

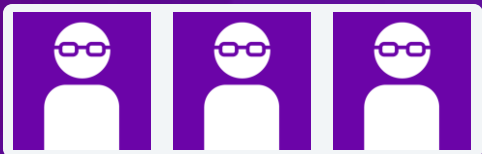
OCTOBER 2023

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# Operations Management Interface

Advanced HMI design using Operations Management Interface (OMI)

Ernst van Wyk



AVEVA



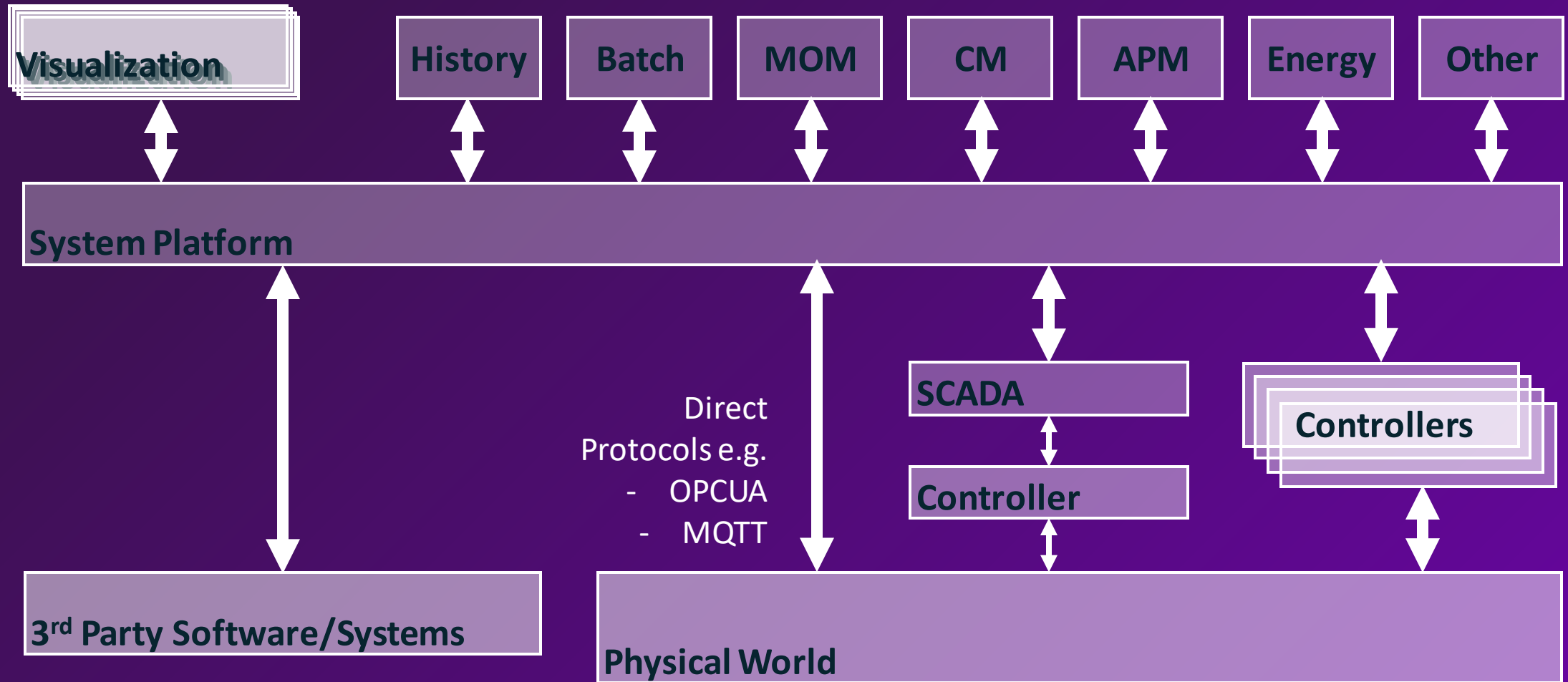
# Ernst van Wyk

Product Manager – operations control

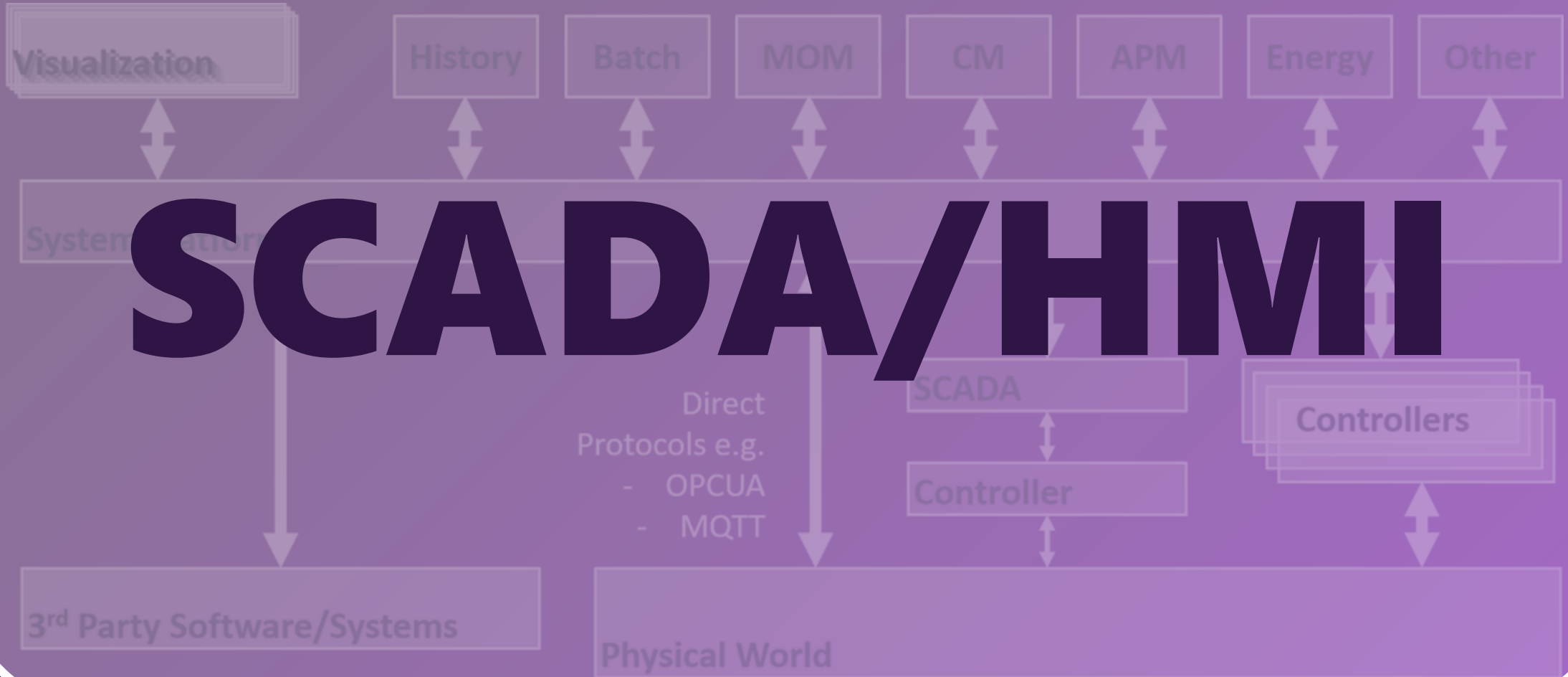
AVEVA

[ernst.vanwyk@aveva.com](mailto:ernst.vanwyk@aveva.com)

# Before OMI



# SCADA/HMI

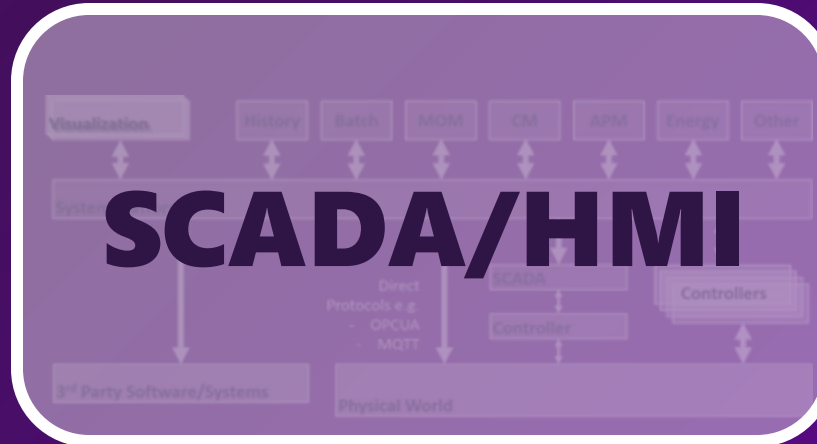


**P&I  
diagrams**

**Camera**

**Weather/  
Lightning**

**GeoSpatial  
(Maps)**



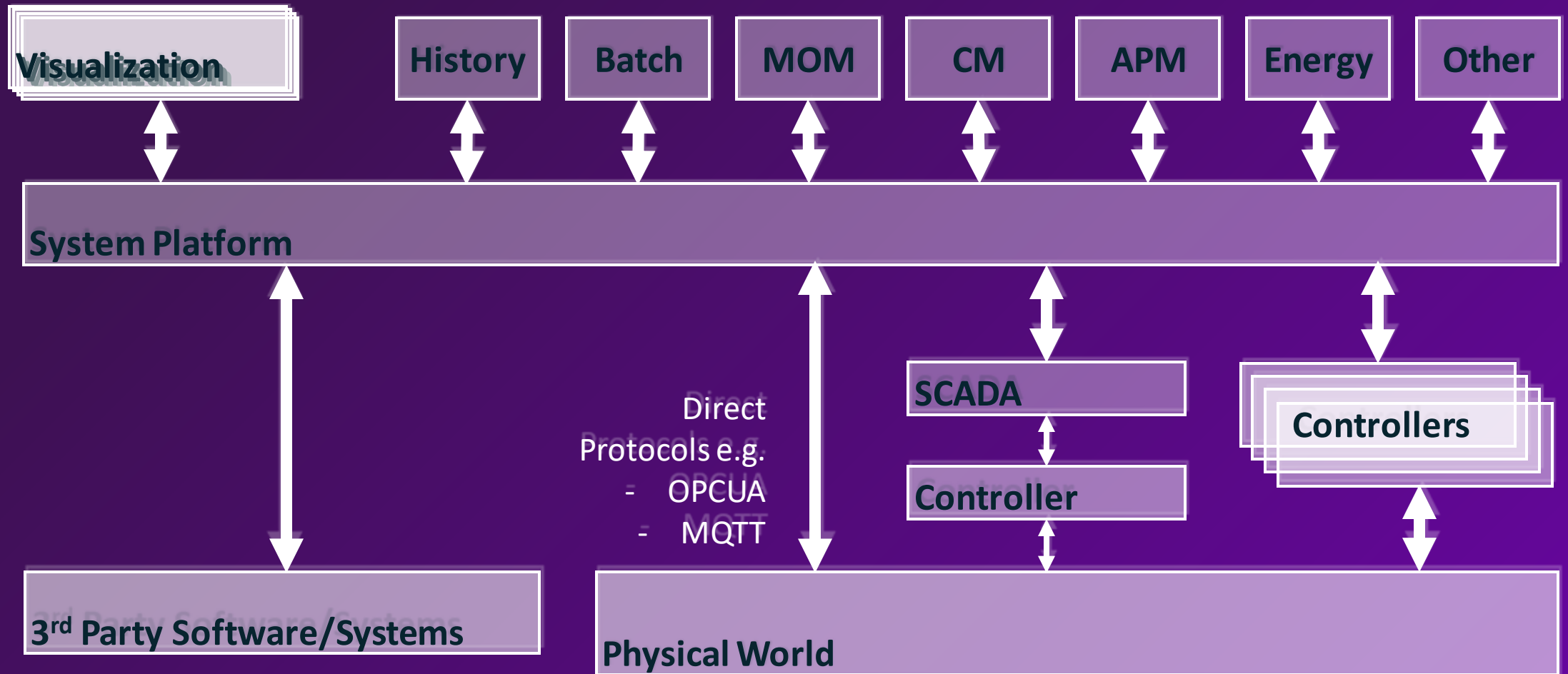
**Analytics/  
Reports**

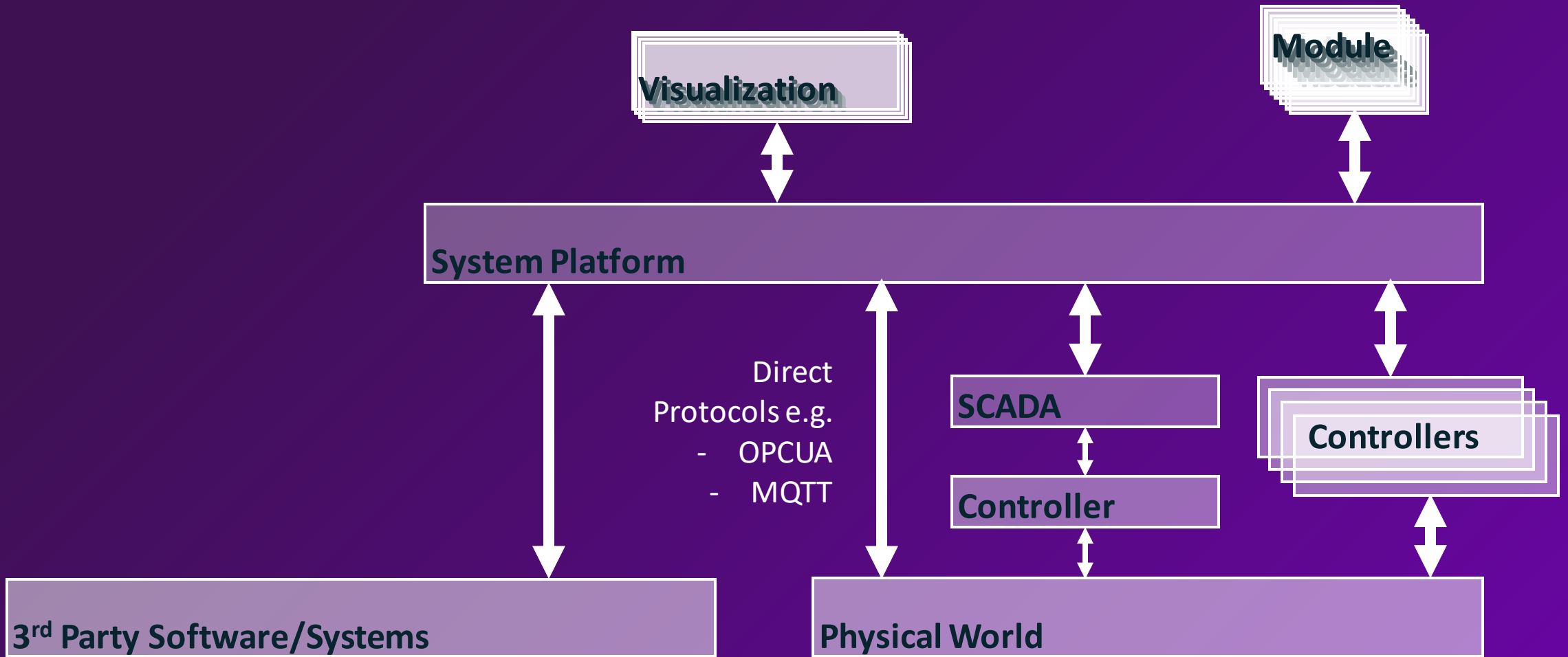
**Spreadsheets**

**Documents**

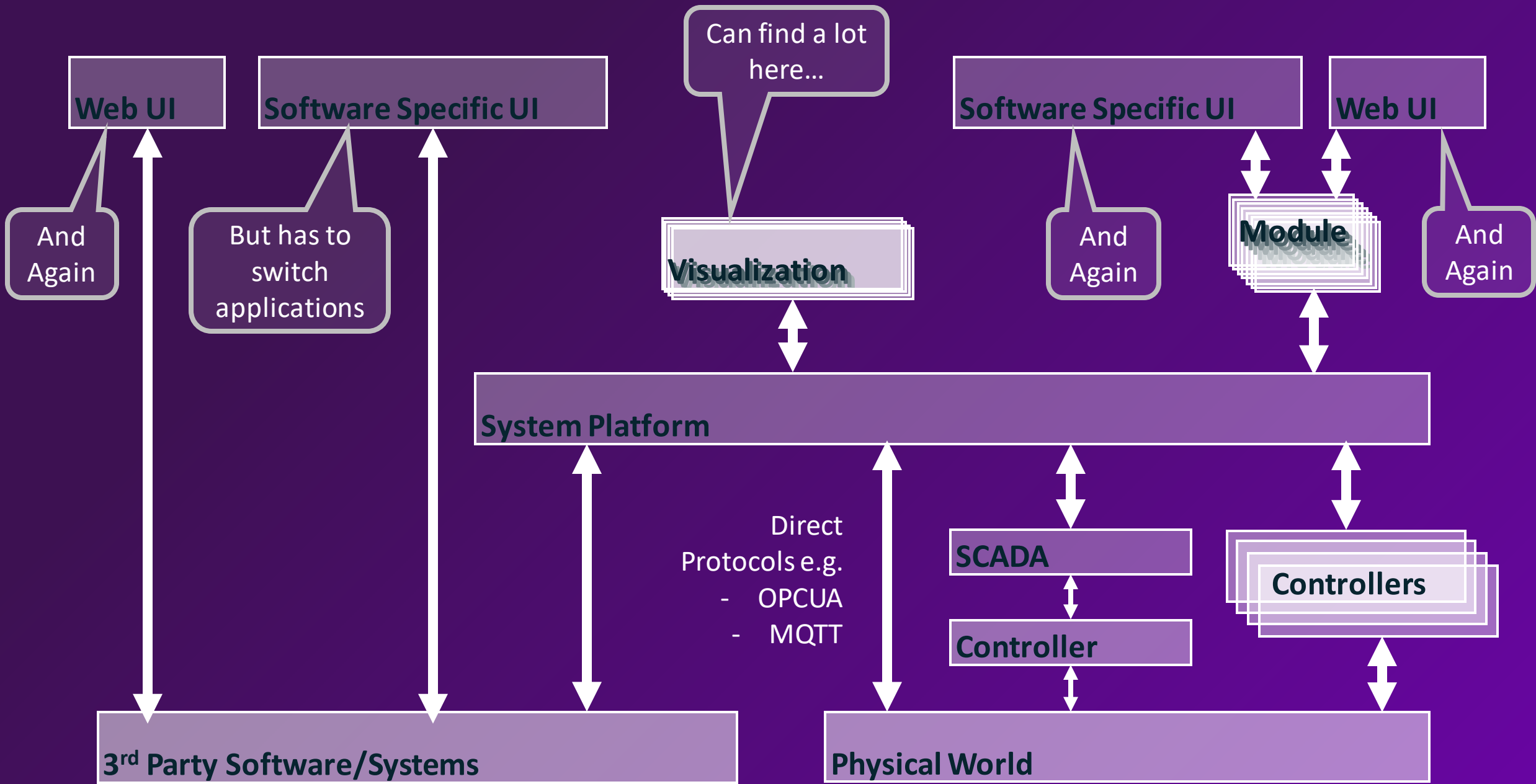
**3D model**

<b>ERP</b>	<b>Alarm Master</b>	<b>Prescriptive Analytics</b>	<b>IT Management</b>	<b>Internet of Things</b>	<b>Navigation</b>	<b>CRM</b>	<b>Scenario Planning</b>	<b>File Server</b>
<b>CAD</b>	<b>Energy Management</b>	<b>Alarm database</b>	<b>Water Network Optimization</b>	<b>Genealogy</b>	<b>Batch &amp; Phase Control</b>	<b>Virtual Reality Training</b>	<b>Quality Testing</b>	<b>Human Resources</b>
<b>Quality Management</b>	<b>Foreign Exchange</b>	<b>Operations Management</b>	<b>Software Defined Automation</b>	<b>Web Visualization</b>	<b>Security Management</b>	<b>Financial Management</b>	<b>Seismic activity</b>	<b>Tracking</b>
<b>Facilities Management</b>	<b>Mobile Alerting</b>	<b>Cyber Security</b>	<b>P&amp;I diagrams</b>	<b>Camera</b>	<b>Weather/ Lightning</b>	<b>Maintenance Round Management</b>	<b>Recipe Management</b>	<b>Shift Logs</b>
<b>Enterprise Asset Management</b>	<b>Social Media</b>	<b>Predictive Analytics</b>	<b>GeoSpatial (Maps)</b>	<b>SCADA/HMI</b>	<b>Analytics/ Reports</b>	<b>Enterprise Crude Management</b>	<b>Live stream</b>	<b>Maintenance</b>
<b>Robot Control</b>	<b>Condition Monitoring</b>	<b>Work Order Scheduling</b>	<b>Spreadsheets</b>	<b>Documents</b>	<b>3D model</b>	<b>Augmented Reality</b>	<b>Formula Management</b>	<b>E-Mail</b>
<b>Design &amp; Engineering</b>	<b>Commodity Markets</b>	<b>Reports and Analysis</b>	<b>Enterprise Historian</b>	<b>Mass Balancing</b>	<b>Scheduling</b>	<b>Remote Control</b>	<b>Order Management</b>	<b>Enterprise Manufacturing Intelligence</b>
<b>MOM/ MES</b>	<b>Supply Chain Management</b>	<b>Transport</b>	<b>Process Optimization</b>	<b>Quality Control</b>	<b>Advanced Process Control</b>	<b>LIMS</b>	<b>Procurement</b>	<b>InfraRed</b>
<b>Training Simulation</b>	<b>Mobile Alarm Notification</b>	<b>Industrial Internet of Things</b>	<b>Process Simulation</b>	<b>Comms (audio/video)</b>	<b>Asset Management</b>	<b>Mobile Visualization</b>	<b>Business Intelligence</b>	<b>Trend</b>

