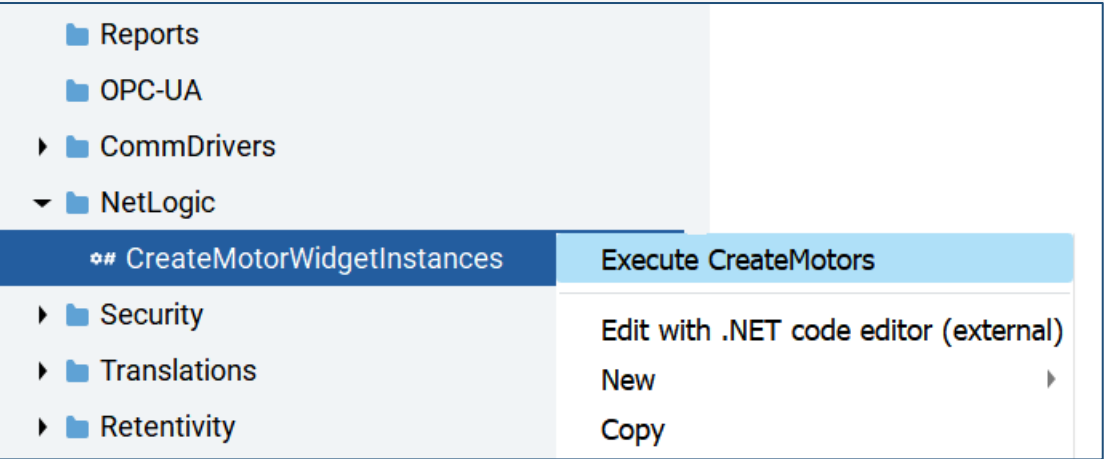
SCRIPTING - EXAMPLES



```
ImportAndExportTranslations.cs X
NetSolution > ImportAndExportTranslations.cs > ImportAndExportTranslations > ExportTranslations()
14
0 references
15 public class ImportAndExportTranslations : BaseNetLogic {
16     [ExportMethod]
0 references
17     public void ExportTranslations() {
18         var csvPath = GetCSVFilePath();
19         if (string.IsNullOrEmpty(csvPath)) {
20             Log.Error("ImportAndExportTranslations", "No CSV file, please fill the
21                 return;
22         }
23
24         char? characterSeparator = GetCharacterSeparator();
25         if (characterSeparator == null || characterSeparator == '\0')
26             return;
27
Ln 42, Col 53  Spaces: 4  UTF-8  CRLF
```

Extend the source code
of native features

SCRIPTING - EXAMPLES



Automate User Interface developing
using script at **Design time**

SCRIPTING - EXAMPLES

OPC-UA

▼ CommDrivers

▶ ModbusDriver1

▶ EthernetIPDriver1

▼ NetLogic

Connect_Model_to_Driver

▶ Security

▶ Translations

Retentivity

Execute Model_to_Driver_Link

Edit with .NET code editor (external)

New

Copy

Paste

Properties

Name Connect_Model_to_Driver

##

Type NetLogic

CSVFile AbsoluteResourceUri

VariableMap.csv Browse

CSVFile_Column Int16 1

Automate communication driver switch
using script at **Design time**

KEY FEATURES – DESIGN OPTIONS

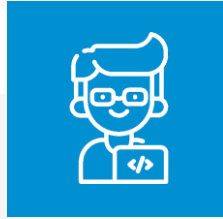


EXTENSIBILITY options

Natively OPC UA

Libraries

Scripting



DESIGN options

Object-oriented

Software As
A Service

Version Control



GRAPHIC & DEPLOYMENT options

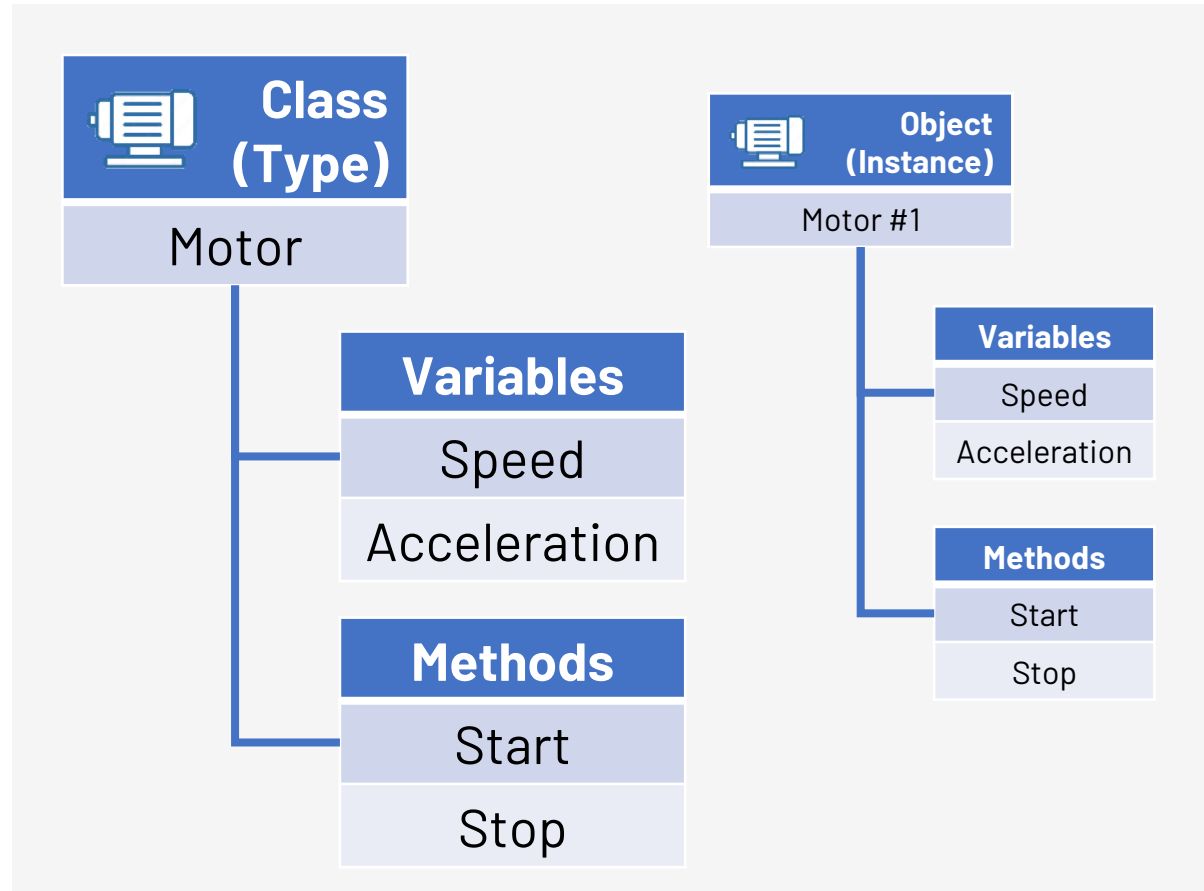
Cross-platform

Universal UI

Audit

OBJECT-ORIENTED PROGRAMMING

- Create **modular, reusable** components
 - Variables
 - Widget
 - **Core components**
(alarms, datalogger...)
- Project development become
 - more **efficient**
 - more **maintainable**



OBJECT-ORIENTED PROGRAMMING

FT Optix

Emulator

Project view

Type to search...

Training_UserInterfaceWithAlias

UI

DefaultStyleSheet

NativePresentationEngine

MainWindow (type)

Screens

Templates

Model

MotorType (type)

Motor1

Motor2

Motor3

Converters

Properties

Name	MotorType (type)
Type	Object
Speed	UInt16 0
Acceleration	UInt16 0

Events

OBJECT-ORIENTED PROGRAMMING

FT Optix

Emulator

Project view

Type to search...

Training_UserInterfaceWithAlias

UI

DefaultStyleSheet

NativePresentationEngine

MainWindow (type)

Screens

Templates

Model

MotorType (type)

Motor1

Motor2

Motor3

Converters

Type view

Properties

Name Motor1

Type MotorType

Speed75

Acceleration100

Events

OBJECT-ORIENTED PROGRAMMING

The screenshot displays the FT Optix software interface, which is used for developing graphical user interfaces (GUIs) for industrial automation. The interface is divided into several key sections:

- Project view (Left):** A tree structure showing the project hierarchy. The selected item is **MotorWidget (type)** under the **Templates** folder.
- Canvas (Center):** A workspace for designing the GUI. It features a motor widget with a circular scale from 0 to 100 and a linear slider below it. The text "#####" is visible on the canvas.
- Properties (Right):** A panel showing the properties of the selected **MotorWidget (type)**. The properties are organized into sections:
 - Name:** MotorWidget (type)
 - Type:** Panel
 - MotorWidget_Alias:** NodeId
 - Kind:** MotorType (type)
 - Appearance:** Visible (True), Enabled (True), Opacity (100), Rotation (0), Hit test visible (False).
 - Size and layout:** Horizontal alignment (Left), Vertical alignment (Top).

