

NOVEMBER 2022

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# Enhancing connectivity to industrial operations, more data from more places

Chris Felts, AVEVA Staff Strategic Product Manager

**AVEVA**

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# Agenda

## Data collection portfolio

- PI Interfaces & PI Connectors

- Why remote monitoring?

- Edge Data Store

- AVEVA Adapters

- Open Message Format (OMF)

## New capabilities

- AVEVA Device Management

- AVEVA Data Hub *software management*

- AVEVA Adapter failover

## Roadmap

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# Data collection portfolio

PI Interfaces & PI Connectors

Why remote monitoring?

Edge Data Store

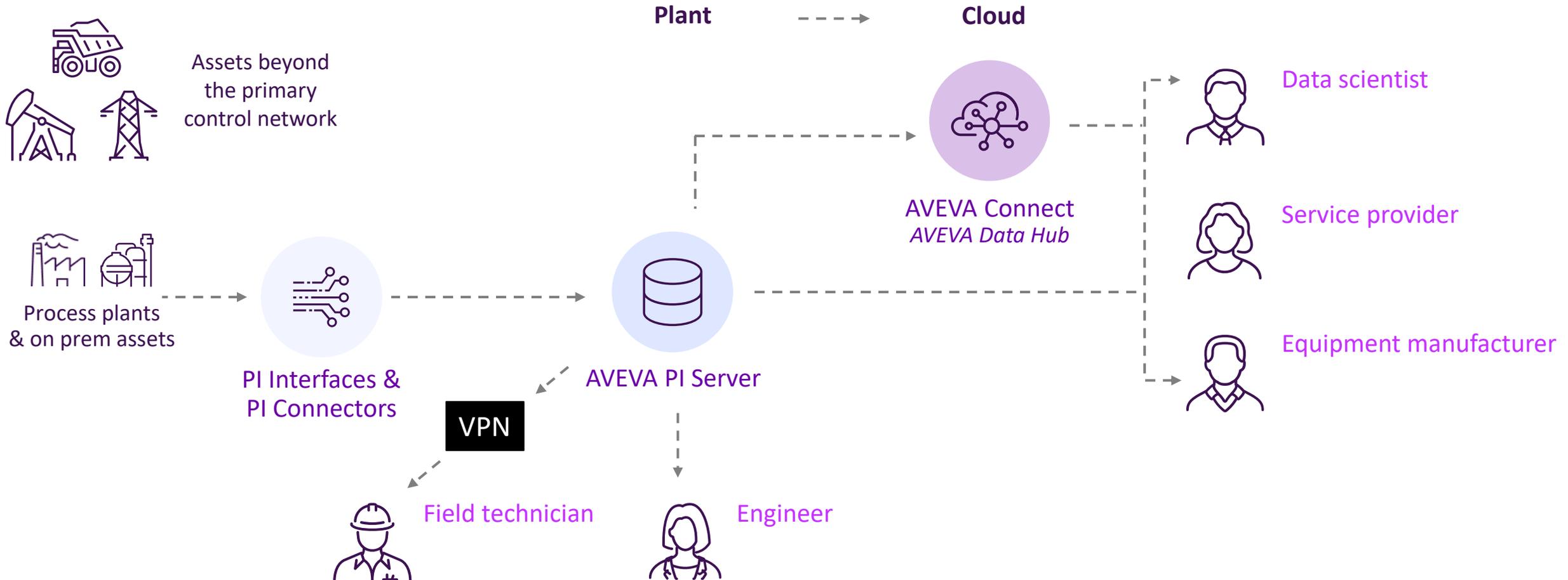
AVEVA Adapters

Open Message Format (OMF)

**AVEVA**

# Best in class on premises data connectivity

Often technical and commercial challenges to reach remote assets



# Remote monitoring generates savings and creates new business models

## \$50 billion annually

estimated losses from unplanned downtime for industrial manufacturers\*

### Challenge

- Unplanned **downtime is costly**, especially in remote areas (longer drives, fewer resources, need for advanced planning)
- **Absence of real-time visibility** reduces situational awareness
- Traditionally, operations systems were **not designed with remote access in mind**

### Opportunity

- **Improve uptime and increase asset reliability** by capturing real-time performance data from remote assets
- Gain **real-time awareness** and drive **new operational insights** with advance analytics and AI
- **Optimize operational efficiency** by combining remote asset data with data from process and control systems to achieve a **more complete view of your operations**

\* Source: IndustryWeek in collaboration with Emerson, Wall Street Journal post, Jul 24, 2018



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# Valuable data often becomes stranded in remote locations

Capturing data outside your primary control network can seem difficult and costly...

- Data collection is often limited by **physical isolation** or **harsh conditions**, where electrical power, computing resources and IT support is limited
- Transmission can be unreliable due to **unstable** or **intermittent network connectivity**
- Accessing this dark data on site requires **costly trucks rolls**, which add fuel costs, **increase health and safety risks** and **impact sustainability efforts**