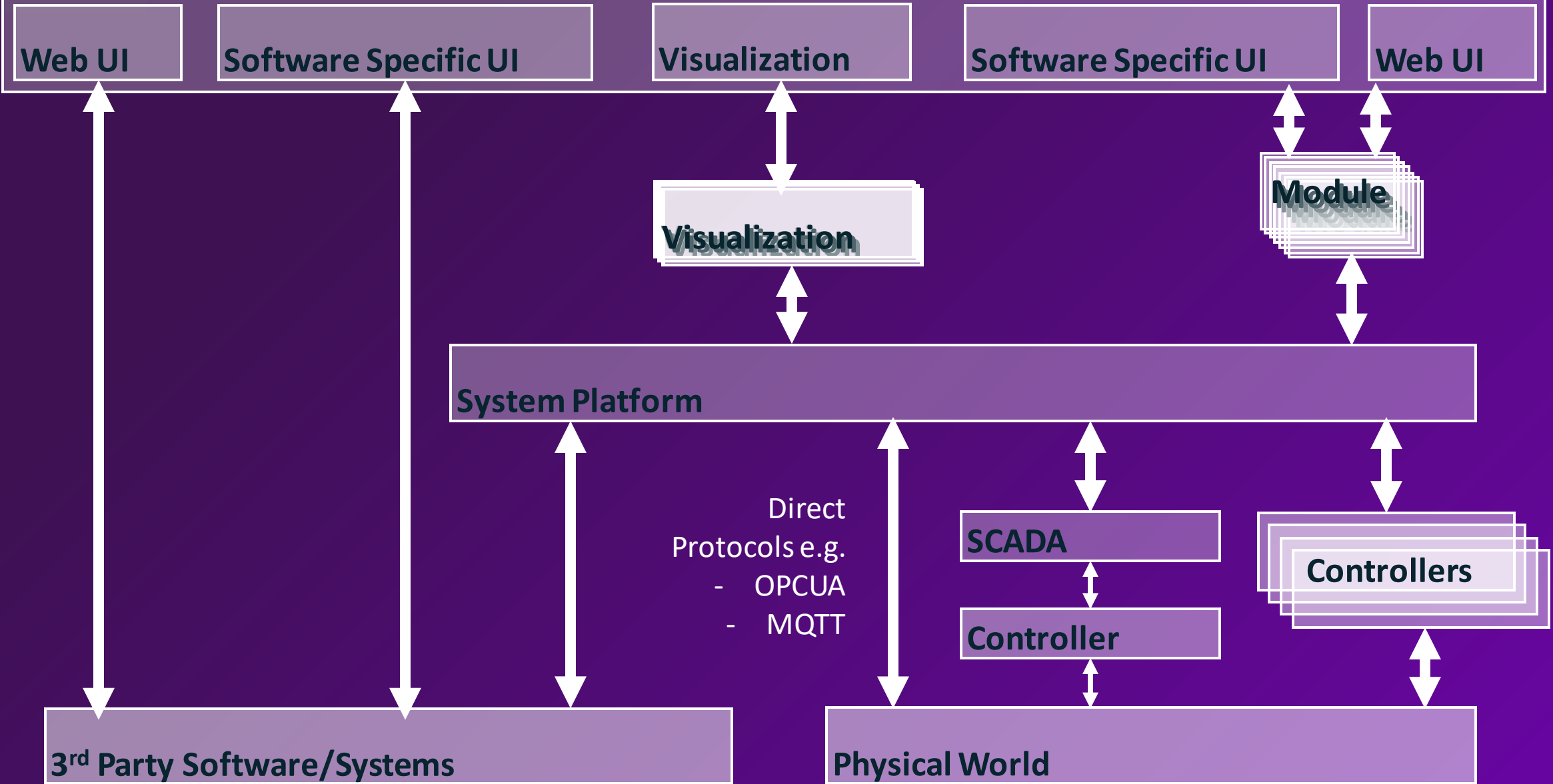








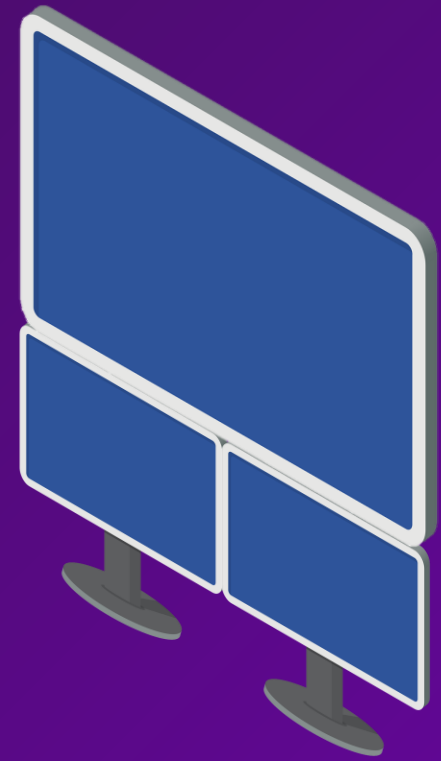
# Operations Management Interface



Direct  
Protocols e.g.  
- OPCUA  
- MQTT

# Main Components

*Screen Profile*

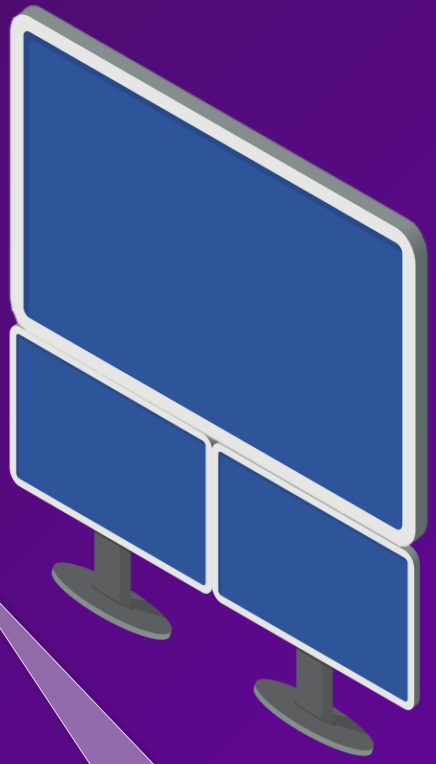
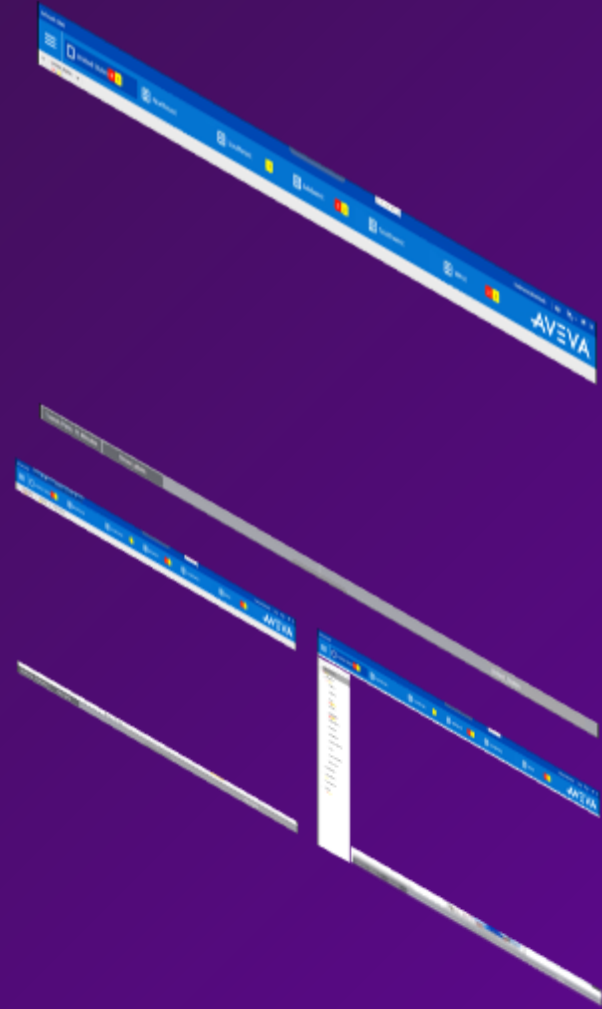


# Main Components

**OMI Apps**

**Layouts**

**Screen Profile**



**Panes**

**Content: Static or Dynamic**

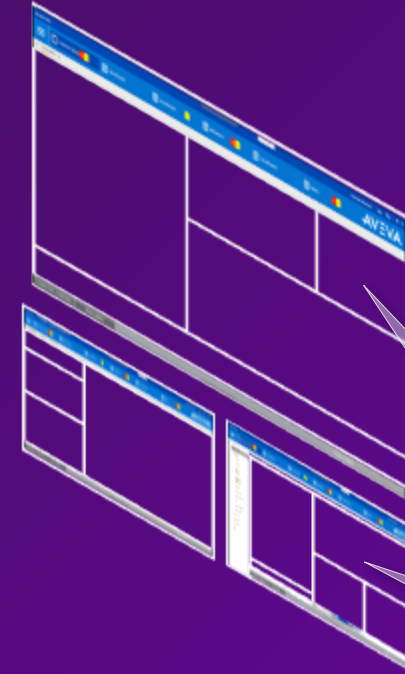
# Main Components

**Context-driven  
Apps & Widgets**

**OMI Apps**

**Layouts**

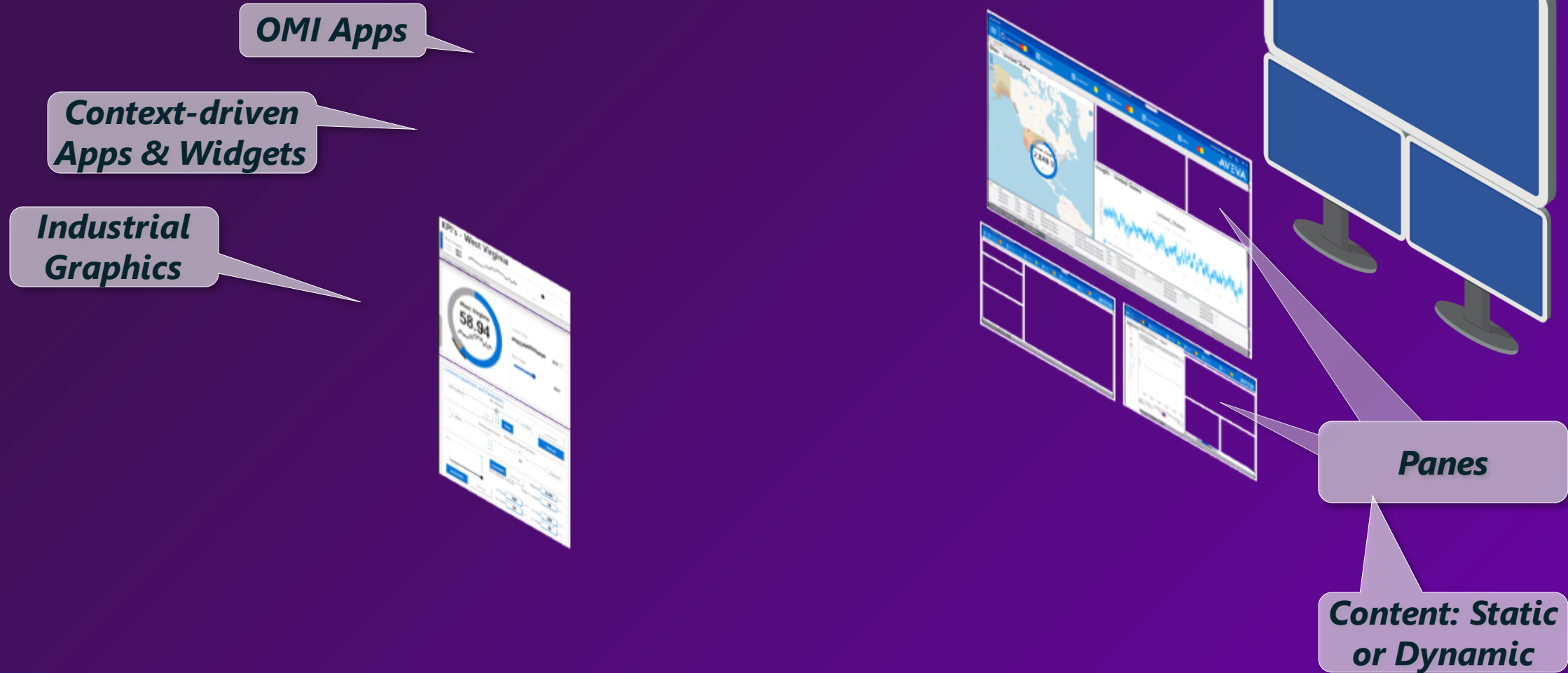
**Screen Profile**



**Panes**

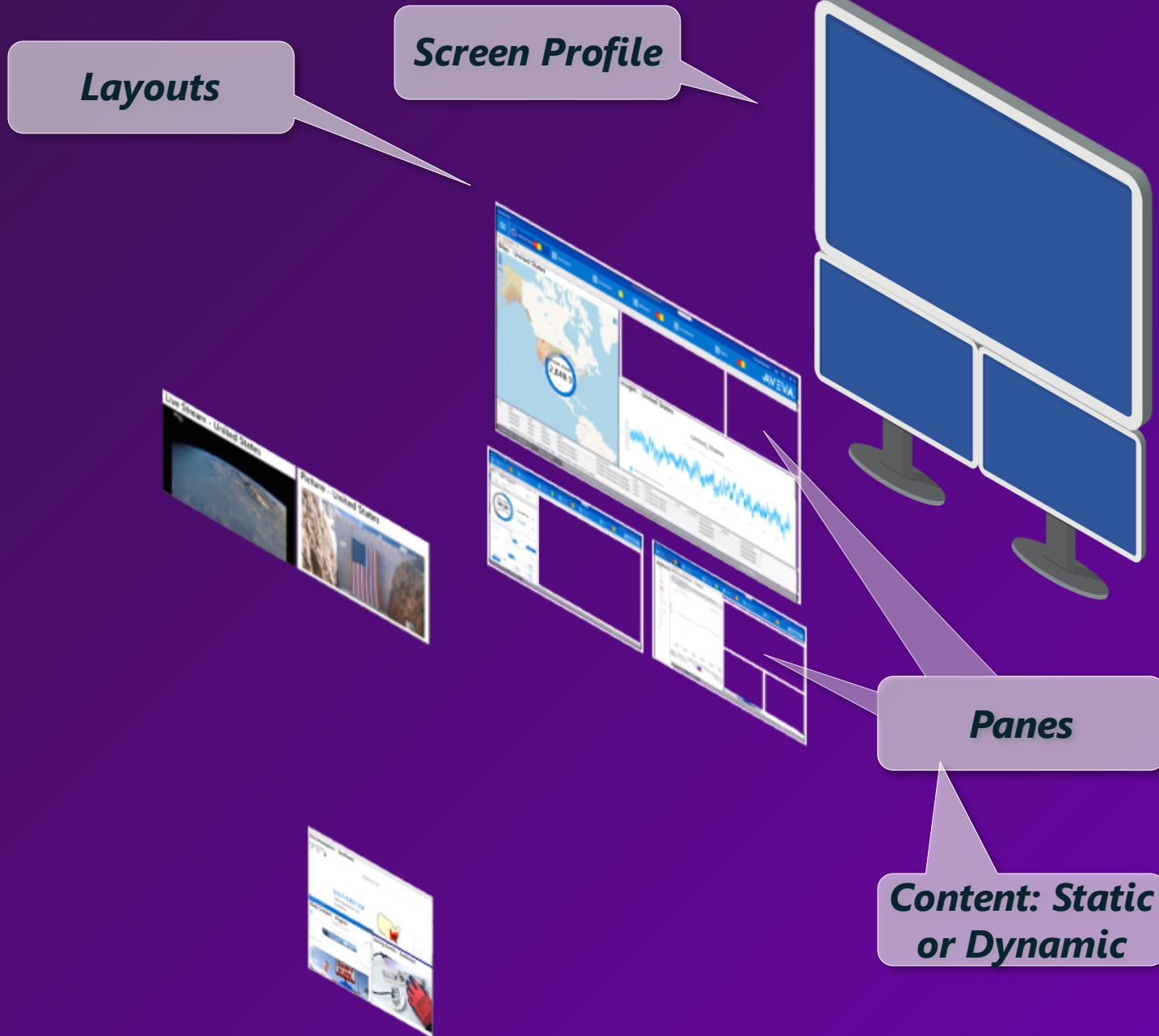
**Content: Static  
or Dynamic**

# Main Components



# Main Components

- OMI Apps**
- Context-driven Apps & Widgets**
- Industrial Graphics**
- External Content**

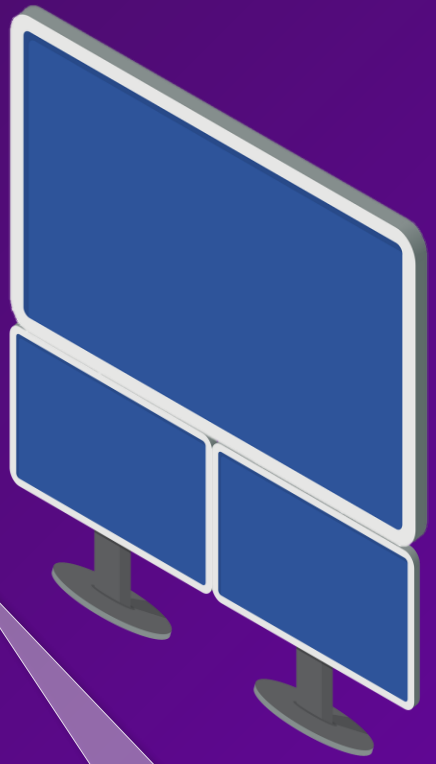


# Main Components

- OMI Apps**
- Context-driven Apps & Widgets**
- Industrial Graphics**
- External Content**
- Layout as content**