OBJECT-ORIENTED PROGRAMMING

The screenshot displays the Optix software interface, which is used for developing graphical user interfaces (GUIs) for motor control systems. The interface is divided into several key sections:

- Project view (Left):** A tree structure showing the project hierarchy. The selected item is `MotorWidget1`, which is part of a `HorizontalLayout1` within a `StaticAlias` type. Other visible items include `DefaultStyleSheet`, `NativePresentationEngine`, `MainWindow`, and `Templates`.
- Canvas (Center):** A workspace showing three instances of the `MotorWidget` component. Each widget consists of a circular gauge with a needle and a linear slider below it. The gauges are labeled with "#####" and have a scale from 0 to 100. The sliders also have a scale from 0 to 100.
- Properties (Right):** A panel showing the properties of the selected `MotorWidget1`. The properties are organized into sections:
 - Name:** `MotorWidget1`
 - Type:** `MotorWidget`
 - MotorWidget_Alias:** `Motor1` (with a link icon)
 - Appearance:**
 - `Visible`: `True`
 - `Enabled`: `True`
 - `Opacity`: `100`
 - `Rotation`: `0`
 - `Hit test visible`: `False`
 - Size and layout:**
 - `Horizontal alignment`: `Stretch`
 - `Vertical alignment`: `Stretch`
 - `Left margin`: `0`
 - Events:** A section for defining events, currently empty.

STUDIO WITH SOFTWARE-AS-A-SERVICE MODEL



COST SAVING

Use without
spending time on
installation,
upgrade,
maintenance



SCALABILITY

Subscription
model allows to
scale as needed



WHATEVER VERSION

Access to the
latest version and
to all previous ones



ANYWHERE ACCESS

Access from any
PC with an internet
connection

STUDIO WITH SOFTWARE-AS-A-SERVICE MODEL



Don't have Studio installed on your PC?

Design, test, and deploy
your HMI projects
directly from a web browser

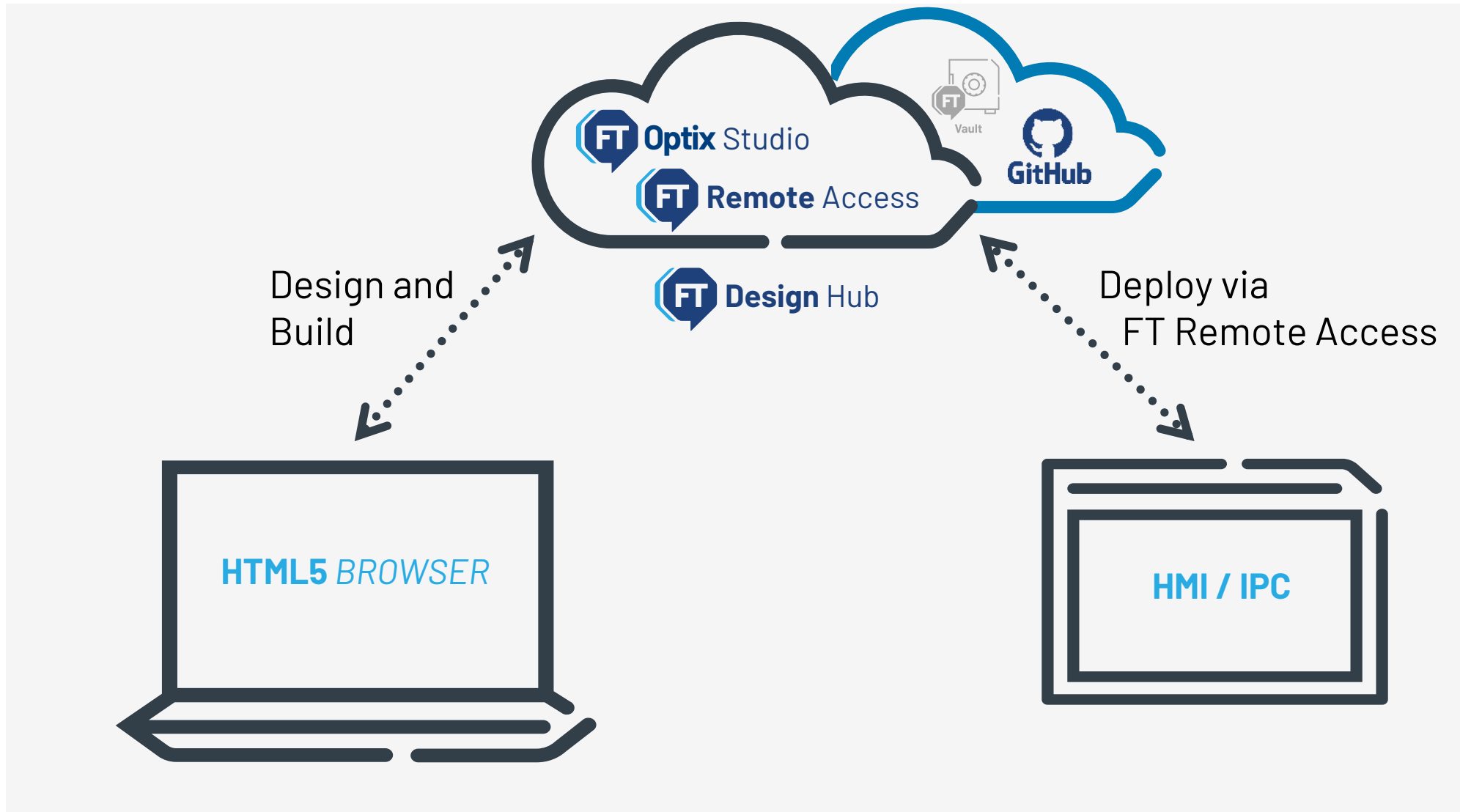


No internet connection?

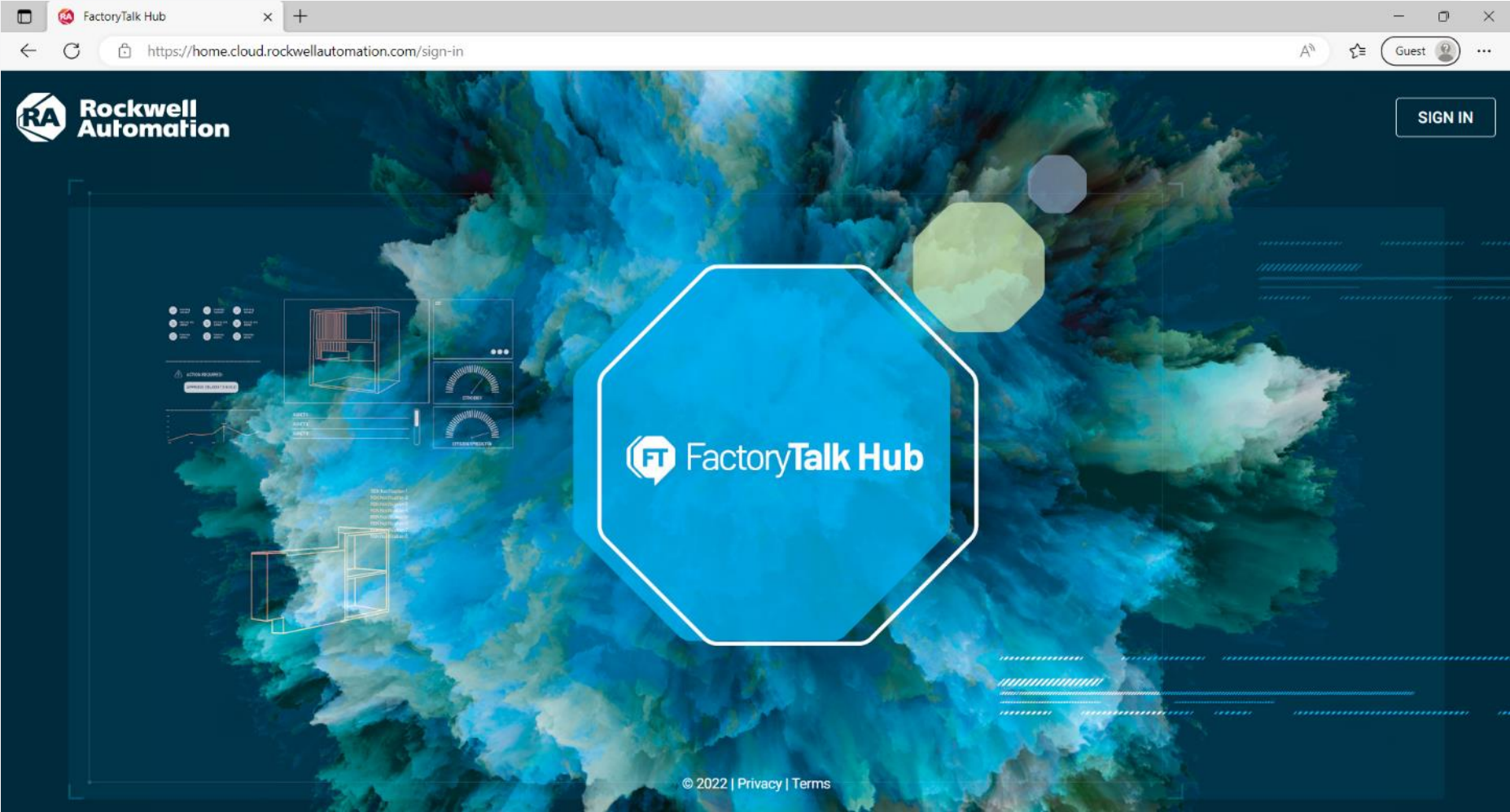
Install or Use
FactoryTalk Optix Studio
locally on your laptop