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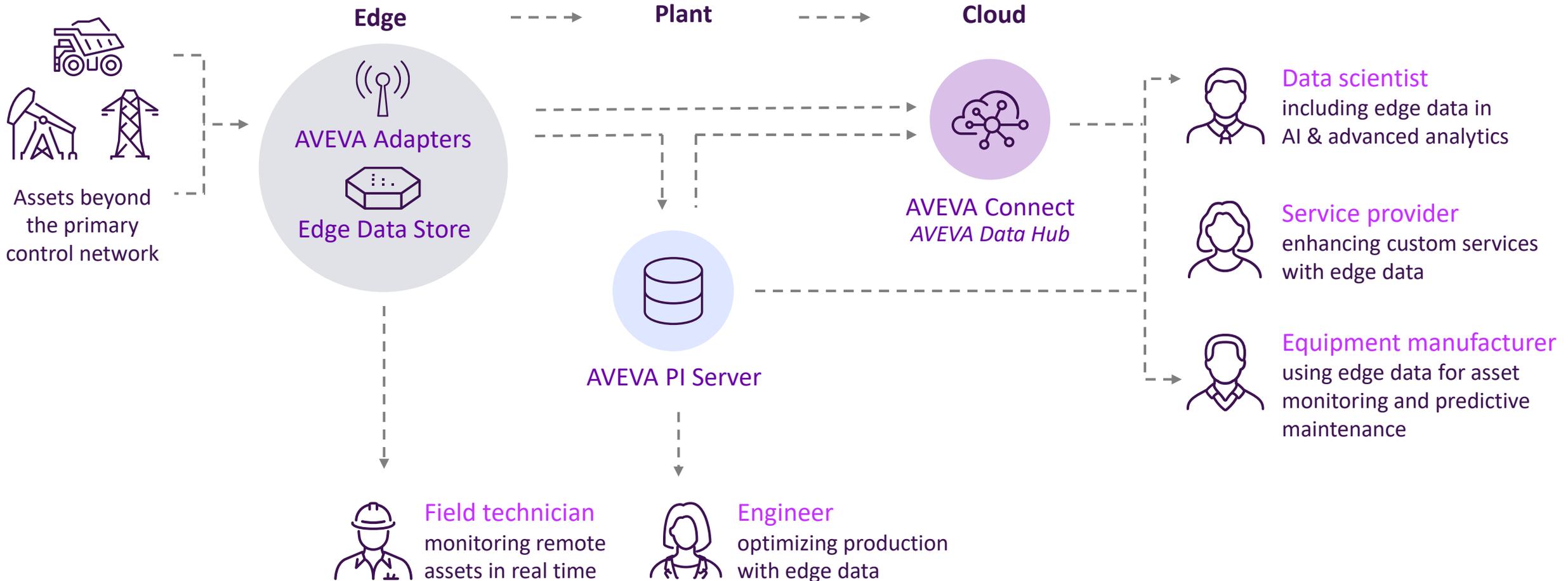
# Bring critical ops data out of the shadows

Edge Data Store and AVEVA Adapters provide lightweight and robust connectivity from edge to cloud

- Deploys and works on rugged devices in remote environments **without IT support**
- **Out-of-the-box connectivity** to common industrial protocols such as DNP3, Modbus TCP, MQTT and OPC UA
- Local data storage, data buffering, and data filtering support **wireless networking** and **low bandwidth network connections**
- **Native transfer to AVEVA PI Server and AVEVA Data Hub**



# Edge data expands operational insights and creates new opportunities

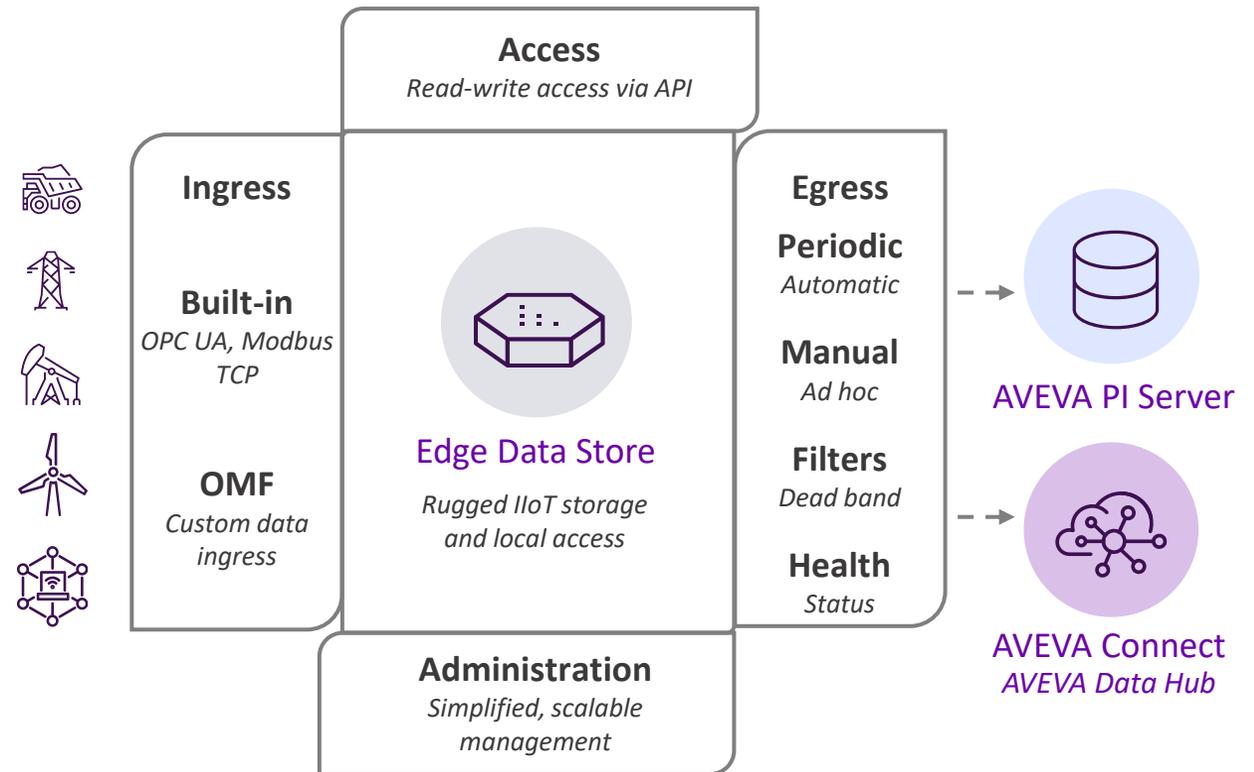


# Lightweight data storage and integration at the industrial edge

Local storage, self-healing, application platform

## Edge Data Store

- **Lightweight storage**, configurable data streams, limited only by the size of underlying device
- **Cross-platform** (Windows, Linux, Docker), and **easy to manage and configure**
- **Feature rich, programmatic API** for application development including **local analytics or visualization**
- **Transfer data natively** to AVEVA PI Server and AVEVA Data Hub with options to optimize bandwidth