**Layouts**

**Screen Profile**



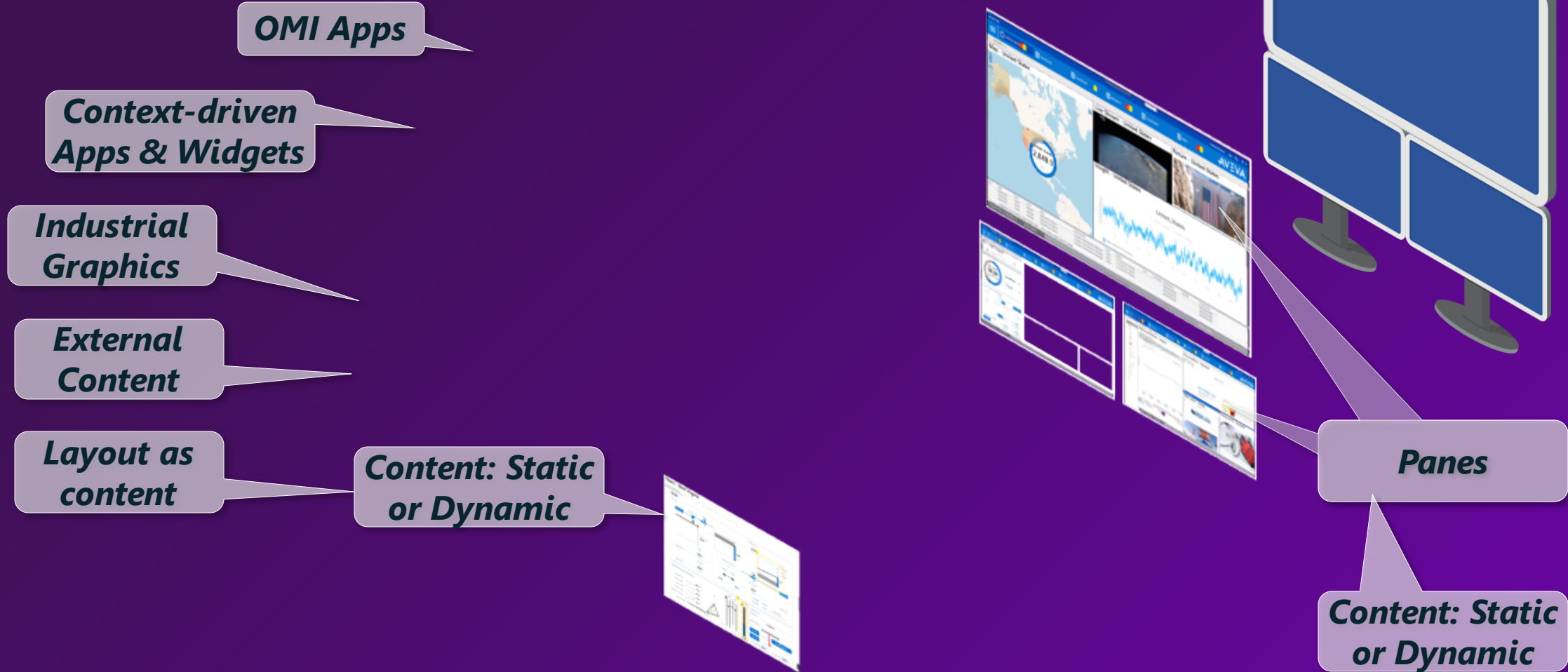
**Panes**

**Content: Static or Dynamic**

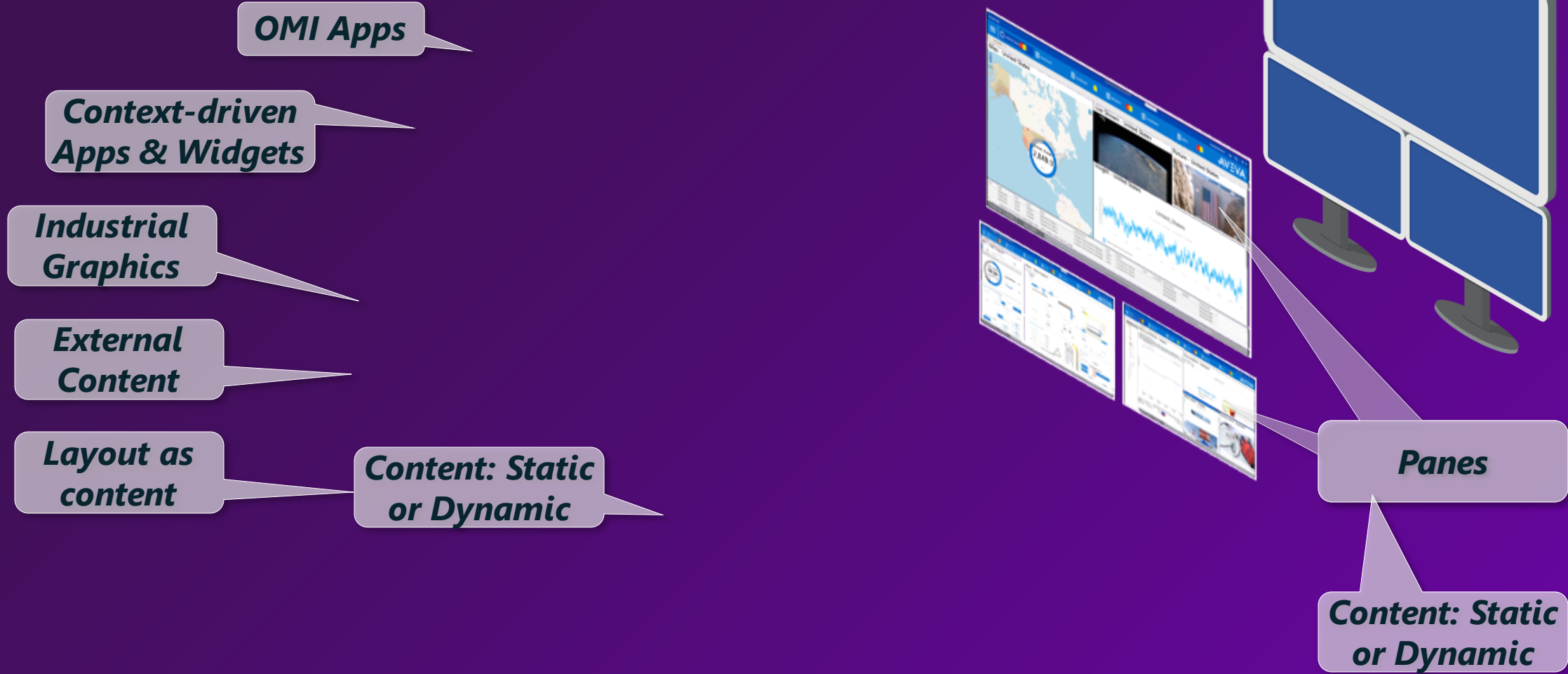




# Main Components



# Main Components



# Main Components

**Applications  
build themselves**

**Content has  
Content type**

**Panes consume  
Content types**

**Plant Model  
Auto Nav**



**View  
Application**

 ViewApp

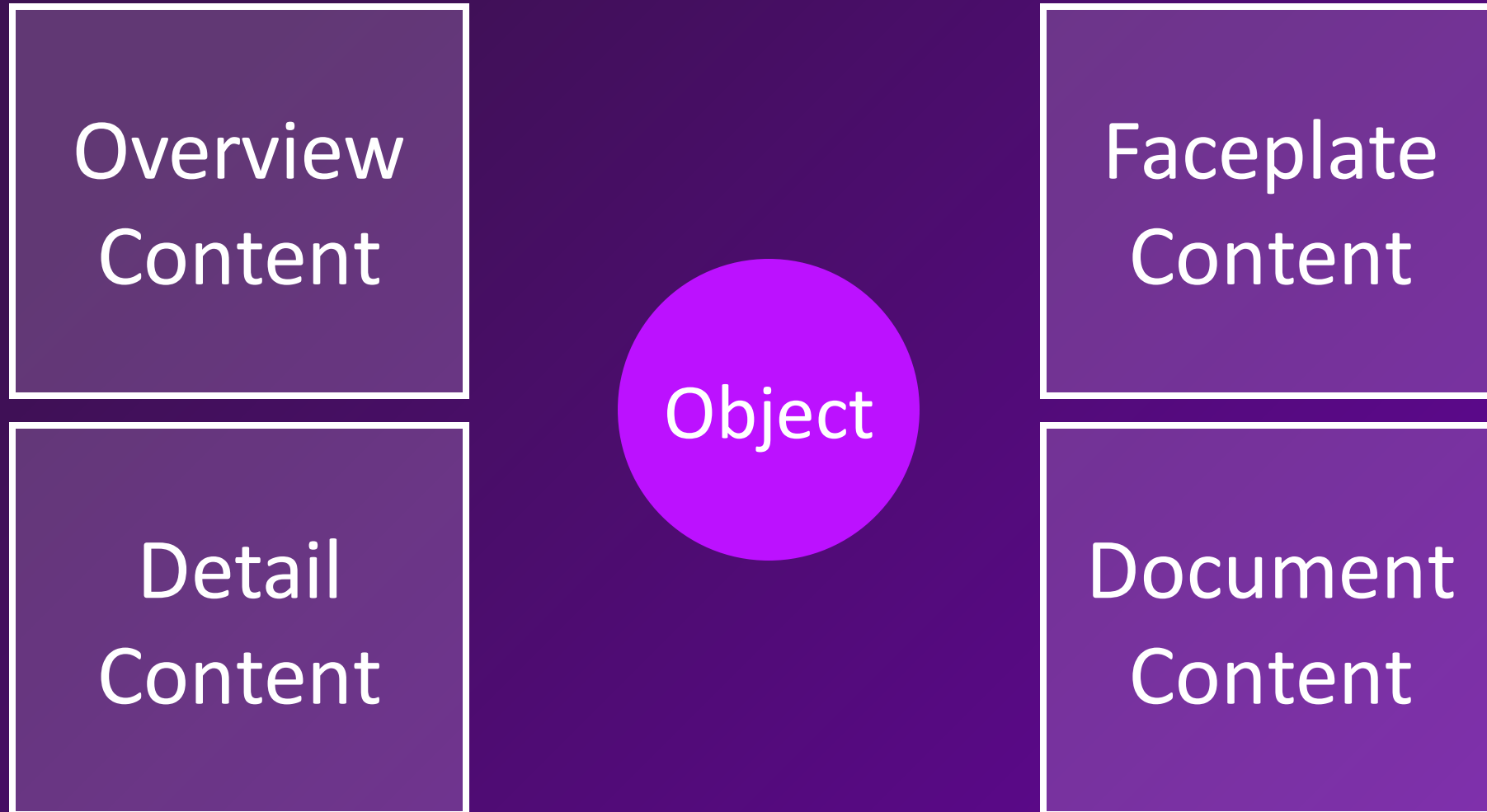
ViewEngine

WinPlatform

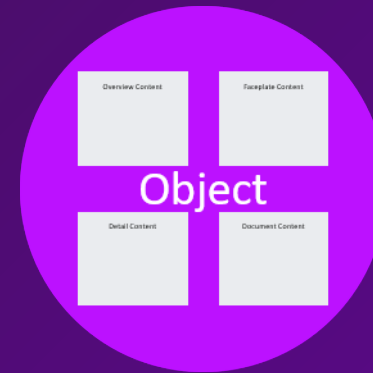
Bootstrap



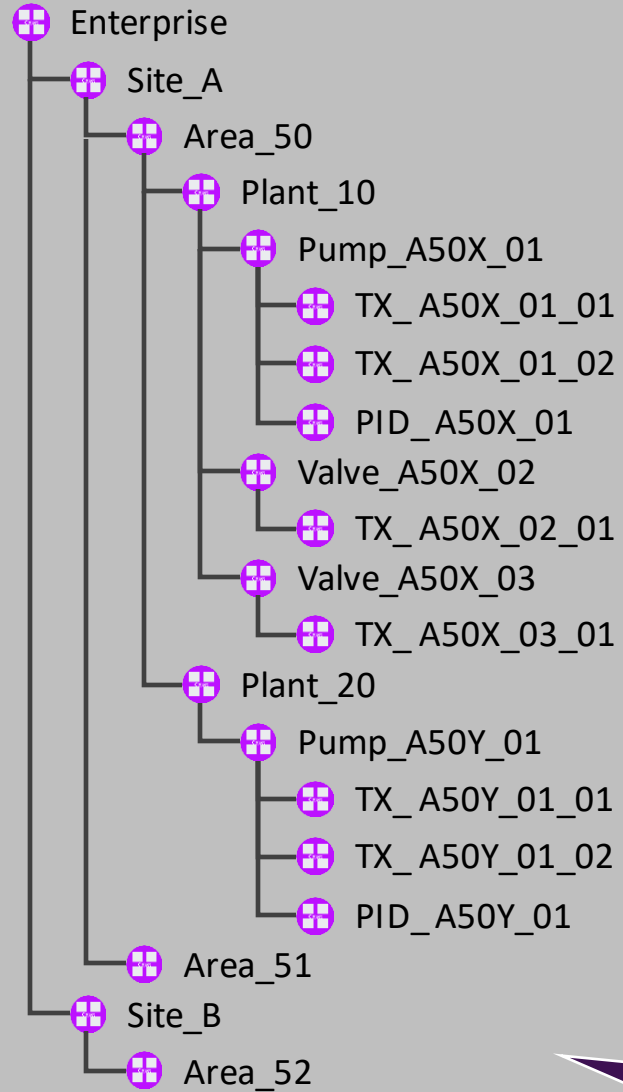
# Where does the content come from?



# Asset Model

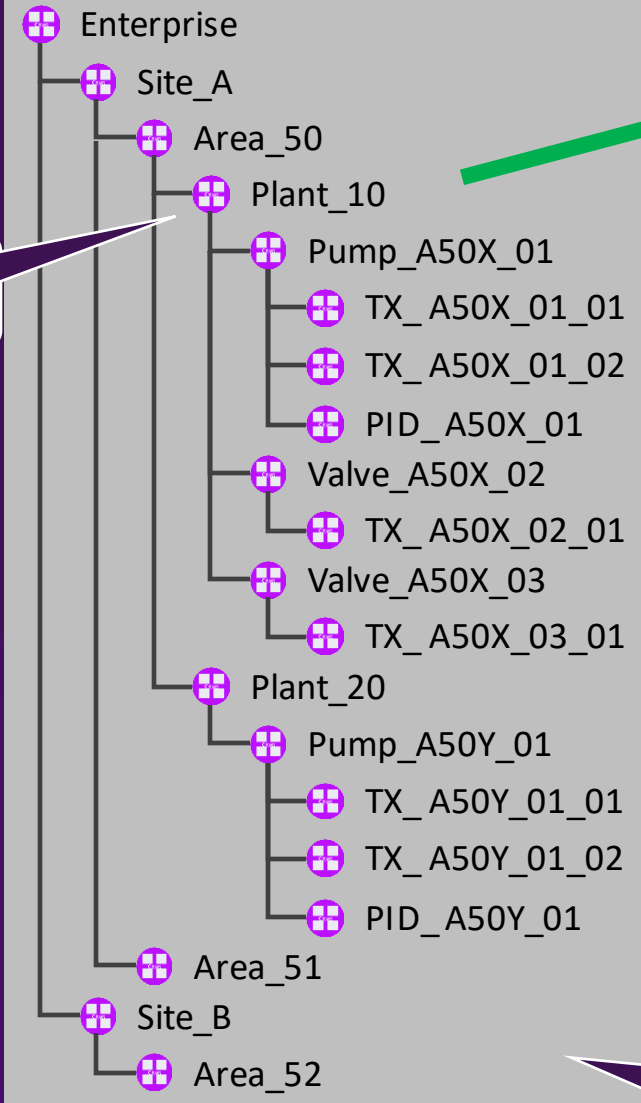


## Asset Model



Application  
Server  
Model

## Asset Model

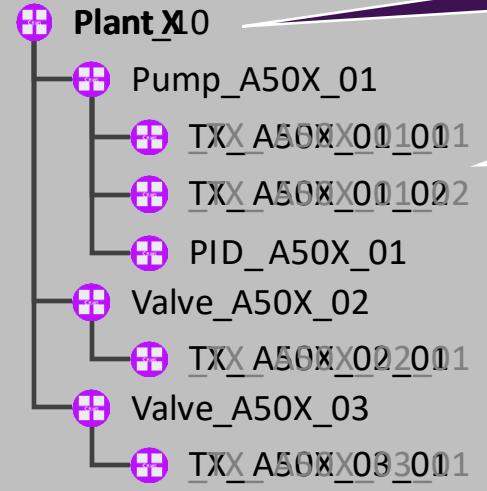


Can specify Alias name

Entire Branch



## Navigation Model

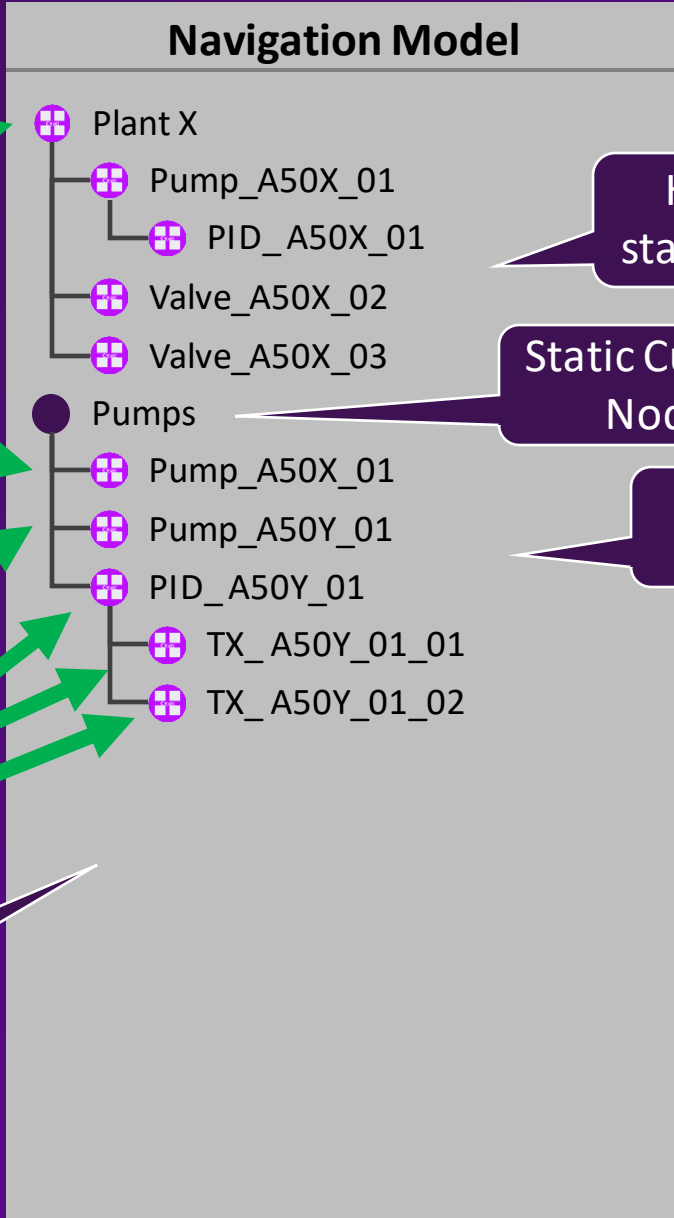
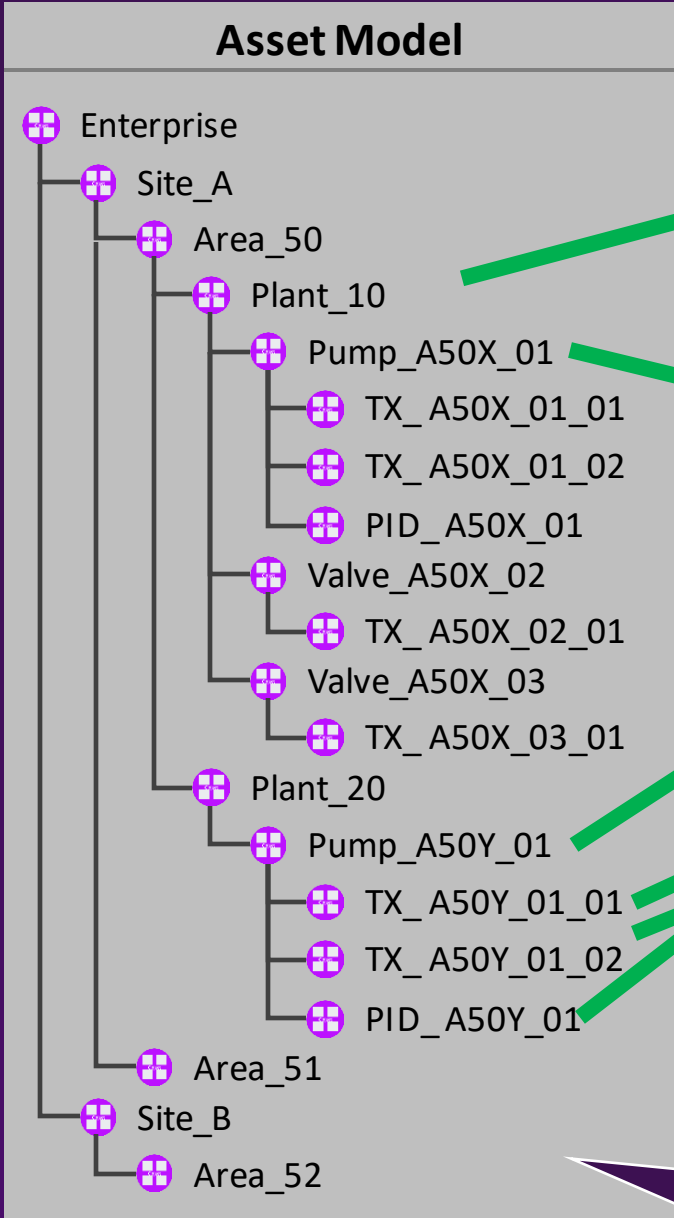


Display Alias in Runtime

Hide alias starting with \_

AVEVA OMI Model

Application Server Model



Entire Branch

Single Asset Node

Hide alias starting with \_

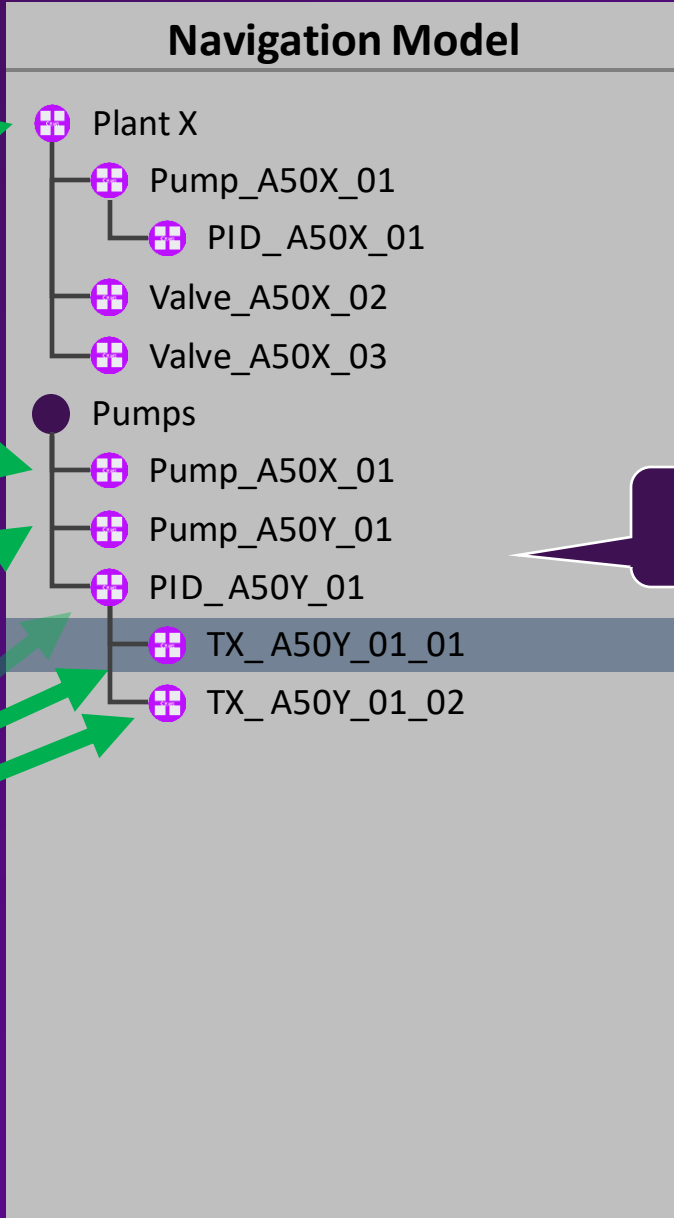
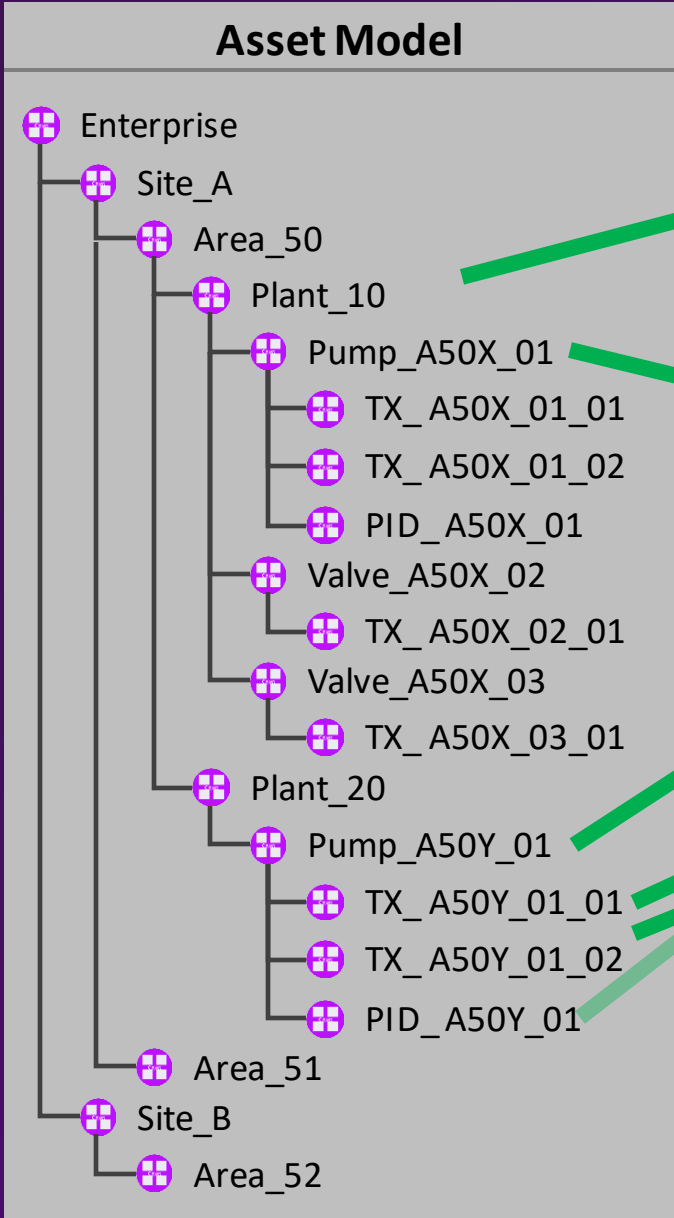
Static Custom Node

