OCTOBER 24, 2023

From HMI/SCADA to Operations Control

ROADMAP

John Krajewski – Vice President of Product Management - operations control
Technical evolution to AVEVA Operations Control

Proven history of market leading innovation

- Human Machine Interface (1987)
- Communications drivers (1990)
- Process historian (1999)
- Distributed SCADA (2003)
- Industrial reports (2004)
- SaaS data management (2016)
- Operations Management Interface (2017)
- Enterprise visualization (2018)
- SaaS collaboration (2021)
- Unified operations software (2022)

InTouch, Drivers, Historian, System Platform, Reports, Insight, OMI, UOC, Teamwork, AVEVA Operations Control
Operations – a day in the life

Enabled by AVEVA Operations Control – hybrid SaaS solution
AVEVA Operations Control

Evolving HMI/SCADA to operations control

**Unified Operations Center (UOC)**
- Long term focus (up to 1 year)
- Enterprise view
- IT/OT convergence
  - Command Center
  - Remote Operations Center
  - Casual User

**AVEVA Operations Control Supervisory**
- Medium term focus (up to 1 week)
- Process view
- OT convergence
  - Control Room
  - Area Workstation
  - Mobile Supervisor

**AVEVA Operations Control Edge**
- Short term focus (up to 1 shift)
- Work cell view
- Control convergence
  - Panel-based Operations
  - Tablet-based Operations
  - Off-site Operations
Check out these sessions:

30 tips in 30 minutes for operations control

*Track:* Operations Control Geek | Wednesday
Various cross-departmental activities

Driven toward a common goal through coordination

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<th>Operations Team Long Term</th>
<th>Command Center</th>
<th>Process Optimization</th>
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# Hybrid SaaS software strategy

Leverage advantages of both on-premises and software-as-a-service for industrial operations

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<th>On-premises Software</th>
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<th>Pros:</th>
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<td>Manufacturing Execution Software</td>
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<td>Supervisory Control</td>
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<td>Device Communications</td>
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Check out these sessions:

Hybrid cloud architectural design considerations for AVEVA Operations Control

Track: Operations Control Geek | Thursday
AVEVA Operations Control

Hybrid SaaS operations software
Check out these sessions:

Virtualization best practices and troubleshooting for operations control

Track: Operations Control Geek | Thursday

Operations control panel - ask the experts

Track: Operations Control Geek | Thursday
Operations control 2023 R2

General availability: Q1 CY2024
Operations control 2023 R2

General availability: Q1 CY2024
Common technology
Pivot from product to portfolio

AVEVA Operations Control strategy

**Visualization**
- Industrial graphics
- Common visualization technology

**Model**
- Assets/definitions
- Templates
- Data structures (UDT)

**Integration**
- Open standards
- Communications
- Interoperability/security

**Management**
- Development Studio
- Integration Studio
- Edge Management

**Collaboration**
- Teamwork
- Users
- Issues/knowledge

**Data/Analytics**
- Data Hub
- PI System
- Historian/clients
- Insight
- Reports

**Extensibility**
- Core technology
- Open scripting languages

**Experience**
- Entitlement access
- Licensing

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Common visualization technology

Consistent experience and management from Edge to Enterprise
Check out these sessions:

How to leverage Industrial Graphics in your applications

*Track:* Operations Control Geek | Today

UX and visualization design tips, tricks and best practices

*Track:* Operations Control Geek | Today
Operations – a day in the life

Enabled by AVEVA Operations Control – hybrid SaaS solution
Operations control portfolio commercial models

Redefining operational agility for industrial software deployments

**Perpetual**
- Client
- Tags/IO/Clients/Redundancy/etc.
- By function, limited in capacity and capability

**AVEVA® Flex**

**Individual subscription**
- Client
- Primary Server
- Redundant Server
- By function, unlimited in capacity, limited in capability

**AVEVA Operations Control**
- Hybrid operations software with architectural flexibility
- By packaged capabilities, limited by number of users

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AVEVA Operations Control - connected worker

Powered by AVEVA Connect user-based commercial model

User will move between devices and expects consistency
Opportunity for customer transformation
Bringing together user-centric software

Operational visibility
Gain a clear perspective into operations relative to the user’s role through superior visualization applications

Collaboration
Bring teams together and promote operational continuity through messages, chat and calls for help

Data analysis
Drill down through information layers and leverage tools that allow users to examine data in detail

Coordination and learning
Develop skill sets and retain knowledge digitally to reduce onboarding and time away from operations

Digital thread
Ensure everyone can interpret the same outcomes and remove the burden or recreating data sets and insights

Vendor agnostic
Software purpose built for industry and leveraging a wider set of AVEVA and third-party devices and applications
Check out these sessions:

Improving the operations control experience with AVEVA ID

Track: HMI/SCADA user | Tomorrow
Performance support software (SaaS)

Key functions:

**Digital knowledge**

Scan QR codes to quickly access a standardized library of instructions, videos and troubleshooting content.

**Skills management**

Deliver and track training for new hires, upskilling and certifications with a review pane to view pending and completed training.