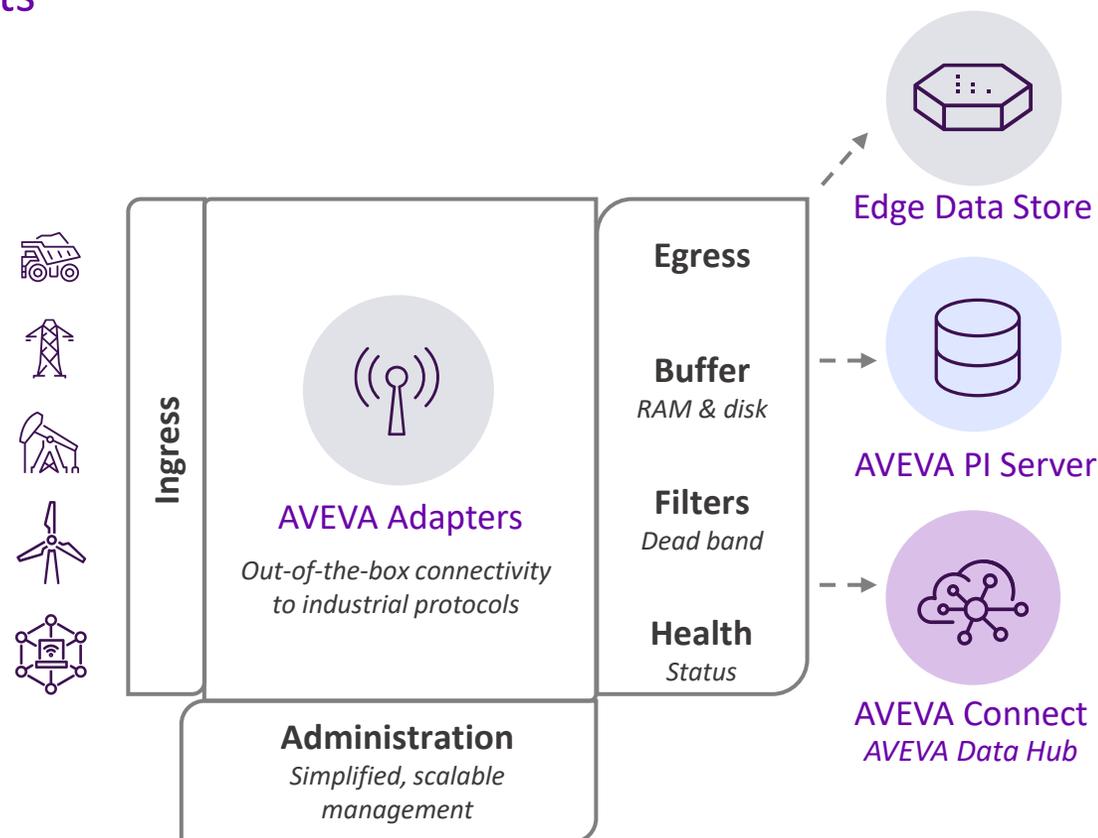


# Extending real-time data connectivity to remote assets

Ready off-the-shelf, lightweight footprint, flexible end-points

## AVEVA Adapters

- **Out-of-the-box connectivity to standard industrial protocols** such as OPC UA, MQTT, Modbus TCP, DNP3, BACnet, etc.
- **Cross-platform** (Windows, Linux, Docker), and **easy to manage and configure**
- **Resilient and purpose-built for harsh and/or uncrewed environments** - buffering technology protects data when the asset loses power or connectivity, or moves out of range
- **Flexible end-points**, send real-time data to PI Servers and/or AVEVA Data Hub, or supplement Edge Data Store's built-in connectivity when you need remote storage