Custom Model

AVEVA OMI Model

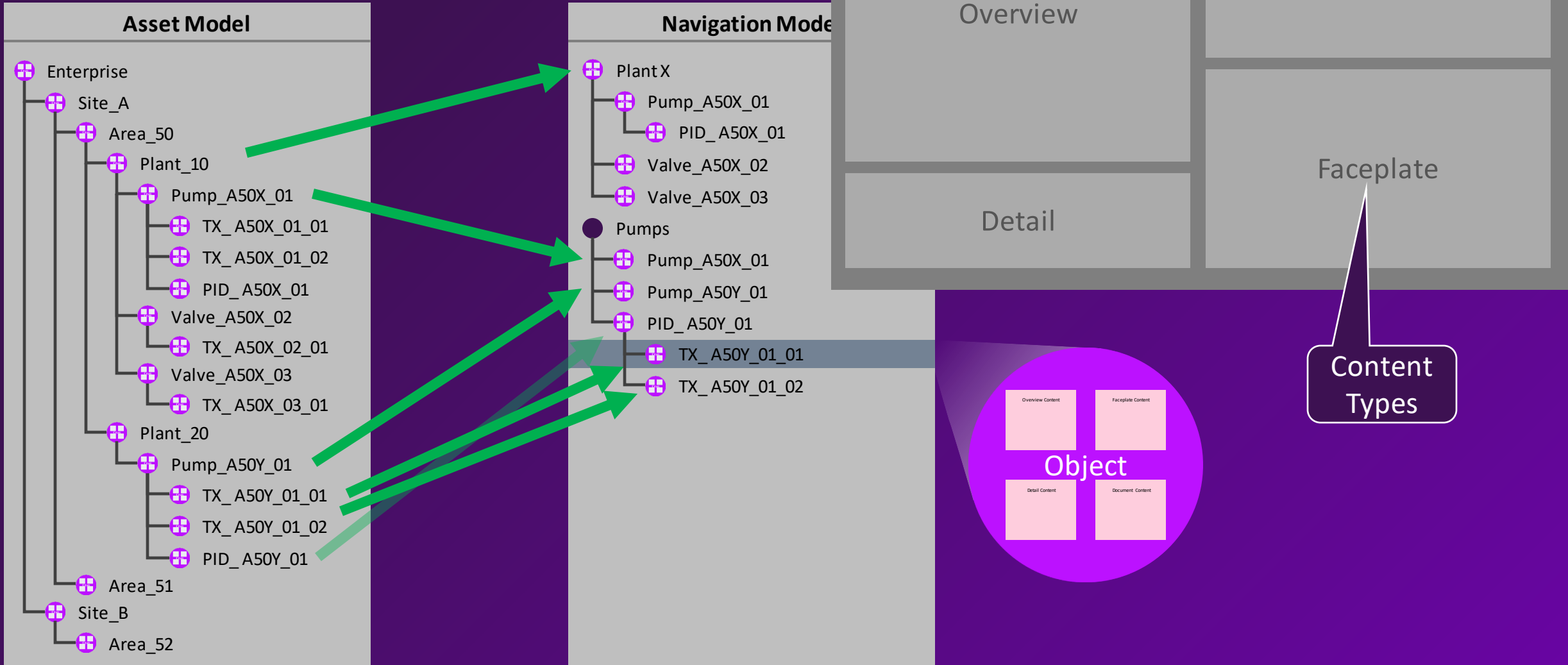
Application Server Model



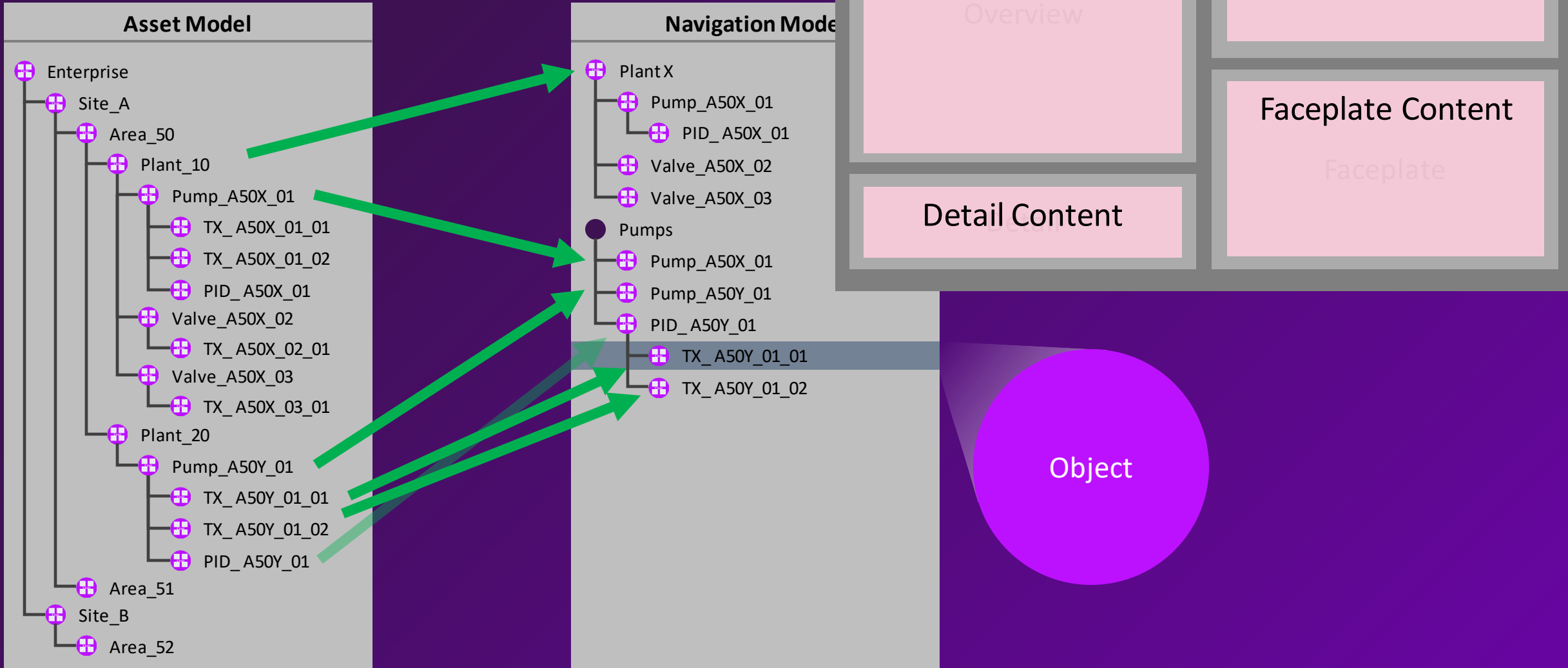


Custom Model

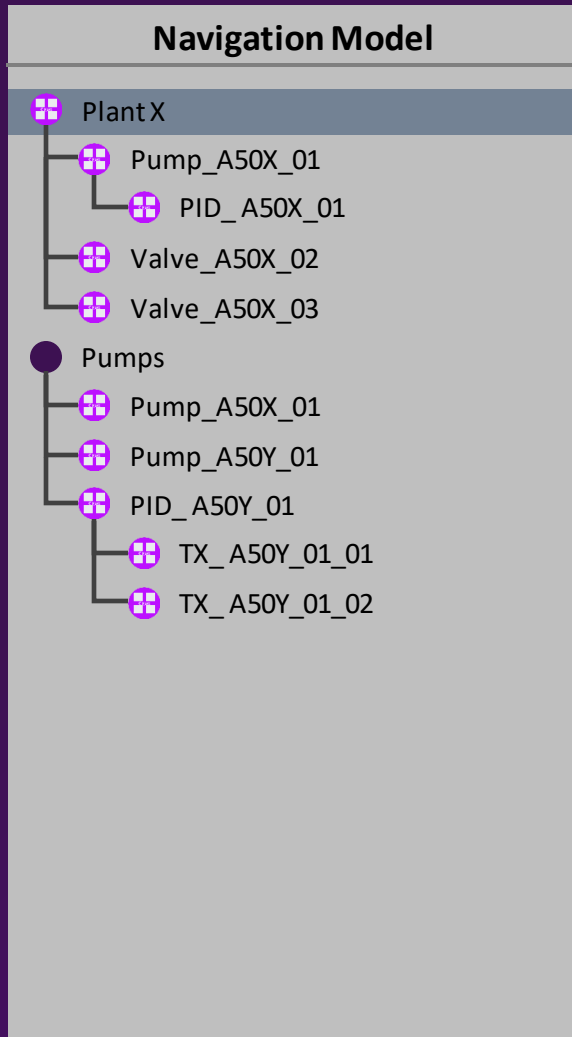
# Layouts



# Layouts



# Role-based navigation

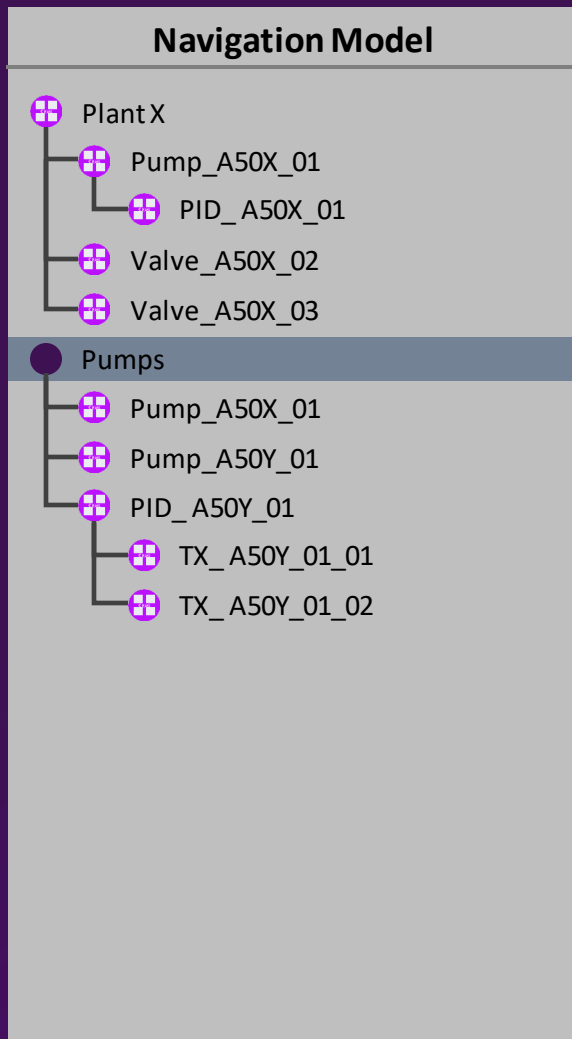


**Security**

Access Level	Not Configured
User Roles	PSDOMAIN\Domain Wonder Administrators, PSDOMAIN\Domain Wonde

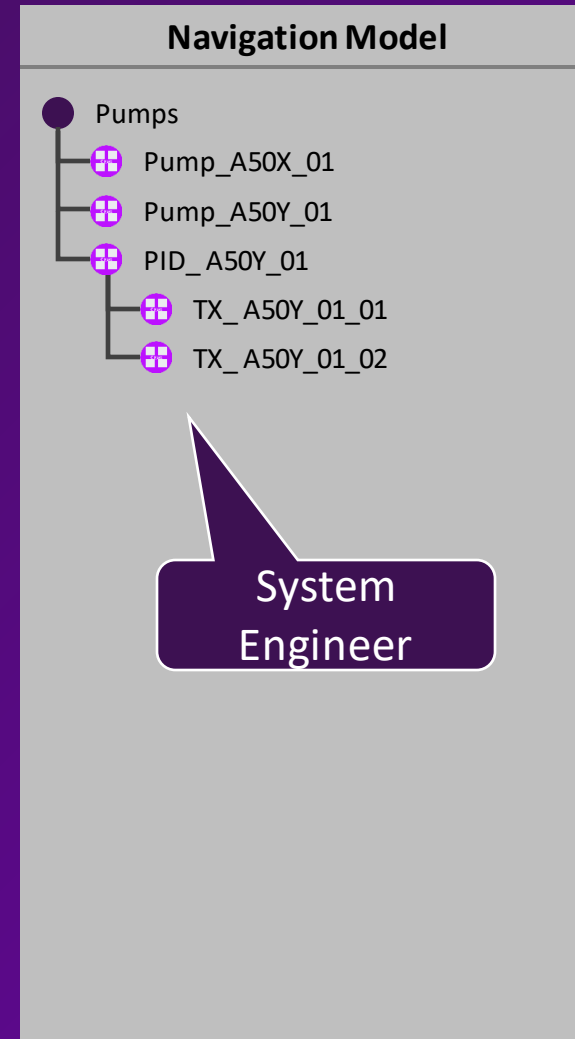
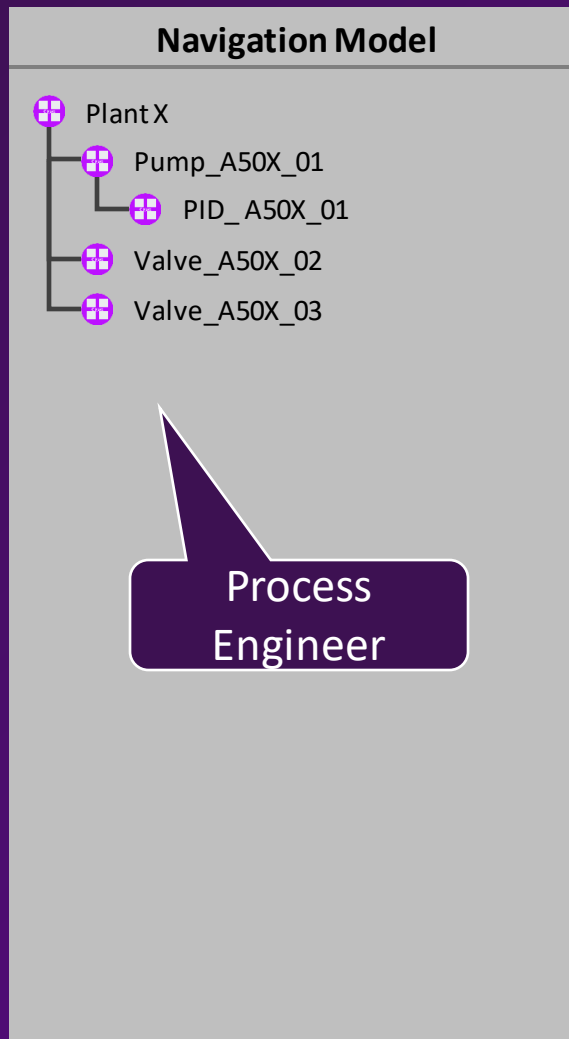
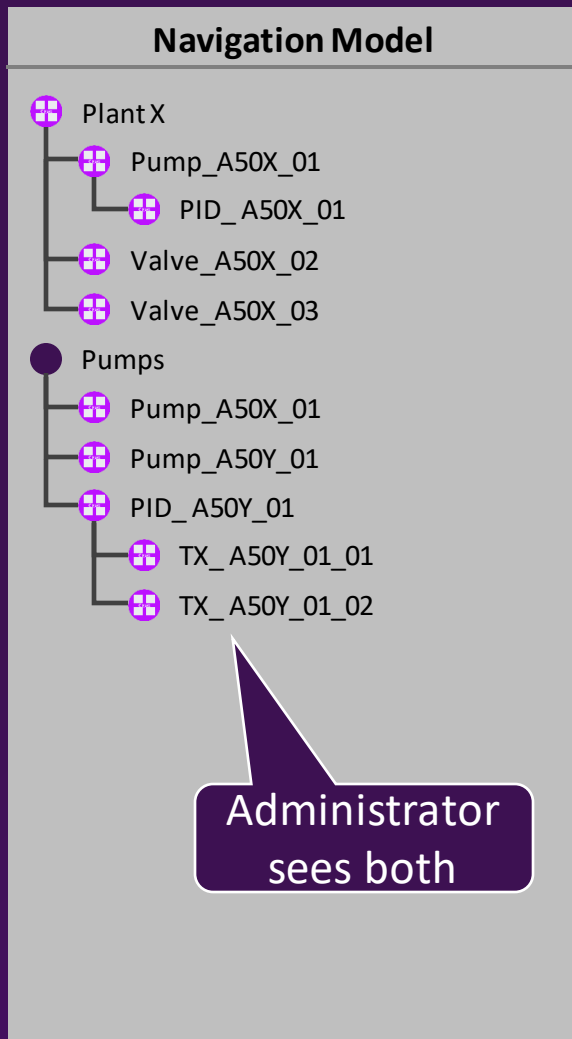
- Not Configured
- Administrator
- Default
- PSDOMAIN\Domain Wonder Administrators
- PSDOMAIN\Domain Wonder Operators
- PSDOMAIN\Domain Wonder Process Engineers
- PSDOMAIN\Domain Wonder Supervisors
- PSDOMAIN\Domain Wonder System Engineers

# Role-based navigation



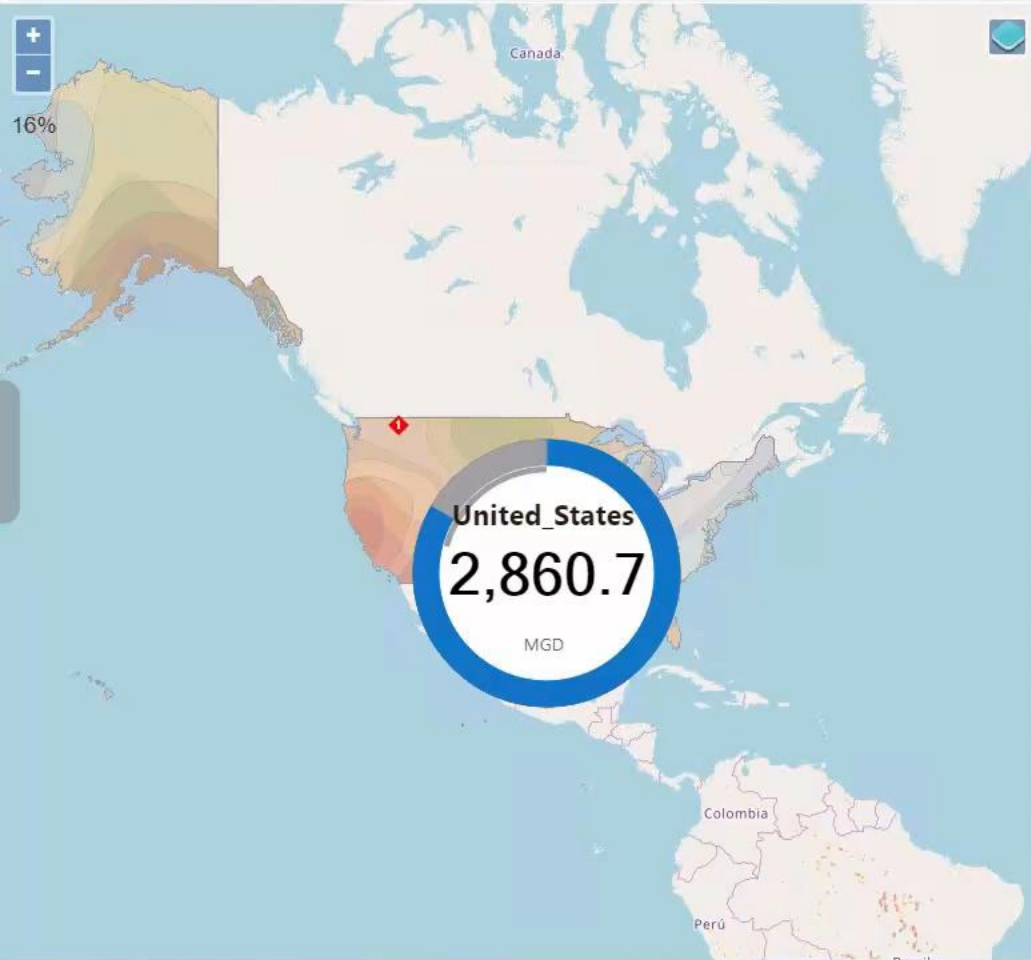
Security	
Access Level	Not Configured
User Roles	PSDOMAIN\Domain Wonder Administrators, PSDOMAIN\Domain Wonde
<input type="checkbox"/>	Not Configured
<input type="checkbox"/>	Administrator
<input type="checkbox"/>	Default
<input checked="" type="checkbox"/>	PSDOMAIN\Domain Wonder Administrators
<input type="checkbox"/>	PSDOMAIN\Domain Wonder Operators
<input type="checkbox"/>	PSDOMAIN\Domain Wonder Process Engineers
<input type="checkbox"/>	PSDOMAIN\Domain Wonder Supervisors
<input checked="" type="checkbox"/>	PSDOMAIN\Domain Wonder System Engineers

# Role-based navigation



United\_States

### Map - United States



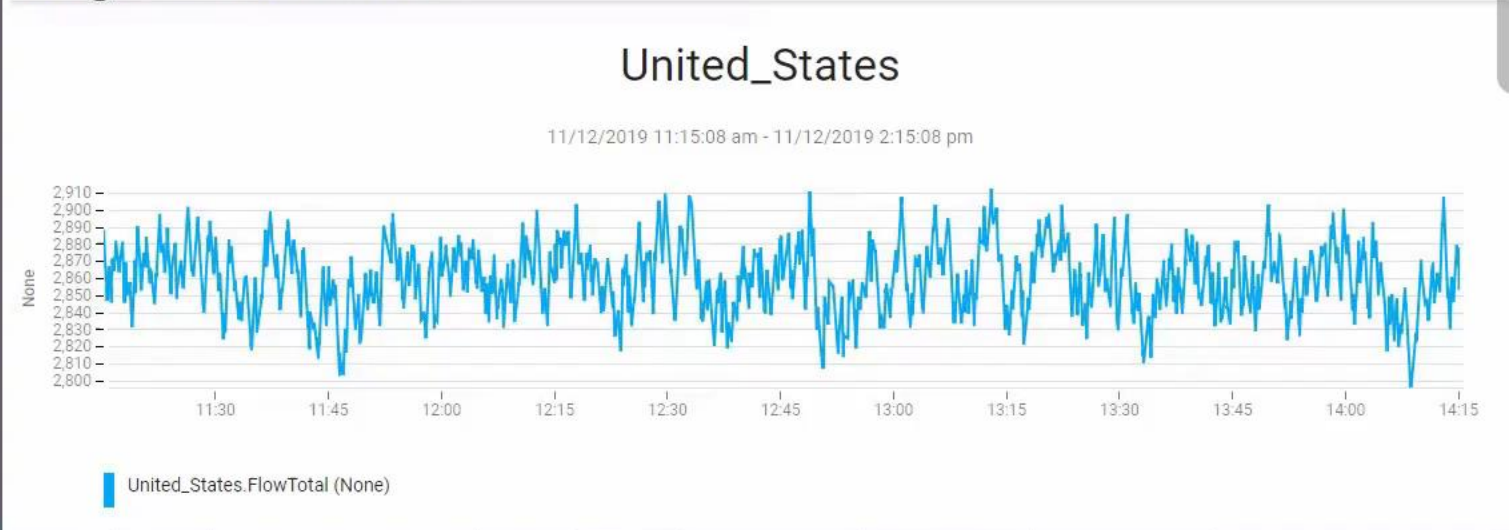
### Live Stream - United States



### Picture - United States



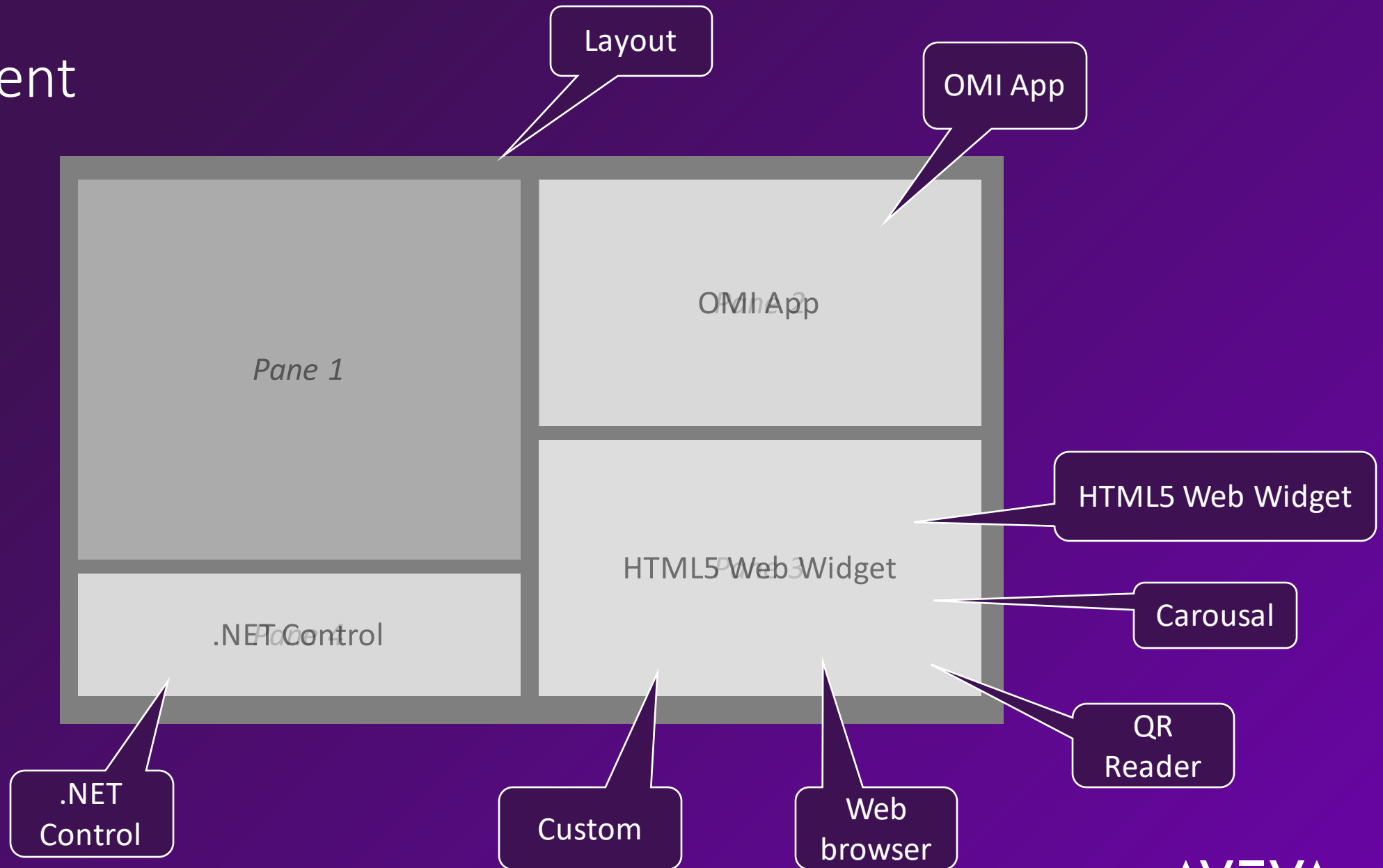
### Insight - United States



User1	State	Node	Group	Name	AlarmComment	Type	TimeLCT	Limit	CurrentValu	AlarmDuration	Operator	UnAckDuration
1	UNACK_RTN	Holmes	Midwest	Midwest from Platform	Lost alarm communication to Midwest.	Comm	11/12/2019 10:17:50 AM			000 00:00:00.594		000 00:00:00.000
1	UNACK_RTN	Holmes	Northeast	Northeast from Platform	Lost alarm communication to Northeast.	Comm	11/12/2019 10:17:50 AM			000 00:00:00.622		000 00:00:00.000
1	UNACK_RTN	Holmes	Southeast	Southeast from Platform	Lost alarm communication to Southeast.	Comm	11/12/2019 10:17:50 AM			000 00:00:00.597		000 00:00:00.000