**SEAMLESSLY TRANSITIONS FROM
WEB TO DESKTOP APP**

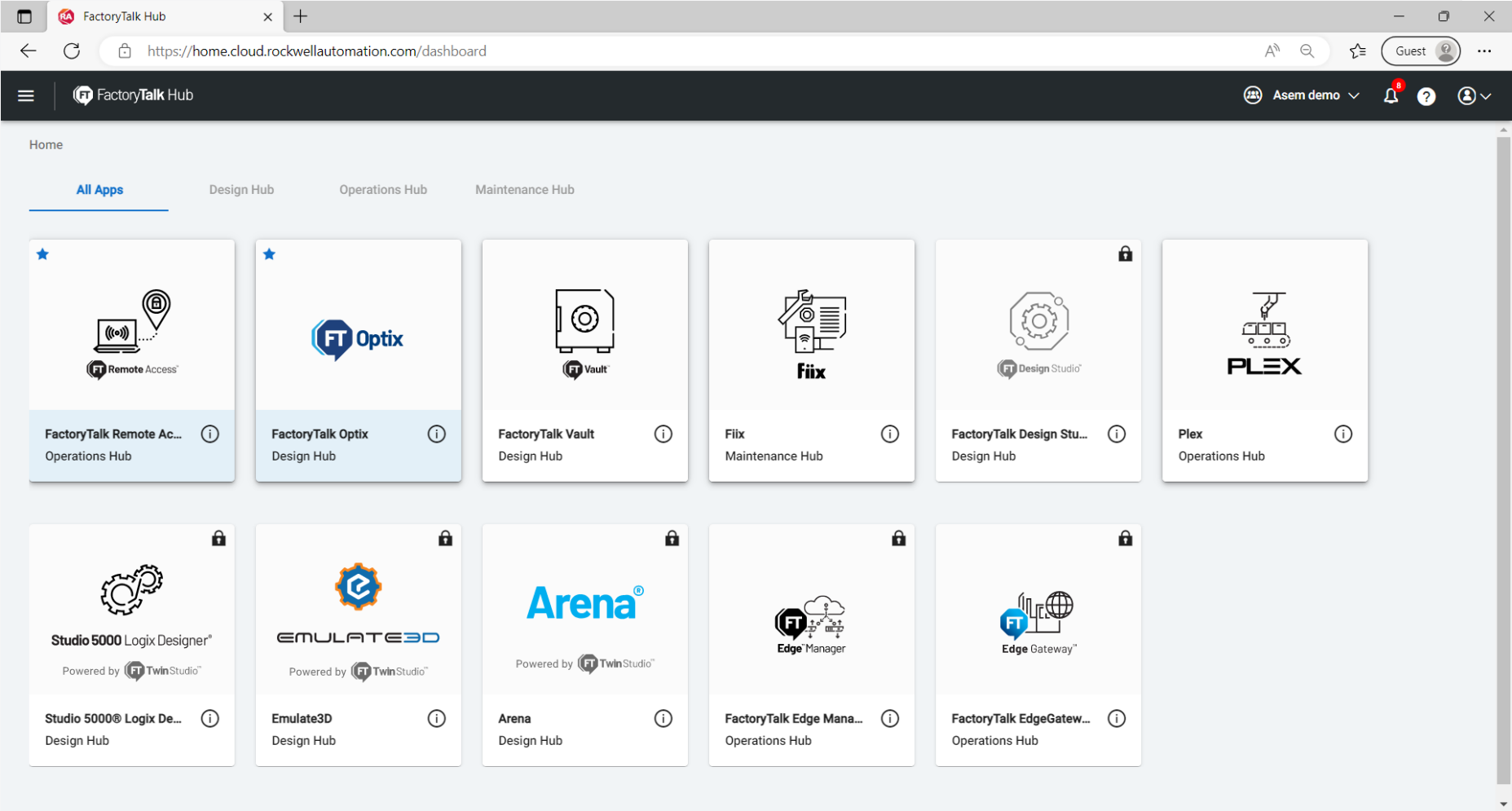
STUDIO WITH SOFTWARE-AS-A-SERVICE MODEL



STUDIO WITH SOFTWARE-AS-A-SERVICE MODEL



STUDIO WITH SOFTWARE-AS-A-SERVICE MODEL



STUDIO WITH SOFTWARE-AS-A-SERVICE MODEL

FactoryTalk Optix

https://optix.cloud.rockwellautomation.com/dashboard/?tenantId=e29892e547734c2e9e4a3152b0574c41&ts=1684404582129#/releases

Guest

FT Optix

Releases

Entitlements

Runtime Sizing

Luca Begnini

HMI design made easy

Design the perfect HMI to connect a person to a machine, system, or device via intuitive interactions.

Last used: 1.1.0.66

Continue in Browser

Last Release: 1.0.3.361 (3/31/2023)

Open in Browser

Download

Past Releases · Release Candidates · Betas · Runtime Tools

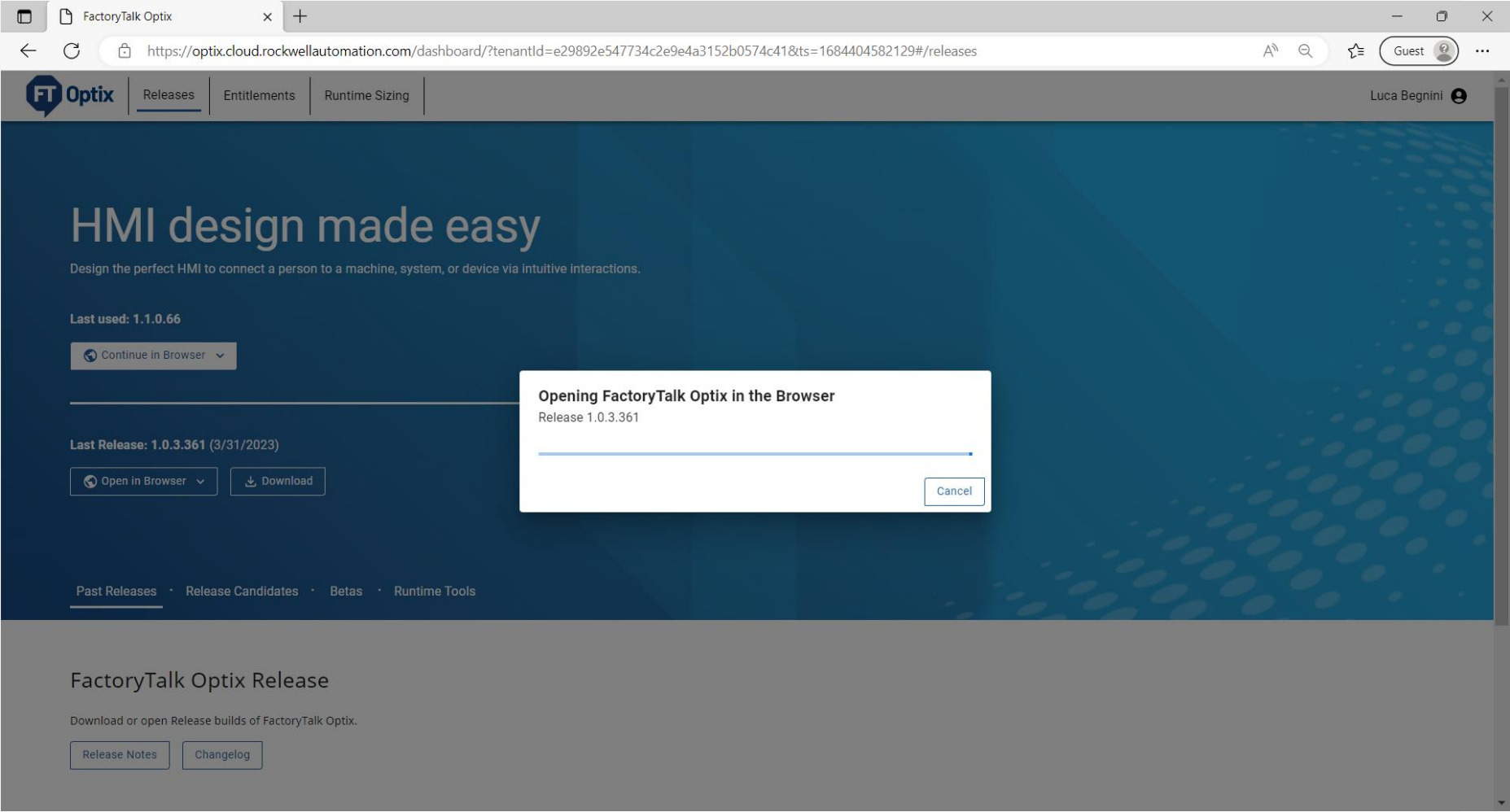
FactoryTalk Optix Release

Download or open Release builds of FactoryTalk Optix.