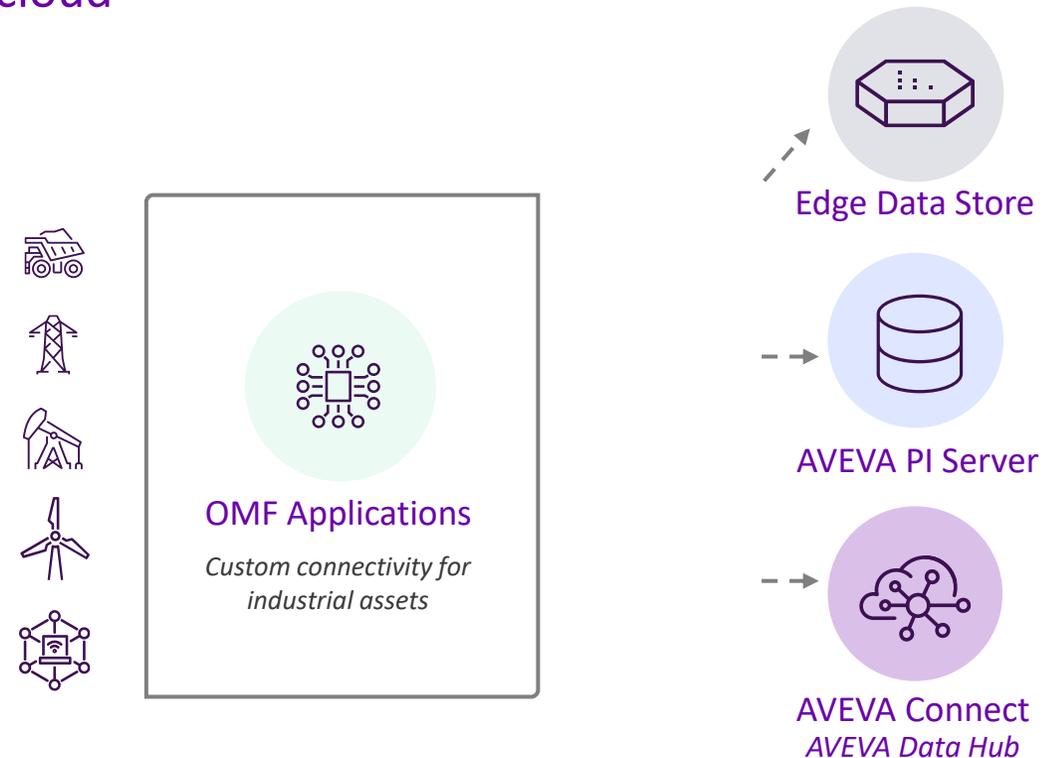


# Homogenous connectivity to AVEVA systems

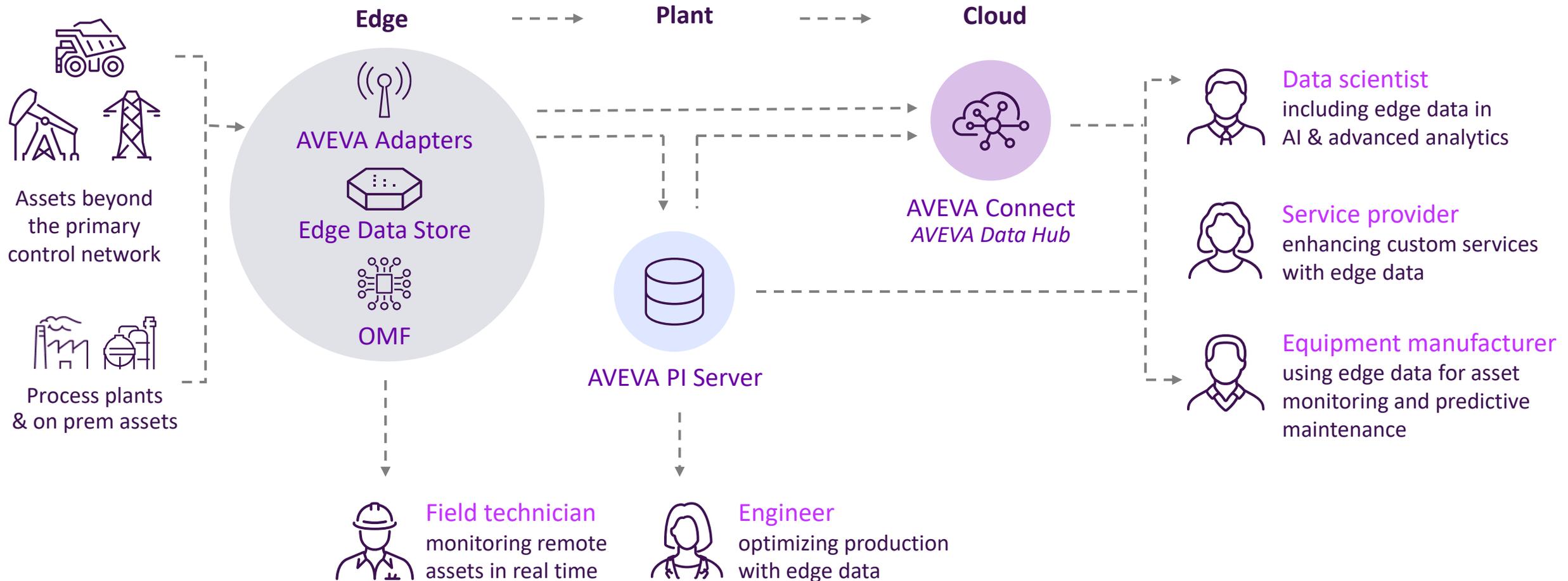
Scalable application development for edge, on premises, and cloud

## Open Message Format (OMF)

- **Maximum developer flexibility**, any hardware platform, any operating system, any development tools
- Internet friendly **REST API**, no VPNs required!
- Inbound connectivity to **Edge Data Store, AVEVA PI Servers, AVEVA Data Hub**
- **Outbound connectivity by Edge Data Store, AVEVA Adapters, and AVEVA Historian** provides interoperability with AVEVA PI Servers and AVEVA Data Hub
- Specification is **public and available to all**



# Ubiquitous data connectivity for any industrial edge



# Tendeka

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Tendeka helps oil and gas producers continuously monitor subsurface conditions—to increase safety and optimize production.

“We now have data we can analyze and compare. We can offer our clients insights, perhaps detect the potential for early failure, or see events happening deep underground they otherwise can’t see..”

Andy Nelson  
Senior Software Engineer, Tendeka

An aerial photograph of an offshore oil rig structure, showing a complex network of yellow pipes and platforms extending over a deep blue ocean. The word "TENDEKA" is overlaid in white at the top.

TENDEKA

AVEVA

# Enel

Local data aggregation through Edge Data Store

## Goals

- Perform local data aggregation.
- Consider the contribution of all the tags at the source.
- Send only the output of an aggregation to central AVEVA PI Server.

## Challenges

- Perform analyses on a large set of homogenous data, even when they consist of tens of thousands of tags for a single plant.

## Results

- Obtain same final result, without:
  - Need for changes in the data source
  - Overloading of network links
  - Wasting hard drive space for larger instances of AVEVA PI Server



**Industry: Power Generation**

**Solution: AVEVA™ PI System™, Edge Data Store**

*“With AVEVA we have put in place an innovative solution that enables us to maximize return in our new reality.”*