Displaying 1 to 3 of 15 alarms Query: Default Filter: 100% Complete Eastern Time (US Canada)

# More content





- Actions
- Show: WW\_App\_Severity  
From: App\_Severity
  - Show: WW\_PersonalMenu  
From: App\_Login
  - Show: WW\_App\_Severity\_As...  
From: App\_ContextSeverity
  - Show: WW\_App\_Function  
From: Function\_pane
  - Show: AVEVA\_Logo\_Correct  
From: Pane1
  - Show: WW\_App\_Name  
From: App\_Nav\_b\_f\_h
  - Show: WW\_App\_b\_f\_h  
From: AppName
  - Show: WW\_App\_Severity\_Sh...  
From: App\_Severity\_Shelved
  - Show: WW\_App\_ReplayStatus  
From: Stretch\_Pane
  - Show: Navig...NavTreeControl  
From: App\_nav
  - Show: NavBreadcrumbContr...  
From: App\_Graphic\_Name\_...
  - Show: TitleB...TitleBarControl  
From: App\_Title
  - Show: Ha...HamburgerButton  
From: Pane8
  - Show: WW\_App\_Menu  
From: App\_Menu

The screenshot shows a desktop web widget interface titled "App Title". The interface includes a top navigation bar with the AVEVA OMI logo and a hamburger menu. Below the navigation bar, there are four main panes: "Pane2", "Pane3", "Pane4 (default)", and "History\_playback". To the right of the main content area is a sidebar titled "App\_Login" which contains a user profile card with fields for "User Full Name", "User Role", "Access level", and "Last Successful Log On". Below the profile card are "Settings for Alarms in Navigation" and "Alarm Area Alarms" sections with various status indicators and controls.

Properties | Toolbox | Assets

Layout properties

General

- Title
- Title Mode: IncludeDefaultPaneContent
- Content Type(s): None

Target

- Target: Screen
- Screen Profile: WWF\_WS\_HD\_LS
- Screen: Primary
- Orientation: Landscape
- Width: 1920
- Height: 1080
- Aspect Ratio: 16 : 9

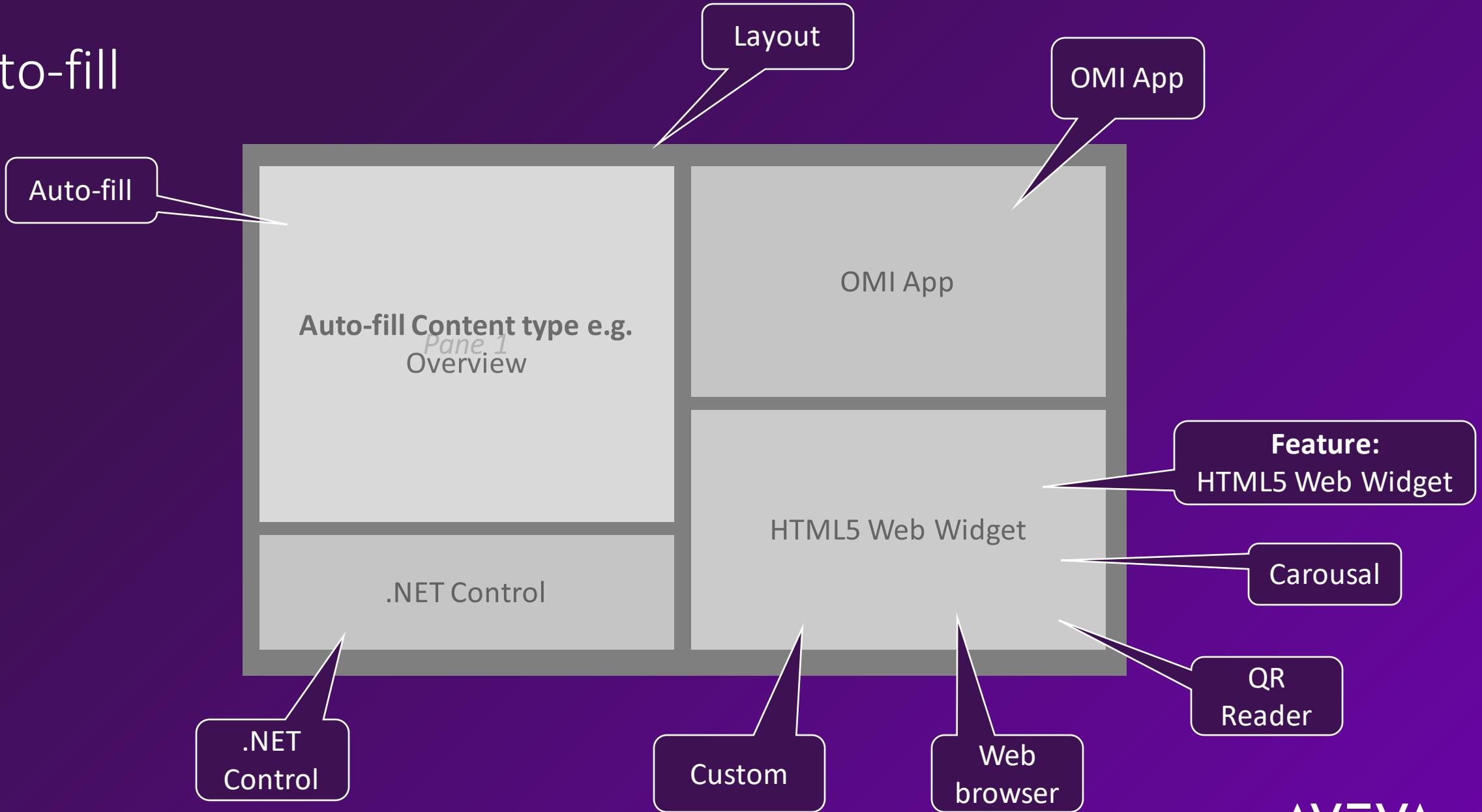
Behavior

- Kiosk Mode:
- Initial State: Maximized
- Has Title Bar:
- IsResponsive:
- Can Resize:
- Can Toggle Full Screen:
- Display In Taskbar:

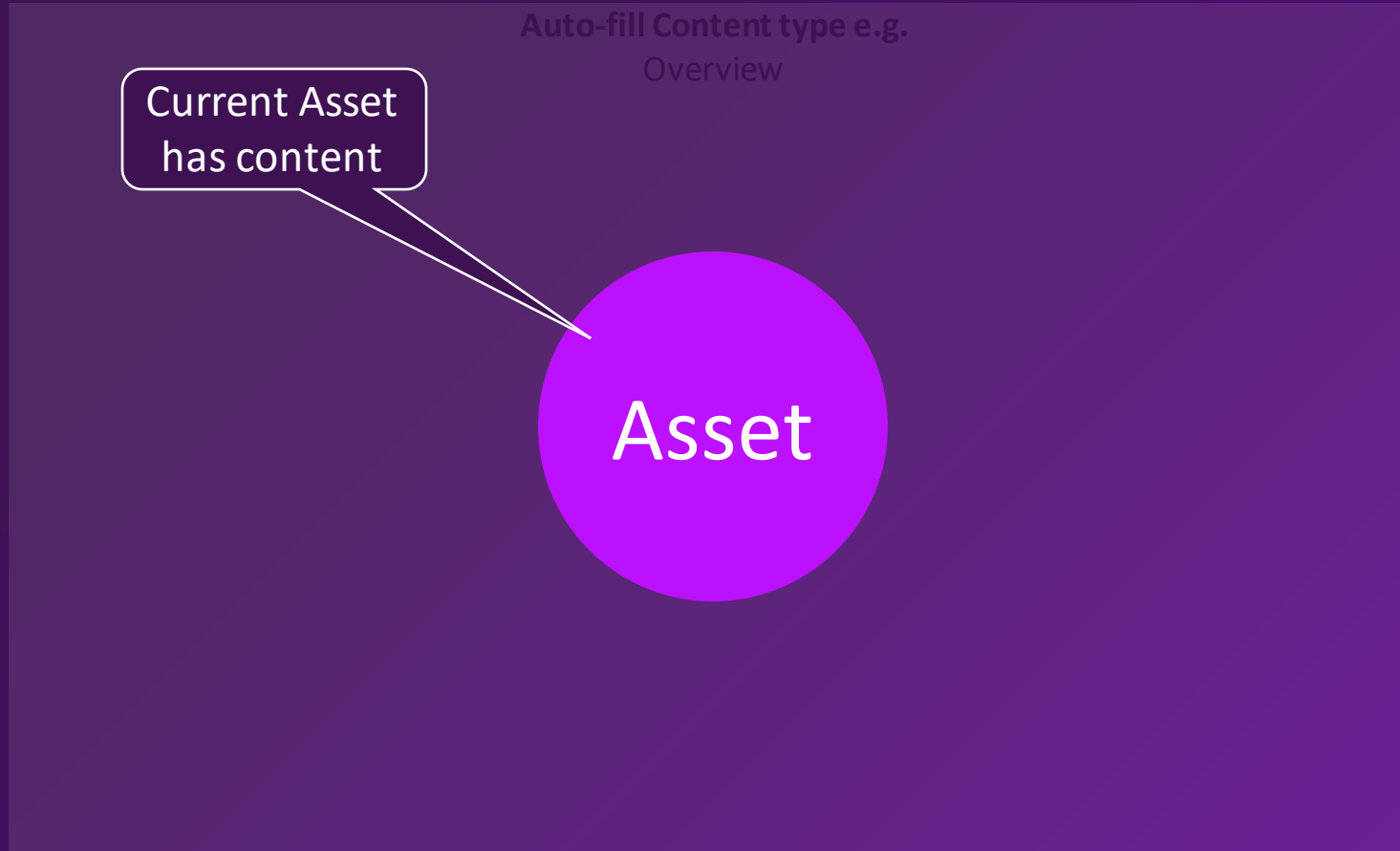
Appearance

- Background: #FFFFFF
- Background Image: [Image Selection]
- Sizing: Stretch

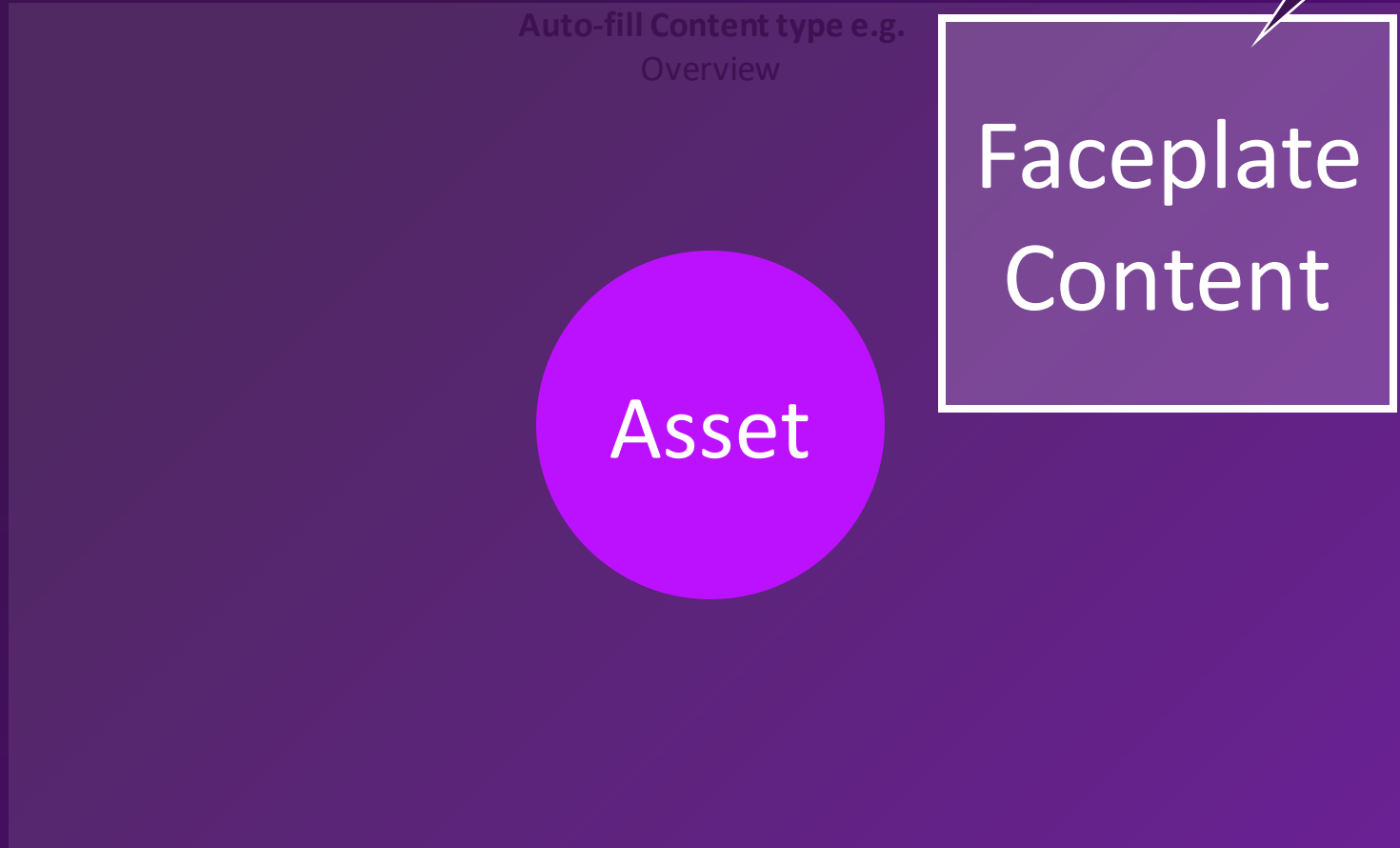
# Auto-fill



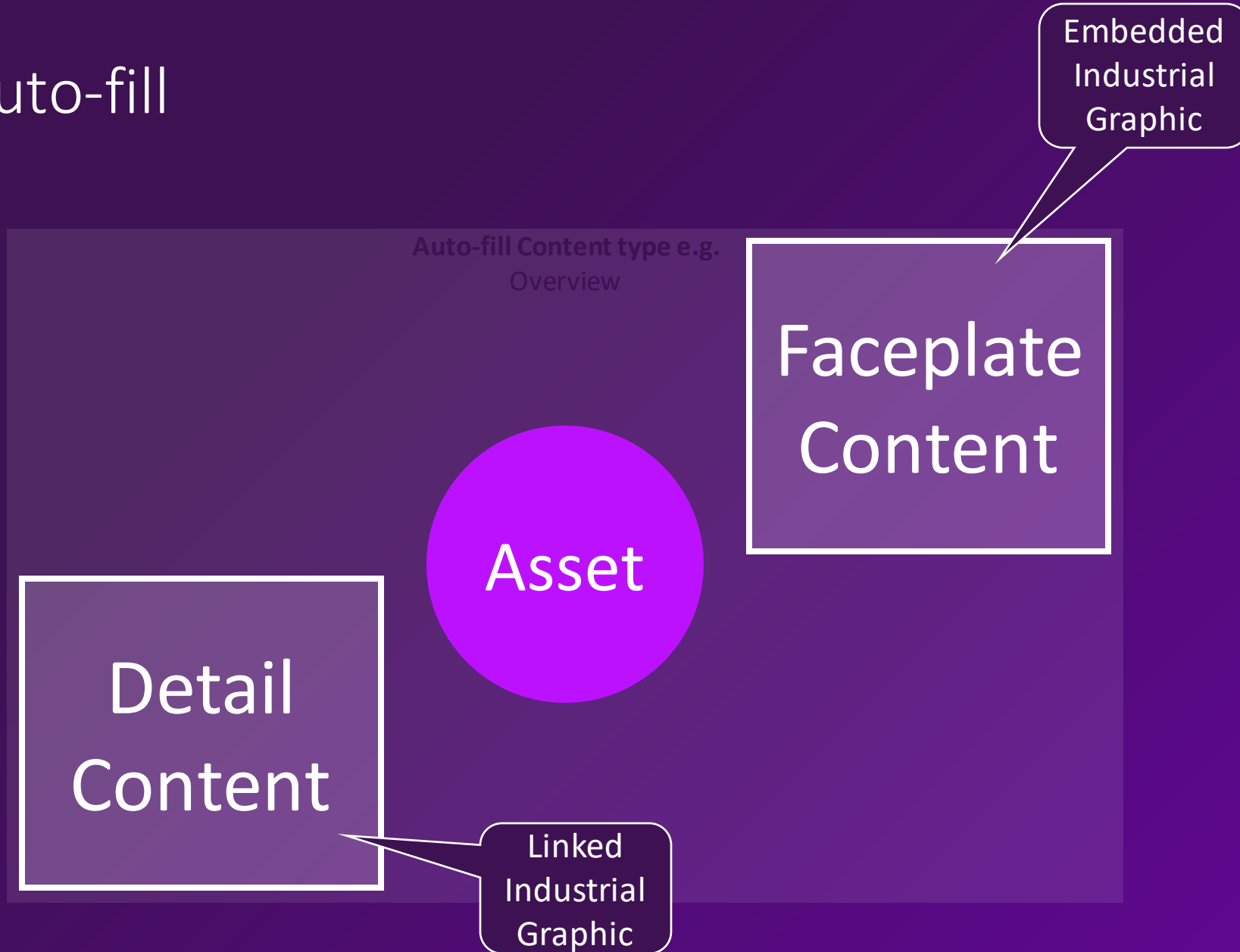
# Auto-fill



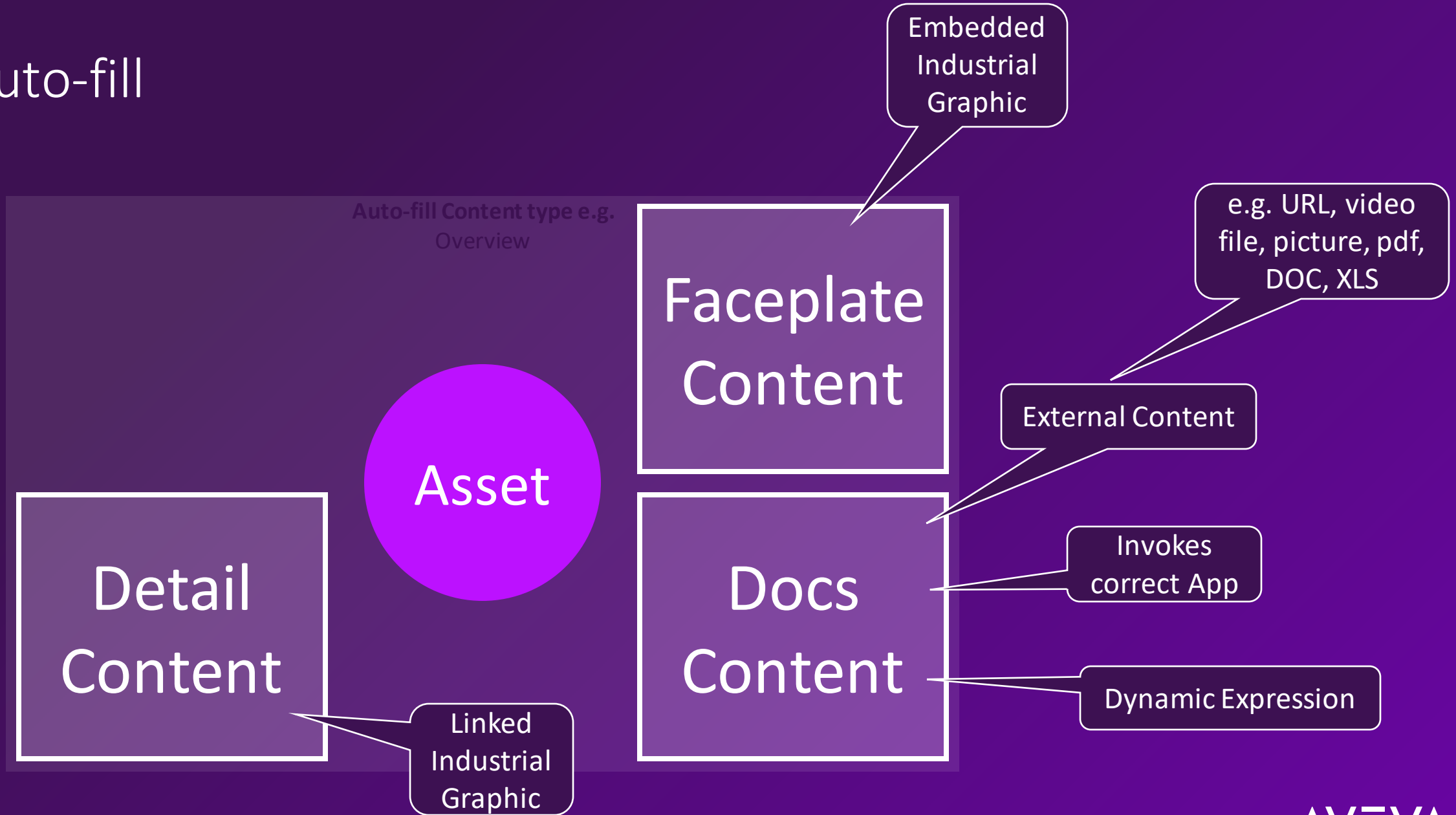
# Auto-fill

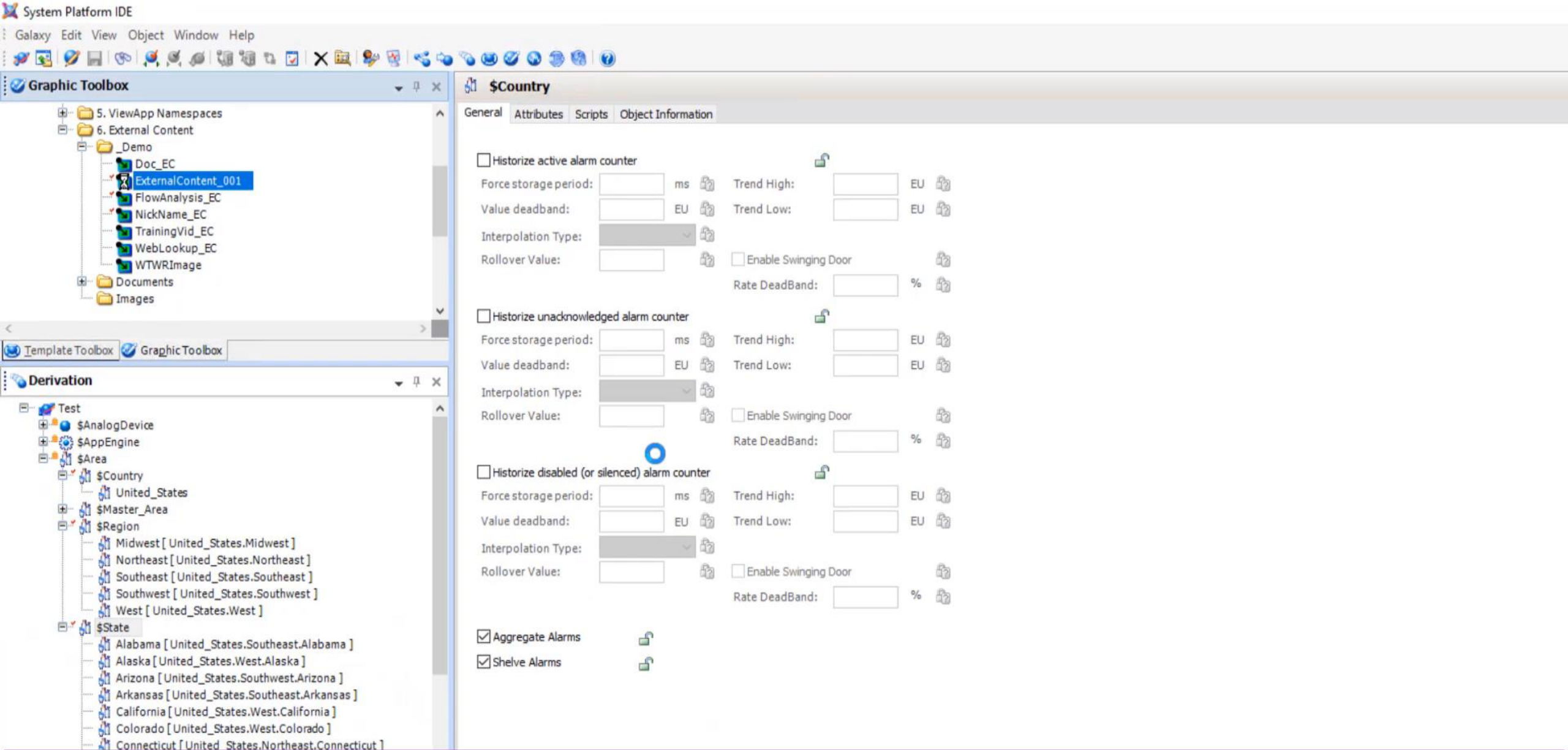


# Auto-fill



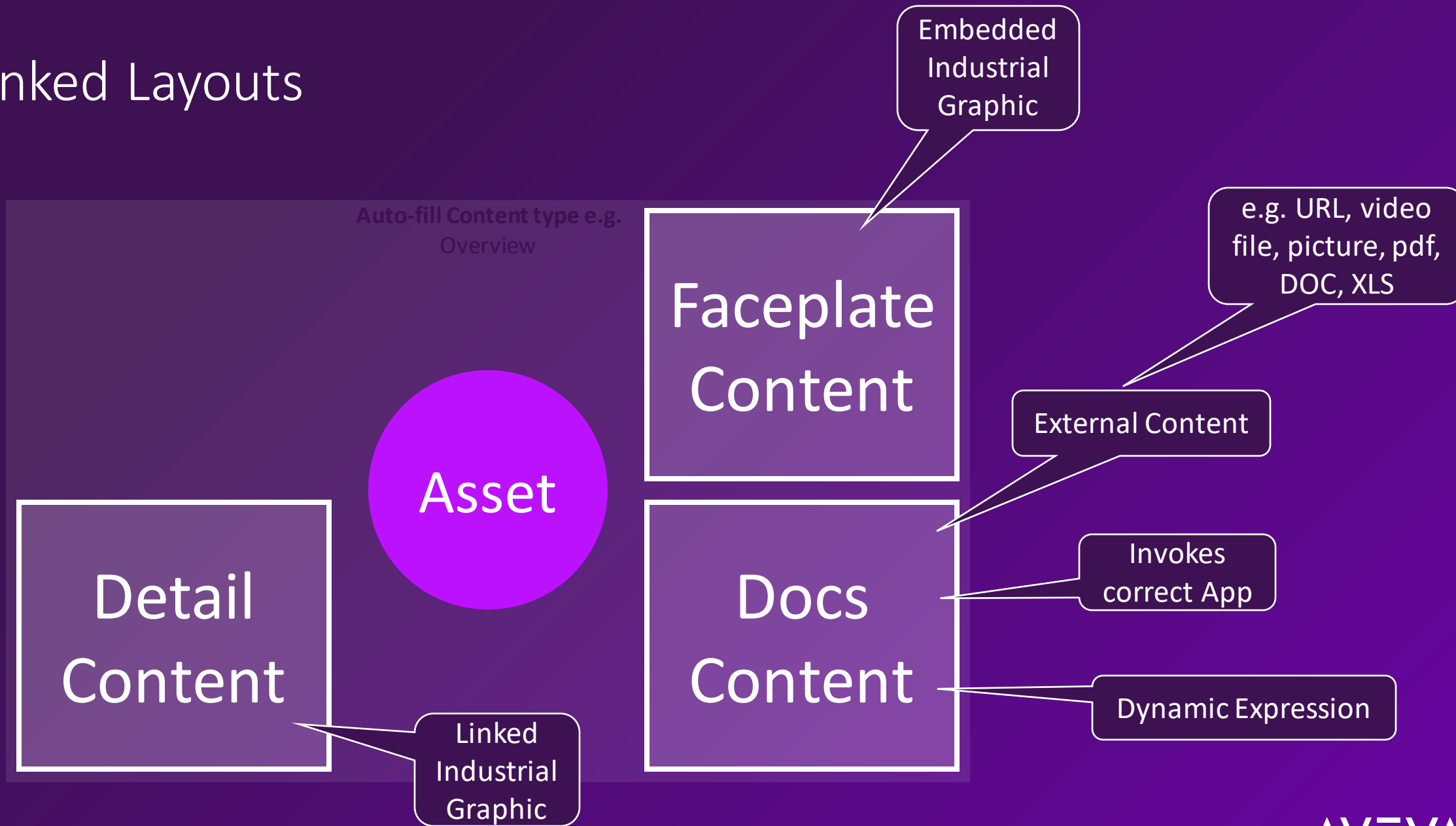
# Auto-fill





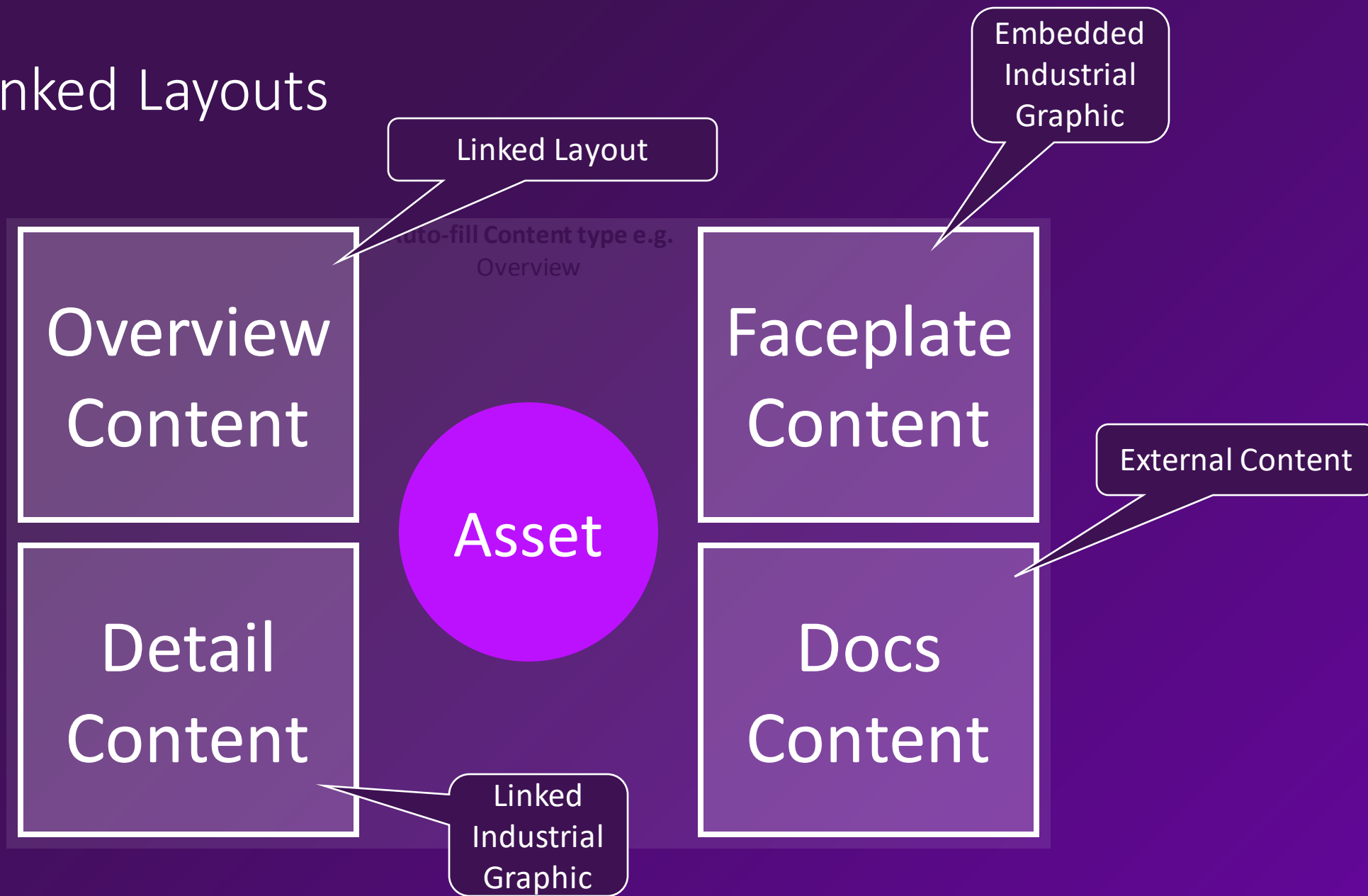
# Dynamic External Content

# Linked Layouts





# Linked Layouts



# Linked Layouts

Layout  
(Overview)

Auto-fill  
Content types

*Faceplate*

*Detail*

*Docs*

Overview  
Content

Detail  
Content

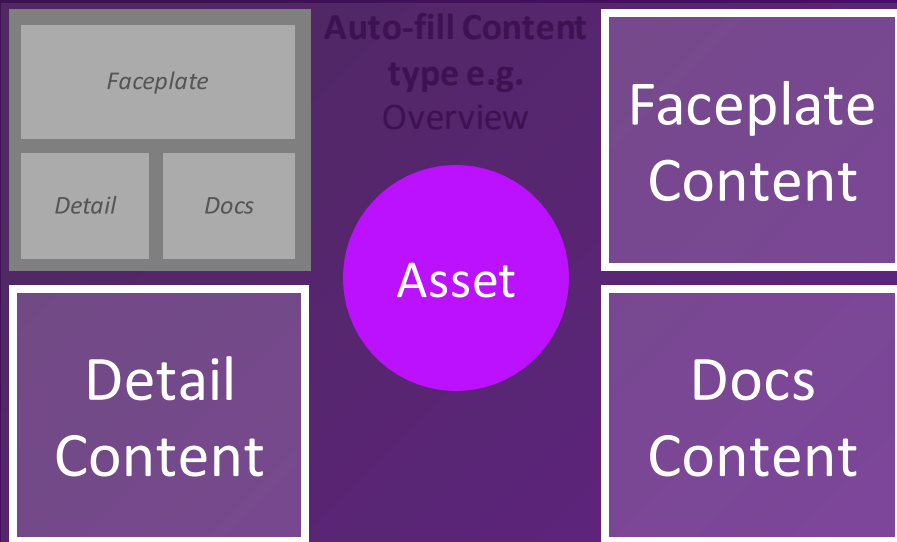
Auto-fill Content  
type e.g.  
Overview

Asset

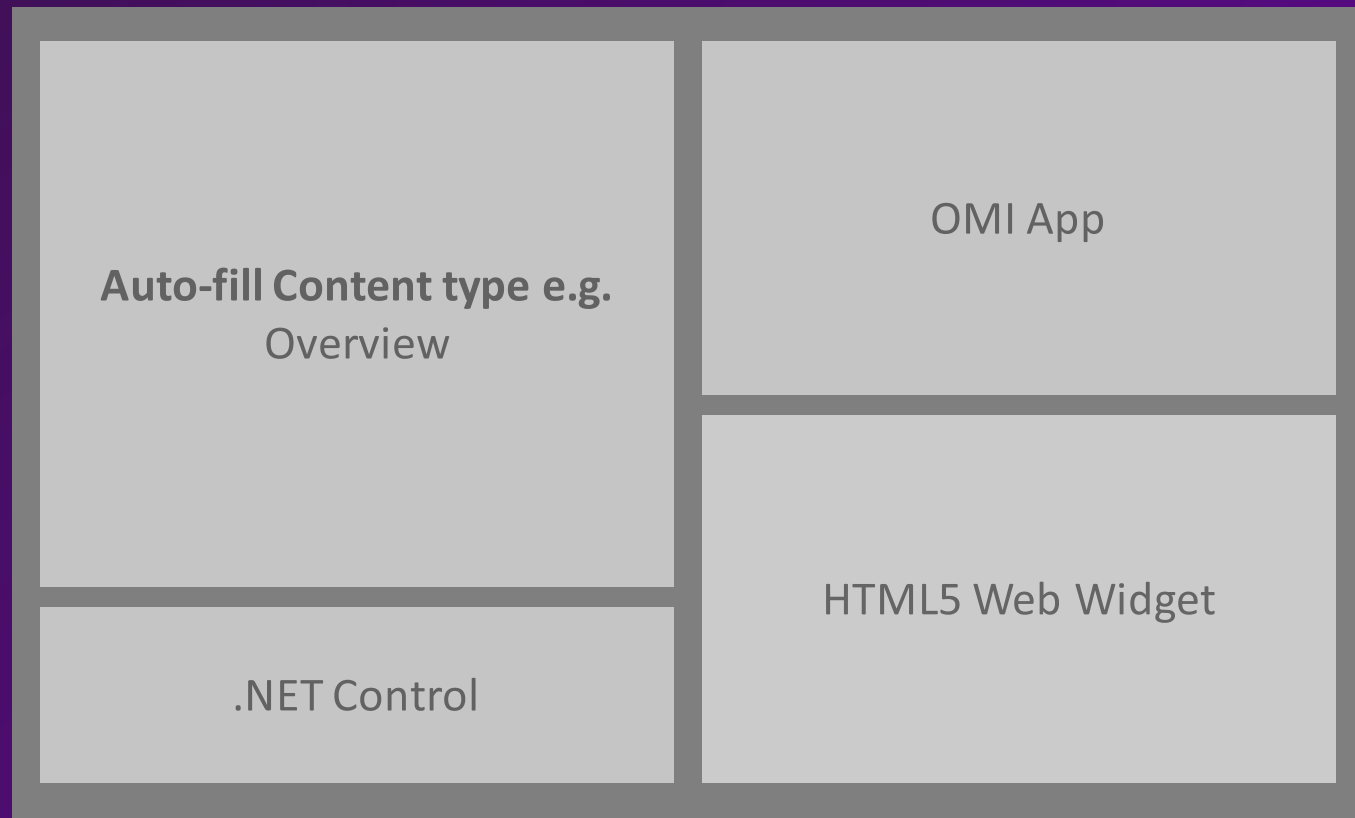
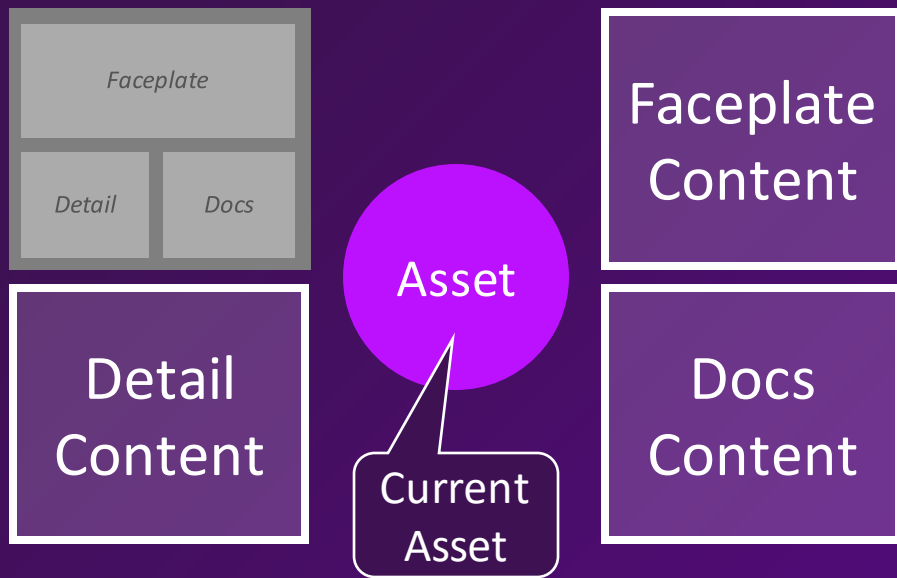
Faceplate  
Content

Docs  
Content

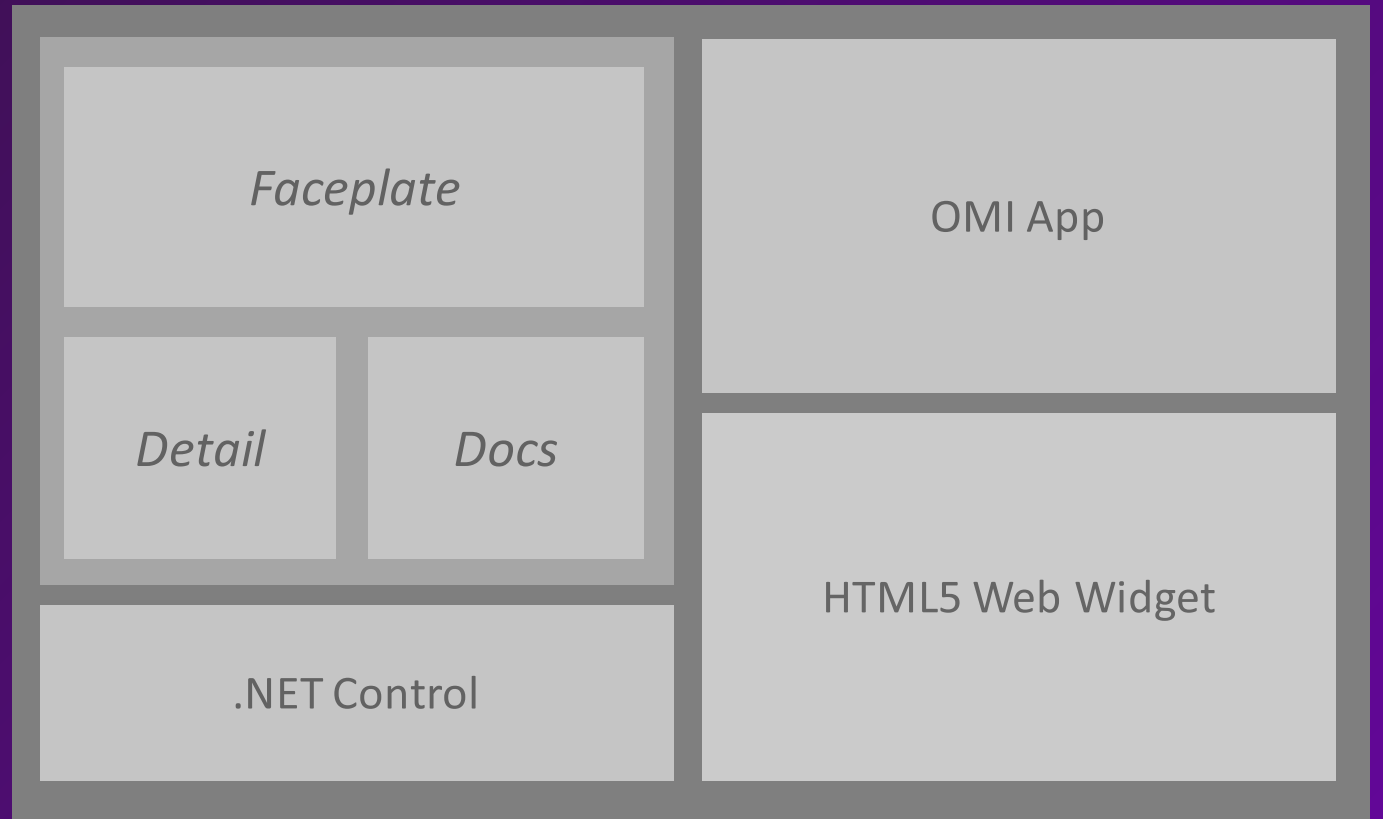
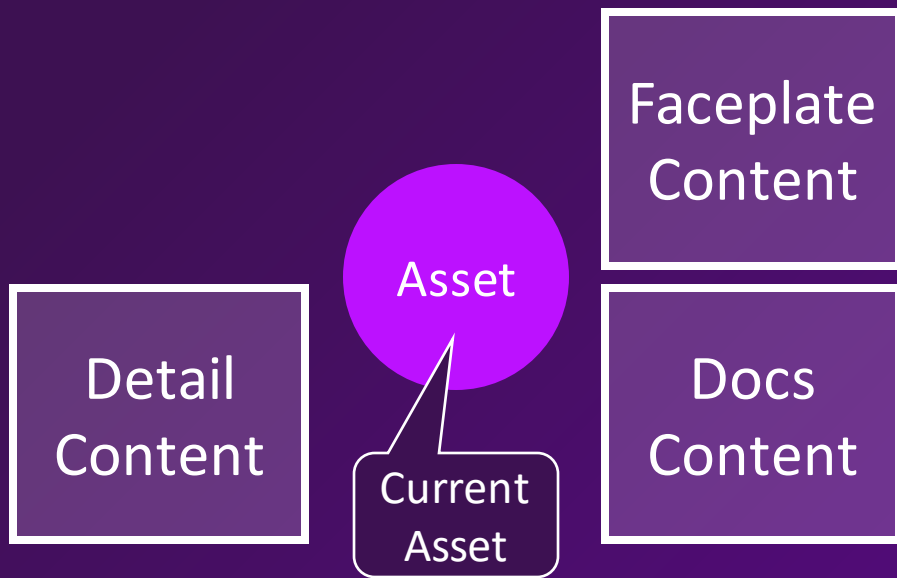
# Linked Layouts



