Optimize your operations with digital twins

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Sainath Bandhakavi

Sr. Solutions Architect – Power & Utilities, Sustainability
Amazon Web Services

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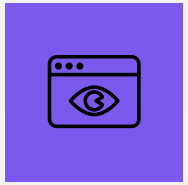
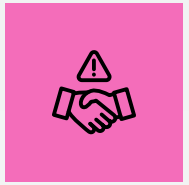
Technology and Maturity Challenges in asset operations



Data overload and what to do with it

- Collect, analyze, and visualize the data for asset in a single repository.
- Transactional and time-series data
- Predict process abnormalities and asset failures.



Lack of interoperable processes to unlock new business value.

- Prioritize operations by identifying critical assets related to the overall health of your operation
- A holistic view that brings together real-time data, alarms,
- events, and other operational data to get a clear picture of asset performance.

Increase in compliance and regulatory demands

- Assure mechanical integrity of your assets and compliance with regulations
- Hazard analysis is a regulatory requirement and an integral part of an overall risk-management process.

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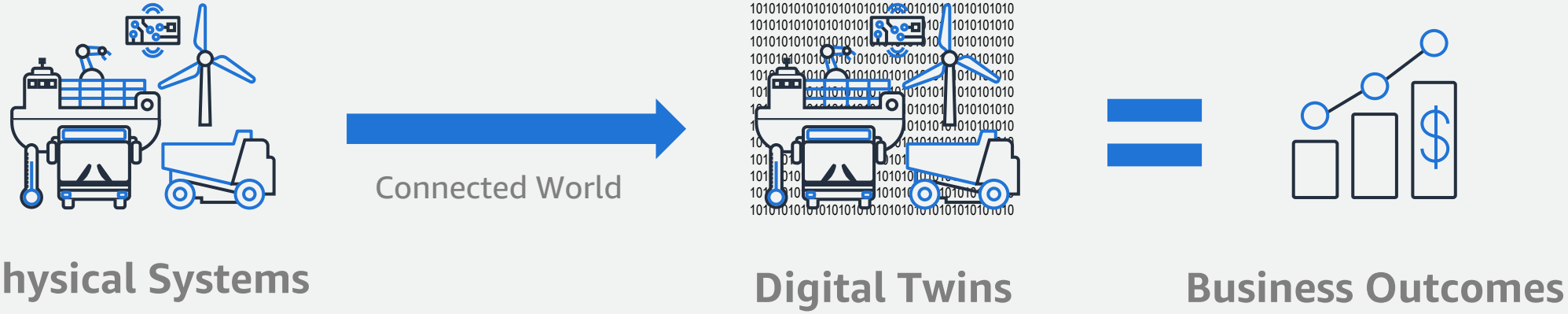
What is Digital Twin?

Digital Twin: A living **digital representation** of a **physical system** that is **dynamically updated** to mimic the structure, state, and behavior of the physical system to drive **business outcomes.**



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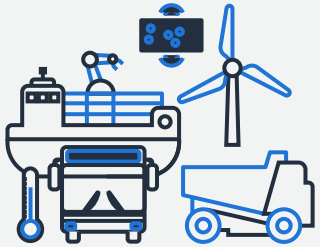
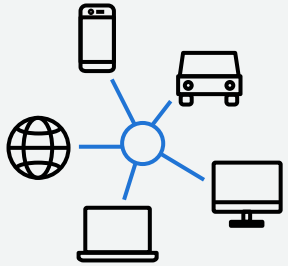
Digital Twin Levels



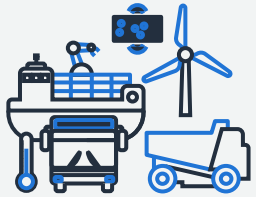
L1 Descriptive

Engineering design and visual representation.



L2 Informative

Integration of IoT, asset history, and maintenance data.



L3 Predictive

Predictions of unmeasured quantities and future states based on continued operations.

L4 Living Digital Twin

Updatable models to drive actionable insights.

DT Levels framework adapted from: Verdantix, Five Digital Twin Strategies For Industrial Facilities, 2019.

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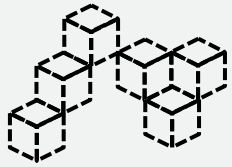
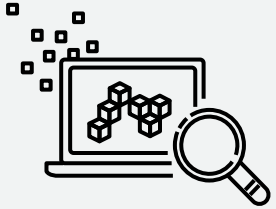
Building a digital twin