***Matteo Cantu, Digital Transformation Director  
Enel***

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# New capabilities

AVEVA Edge Management

AVEVA Data Hub *software management*

AVEVA Adapter Failover

**AVEVA**

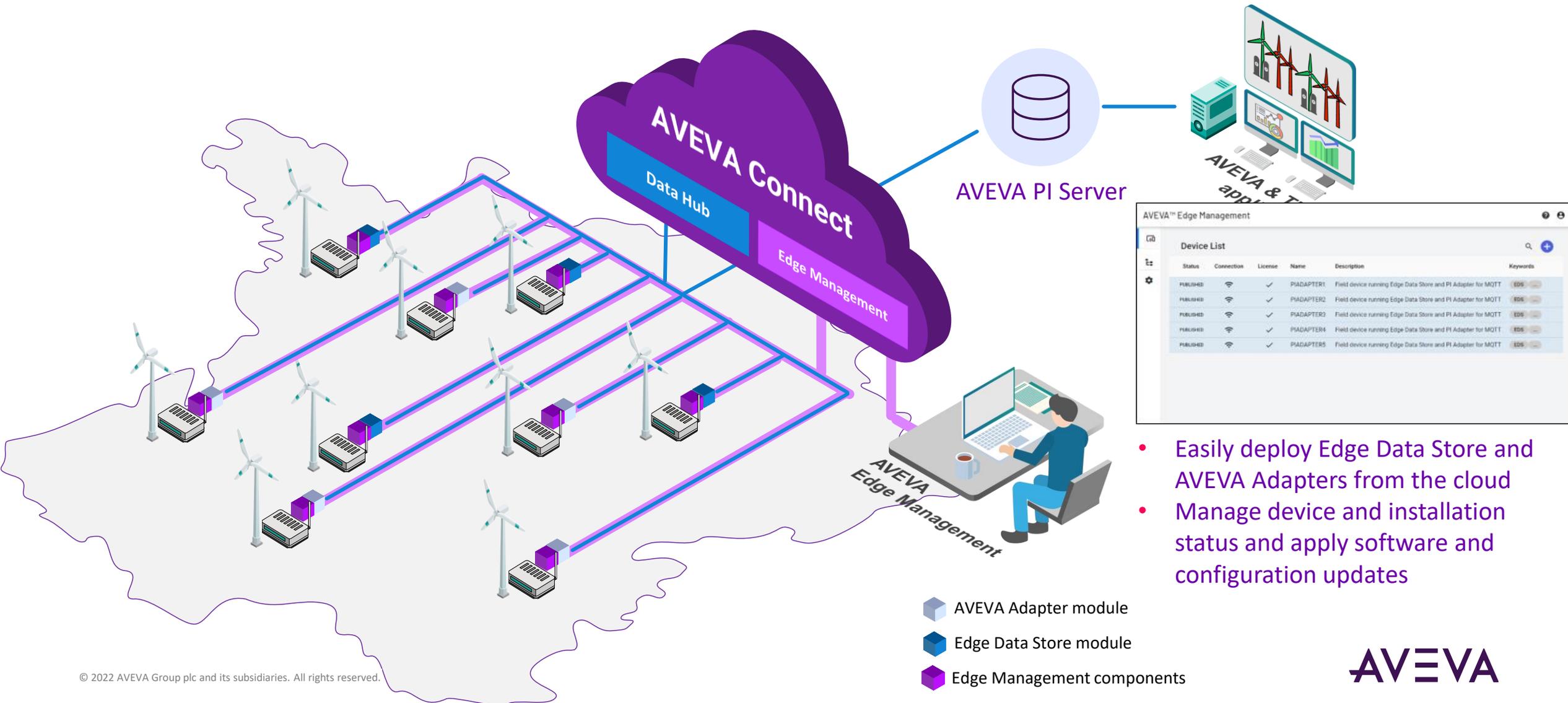
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# Assets beyond the primary control network

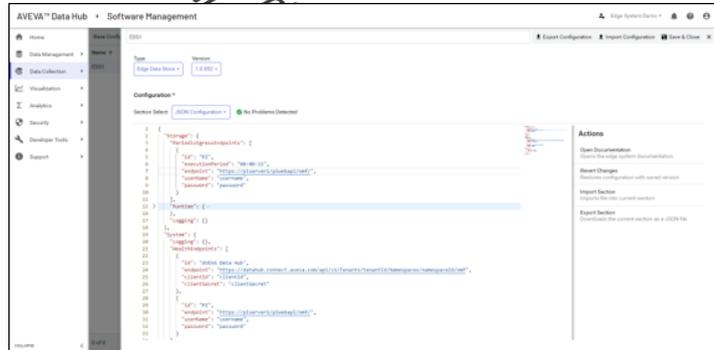
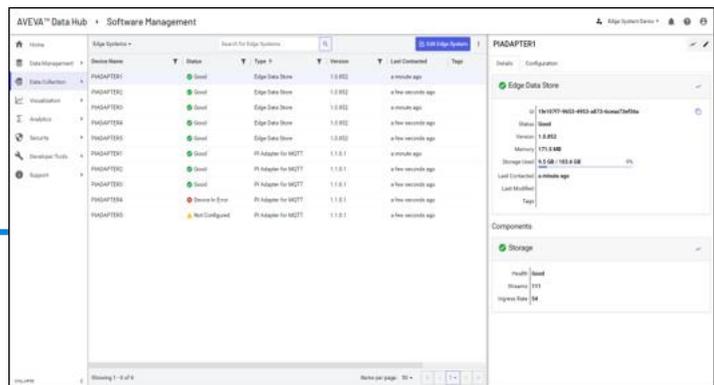
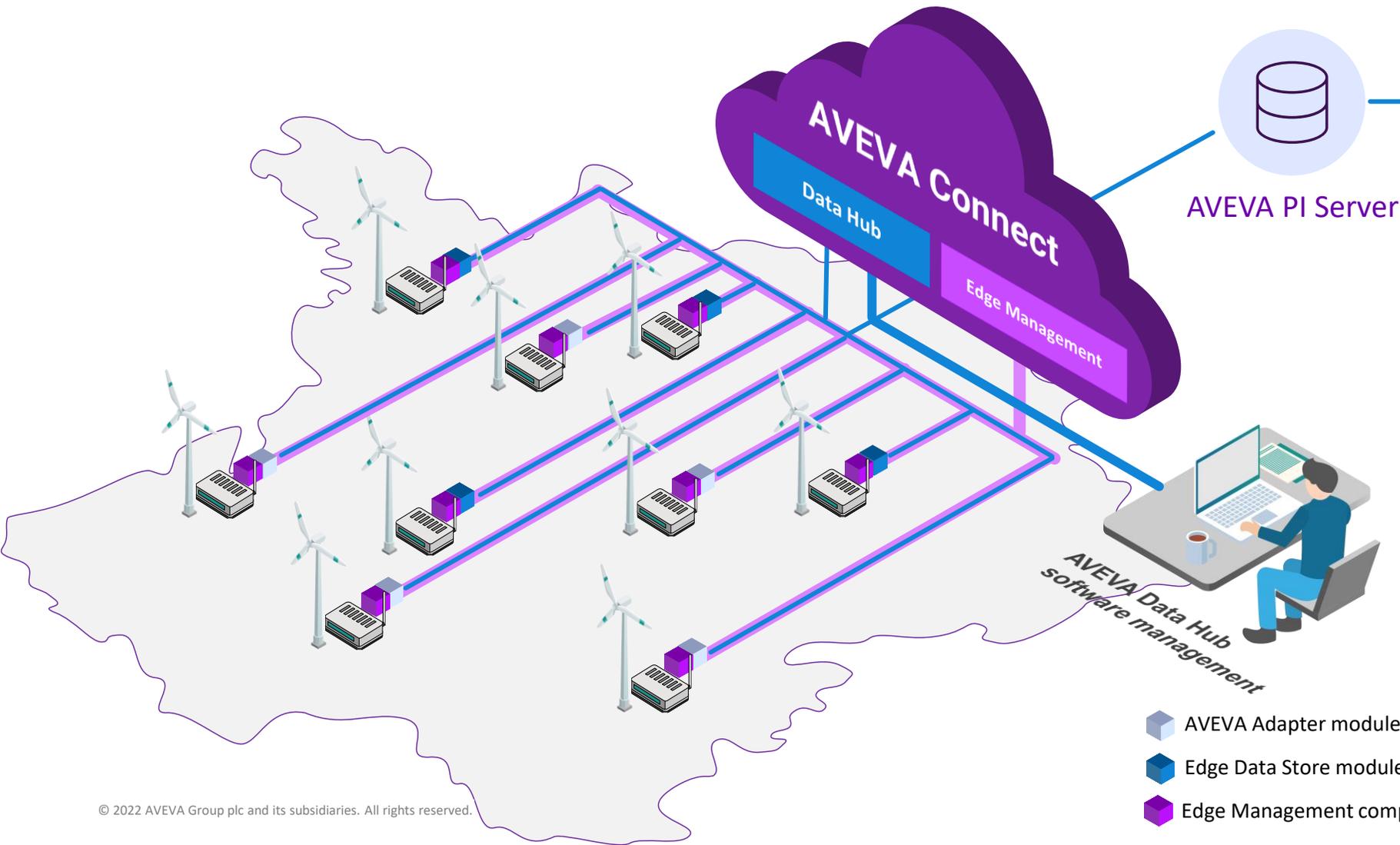
Multiple, widely distributed and fleets of assets