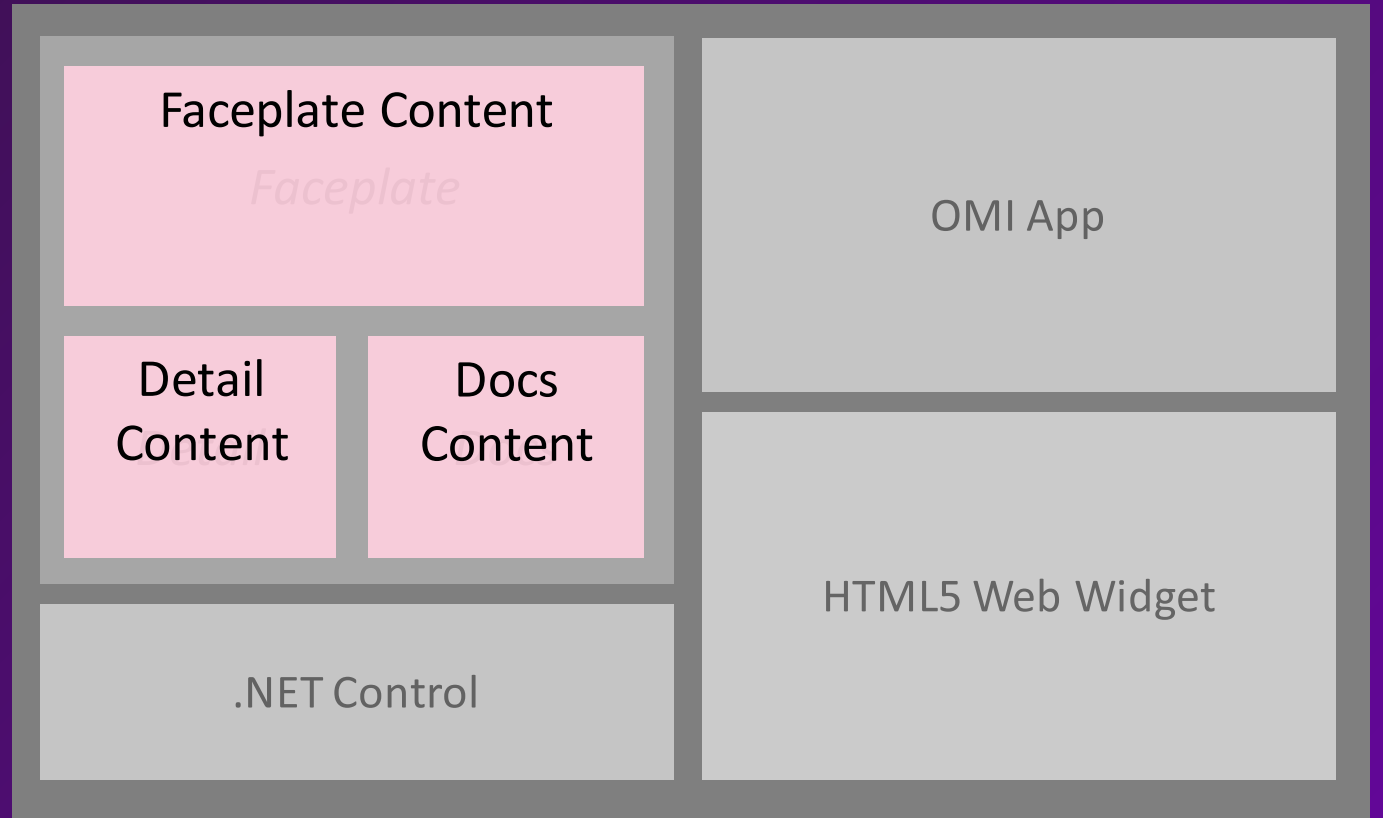
# Linked Layouts



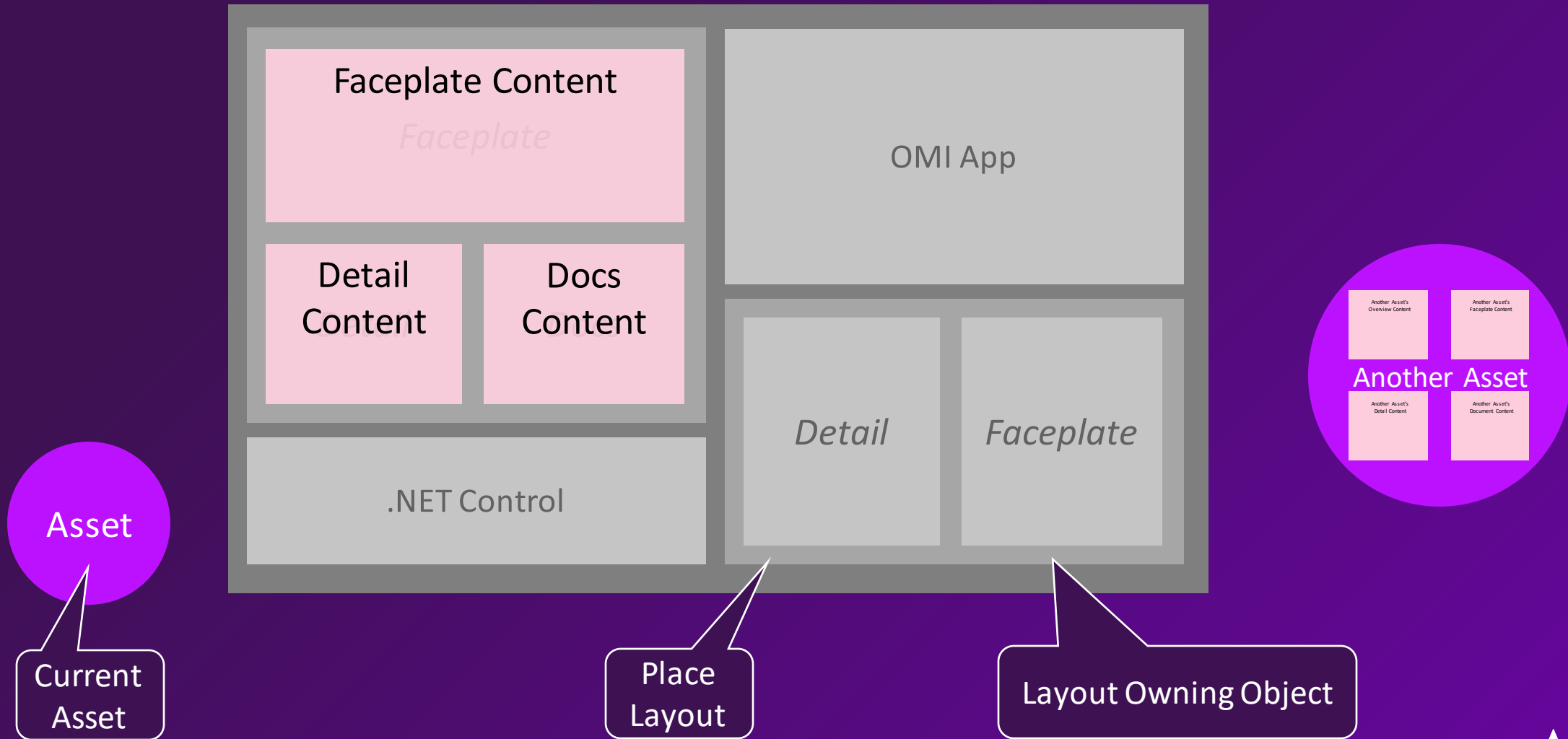
# Linked Layouts



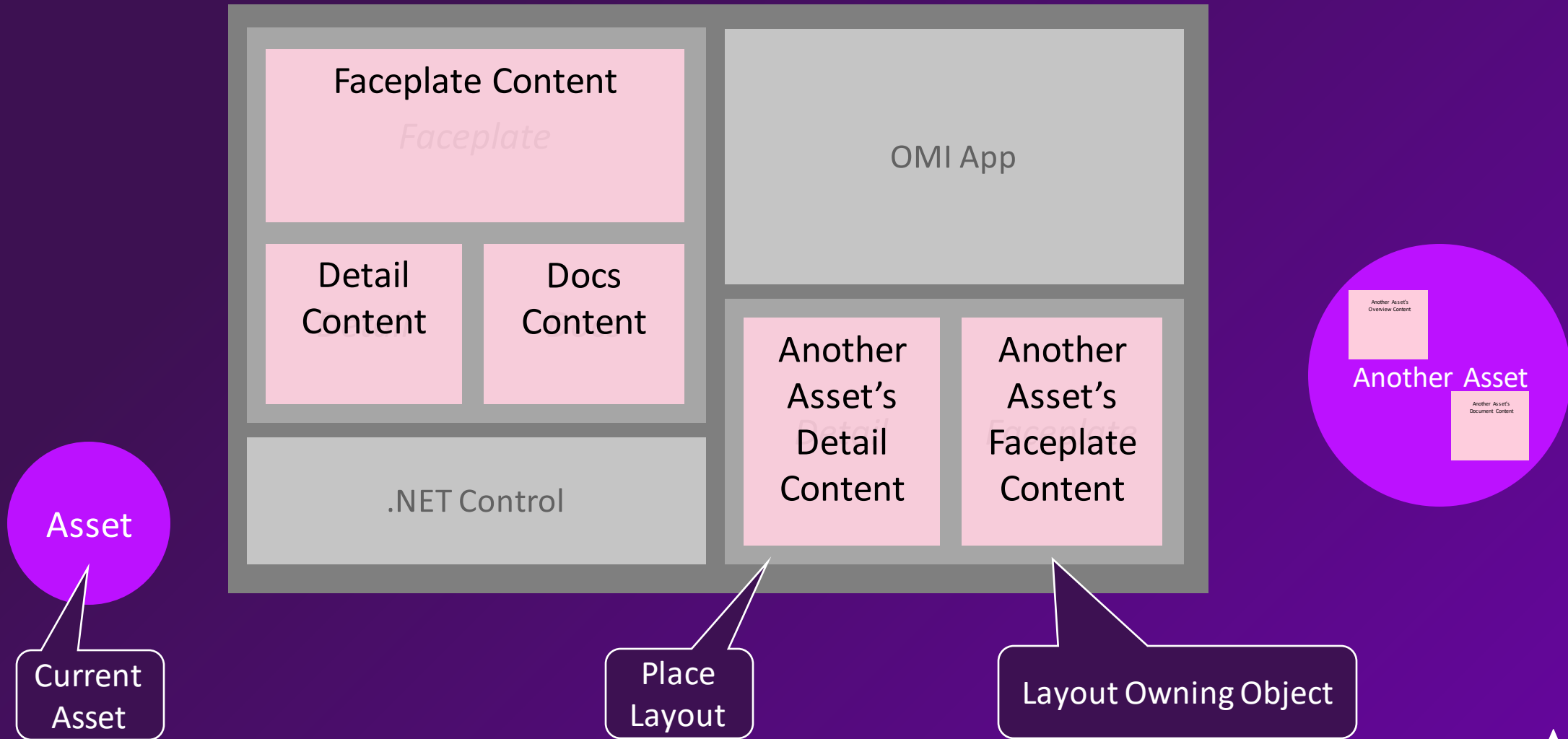
# Linked Layouts



# Layout Owning Object



# Layout Owning object





System Platform IDE

Galaxy Edit View Object Window Help

Graphic Toolbox

\$wat\_1\_Country \*

General Attributes Scripts Object Information

Inherited  User extended Search Current Attributes (Ctrl + E)

Attributes

- cfg.Capacity [\$wat\_Zone]  
Auto mode
- cmd.GetStates
- Demand [\$wat\_Zone]  
Water Demand
- IDNumber [\$wat\_Zone]  
ID number of this zone
- Latitude [\$wat\_Zone]  
Latitude
- Level [\$wat\_Zone]  
Water Level (percentage)
- Level.Actual [\$wat\_Zone]  
Water Level in kl
- Longitude [\$wat\_Zone]  
Longitude



24 of 873 displayed. 1 selected.

Content

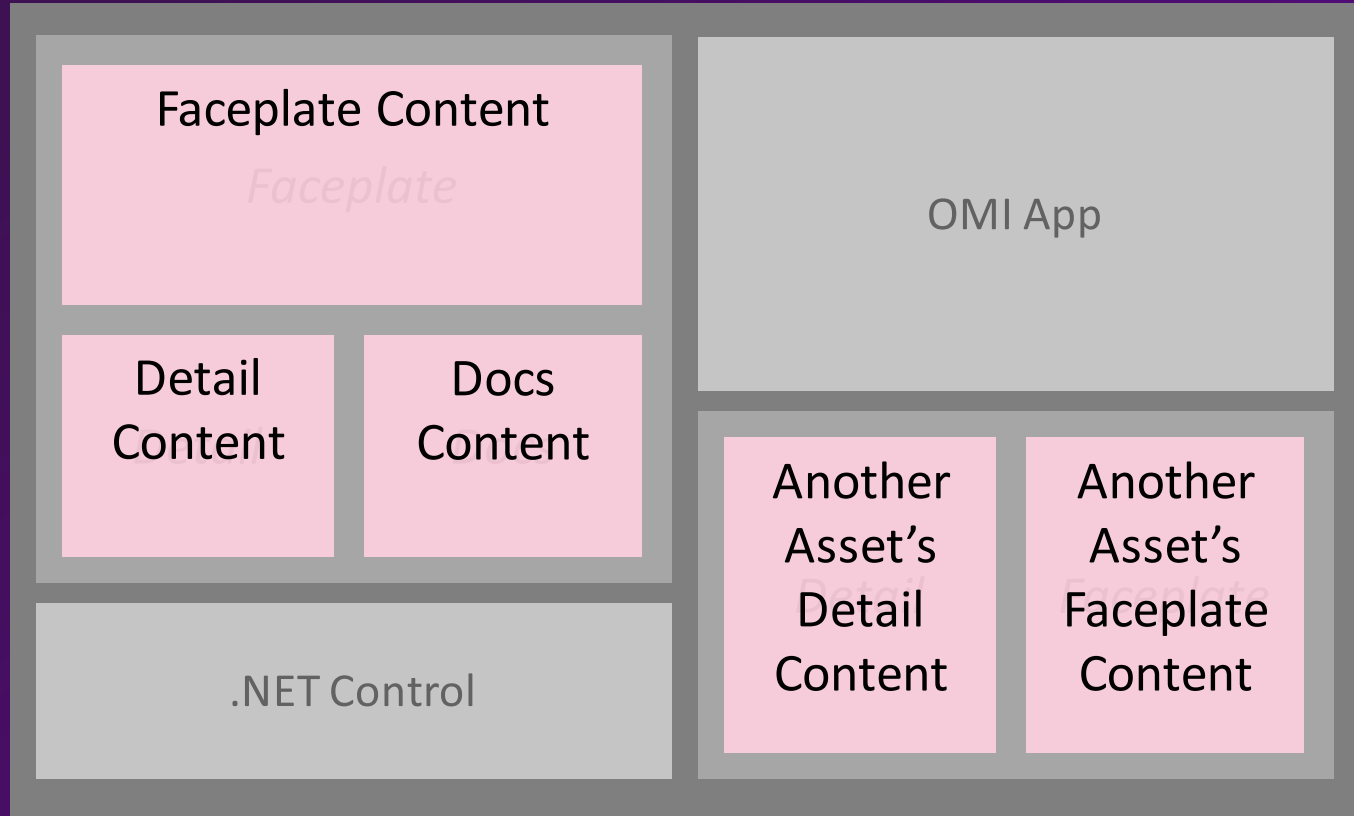
- psFuel [\$wat\_Zone]
- psMapPinCountry

Derivation

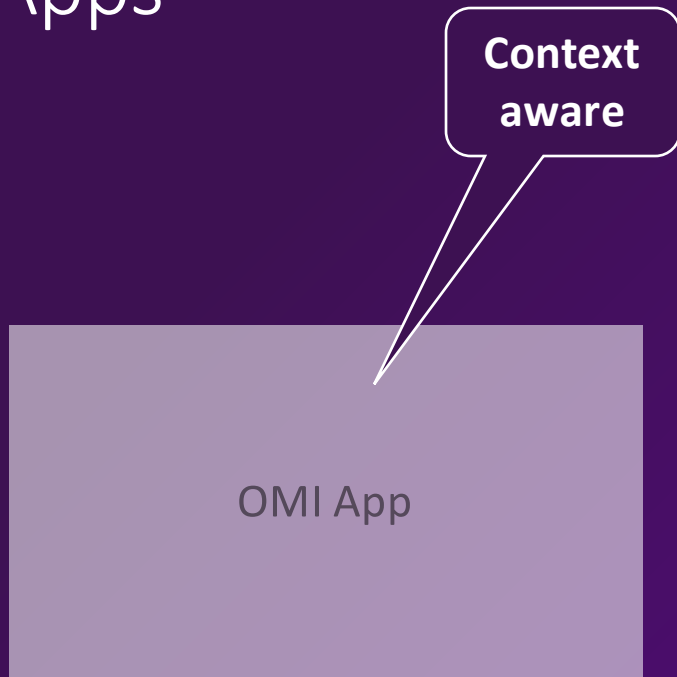
- \$wat\_1\_Country
- United\_States [Wonder\_Water.United\_States]
- \$wat\_2\_Region
  - Midwest [Wonder\_Water.United\_States.Midwest]
  - Northeast [Wonder\_Water.United\_States.Northeast]
  - South [Wonder\_Water.United\_States.South]
  - West [Wonder\_Water.United\_States.West]
- \$wat\_3\_Division
  - East\_North\_Central [Wonder\_Water.United\_States.Midwest.East\_North\_Central]
  - East\_South\_Central [Wonder\_Water.United\_States.South.East\_South\_Central]
  - Mid\_Atlantic [Wonder\_Water.United\_States.Northeast.Mid\_Atlantic]
  - Mountain [Wonder\_Water.United\_States.West.Mountain]
  - New\_England [Wonder\_Water.United\_States.Northeast.New\_England]
  - Pacific [Wonder\_Water.United\_States.West.Pacific]
  - South\_Atlantic [Wonder\_Water.United\_States.South.South\_Atlantic]
  - West\_North\_Central [Wonder\_Water.United\_States.Midwest.West\_North\_Central]
  - West\_South\_Central [Wonder\_Water.United\_States.South.West\_South\_Central]
- \$wat\_4\_State
- \$wat\_5\_County
- \$wat\_6\_City
- \$3\_ISA106\_Continuous\_Plant



