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Industrial DataOps Showdown: AVEVA Connect™ vs. Tenant-Native Stacks on Google, AWS and Azure

Introduction: Reimagining Industrial Data Infrastructure

In the AI-driven era, data fuels both innovation and operational excellence. As industrial organizations accelerate digital transformation, they face a critical architectural choice: adopt vertically integrated SaaS platforms that run in the vendor's cloud, or leverage open, cloud-native Industrial DataOps architectures that operate entirely within their own cloud tenant.

This decision is even more consequential because **many enterprises have invested heavily in building cloud data lakes** to support their IT workloads. Whether Google, AWS or Azure, these platforms represent powerful, scalable, and secure foundations. But the central question is: **can these existing investments be extended to support OT data and real-time industrial analytics?**

In earlier white papers, we've demonstrated that modern cloud data platforms can **effortlessly scale to meet time-series and industrial data workloads**. Here we provide a side-by-side comparison of two options:

- SaaS-first platforms like **AVEVA Connect™**, which abstract infrastructure by moving data to a third-party tenant.

- Cloud-native solutions like **DeepIQ DataStudio**, which enable extensibility and reuse of existing data infrastructure.

This paper uses DeepIQ DataStudio as a product example and a lens to evaluate a broader class of **cloud-native architectures**. Our goal is to equip decision-makers with an **apples-to-apples analysis** of these options so that they can align their IT-OT convergence and digital twin strategies with their existing cloud investments and long-term data vision.

Privacy - Terms

Overview of Platforms

AVEVA Connect is a cloud-based industrial digital transformation platform hosted on Microsoft Azure, offering multiple pre-built solutions developed by AVEVA.. In this comparison, we focus specifically on the Industrial DataOps capabilities of the different approaches. Therefore, we limit our analysis to AVEVA Connect's Data Services (Data Hub), Visualization and Insight modules. These modules collectively represent the core Industrial DataOps functionality within AVEVA's product suite.

DeepIQ DataStudio is a cloud-native Industrial DataOps platform that supports a wide range of OT systems and multiple cloud environments. It enhances IT-OT convergence by enabling robust data management and advanced analytics within an enterprise's existing cloud framework. While the platform also includes solutions for various industrial use cases, this comparison is restricted solely to DeepIQ's Industrial DataOps capabilities.
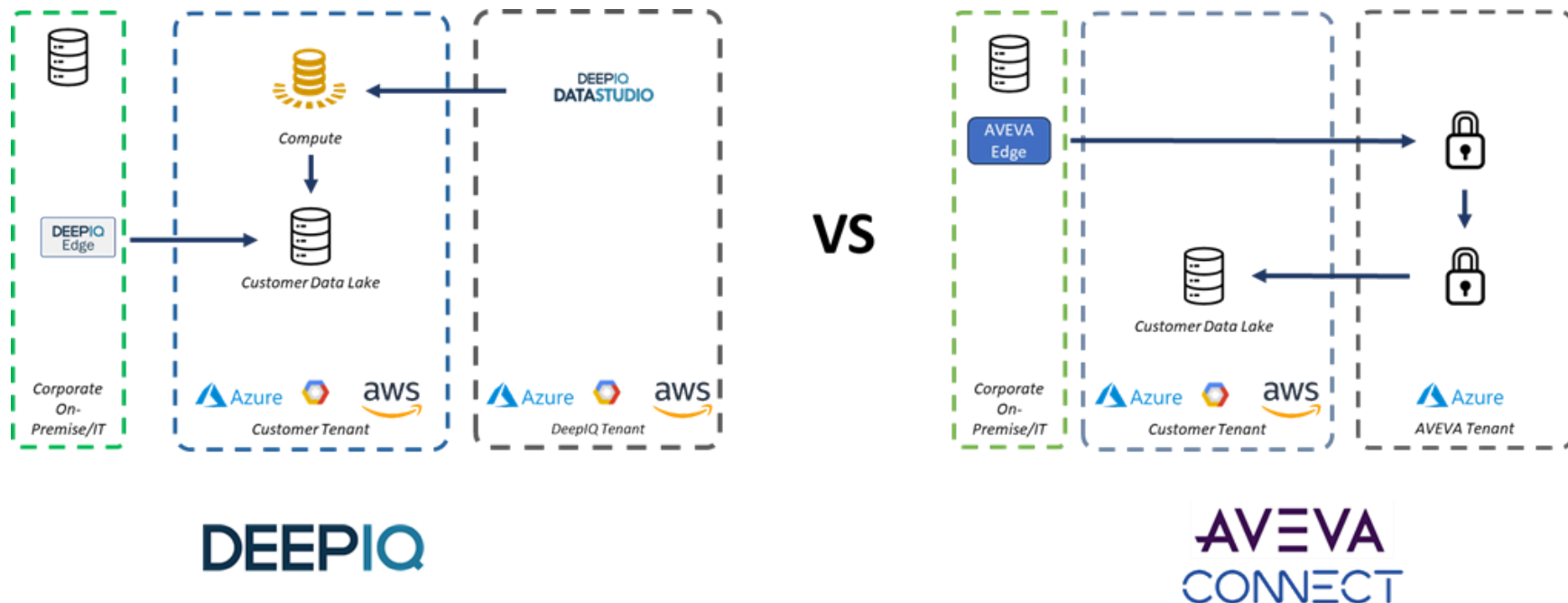

Figure 1: High-Level Architecture of DeepIQ DataStudio and AVEVA CONNECT

Feature Comparison

Understanding each platform's unique strengths in industrial data operations is crucial for making informed decisions. This section highlights the distinct features and capabilities of DeepIQ DataStudio and AVEVA Connect. It provides a clear comparison to help stakeholders select the most suitable solution for their enterprise needs. This section explores key aspects, including OT system

support, cloud deployment flexibility, data residency, and advanced analytics, highlighting how each platform excels in enhancing operational efficiency and driving digital transformation.