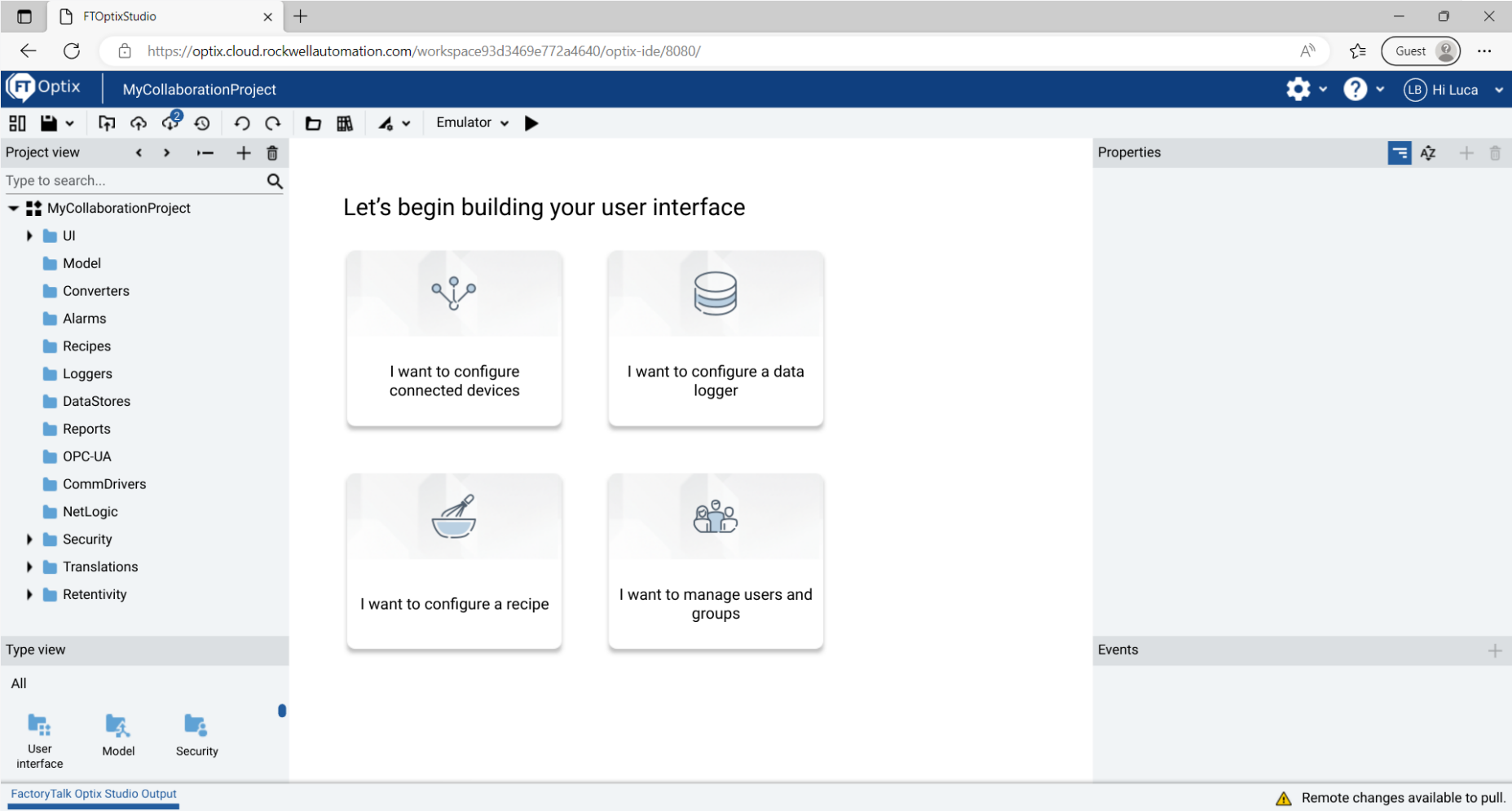
Release Notes

Changelog

STUDIO WITH SOFTWARE-AS-A-SERVICE MODEL

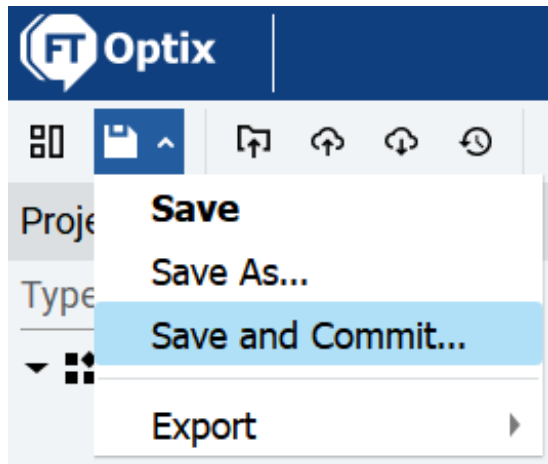


STUDIO WITH SOFTWARE-AS-A-SERVICE MODEL



VERSION CONTROL SYSTEM - LOCAL

- The Optix project contains a local VCS database (Git)
- No more need of «Save as» or «Zip» files



VERSION CONTROL SYSTEM - EXAMPLE

- Commit History

The screenshot displays the Optix IDE interface with the 'View history' panel active. The left sidebar shows the project structure for 'MyCollaborationProject', including folders like UI, Model, Converters, Alarms, Recipes, Loggers, DataStores, Reports, OPC-UA, CommDrivers, NetLogic, and Security. The 'View history' panel shows a commit history with four entries, each with a checkbox, a description, a timestamp, and a cloud icon. The first entry is checked and highlighted in blue. The right panel shows the project structure with 'CircularGauge2' selected, and a filter by 'Updates' is applied.

Optix

Project view < > - +

Type to search...

MyCollaborationProject

- UI
- Model
- Converters
- Alarms
- Recipes
- Loggers
- DataStores
- Reports
- OPC-UA
- CommDrivers
- NetLogic
- Security

View history

Filter by: All Updates ↓ ↑

MyCollaborationProject

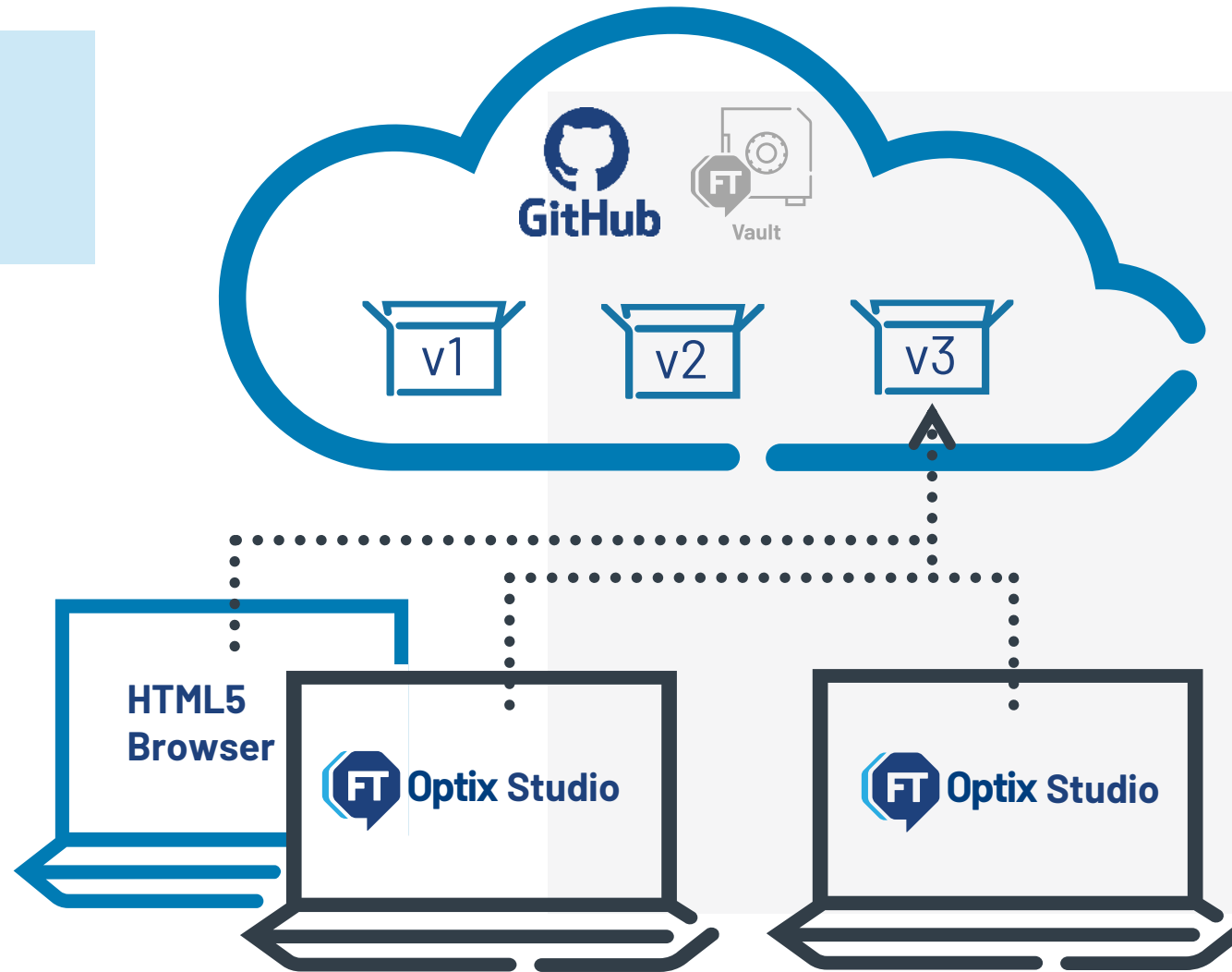
- UI
- MainWindow (type)
- SpinBox1
- var TopMargin 260 ▶ 160
- CircularGauge2

Commit History:

- ☒ Merged origin/main into main
Fri Dec 30 01:17:12 2022 +0100 ...
- ☐ Changes made on Desktop IDE
Fri Dec 30 01:12:07 2022 +0100 ...
- ☐ Changes made from Web IDE
Fri Dec 30 00:11:39 2022 +0000 ...
- ☒ Some UI elements on Main Wind...
Fri Dec 30 01:05:05 2022 +0100 ...

