Extending operations control with the cloud - AVEVA Insight

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Challenges for industrial operations

- **Accessibility for all teams**: 43% struggle making data more broadly accessible with the systems in place today. (IDC)

- **Data-driven visibility**: 70-80% of time spent preparing and cleansing data as opposed to analysis. (LNS Research)

- **Responsiveness to issues**: Time and cost of break/fix repairs is three to five times the cost of pre-failure action. (Reliable Plant)

- **Accelerating and scaling results**: A responsive workforce is at least 20% more likely to overperform against corporate goals. (Gartner)

“Long-held aspirations of optimizing business value while simultaneously reducing risk are now within reach as a result of technological advances in the areas of connectivity, cloud, and contextualization. These technologies make data-driven operations possible.”

IDC, 2023
Additional challenges for supervisory systems

- Dominate staff attention
- Create systems for routine issues
- Find root cause of new problems
- Isolated from the Internet for security
- Availability & performance not dependent on Internet
- Not readily accessible to potential users
- Names unfamiliar to outside users
- Separated from broader operational context
Deployment strategies

**Online Solutions**
- Consider for future
- Next refresh cycle

**Hybrid**
- Supplement on-premises
- Realize the value
- Minimize risk

**Existing Investments**
- Infrastructure
- Applications
AVEVA Insight gives you easy access to actionable information in the cloud. Its no-code, self-service, fit-for-purpose analytics work for ordinary operations users—not just data scientists.

- Unlock and share critical data in the cloud
- Connect workers and increase collaboration
- Improve operational performance and asset reliability
## Analysis in AVEVA Insight

<table>
<thead>
<tr>
<th>Ad Hoc</th>
<th>Dashboards</th>
<th>Utilization</th>
<th>Automated</th>
<th>Guided</th>
<th>Contextualized</th>
</tr>
</thead>
<tbody>
<tr>
<td>Explore information in response to new problems &amp; questions</td>
<td>Make routine information readily accessible</td>
<td>Track &amp; monitor equipment utilization &amp; OEE</td>
<td>Unsupervised, automatically draws inferences from data</td>
<td>Invest engineering knowledge for higher-value detection</td>
<td>Add operational context to detailed data</td>
</tr>
<tr>
<td>Detailed time-series data &amp; summary reporting</td>
<td>Independent-of or based-on assets</td>
<td>Note reasons to see overall impact of problems</td>
<td>Detect anomalies, out of the box</td>
<td>Targeted infrastructure with repeatable failure patterns</td>
<td>Use BI tools for in depth analysis</td>
</tr>
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Ad Hoc Analysis

- Ideal for New Scenarios
  - Newly created applications
  - New problems/questions in existing applications
  - New users, unfamiliar with naming conventions
- Search-based
  - Quickly discover available information
  - Immediate results encourage exploration
  - Forgiving for new users
  - Basis for 2/3 of usage
- Charts suitable for varied use cases
<table>
<thead>
<tr>
<th>Metric</th>
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<th>State</th>
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<td>ValveIn</td>
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<td>0.00% in state</td>
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</tbody>
</table>

AVEVA Insight Mobile - Basic Demo
Automated Analytics

- Fully Automatic
  - No configuration required, just publish data
  - Learns “normal” behavior, including some interactions
- Newsfeed
  - Built into home page
  - Curated based on significance, feedback & volume
- Limitations
  - May report insignificant discoveries
  - No direct tuning
  - Not as powerful as engineered analytics
AVEVA Insight – Guided Analytics

• Easy, self-service AI models for Anomaly Detection on assets or production for reliability

• Use simple, step-by-step workflow to:
  • Select tags
  • Define Training Window
  • Define operational modes and filter (option)
  • Train
  • Automatic execution and publishing of News

• Guided Analytic model types and use cases will grow in the future
Guided Analytics Demo
AVEVA Insight Performance

- Manual & Automated Data Collection
  - Utilization & Production Events
- Equipment and Line Monitoring
  - Utilization Events & KPIs
  - OEE, Availability, Performance, & Quality KPIs
  - Production Run Status vs. Plan
  - Additional Context Events
- Reporting & Analysis
  - KPI Comparison Across Equipment
  - Detailed Root Cause Analysis
AVEVA BI Gateway

• Make better use across the organization of valuable operational and IIoT data
• Provide contextualized insights combining both industrial, time-series and business data
• Easy deployment of analytics throughout the enterprise

• Automate the extraction, transformation and storage of operational KPIs and metrics
• Use preferred IT/BI tools to query data from the operational space, removing the need to work with REST APIs
Analytics for Industry

- Energy Management Solution Built On
  - AVEVA Insight
  - AVEVA BI Gateway
  - Microsoft Power BI
REDUCING ENERGY CONSUMPTION IN SEEN FROM A FINANCIAL AND SUSTAINABILITY POINT OF VIEW

ENERGY EFFICIENCY
1.02 GJ/t

PRODUCTION VOLUME
468.9 t

CARBON FOOTPRINT (CO2)
59K t

GAS CONSUMPTION
4,965 m³

ELECTRICITY CONSUMPTION
89K kWh

ENERGY CONSUMPTION PER HOUR (GJ)