OPTIMIZE OPERATIONS BY CREATING DIGITAL TWINS OF REAL-WORLD SYSTEMS

Access data no matter where it lives



Accurately model your built environment



Create immersive 3D views of your operations

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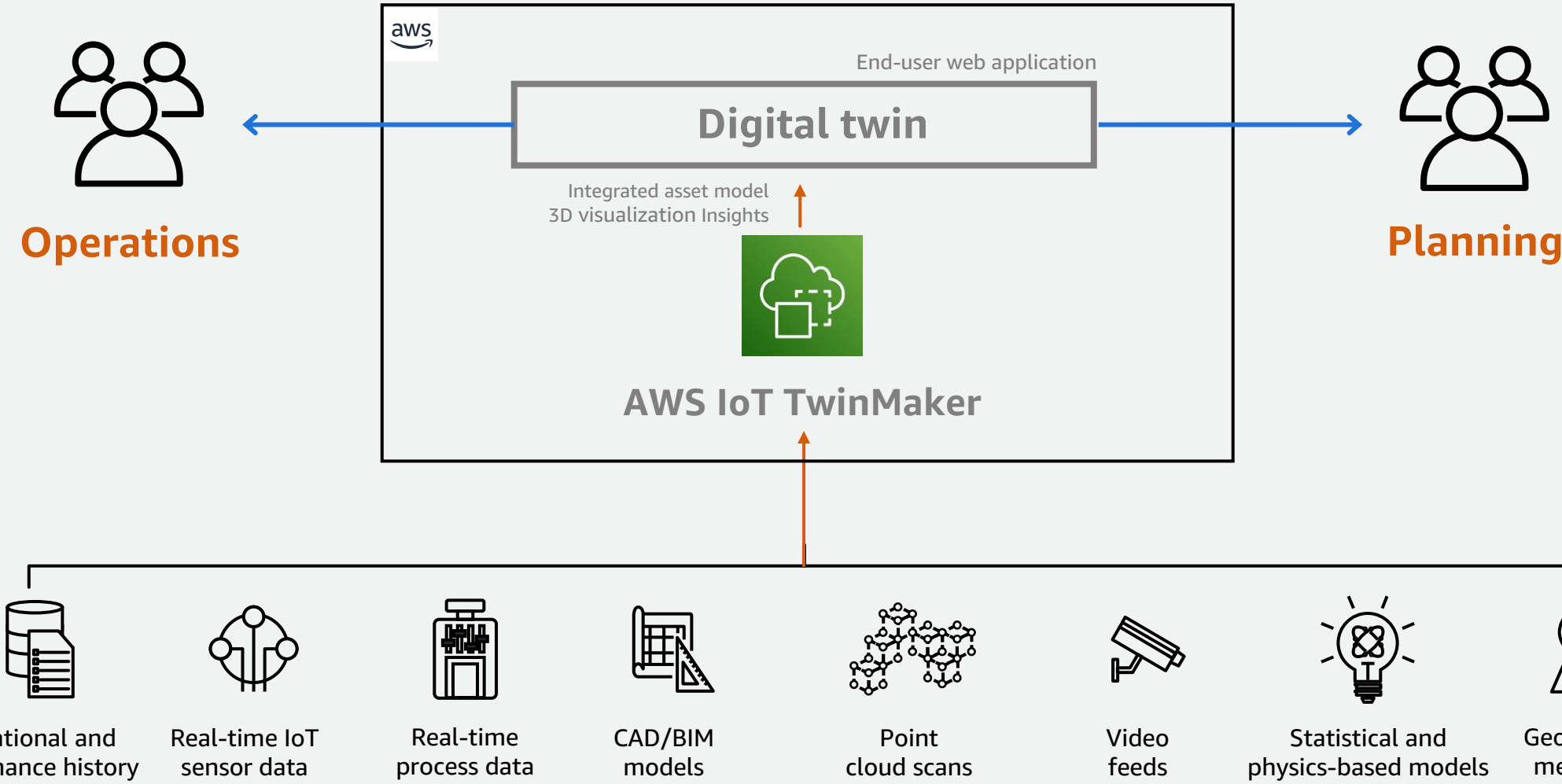
How it works



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Top use cases – Asset operations

Improve asset performance

Discover the root cause of and correct operational issues by combining disparate data sources into a single, comprehensive, real-time 3D view of your assets

Enhance productivity

Help field operators quickly pinpoint and address equipment and process anomalies from the shop floor

Connect remote experts

Bring situational awareness to remote subject matter experts

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Benefits of Digital Twins in the Utilities sector

- **Improve reliability and performance of assets** such as power plants, substations, transformers, transmission lines. Monitor and analyze asset performance in real time, detect potential issues early, optimize maintenance schedules to reduce unexpected downtime and failures
- **Improve safety and compliance** with simulation of different scenarios, identifying potential hazards in a virtual environment to decide the right safety protocols
- **Optimize network and respond to disaster** with contextualized information in a single pane of glass across all data stores
- **Virtual testing environment** for new technologies reducing non compliance and associated penalty risk
- **Optimize energy usage, reduce waste and cut maintenance repair costs**
- **Better understand customer context** providing more personalized, responsive services

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Thank you!

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awssai@amazon.com

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