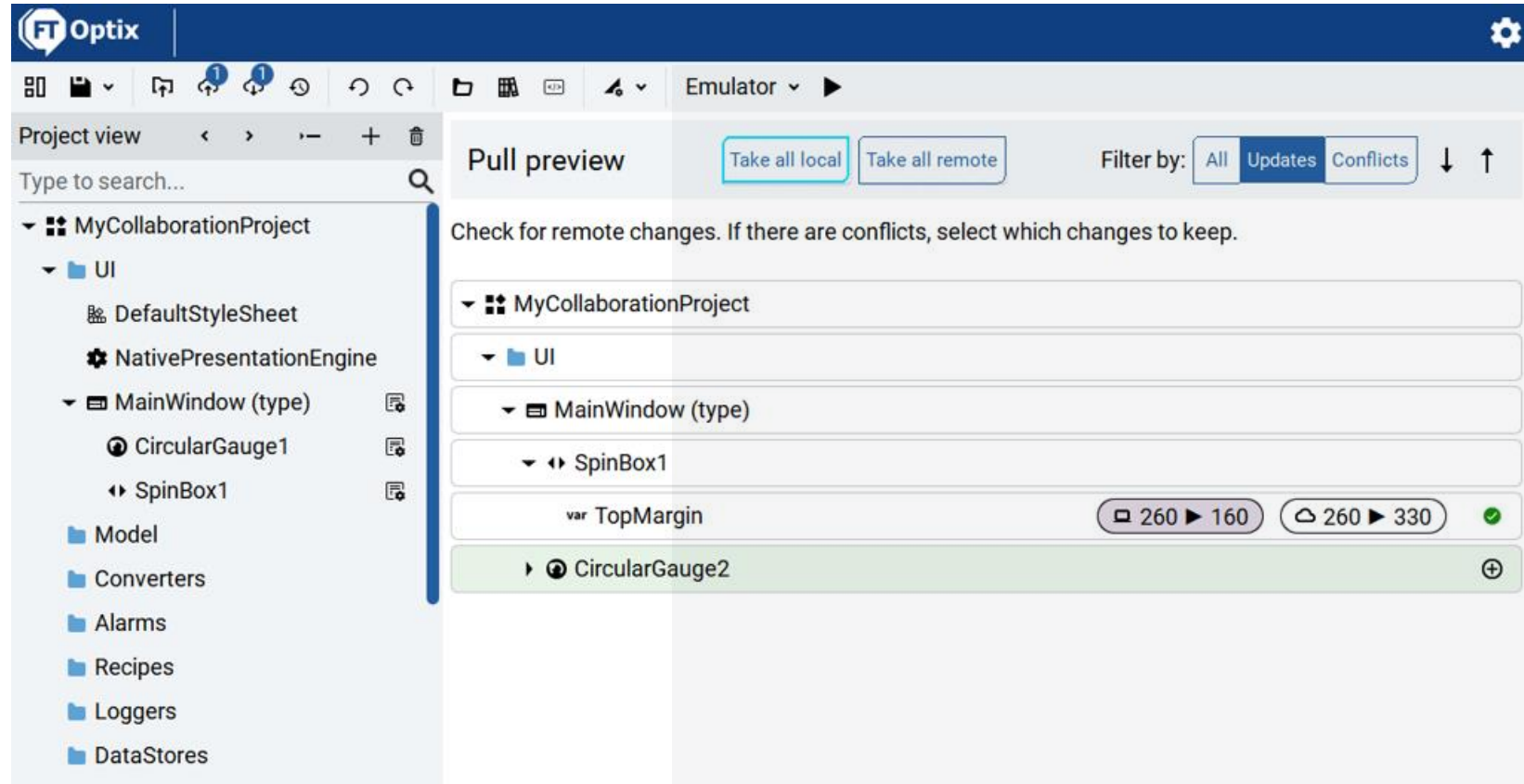
VERSION CONTROL SYSTEM - REMOTE

- Enable the Multi-user collaboration



VERSION CONTROL SYSTEM - EXAMPLE

- Push
- Pull
- Conflict Resolution



KEY FEATURES – GRAPHIC & DEVELOPMENT OPTIONS

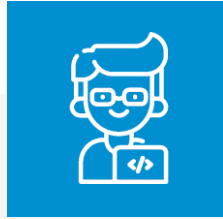


EXTENSIBILITY options

Natively OPC UA

Libraries

Scripting



DESIGN options

Object-oriented

Software As
A Service

Version Control



GRAPHIC & DEPLOYMENT options

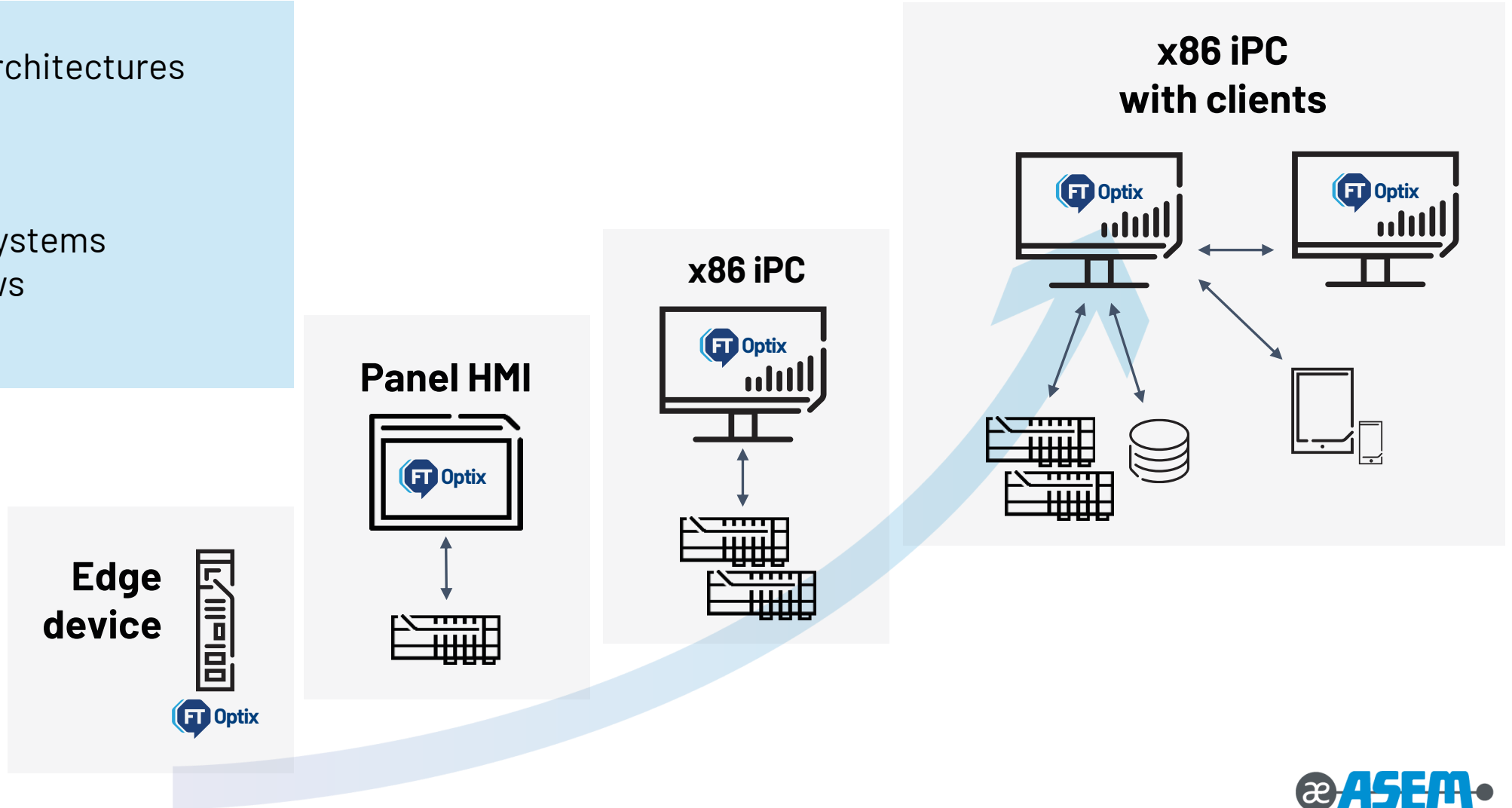
Cross-platform