Linking Layouts to assets



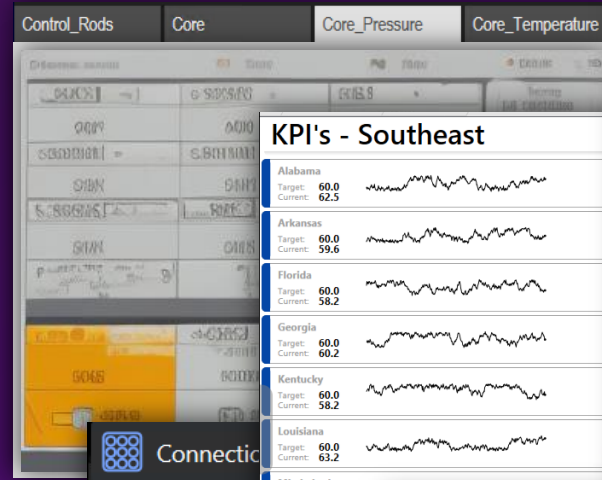
# OMI Apps



Content Presenter

Context aware

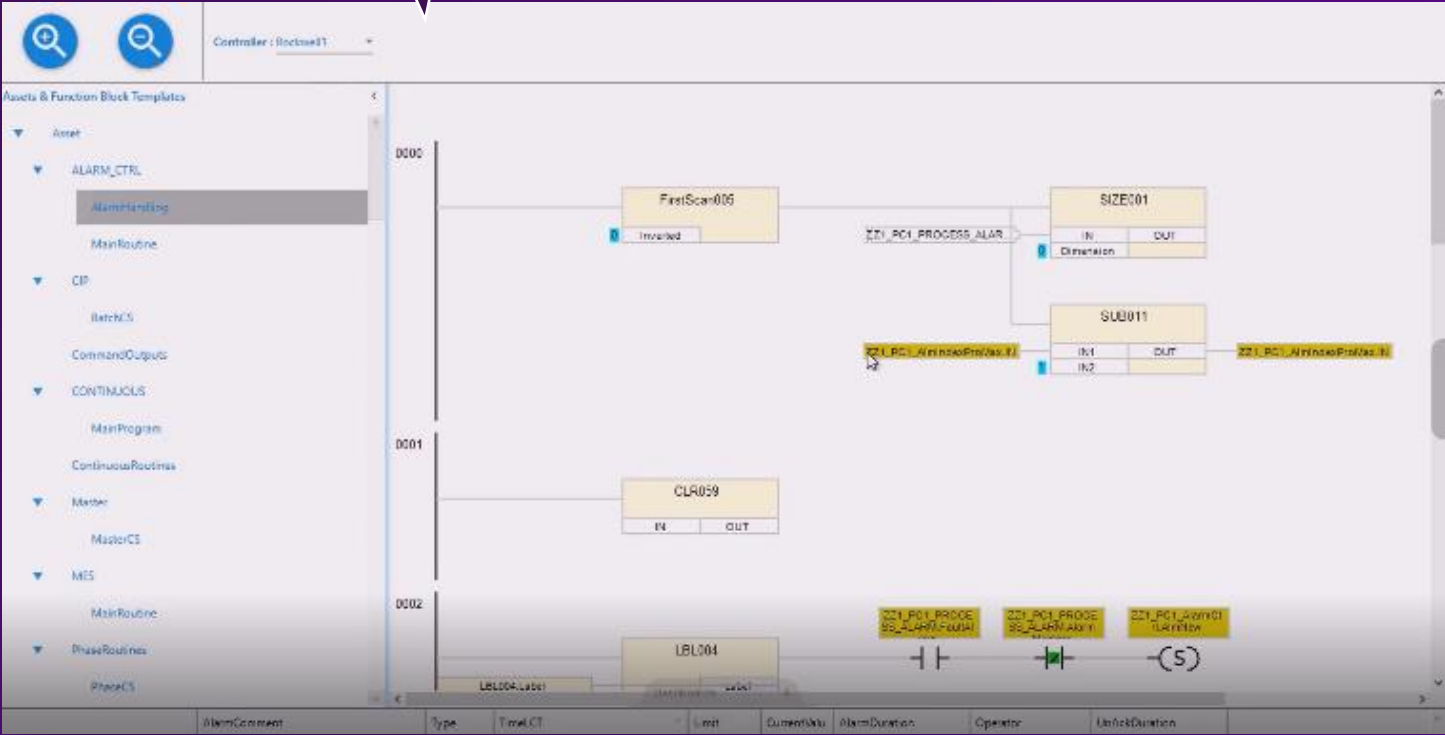
OMI App



OMI App

Context aware

PLC Viewer App



OMI App

Context aware

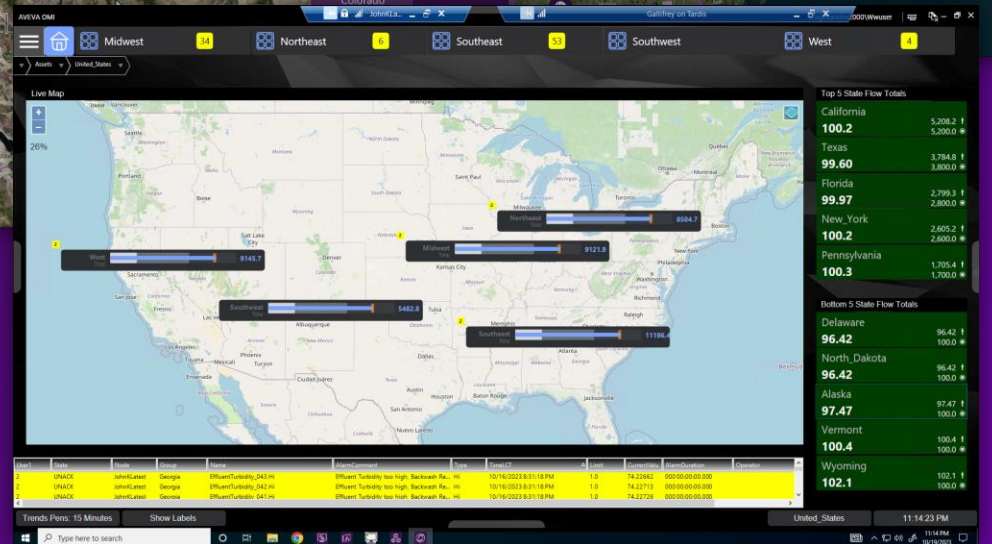
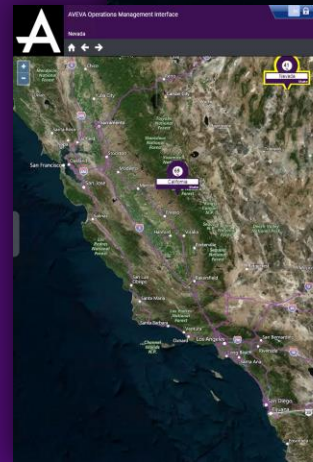
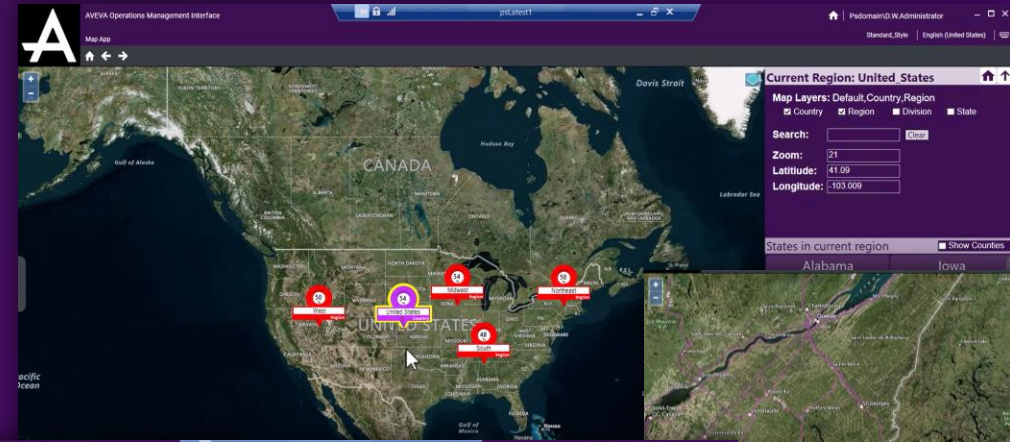
AVEVA Teamwork



Map App

Context aware

OMI App

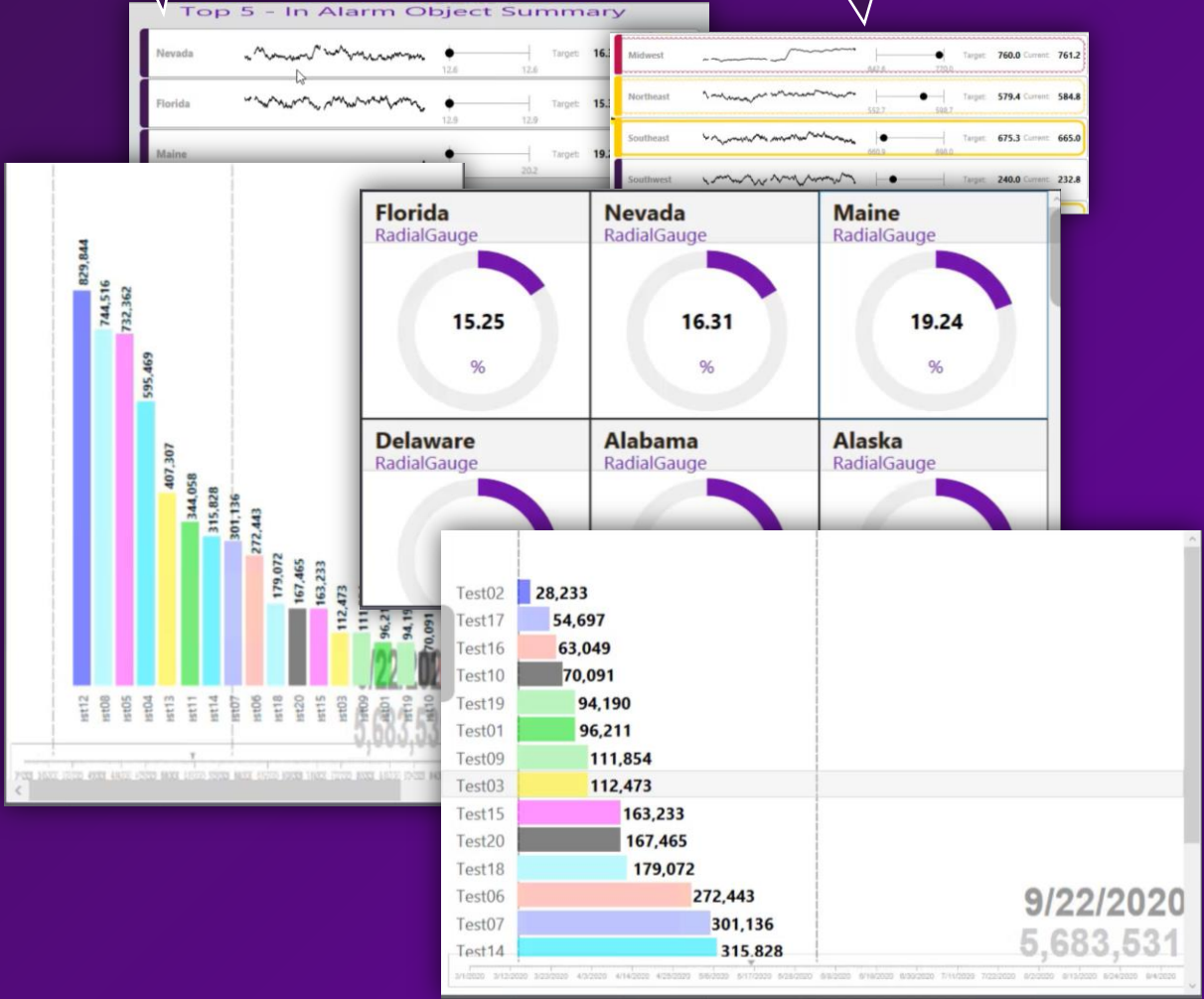


OMI App

Context aware

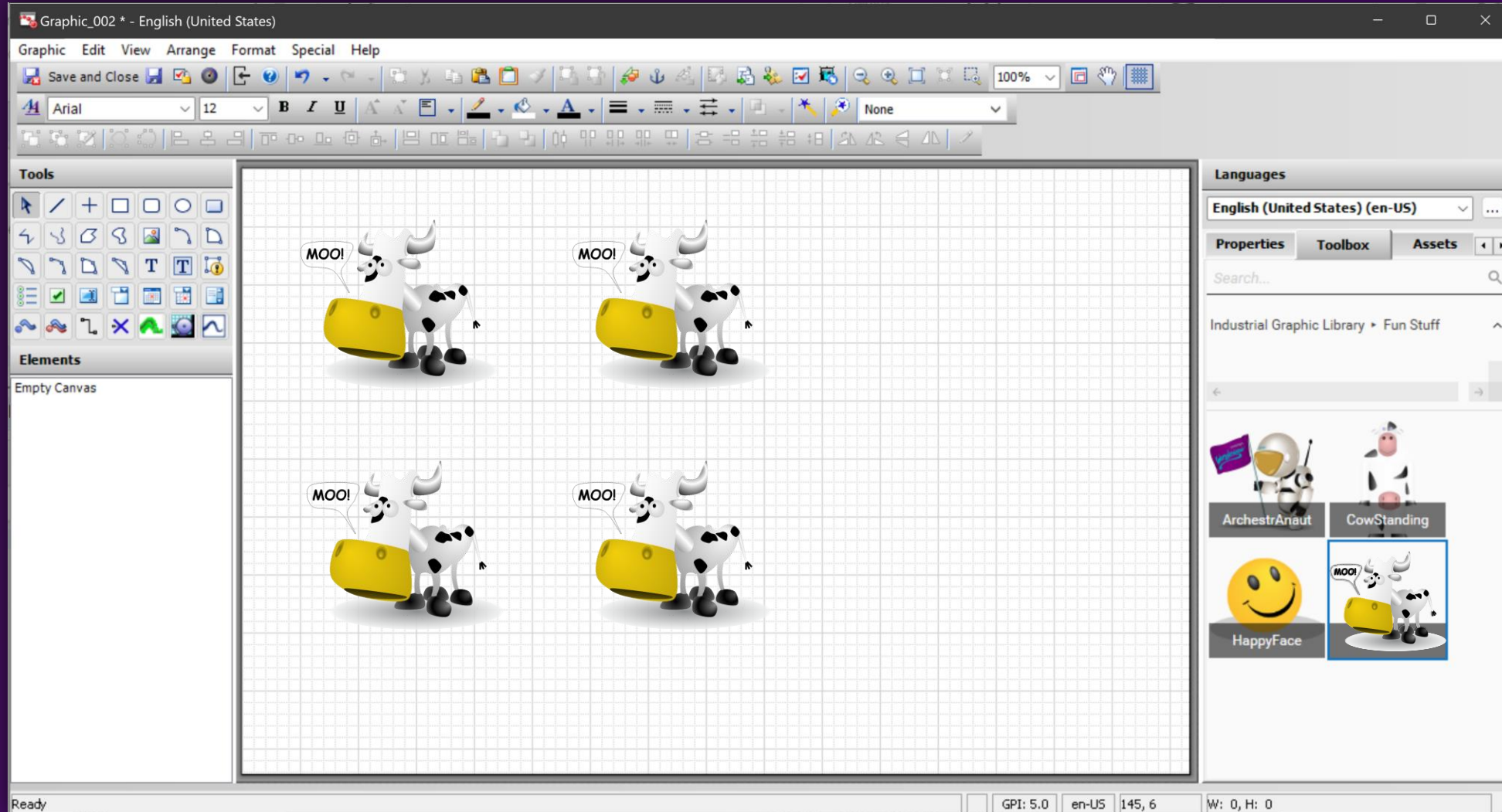
Graphic Repeater

Industrial Graphics on table data

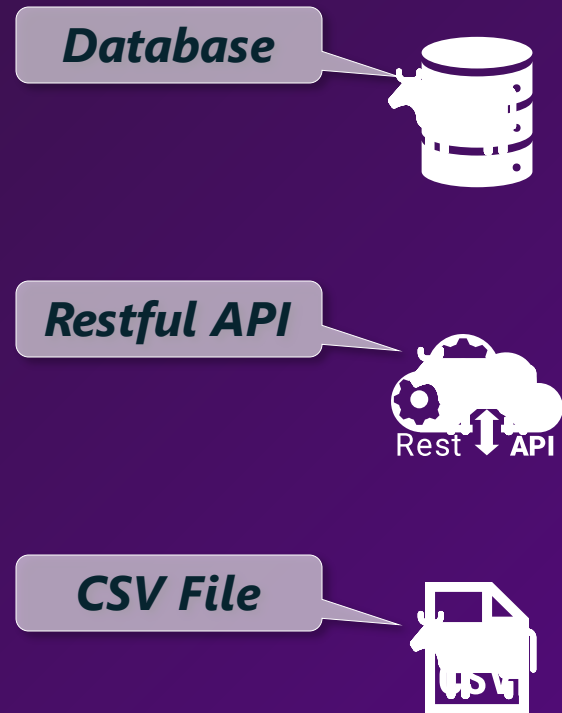




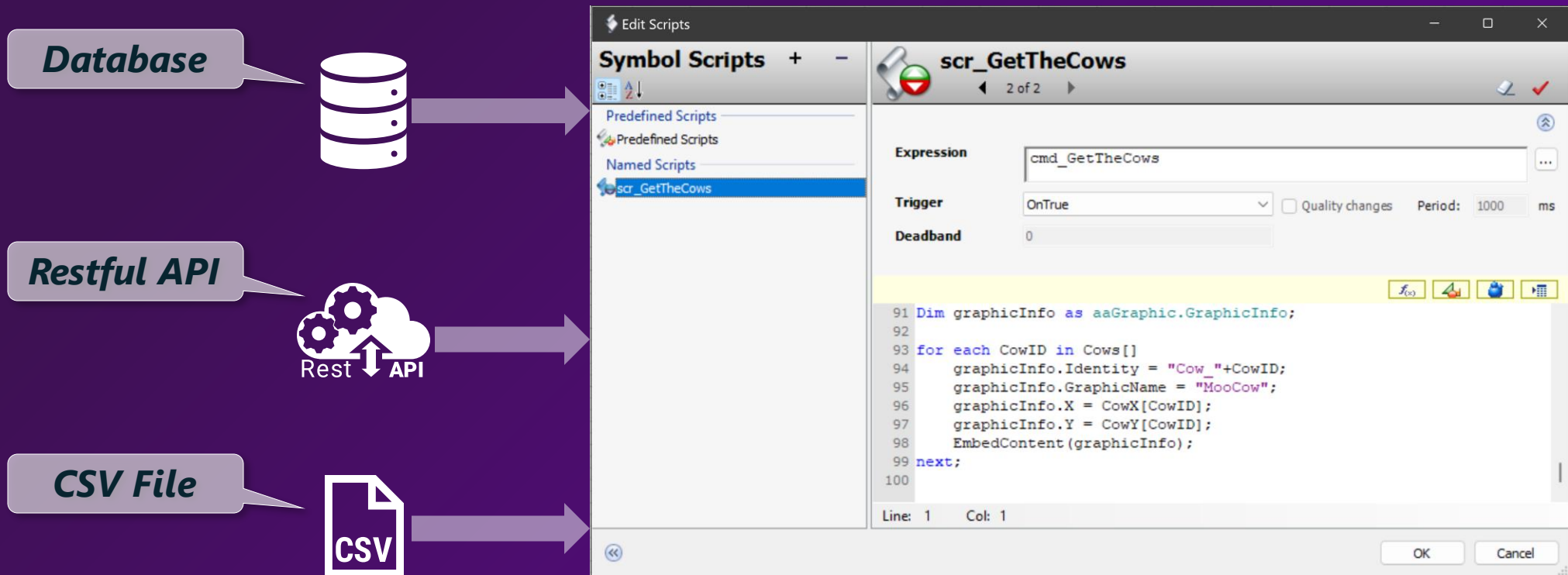
# What's next?



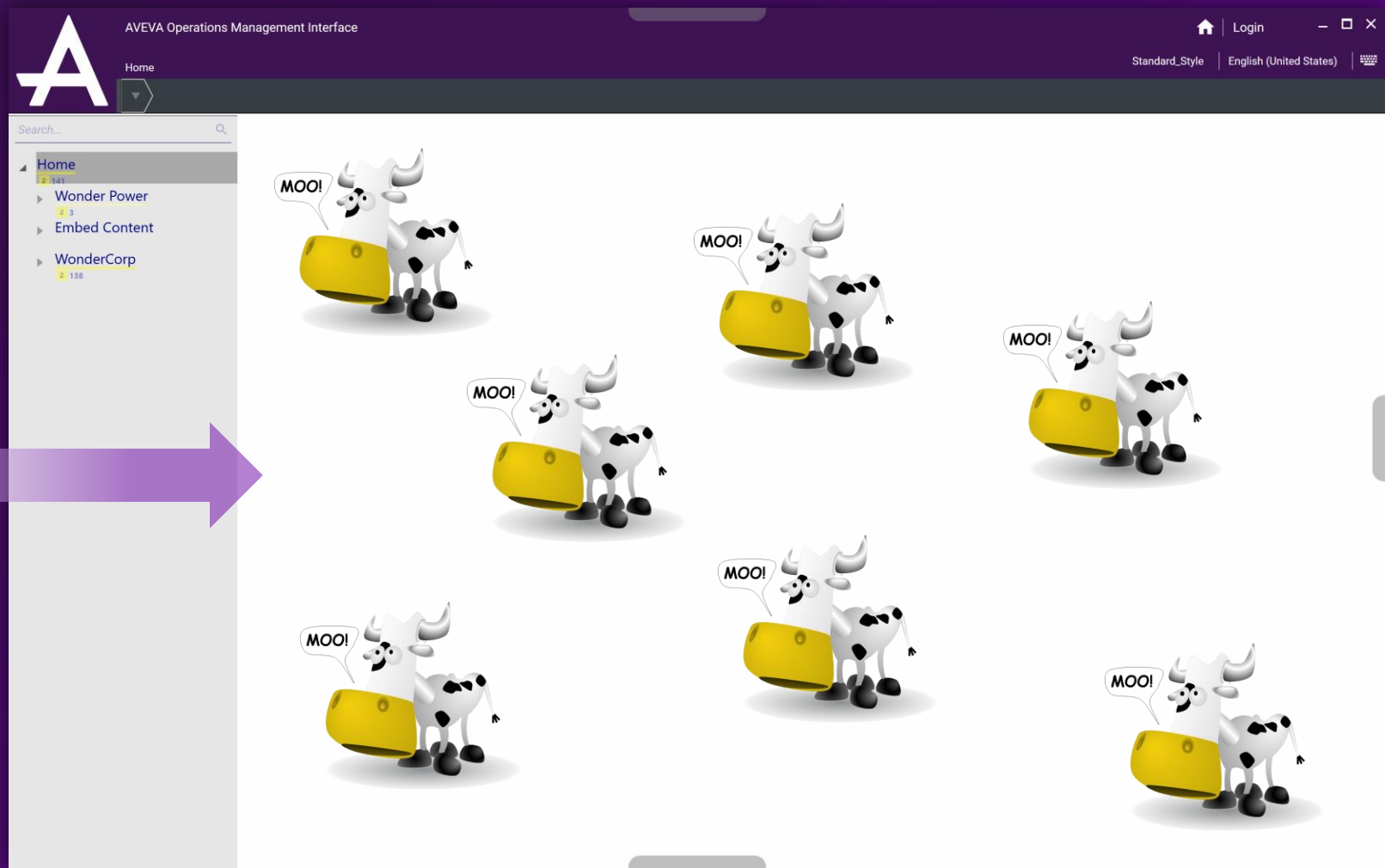
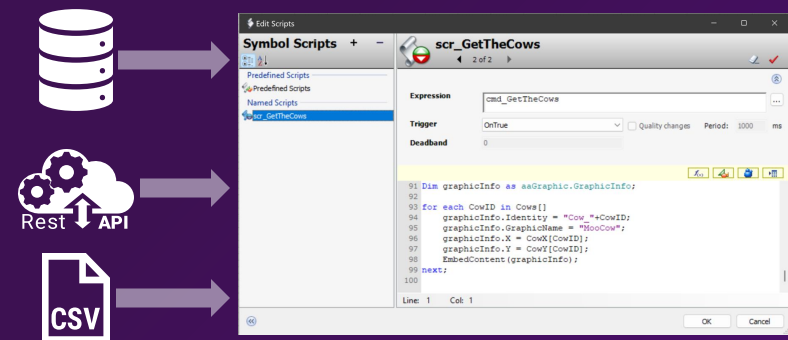
# Transient data



# Runtime Graphic embedding!



# Runtime Graphic embedding!





Chrome



Firefox



Edge



Opera



# Questions?

Please wait for the microphone.  
State your name and company.



# Please remember to...

Navigate to this session in the mobile app to complete the survey.



# Thank you!

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