

### Using Operations Management Interface to Integrate OEM Equipment

### **GMOEM-04**

Dallas, TX

September 11, 2018



#AVEVAWorld Y AVEVAGroup in AVEVA

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# Project Background Bakery

**Greenfield Bakery** 



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### YOUR DIGITAL TRANSFORMATION: AN EXECUTION ROADMAP

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#### ▲ Produce 80% Own Food Runs Own Distribution

- ▲ 650 Stores, +40-50 per Year
- ▲ 7 Million Guests each Week
- ▲ Replenish Every Store Every Day









### Callisto Integration Endorsed Systems Integrator



- 200 People, 4 Offices
  30 Years in Business
- ▲ Automation, Controls, SCADA
- Model-Driven MES
- ▲ IoT
- Manufacturing Consulting

Sales & Engineering

F&B, CPG
 A&A&D
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### Project Information 200,000 Square Foot Bakery





### **Operational Goals Digitization for Effectivity**



- Support Millennial Workforce
- ▲ Small Shop-floor Workforce, High Production Rates
  - Integrated View of All Aspects of Production
  - Rapid Problem Resolution Critical
  - Rapid Product Changeover
- Need for Large Volumes of Data
  - Food Safety & Compliance
  - Continuous Improvement
  - Data Collection Automated

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### Challenges Systems with Diverse Data



- ▲ Some Re-purposed Equipment from Existing Facilities
- ▲ 120 Pieces of OEM Equipment
  - ▲ Different Suppliers
  - Different Standards & Designs
  - Different Data Models (if any)
  - Different Interfaces
- ▲ Consistent Data is a Requirement
  - How to achieve with minimal impact on vendors?

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# OMI and System Platform System Platform Templating



- Modelling Approach to Normalize OEM Data into Common Data Model
  - ▲ Standard UDTs for
    - Alarms
    - Critical Control and Process Points
    - ▲ Maintenance data
  - Standardized downtime reason codes (PackML based)
  - Standardized data transaction mechanisms to ensure data integrity
- Design approach to minimize PLC code impact to OEM Vendors

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### OMI and System Platform OMI

- ▲ Plant Model Linked Content:
  - All displayed content relative to your current location in the plant model.
- ▲ OMI Screen Profiles and Layouts:
  - Faster application development
  - Ensure consistency / standardization across the application
  - Separation of content vs. presentation: Allows for display across several different hardware
  - Multi-vendor collaboration

#### ▲ OMI ArchestrA Apps: Pre-built configurable applications

Bread [Bread ] Bread\_Making [Bread\_Making ] read Mixing [Bread Mixing] Bread Dough Chunker [Bread Bread Mixer1 [Bread Mixer1] Bread\_Mixer2 [ Bread\_Mixer2 ] Bread\_Mixer3 [ Bread\_Mixer3 ] Bread\_Packaging [Bread\_Packagin Bread Line Basket System [Br Bread Line Inject Station [ Bre Bread\_Packaging\_Line1 [Bread Bread Packaging Line2 [Bread Bread Packaging Line3 [Bread Bread\_Packaging\_Line4 [Bread Bread\_Packaging\_Line5 [Bread Bread\_Pan\_Cleaner [ Bread\_Pan\_Cl Bread\_Pan\_Emergency\_Load\_Off [

Bread\_Pan\_Handling [Bread\_Pan\_H

Bread Pan Return [Bread Pan Ret

Automated Storage [Automated Stora

BreadAndBunPlant

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### OMI and System Platform OMI – Screen Layouts

TitleBar CONFERENCE App Forus Little Empty4 Paneb Panel Panez BreadcrumbNav Pane4 Camera Links Overview (default) CameraLinks Alarm **Summaries** BreadCrumb Links to Cameras App Slide-in Pane Dynamic Dynamic Content: Content: Camera Overview Links Alarm App CONTROL AlarmBanner Empty5 APPLICATION THE SAME CONTAINED

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Empty

NavApp

CONTROL

OF APPLICATION THIS PANE CONTAINS

THE CONTROL NAMED:

NAVIGATIONAPP.NAVTREECONTROL

Empty3

NavTree

Slide-in

Pane

#### YOUR DIGITAL TRANSFORMATION: AN EXECUTION ROADMAP

ALARMAPPALARMCONTROL

### OMI and System Platform OMI – Screen Layouts

FOCUS KwikTrip | InTouch OMI A Bun\_Mixing Login W 7/5/2018 10:37 AM Bun Line Bread and Bun Plant KwikTrip v BreadAndBunPlant v Bun Bun v Bun\_Mixing v System Diagnostics  $\equiv$ 100♦ 598 07 58▲ 100♦ 798 07 96▲ 0♦ 0■ 0⊽ 15▲ A # 18 3 4 4 11 8 Bun Continuous Mixer M809 - First Stage Mixer Shaft BreadCrumb Product toet Mixer Shaft Speed (Hz) VFD Output Current (Amps) PV 59.3 PV: 59.1 153257788593 PO Number: 00 93.0 On-Deck Hot Dog Bun App Alarm Equip State: Held Held Reason **Catch All Unidentified Summaries** 70.1 Downtime 75.5 min Order: 87min Dynamic Run Rate Rate: 5242.3 lbs/hr Avg: 1.1 lbs/hr Content: 7/10 47.2 5 46.5 Dough Temp 61.6 °F Hopper 1 Level: -5% Remaining Overview Cameras links Hopper 2 Level: -5% Remaining Alarm Inhibit 8♦ 10 47 94 Slide-in Pane -M810 - Second Stage Mixer Shaft Mixer Shaft Speed (Hz) PV: 59.5 VFD Output Current (Amps) PV: 59.3 navigates to Dough Temperature (°F) PV 616 85 5 93.0 NavTree 120.0 Camera 100.0 Slide-in ala t overviews 70.1 do Bla o 55.0 Pane 10.0 47 1 Alarm App ObjectName AlarmComment Priority Bun Continuous Mixer - Divider Hopper #1 - Low Level Warning In 1 Mixer ALM. Divider Hopper 1. Alm Level Low. Active Alarr 18-07-04 12:00:55 PM Bn1Mixer ALM.Divider Hopper 2.Alm Level Low.Active Alarm Bun Continuous Mixer - Divider Hopper #2 - Low Level Warning Bn1Mixer\_ALM.Mixer\_Coolant.Valve\_3\_Way.Alm\_Failed\_Position\_Bypas Bun Continuous Mixer - Mixer Coolant Bypass Valve - Failed To Go To Bypass Position 300 2018-07-04 12-00-43 PM Bol Mixer ALM Communications Loss IMSRLC Active Alast Bup Continuous Mixes - Loss Of Communications To PLC - IMSPLC 300 Displaying 1 to 3 of 31 alarms Query: Default Filter: NoRTN 100% Complete Eastern Time (US Canada

TitleBar

App

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### OMI and System Platform BreadCrumb App

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#### YOUR DIGITAL TRANSFORMATION: AN EXECUTION ROADMAP



BreadAndBunPlant

# OMI and System Platform NavTree App



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### OMI and System Platform Content Presenter

BunOven



Interface

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Bn1OvenConvRO2Mtr Mnt

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Cycle Count Runtime (hrs) Bun Oven Conveyor R01 Motor ON Reset 0.2 Cycle Count | Runtime (hrs) ON Bun Oven Conveyor RO2 Motor Reset 0.2 Cycle Count Runtime (hrs) Bun Oven Conveyor RO3 Motor ON Reset 0.2 Cycle Count Runtime (hrs) Bun Oven Conveyor RO4 Motor ON Reset 0.2 Cycle Count | Runtime (hrs) Bun Oven Conveyor RO5 Motor OFF Reset 2 0.2 Cycle Count Runtime (hrs) Bun Oven Conveyor RO6 Motor ON Reset 0.2 Cycle Count Runtime (hrs) Bun Oven Conveyor RO7 Motor ON Reset 0.2 Cycle Count Runtime (hrs) Bun Oven Conveyor RO8L Motor ON Reset 0.2 Cycle Count Runtime (hrs) Bun Oven Conveyor ROSR Motor ON Reset 0.2

FOCUS & KwikTrip | InTouch OMI | A Callisto \

MaintenanceData 💌

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### OMI and System Platform Future Proofing

▲ InTouch + System Platform Was Viable – Why OMI?

- Future Proof
- Reduced Engineering Costs
- Higher First-Pass Application Quality
- Greenfield Site; No Legacy Approach in Place
- OMI Benefits
  - Ability to adopt new ArchestrA Apps to bring better contextual data to the operator in a common environment
    - ▲ CMMS, LIMS, MES
  - Simpler over all software setup to maintain
  - Easier to modify and expand
  - ▲ Future support for mobility

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# Question

#### **OMI for OEM Equipment Integration**



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