Universal UI

Audit

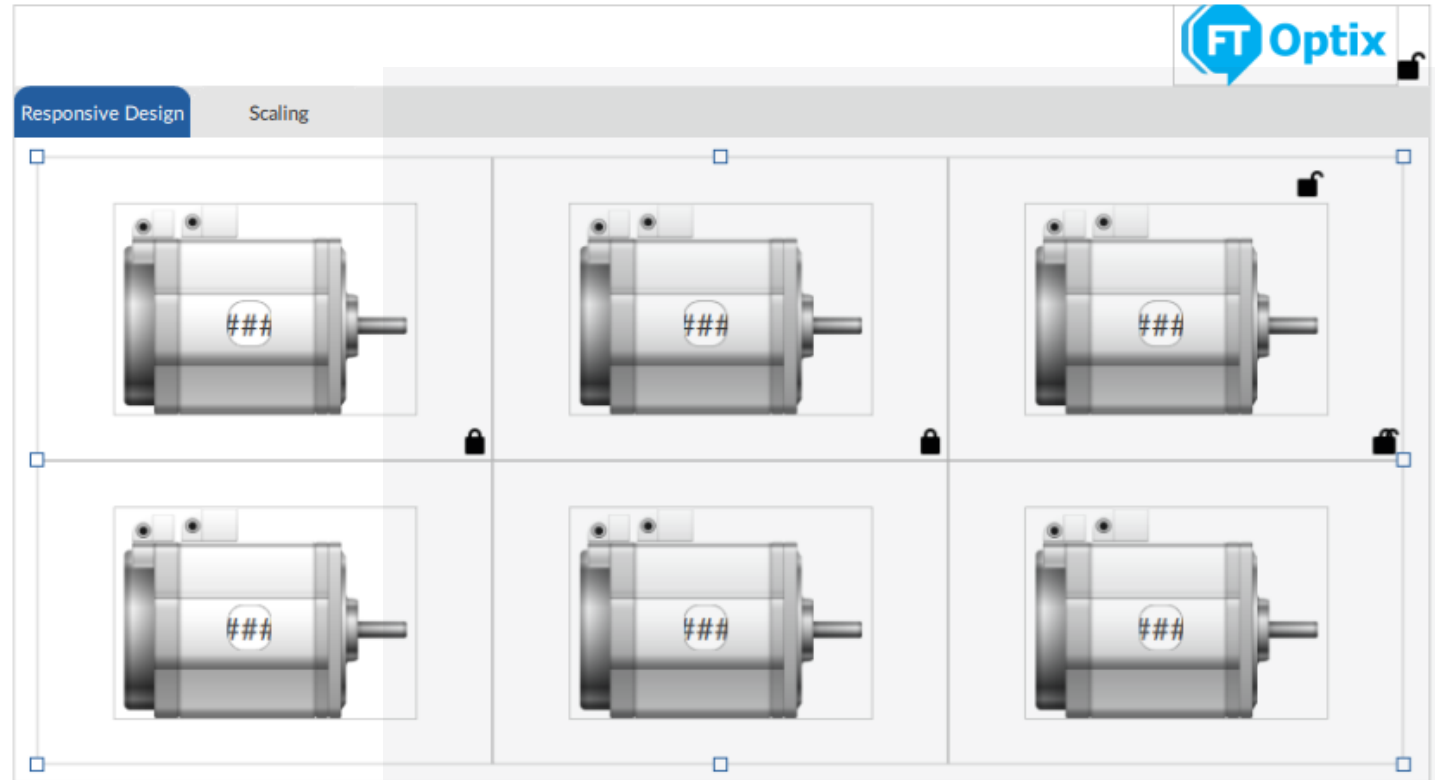
CROSS-PLATFORM: SCALABLE ARCHITECTURES

- Hardware Architectures
 - ARM
 - x86
- Operating Systems
 - Windows
 - Linux



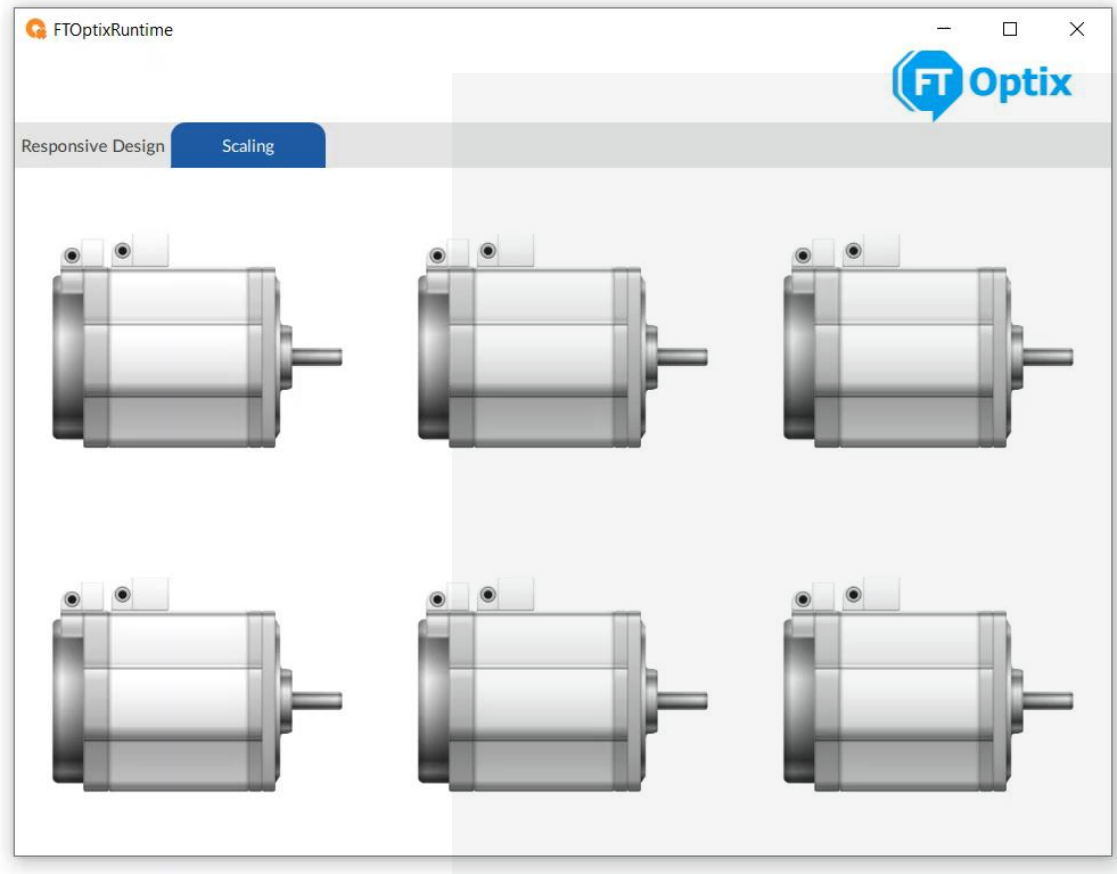
UNIVERSAL UI

- **Responsive Design** aims to make pages render well on a variety of screen sizes
- 4:3 \leftrightarrow 16:9
- Ensure usability



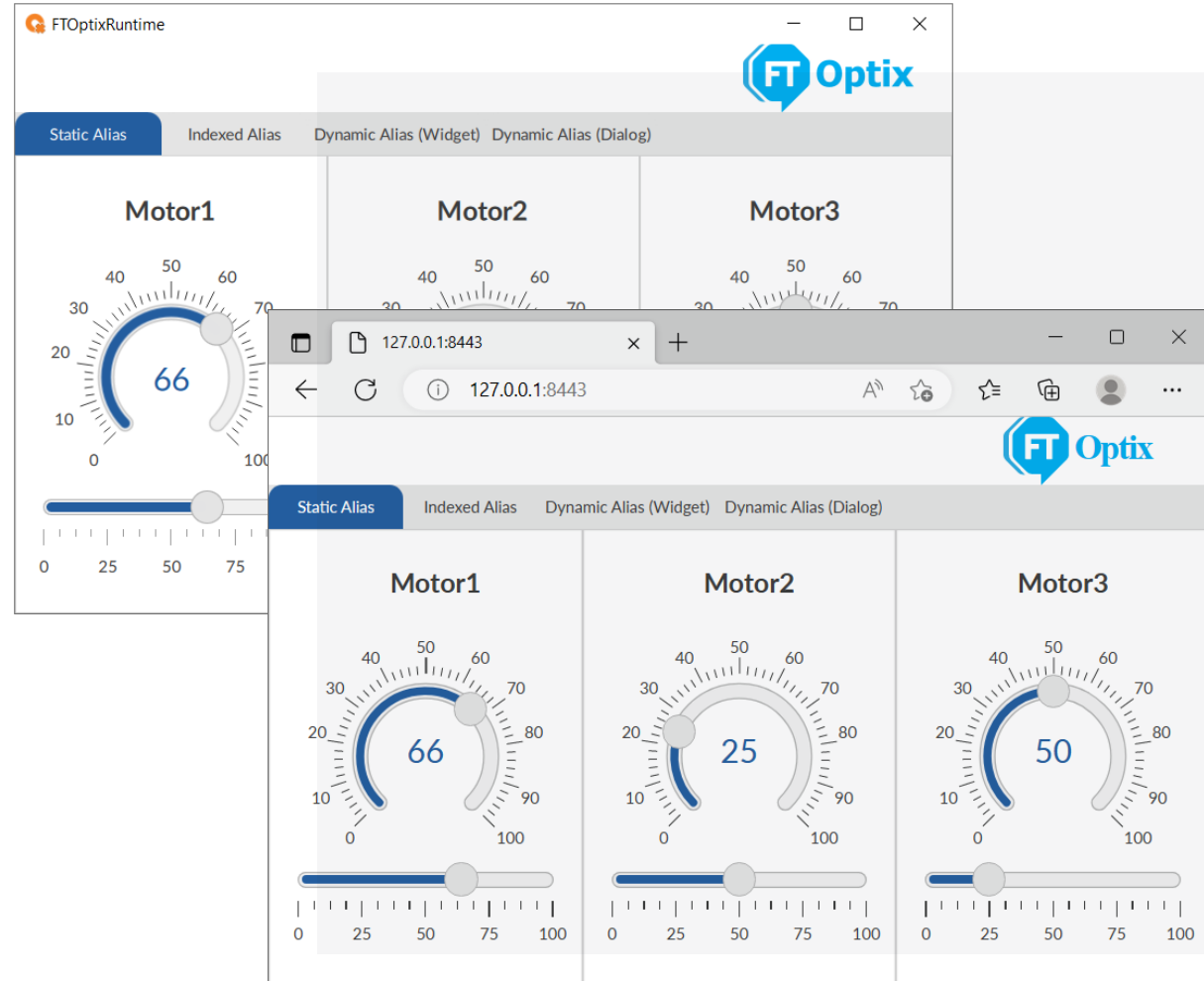
UNIVERSAL UI

- **Scale Layout**
enhance the
Responsive Design
- can be used
to scale
the whole page