BATCH & ASSET EFFICIENCY (GJ/0)

Batch & Asset Efficiency (GJ/0)

BATCH STATISTICS (GJ/0)

Assets Statistics (GJ/0)

04 August 2023 (Friday)
Sounds good, but how much work is this?
AVEVA Insight - Getting Started Demo
On-premises HMI/SCADA to Insight

Publish from existing AVEVA HMI/SCADA system to the cloud

- No assembly required
- Easily import existing HMI applications
- Frictionless to find & present the right information

Cost-effective even for very small applications

- HMI-only embedded (OEM) applications
- Vertical applications (e.g. water, coal seam gas)
- Small applications in large companies (e.g. containerized “plant” in emerging economies)

Remove obstacles to capturing & using historical data

- De-skill setup (5-minutes or less, zero training)
- Make information readily accessible
- Eliminate routine maintenance (disk, backups, etc.)
## AVEVA Insight: data connectivity

**Built-in publishers**
- Cloud-enabled AVEVA products
  - AVEVA Edge
  - AVEVA InTouch HMI
  - AVEVA Plant SCADA
  - AVEVA System Platform
  - AVEVA Enterprise SCADA
  - AVEVA Historian
  - AVEVA Communication Drivers

**Standalone drivers**
- 18 Industry standard protocols
  - Allen Bradley – ABCIP
  - Allen Bradley – ABTCP
  - Beckhoff – TWINCAT
  - General Electric – GESRTP
  - Mitsubishi – MESEC
  - Modicon – MBTCP
  - Omron – OMRONFINS
  - Schneider Electric – SOMAC
  - Siemens – SIDIRECT
  - Standards – BACLITE
  - Standards – CODESYS
  - Standards – Gateway – OPC
  - Standards – Gateway – OPC UA
  - Standards – Gateway – SuiteLink
  - Standards – MQTT
  - Standards – SNMP
  - Standards – WebSvc
  - Texas Instruments – TI500

**REST API**
- Open internet standards

**SDK**
- Custom connectivity
Network Segmentation

- Supervisory systems fully isolated from Business, Internet
- Narrowly limited access via DMZ

Method
- Deploy DMZ Secure Link into DMZ
- Open outbound connection at firewall (HTTPS port 443)
- Narrowly limited “allow list” of AVEVA Insight endpoints
- Supports corporate web proxy & other DMZ Secure Link instances
- All connections one-way (outbound) from Supervisory

Watch the video to learn more
Make information more accessible

Fuel process improvement initiatives

Enable self-service analysis & reporting
City of Ashland, Oregon

Enabling field technicians with real-time information

The City of Ashland Water Department is responsible for water source, treatment, and distribution of 7 million gallons of water a day to 21,000 residents along the Oregon-California border. The distribution system consists of over 70 miles of water lines, 5 pump stations, 29 pressure reducing stations, 925 fire hydrants, and over 6,700 individual services and meters.

Challenges

- Needed a mobile solution that would give in-field water technicians real-time information to monitor the system without laptops and VPNs

Goals

- Utilize AVEVA Insight to make data from historian and SCADA system instantly available to field technicians.

Results

- Reduction in manpower needed to support water operations.
- Automated system notifications, including on mobile devices.
- System access control/security built-in, with no additional overhead required.
- Field Technicians now have information at hand, ready for them, so they can interact, anytime day or night, and from anywhere with cellular activity.
AVEVA PI Vision
- On-premises
- Browser-based
- Operations-user focused
- Self-service dashboard creation
- Uses data from PI Server

AVEVA Unified Operations Center
- On-premises
- Desktop and browser
- Enterprise-user focused
- Pre-defined application, with navigation contextualization
- Uses Historian, PI Server, and third-party data sources

AVEVA Insight
- Cloud native
- Browser and mobile app
- Operator-user focused
- Self-service dashboard creation
- Built-in data storage, data sources are primarily HMI/SCADA or standard protocol based

AVEVA Data Hub + visualization services
- Cloud native
- Browser-based
- Enterprise-user focused
- Self-service and pre-defined dashboard creation
- Self-service uses Data Hub data
- Pre-defined can use Data Hub and third-party data sources
AVEVA Insight: process analytics

Simple to start, simple to use, out-of-the-box

- Secure access from any location, any device
- Search-based navigation, time series analysis, process graphics, geolocation / mapping, and customizable dashboards
- Utilization and efficiency analysis, condition management, alerts and notifications
- Automated analytics using unsupervised machine learning
- Connectivity to AVEVA HMI/SCADA products, 18 industry standard protocols, and REST API
- All designed with security in mind. Learn more https://trust.aveva.com

Unlock trapped data and make it accessible from the cloud in minutes
Break down data silos with industrial analytics for everyone
Kickstart your digital transformation with a simple-to-use system and fast adoption
Reduce “windshield time” with mobile access to operational data
Unlock your operations in the cloud with AVEVA Insight

- Register for the live demo
- Start your FREE 45-day trial
- Use your own data
- Prove it for yourself!

https://aveva.com/aveva-insight-demo
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.

Learn more at www.aveva.com