# Manage software deployments at scale with AVEVA Edge Management



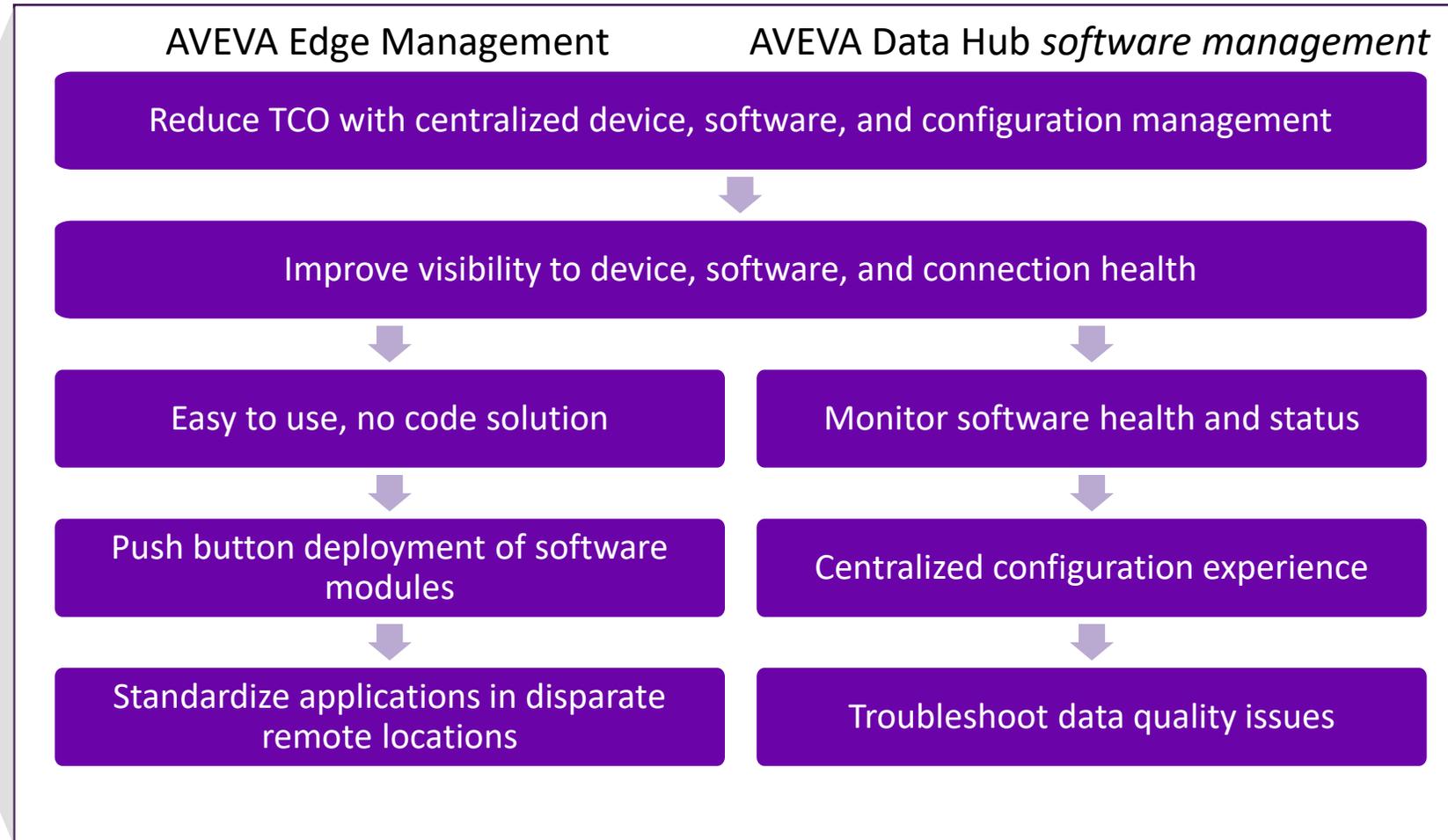
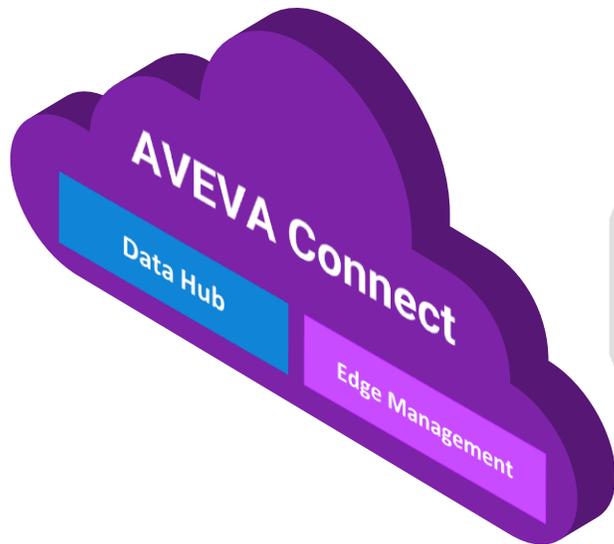
# Remote software monitoring and configuration with AVEVA Data Hub software management