UNIVERSAL UI




- **Web UI** with the same user experience as Native UI
- Independent sessions
- No conversion tool
- No adjustment
- No compromise



AUDIT, ELECTRONIC RECORDS & SIGNATURES

- User management
 - authentication mode
 - password policies

Properties

Name	NewHMIPProject
Type	Project folder
<hr/>	
Locales	it-IT;en-US
Translation fallback locales	en-US
Branching enabled	False
Measurement systems map	Default mapping 
Authentication mode	Model only 
Default user folder	
▸ Password policy	

Model only

Model only



Local only

Domain only

Domain and local

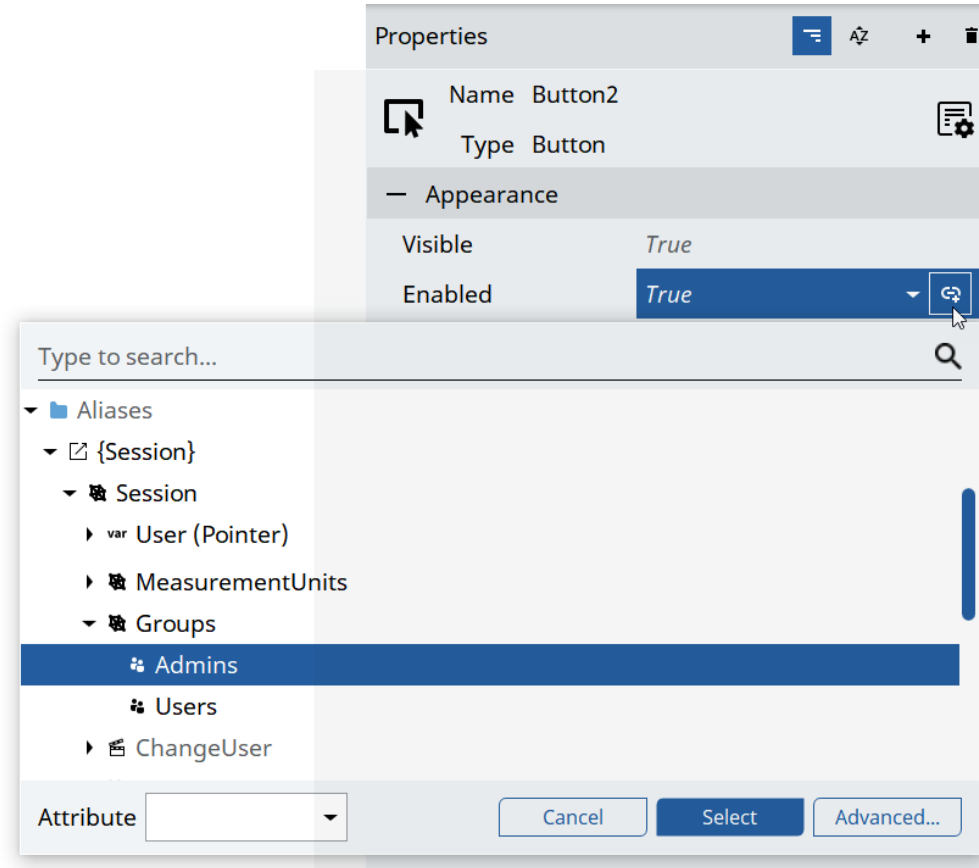
Any

Properties

Name	NewHMIPProject
Type	Project folder
<hr/>	
Locales	it-IT;en-US
Translation fallback locales	en-US
Branching enabled	False
Measurement systems map	Default mapping 
Authentication mode	Model only
Default user folder	Users 
▼ Password policy	
Maximum password age	0
Enforce password history	1
Minimum password age	0
Minimum password length	8

AUDIT, ELECTRONIC RECORDS & SIGNATURES

- Security policy on UI
 - Visibility
 - Enabling



AUDIT, ELECTRONIC RECORDS & SIGNATURES

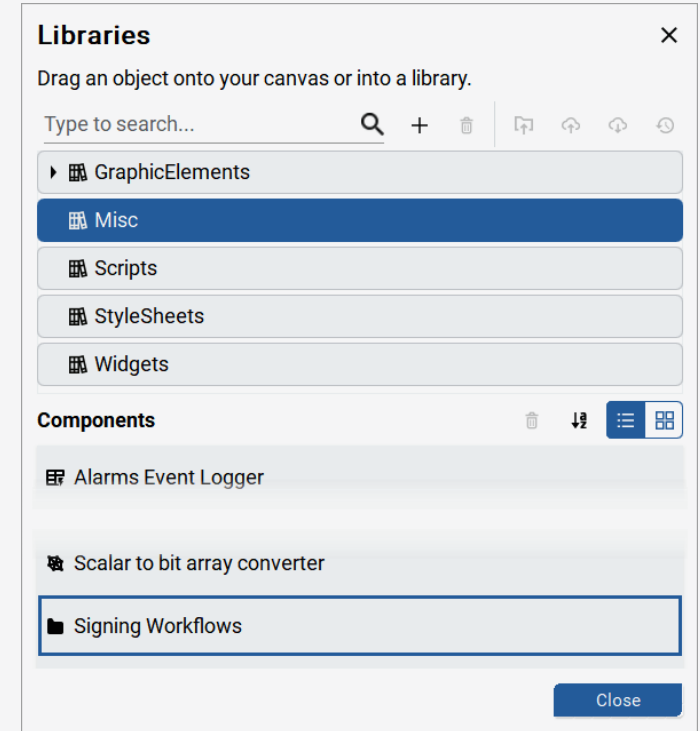
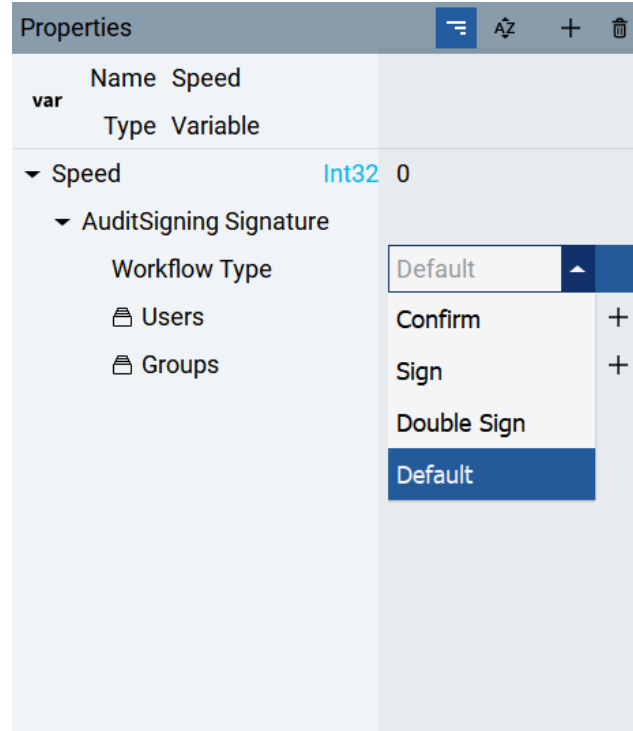
- Audit / Event Logger for
 - tags values
 - users login/logout
 - ...other events

Properties		
Name	UsersEventLogger	
Type	Event logger	
Enabled	True	
Locales		
Event configurations		+
EventConfiguration3		🗑
Event source		
Listen subtree	True	
Event type	UserSessionEvent	🔗
Non-interactive sessions	False	
Event fields to log		+
Database	EmbeddedDatabase	🔗

Properties		
Name	WorkflowEventLogger	
Type	Event logger	
Enabled	True	
Locales		
Event configurations		+
EventConfiguration1		🗑
Event source	AuditWorkflow	🔗
Listen subtree	True	
Event type	Workflow Started	🔗
Non-interactive sessions	False	
EventConfiguration2		🗑
Event source	AuditWorkflow	🔗
Listen subtree	True	
Event type	Workflow Completed	🔗
Non-interactive sessions	False	
Event fields to log		+
Database	EmbeddedDatabase	🔗

AUDIT, ELECTRONIC RECORDS & SIGNATURES

- Signing workflow on changing values:
 - Confirm,
 - Sign,
 - Double Sign



AUDIT, ELECTRONIC RECORDS & SIGNATURES

- File hashing to protect exported data
 - CSV files
 - PDF Reports
- Recipe "status management"
 - develop
 - production
 - obsolete

Properties			
##	Name	FileSignVerify	
	Type	NetLogic	
	PublicKey	ResourceUri	%PROJECTDIR%\optixhmi_cert.der Browse
	PrivateKey	ResourceUri	%PROJECTDIR%\optixhmi_cert.pem Browse
	VerifyResult	Int32	0
	SourceFile	ResourceUri	%PROJECTDIR%\DataloggerExported.csv Browse
	HashFile	ResourceUri	%PROJECTDIR%\DataloggerExported.csv.sign Browse

KEY FEATURES - SUMMARY

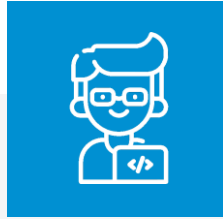


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A Service

Version Control



GRAPHIC & DEPLOYMENT options

Cross-platform

Universal UI

Audit



“ BUSINESS MODEL



FACTORYTALK OPTIX STUDIO

STANDARD

- Install on your PC
- Design and Deploy application from your PC

FREE



PRO

STANDARD capabilities plus...

