Operations Management Interface

Advanced HMI design using Operations Management Interface (OMI)

Ernst van Wyk
Ernst van Wyk

Product Manager – operations control

AVEVA

ernst.vanwyk@aveva.com
SCADA/HMI
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<th>ERP</th>
<th>Alarm Master</th>
<th>Prescriptive Analytics</th>
<th>IT Management</th>
<th>Internet of Things</th>
<th>Navigation</th>
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<td>Genealogy</td>
<td>Batch &amp; Phase Control</td>
<td>Virtual Reality Training</td>
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</table>
System Platform

Physical World

SCADA

Controller

Direct Protocols e.g.
- OPCUA
- MQTT

3rd Party Software/Systems

Visualization

Web UI

Software Specific UI

And Again

But has to switch applications

Can find a lot here…

Software Specific UI

Module

Web UI

And Again

And Again

And Again

And Again

And Again

Software Specific UI

Web UI

And Again

Module
Main Components
Main Components

- **OMI Apps**
- **Layouts**
- **Screen Profile**
- **Panes**
- Content: Static or Dynamic
Main Components

- **OMI Apps**
- **Screen Profile**
- **Layouts**
- **Context-driven Apps & Widgets**
- **Panes**
- **Content: Static or Dynamic**
Main Components

- OMI Apps
- Context-driven Apps & Widgets
- Industrial Graphics

Layouts

Screen Profile

Panes

Content: Static or Dynamic
Main Components

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

**Layouts**

**Screen Profile**

**Panes**

**Content: Static or Dynamic**
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

- OMI Apps
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Content: Static or Dynamic

Layouts

Screen Profile

Panes

Content: Static or Dynamic
Main Components

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

Layouts

Screen Profile

Panes

Content: Static or Dynamic

Content: Static or Dynamic
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?

- Overview Content
- Detail Content
- Faceplate Content
- Document Content
Asset Model

Enterprise
  Site_A
    Area_50
      Plant_10
        Pump_A50X_01
          TX_A50X_01_01
          TX_A50X_01_02
          PID_A50X_01
        Valve_A50X_02
          TX_A50X_02_01
        Valve_A50X_03
          TX_A50X_03_01
      Plant_20
        Pump_A50Y_01
          TX_A50Y_01_01
          TX_A50Y_01_02
      PID_A50Y_01
  Site_B
    Area_51
    Area_52

Application Server Model
Layouts

Asset Model

Enterprise
  Site_A
    Area_50
      Plant_10
        Pump_A50X_01
        TX_A50X_01_01
        TX_A50X_01_02
        PID_A50X_01
        Valve_A50X_02
        TX_A50X_02_01
        TX_A50X_03
        TX_A50X_03_01
      Plant_20
        Pump_A50Y_01
        TX_A50Y_01_01
        TX_A50Y_01_02
        PID_A50Y_01
    Area_51
  Site_B
    Area_52

Navigation Model

PlantX
  Pumps
    Pump_A50X_01
    PID_A50X_01
    Valve_A50X_02
    Valve_A50X_03
    Pump_A50Y_01
    PID_A50Y_01
      TX_A50Y_01_01
      TX_A50Y_01_02
Role-based navigation

**Navigation Model**

- **PlantX**
  - Pump_A50X_01
  - PID_A50X_01
  - Valve_A50X_02
  - Valve_A50X_03

- **Pumps**
  - Pump_A50X_01
  - Pump_A50Y_01
  - PID_A50Y_01
    - TX_A50Y_01_01
    - TX_A50Y_01_02

**User Roles**

- PSPDOMAIN\Domain Wonder Administrators
- PSPDOMAIN\Domain Wonder Operators
- PSPDOMAIN\Domain Wonder Process Engineers
- PSPDOMAIN\Domain Wonder Supervisors
- PSPDOMAIN\Domain Wonder System Engineers
Role-based navigation

Navigation Model

- PlantX
  - Pump_A5OX_01
  - PID_A5OX_01
  - Valve_A5OX_02
  - Valve_A5OX_03

- Pumps
  - Pump_A5OX_01
  - Pump_A50Y_01
  - PID_A50Y_01
    - TX_A50Y_01_01
    - TX_A50Y_01_02

Security

- Access Level: Not Configured
- User Roles:
  - 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

**Navigation Model**

- **Plant X**
  - Pump_A50X_01
  - PID_A50X_01
  - Valve_A50X_02
  - Valve_A50X_03

- **Pumps**
  - Pump_A50X_01
  - Pump_A50Y_01
  - PID_A50Y_01
  - TX_A50Y_01_01
  - TX_A50Y_01_02

**Administrator sees both**

**Navigation Model**

- **Plant X**
  - Pump_A50X_01
  - PID_A50X_01
  - Valve_A50X_02
  - Valve_A50X_03

**Navigation Model**

- **Pumps**
  - Pump_A50X_01
  - Pump_A50Y_01
  - PID_A50Y_01
  - TX_A50Y_01_01
  - TX_A50Y_01_02

**Process Engineer**

**System Engineer**
More content
Web Widgets
Auto-fill

Current Asset has content
Dynamic External Content
Linked Layouts

- Layout (Overview)
- Auto-fill Content types

Faceplate

Detail

Docs

Overview Content

Detail Content

Faceplate Content

Docs Content
Linked Layouts
Linked Layouts

- Asset Overview
- Content Detail
- Faceplate Content
- Docs Content
- Current Asset

- Auto-fill Content type e.g. Overview
- .NET Control
- OMI App
- HTML5 Web Widget
Linked Layouts

- Faceplate
- Detail
- Docs
- .NET Control
- OMI App
- HTML5 Web Widget
Linked Layouts

- Faceplate Content
- Detail Content
- Docs Content
- OMI App
- HTML5 Web Widget
- .NET Control
Layout Owning Object

- Faceplate Content
- Detail Content
- Docs Content
- .NET Control
- OMI App
- Detail
- Faceplate
- Another Asset

Current Asset
Place Layout
Layout Owning Object
Linking Layouts to assets
OMI Apps

Context aware

OMI App
Context aware

OMI App

AVEVA Teamwork

Scott Koltier
Oct 2, 2020, 11:44:09 AM
Machine H12-XY starving

#CaseProver

Production

Ritesh Mody
Aug 26, 2020, 10:06:00 AM
We should add a new software to train temp workers.
Graphic Repeater

Industrial Graphics on table data

Context aware

OMI App
What’s next?
Transient data

- **Database**
- **Restful API**
- **CSV File**
Runtime Graphic embedding!

Database

Restful API

CSV File

```
91 Dim graphicInfo as asGraphic.GraphicInfo;
92 for each CovID in Cows[]
93    graphicInfo.Identity = "Cow+"+CovID;
94    graphicInfo.GraphicName = " MooCow";
95    graphicInfo.X = CovX[CovID];
96    graphicInfo.Y = CovY[CovID];
97    EmbedContent(graphicInfo);
98 next;
99```

AVEVA
Runtime Graphic embedding!
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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