**Communication**

Connect with workers across shifts and facilities to solve problems. Share insights in a logbook and continuously grow the archive of knowledge.

**Issues management**

Capture, track and resolve problems through call for help escalation and collaboration with subject matter experts.
Check out these sessions:

Extending operations control with the cloud - AVEVA Teamwork
*Track:* HMI/SCADA user | Tomorrow

AVEVA Teamwork onboarding tips & tricks
*Track:* Operations Control Geek | Thursday
AVEVA Integration Studio

Virtual development and testing environment

Key functions:

**Infrastructure as a Service**
Cloud hosted development environment that facilitates greater collaboration, rapid project creation and project archival.

**Scalability**
Manage multiple AVEVA development projects simultaneously.

**Productivity**
Improve engineering efficiency by enabling developers to rapidly provision software and servers.

**Flexibility**
Expand beyond the limitations of on premise managed virtual environments.
Check out these sessions:

Extending operations control with the cloud - AVEVA Development Studio & AVEVA Integration Studio

Track: HMI/SCADA user | Tomorrow
Key functions:

**Ease of Use**
Programming free, user-friendly, automated reporting and data analysis software.

**Flexible**
Deliver industrial reports in a variety of formats; PDF, web portal, email, file directories, FTP.

**Connectivity**
It leverages all real-time, historic, and business data sources. With over 120 native drivers!

**Scalable**
A scalable solution that will fit perfectly with your application.
Check out these sessions:

Configuring advanced reports with AVEVA Reports for Operations

Track: HMI/SCADA user | Thursday
AVEVA Historian and Clients

Process control support

Key functions:

**Web based clients**
Storage server has built in web server for client access with no installation required.

**Time series storage/retrieval**
Capable of storing and retrieving 100’s of thousands of tags at high fidelity.

**Alarm/event storage/retrieval**
Manage multiple AVEVA development projects simultaneously.

**Various analysis tools**
Desktop trending analysis, Excel add-ins and flexible query authoring tools.
Check out these sessions:

The power of expressions in AVEVA Insight & AVEVA Historian
Track: Operations Control geek | Tomorrow

Using PI System for aggregated analysis of HMI/SCADA data
Track: HMI/SCADA user | Thursday
AVEVA Development Studio

AVEVA Operations Control access

Key functions:

Software downloads
Access full product downloads, licenses, and any maintenance releases

Extensions access
Access any exclusive symbols, widgets, apps, templates or other extension content

SaaS access and provisioning
All software as a server aspects of AVEVA Operations Control accessible in one place

Mobile apps access
Obtain the associated iOS or Android apps that accompany your AVEVA Operations Control package

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Check out these sessions:

Extending operations control with the cloud - AVEVA Development Studio & AVEVA Integration Studio

*Track:* HMI/SCADA user | Thursday
AVEVA Insight

Organizational empowerment

Key functions:

Data access
Secure access from any location or device.

Ease of use
Search-based navigation, time-series charts, process graphics, geolocation, and customizable dashboards.

Performance analysis
Utilization and efficiency analysis, condition management, and alerts and notifications.

Anomaly detection
Automated analytics using unsupervised machine learning.
Check out these sessions:

Strategies for getting information from the control network

*Track:* HMI/SCADA user | Tomorrow

Extending operations control with the cloud - AVEVA Insight

*Track:* HMI/SCADA user | Tomorrow

The power of expressions in AVEVA Insight & AVEVA Historian

*Track:* Operations Control Geek | Tomorrow
Vision AI Assistant

Key functions:

**Camera integration**
Use cameras as instruments for improved automation

**Situational awareness**
Enable greater situational awareness by focusing operator attention on alerted issues

**Notifications**
Publish notification through AVEVA Operations Management Interface (OMI) and Insight

**Easy Setup**
Setup and train analytical models for anomaly and discrete detection
Check out these sessions:

Deploying Vision AI Assistant for anomaly detection in HMI/SCADA and AVEVA Insight

*Track:* Operations Control Geek | Tomorrow
Vision: common data source management

A unified data source management feature across the portfolio

- **Edge**
- **Supervisory**
- **UOC**
- **Ops Exec**

Common data source management

- **Attributes**
- **Methods**
- **Events**
- **Models**

Expanding beyond traditional device integration

Control systems & sensors

Autonomous systems

Software and services

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Check out these sessions:

Leveraging MQTT for edge to cloud - best practices and troubleshooting
*Track*: Operations Control Geek | Tomorrow

Getting the most out of OPC UA
*Track*: Operations Control Geek | Thursday
Cybersecurity

Four A’s of security

Authenticated
Gained after authenticated login (Identity of the logged-in user is now known)

Authorized
Confirmed that the logged-in user is permitted to write. When demanded by the write target

Approved
Write is verified by an authenticated verifier, separate from the authenticated writer. When demanded by the write target

Archived
Action recorded into a 21 CFR Part 11 log, by the write target
Check out these sessions:

Cybersecurity best practices with AVEVA System Platform

Track: Operations Control Geek | Tomorrow
Where do they differ?