- Monitor the health and diagnostics of Edge Data Store, AVEVA Adapters, and the edge device from the cloud
- Author and update Edge Data Store and AVEVA Adapter configuration

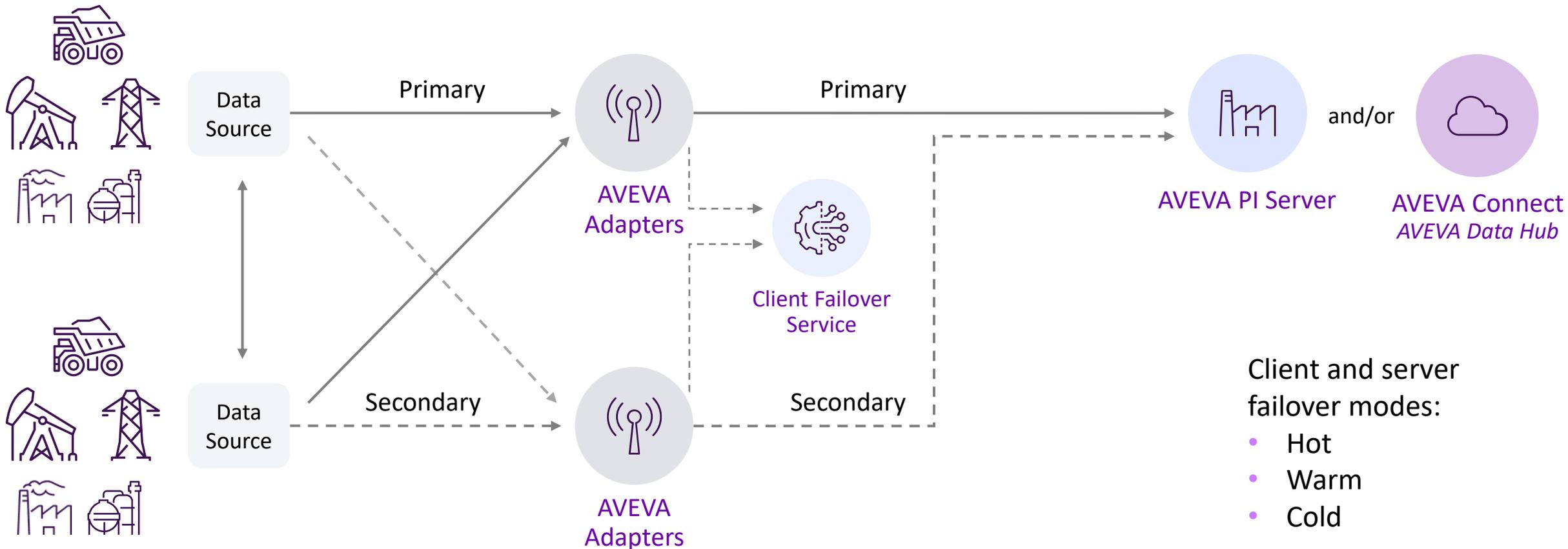
- AVEVA Adapter module
- Edge Data Store module
- Edge Management components