Feature / Capability	DeepIQ DataStudio	AVEVA Connect
OT System Support	Support for various OT systems, including OSI PI, Honeywell PHD, IP21, Ignition, GE Proficy and Cygnet.	Best suited for integration with AVEVA products (PI, Wonderware); Custom integration can be developed using the OMF message format
Data Residency & Control	Data stays within the Customer's data lake. Based on the choice of data lake, support is provided for residency in the Customer cloud tenant.	Data resides in AVEVA's cloud tenant.
Pricing Model	Fixed pricing with no usage-based credit system.	Credit-based model (AVEVA Flex) with usage-based costs and associated management overhead.
Visualization	Native support for visualization within data workflows. Dashboarding support via integration of third-party BI and analytics tools (e.g., Power BI, Tableau, Spotfire) with data lake platforms.	Offers built-in visualizations primarily within AVEVA Insight and Visualization. Supports basic charting with limited extensibility. External visualization tools like Power BI are supported.
3D Visualization	No native support. The enterprise data lake can connect to multiple third-party visualization tools available on public cloud marketplaces.	Support via integration with AVEVA E3D Design and AVEVA 3D Asset Visualization
Use of Existing Cloud Data Lakes	Integrates with Redshift, Snowflake, Synapse, BigQuery, and Delta Lake in Customer Tenant	Utilizes a separate AVEVA proprietary data repository.
Cloud Support	Available on Google, AWS & Azure. No egress charges involved in data movement to Customer data lake.	Available on Azure only. Integration with Customer data environments will involve inter-cloud data transfer.
Integration of Industrial (OT) data	The focus is to make the OT data a resident in the enterprise data lake and integrate it with IT data.	IT and OT data must be exported to AVEVA's Azure cloud tenant.

Feature / Capability	DeepIQ DataStudio	AVEVA Connect
with enterprise (IT) data		
Asset Hierarchies	Support for parent-child hierarchies and tag-to-asset mappings, which can be pushed to Edge nodes to ensure Unified Namespace (UNS) compliance.	Support for advanced asset contextualization models, including asset meshes.
Knowledge Graphs	Supports advanced data transformations for implementing domain-rich data models, including knowledge graphs.	Support for asset and event modeling, including asset hierarchies (meshes), event frames, and contextual linking between operational data, MES, and historian sources. Inference-based support to find relationships between data entities, described as "knowledge linking".
Data Sharing	Customers leverage modern data lake platforms to facilitate seamless and secure data sharing across internal teams and external partners. These platforms offer built-in capabilities such as API access and integration with cloud-based ecosystems, enabling efficient collaboration and streamlined data exchange across organizational boundaries.	AVEVA Connect provides native data sharing capabilities via APIs or Connected Community models.
Edge Data Flows	Robust edge software that utilizes asset hierarchies and Unified Namespace (UNS) models developed in the cloud to normalize and contextualize edge data workflows.	AVEVA Connect does not natively support leveraging asset hierarchies or UNS models developed in the cloud to normalize edge data workflows.
Infrastructure and Access Management	Although DeepIQ DataStudio is a SaaS product, compute and storage stay entirely within the Customer's existing cloud & data lake environments. This design ensures that Customers maintain full control over their infrastructure, access policies, and identity management by utilizing native cloud tools such	Fully managed SaaS platform. Infrastructure is abstracted, with access and security managed via AVEVA Connect's built-in tools. Customers configure user permissions and do not control the underlying infrastructure.

Feature / Capability	DeepIQ DataStudio	AVEVA Connect
	as Azure Active Directory (Azure AD) and AWS Identity and Access Management (IAM)	
Data Transformation	Distributed processing system with built-in time-series preprocessing — including imputation, anomaly detection, smoothing, and change point detection. Ability to process terabytes of data and millions of events per second.	No native transformation engine for time-series preprocessing
App Ecosystem	Public Cloud Marketplace for integration with Data Lake	Multiple AVEVA apps integrated with Connect

Summary

As industrial organizations pursue digital transformation, many have invested significantly in building cloud data lakes using platforms like AWS and Azure to support enterprise IT workloads. The next frontier lies in extending these investments to operational technology (OT) data, enabling real-time analytics, unified visibility, and digital twin initiatives.

This whitepaper compares two contrasting architectural approaches to achieving IT-OT convergence:

- **AVEVA Connect** – a vertically integrated, SaaS-native platform that centralizes data in a vendor-controlled cloud environment.

- **DeepIQ DataStudio** – a cloud-native Industrial DataOps platform that runs within the Customer's existing cloud infrastructure, allowing complete control, reuse of existing data lakes, and seamless integration with enterprise tools.

The choice of technology ultimately depends on several critical factors, including pricing preferences, data residency requirements, and the need for integration beyond the AVEVA ecosystem. AVEVA Connect is primarily designed for data consolidation, whereas

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