Edge vs Supervisory philosophy

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<th>EDGE/HMI</th>
<th>SUPERVISORY/SCADA</th>
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<td>Namespace</td>
<td>Replicate field / edge driven</td>
<td>Normalize through standards</td>
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<tr>
<td>Developer</td>
<td>Controls engineer</td>
<td>SCADA engineer</td>
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<tr>
<td>Core User</td>
<td>Field operator / near-term</td>
<td>Control room operator / medium-term</td>
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<td>Scope</td>
<td>Department / process cell / local</td>
<td>Site / multi-site / distributed</td>
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<tr>
<td>Footprint</td>
<td>IIoT / panel / industrial PC</td>
<td>Industrial PC / server / cloud</td>
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<tr>
<td>Availability</td>
<td>Isolated / autonomous</td>
<td>Redundancy / fault tolerance / disaster recovery</td>
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AVEVA Operations Control - Edge
AVEVA Edge

Reporting and analysis

Key functions:

**Complete HMI solution on Windows & Linux**
Web process visualization, communications drivers, alarming, business logic/scripts

**Delivering on the vision - IoTView**
Visualization performance

**Supporting Industry 4.0 initiatives**
MQTT SparkPlug B publishing
PYTHON scripting language support
18 drivers supported on Linux – largest library in the industry!

**Versatile footprint**
Scale from minimal embedded devices to server class hardware
Check out these sessions:

Building HMI and IIoT solutions with Linux devices

Track: Operations Control Geek | Today

What's coming in 2023 R2 for operations control - edge

Track: HMI/SCADA user | Thursday
AVEVA InTouch

Organizational empowerment

Key functions:

* Increased tag dictionary capacity
  Tag limits are a thing of the past and field structures are easily reproduced with UDTs

* Legendary ease of use
  Complete modernization of the UI/UX configuration experience continues to get better.

* Native web server
  Deliver process visualization to virtually any device

* Self-service content
  Now operators can build and share content without use of any configuration tools
Check out these sessions:

Promoting digital health of the process by enabling decisions with the AVEVA InTouch HMI web client

Track: HMI/SCADA user | Today

How to apply user defined types in AVEVA InTouch HMI

Track: Operations Control Geek | Tomorrow

Designing AVEVA InTouch HMI applications for web clients

Track: HMI/SCADA user | Thursday

What's coming in 2023 R2 for operations control - edge

Track: HMI/SCADA user | Thursday
AVEVA Plant SCADA

Organizational empowerment

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Check out these sessions:

How to leverage Industrial Graphics in your applications
Track: Operations Control Geek | Today

Standardizing Rio Tinto Iron Ore mine operations
Track: HMI/SCADA user | Tomorrow

What's coming in 2023 R2 for operations control - supervisory
Track: HMI/SCADA user | Thursday
AVEVA System Platform

Reporting and analysis

Key functions:

OMI web client

A new era in process visualization is delivered through the only platform agnostic operations management interface

Dynamically create content

The new EmbedContent() method allows content to be generated on the fly at runtime and further extends the data driven vision for AVEVA process visualization

Unparalleled scalability and performance

Thin clients will download and run all visual application on demand minimizing all server loading
Check out these sessions:

AVEVA System Platform migration and upgrading best practices  
*Track*: Operations Control Geek | Tomorrow

Insights from the updated AVEVA System Platform deployment guide  
*Track*: Operations Control Geek | Tomorrow

Advanced HMI design using Operations Management Interface (OMI)  
*Track*: HMI/SCADA user | Tomorrow

Unleash your engineering agility with EcoStruxure Automation Expert  
*Track*: HMI/SCADA user | Tomorrow

What's coming in 2023 R2 for operations control - supervisory  
*Track*: HMI/SCADA user | Thursday

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AVEVA Operations Control 2023 R2

Facilitating better decision making

- AVEVA Operations Control is the first and only hybrid SaaS solution serving the needs of industrial operations from edge to enterprise.
- A new era in industrial visualization designed for fantastic visual experience, unrestricted device portability, blazing performance, unprecedented scalability, and data driven configuration.
- Ushers in a new era in industrial software expectations delivered through the world’s only completely architectural independent commercial model designed to empower users.
- Expands on our commitment to openness with significant advances in Python, MQTT, and OPC UA.
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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AVEVA is a world leader in industrial software, providing engineering and operational solutions across multiple industries, including oil and gas, chemical, pharmaceutical, power and utilities, marine, renewables, and food and beverage. Our agnostic and open architecture helps organizations design, build, operate, maintain and optimize the complete lifecycle of complex industrial assets, from production plants and offshore platforms to manufactured consumer goods.

Over 20,000 enterprises in over 100 countries rely on AVEVA to help them deliver life’s essentials: safe and reliable energy, food, medicines, infrastructure and more. By connecting people with trusted information and AI-enriched insights, AVEVA enables teams to engineer efficiently and optimize operations, driving growth and sustainability.

Named as one of the world’s most innovative companies, AVEVA supports customers with open solutions and the expertise of more than 6,400 employees, 5,000 partners and 5,700 certified developers. The company is headquartered in Cambridge, UK.

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