# Remote device and software management benefits



# AVEVA Adapter failover

Client-side and server-side failover for AVEVA PI Server and AVEVA Data Hub

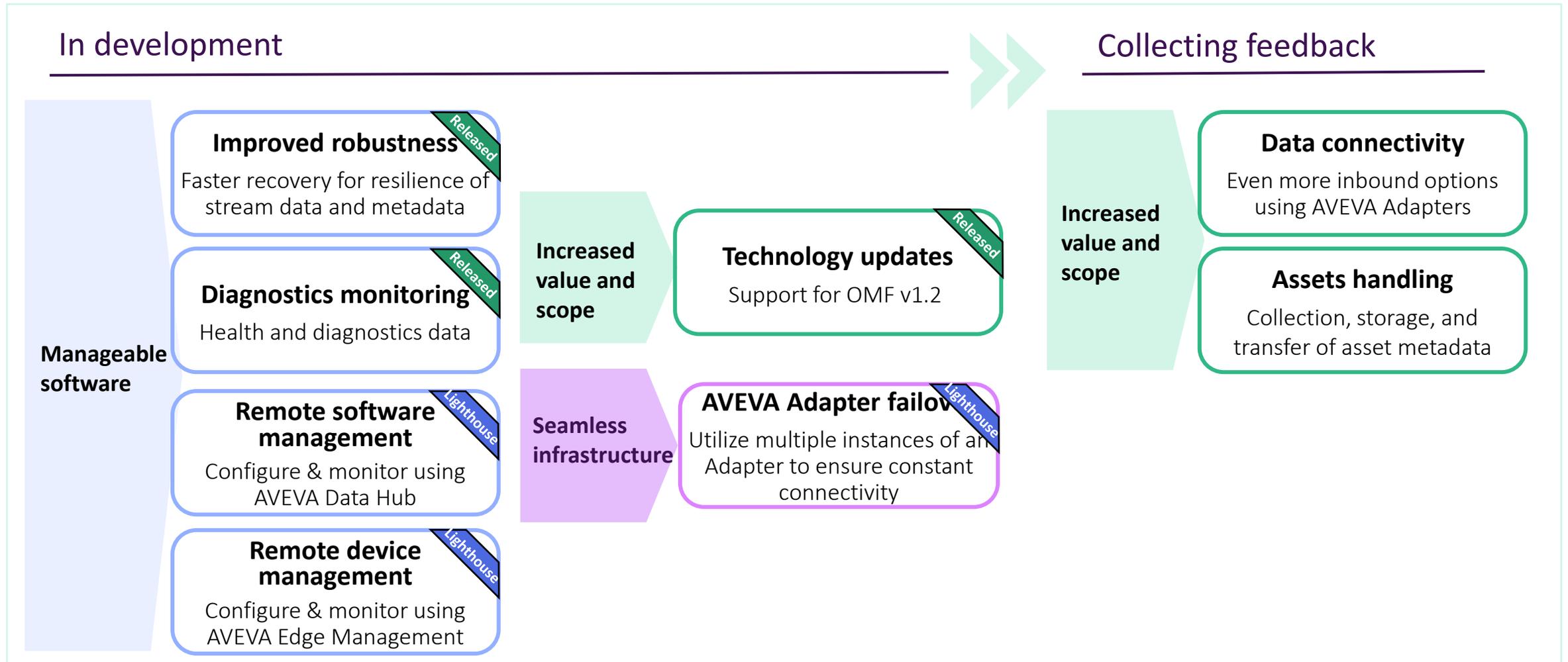


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# Roadmap

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# What's next for Edge Data Store and AVEVA Adapters?



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## Related AWC SF 2022 sessions

- **On your marks, get set, Unleash your Operational Data in the Cloud!**
  - Tuesday, November 15, 4:20 – 4:50 pm
  - Industrial Cloud Platform track
- **Deploy Edge Data Store and Adapters in minutes with AVEVA Edge Management**
  - Thursday, November 17, 11:25 – 11:55 am
  - Industrial Cloud Platform track
- **How (not) to fail at collecting data: An Adapter failover installation and configuration deep dive**
  - Thursday, November 17, 3:30 – 4:15 pm
  - AVEVA PI System track



# AVEVA Lighthouse Program

Join us in a Lighthouse Project to prove & shape the value of new technology for your business scenarios!

- **AVEVA provides:**

- AVEVA pre-released software
- Installation & configuration support
- Technical R&D support
- Program management

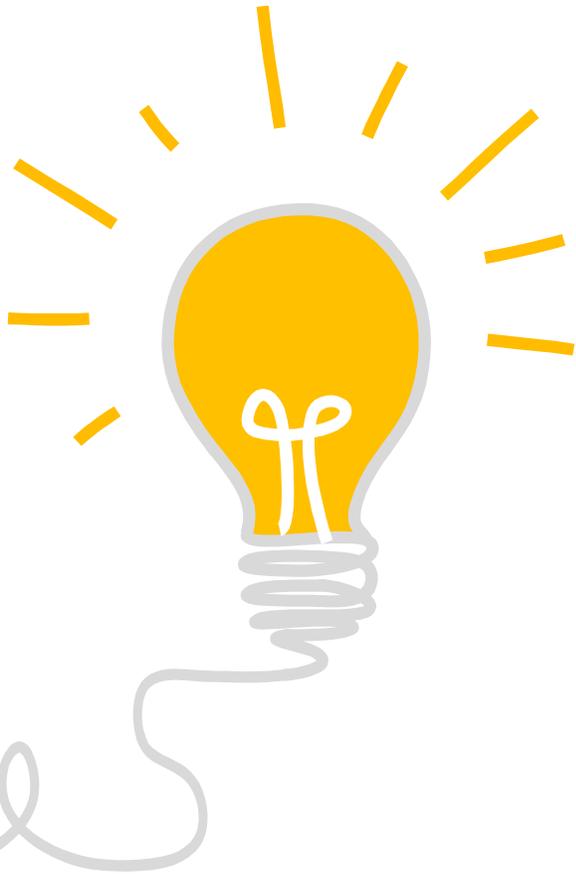
- **Participating customer provides:**

- Viable scenario
- Resources to use AVEVA pre-released software for your scenario
- Product feedback on use of software for scenario
- Willingness to document a success story and participate in a future AVEVA public presentation

*Email us at [lighthouse@aveva.com](mailto:lighthouse@aveva.com) to engage with our team!*

**AVEVA**

How can you influence the AVEVA data collection roadmap?



<https://feedback.aveva.com>

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Let us know your product feedback!



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# Chris Felts

Staff Strategic Product Manager

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# 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 global leader in industrial software, sparking ingenuity to drive responsible use of the world's resources. The company's secure industrial cloud platform and applications enable businesses to harness the power of their information and improve collaboration with customers, suppliers and partners.

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. With operations around the globe, we are headquartered in Cambridge, UK and listed on the London Stock Exchange's FTSE 100.

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