- Design application using **web-based** Studio
- Use the **Version Control** System (Project + Libraries) and multi-user **collaboration**

Annual subscription
per User

FACTORYTALK OPTIX STUDIO - DEMO AND DOWNLOADS



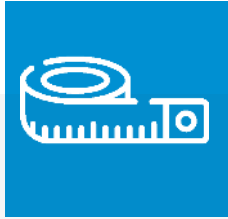
Optix Studio PRO
is available as **90 days trial**

Scan the QR Code or follow the link below
to download the **Getting Started Guide**
<https://qrco.de/optix>

FACTORYTALK OPTIX RUNTIME – FEATURE TOKENS



INNOVATIVE
AND FLEXIBLE



TAILORED SIZE



LEVERAGES
MODULARITY



NO LIMITATIONS
ON EACH
FEATURE

FACTORYTALK OPTIX RUNTIME – FEATURE TOKENS

- Every **feature** used by the Runtime has a cost in **Tokens**
- License **size** defines the number of Tokens available

SIZE	RUNTIME FOR IPC
XS	5
S	8
M	11
L	15
XL	21
UNL	Unlimited



FACTORYTALK OPTIX RUNTIME – FEATURE TOKENS

FREE

Libraries

FREE

Multimedia
contents

FREE

Converters

FREE

Embedded
database

FREE

Local users and
security

FREE

International
settings

FREE

Scripting

FACTORYTALK OPTIX RUNTIME – FEATURE TOKENS

1 Native UI	1..7 Web UI	CLIENTS Tokens	UP TO 1 1	UP TO 3 2	UP TO 5 3	UP TO 10 5	UP TO 20 7	ANY UNL
1 Alarms Active & Historical	1 Data loggers	1 Event loggers	1 Recipes	1 Reports				
1 Retentivity	1 Audit signature	1 Active directory authentication						

FACTORYTALK OPTIX RUNTIME – FEATURE TOKENS

1.3

ODBC database

DATABASES	UP TO 1	UP TO 3	UP TO 5	ANY
Tokens	1	2	3	UNL

1..7

OPC UA Server

CLIENTS	UP TO 1	UP TO 3	UP TO 5	UP TO 10	UP TO 20	ANY
Tokens	1	2	3	5	7	UNL

1..2

OPC UA Client

1..2

Every Comm
Driver

STATION	SINGLE	MULTIPLE
Tokens	1	2

For **RA Ethernet/IP** driver the
1st Station is free
if Runtime is running on
ASEM 6300, ASEM Classic
or OptixPanel

FACTORYTALK OPTIX RUNTIME – FEATURE TOKENS EXAMPLES

SMALL HMI	
Native UI	1
Web UI (up to 1 clients)	1
Alarms + Alarms History	1
Data logger	1
Recipes	1
1x Comm Driver (multiple stations)	2
TOTAL	7



MEDIUM HMI	
Native UI	1
Web UI (up to 3 clients)	2
Alarms + Alarms History	1
Data logger	1
Retentivity	1
Recipes	1
OPC UA Server (1 client)	1
1x Comm Driver (multiple station)	2
TOTAL	10



FACTORYTALK OPTIX RUNTIME - DEMO AND DOWNLOADS



Optix Application can be executed:

- by FT Optix Studio Emulator for 2h
- by FT Optix Runtime **for 2h without a license ***

Scan the QR Code or follow the link below
to download the **Getting Started Guide**

<https://qrco.de/optix>

* 90 days trial licenses (Unlimited tokens) are available upon request

FACTORYTALK OPTIX RUNTIME

- Is running on
 - ASEM VK, HT, QT, PB, BM
 - ASEM 6300 iPC
 - 3rd party PCs
 - **OptixPanels** HMI



OPTIXPANELS

COMPACT

Customer Persona

Entry-level machine builders,
needing basic HMI functionality

FT Optix

default size S (8)
upgradable to M (11)

FT Remote Access

BASIC, compatible
with Ubiquity domains



STANDARD

Customer Persona

Mid-level machine builders
needing a full-featured HMI

FT Optix

default size M (11)
upgradable to L (15)

FT Remote Access

PRO, compatible
with Ubiquity domains

OPTIXPANELS

COMPACT

Connectivity

1x Gigabit Ethernet
1x RS232/422/485

Display

Wide: 4.3" – 7"

Bezels & Touchscreen

Alu /w Resistive
True Flat Alu + Glass /w PCAP

STANDARD

Connectivity

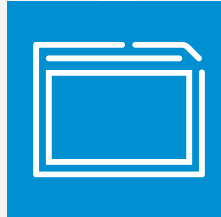
2x Gigabit Ethernet
1x RS232/422/485

Display

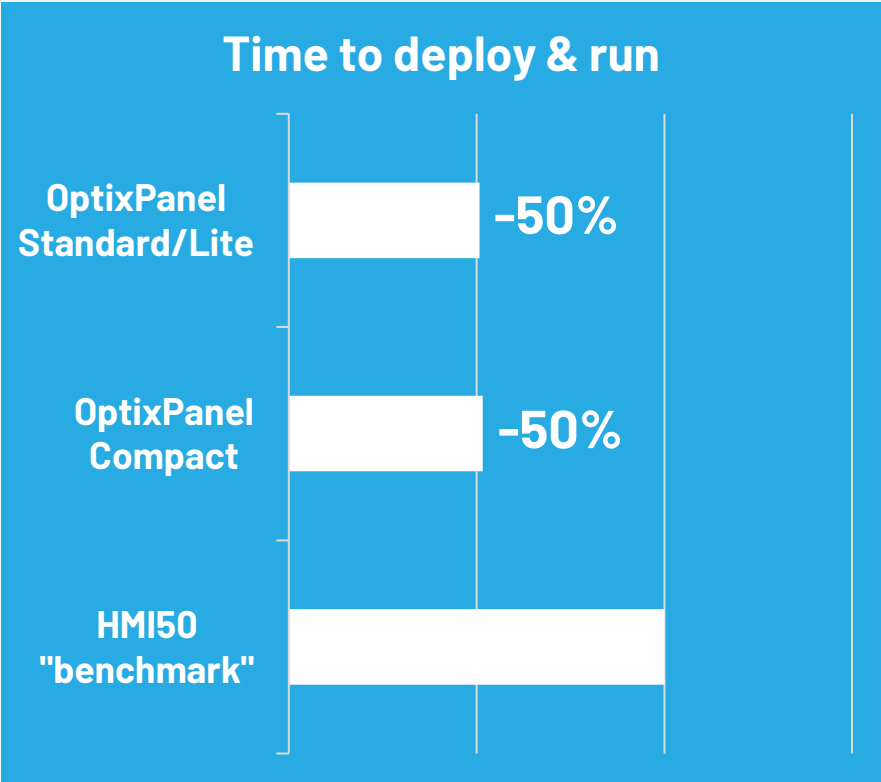
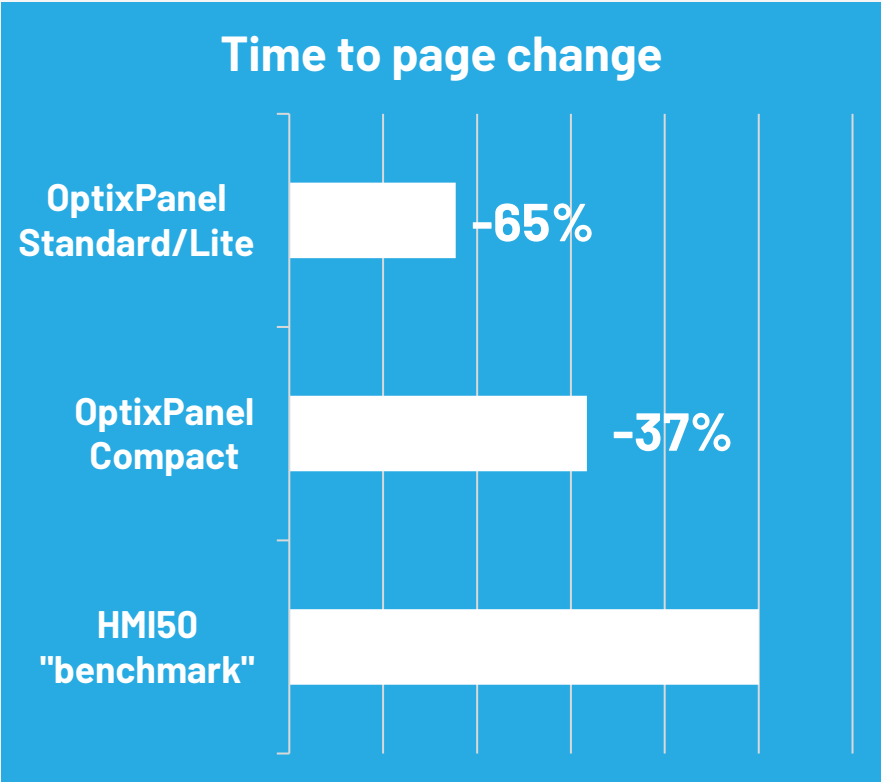
4/3 : 10.4" ... 15"
Wide: 7" ... 21.5"

ATEX Bezels & Touchscreen

Alu /w Resistive
True Flat Alu /w Resistive
True Flat Alu + Glass /w PCAP
True Flat Stainless Steel



PERFORMANCE COMPARISON



Lower results represent better performance