AWS re:Invent

NOV. 29 – DEC. 3, 2021 | LAS VEGAS, NV

STP213

How startups are building solutions for a sustainable future

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ION Energy

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Agenda

- Why startups on AWS?
- What sustainability solutions are startups building on AWS?
- Solutions focused on energy, transportation, and agriculture
- Customer highlight: Beta Technologies
- Customer presentation: ION Energy’s Co-Founder & CEO Akhil Aryan
- Q&A

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Why startups on AWS?

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Why startups on AWS?

1. Startups need to move fast



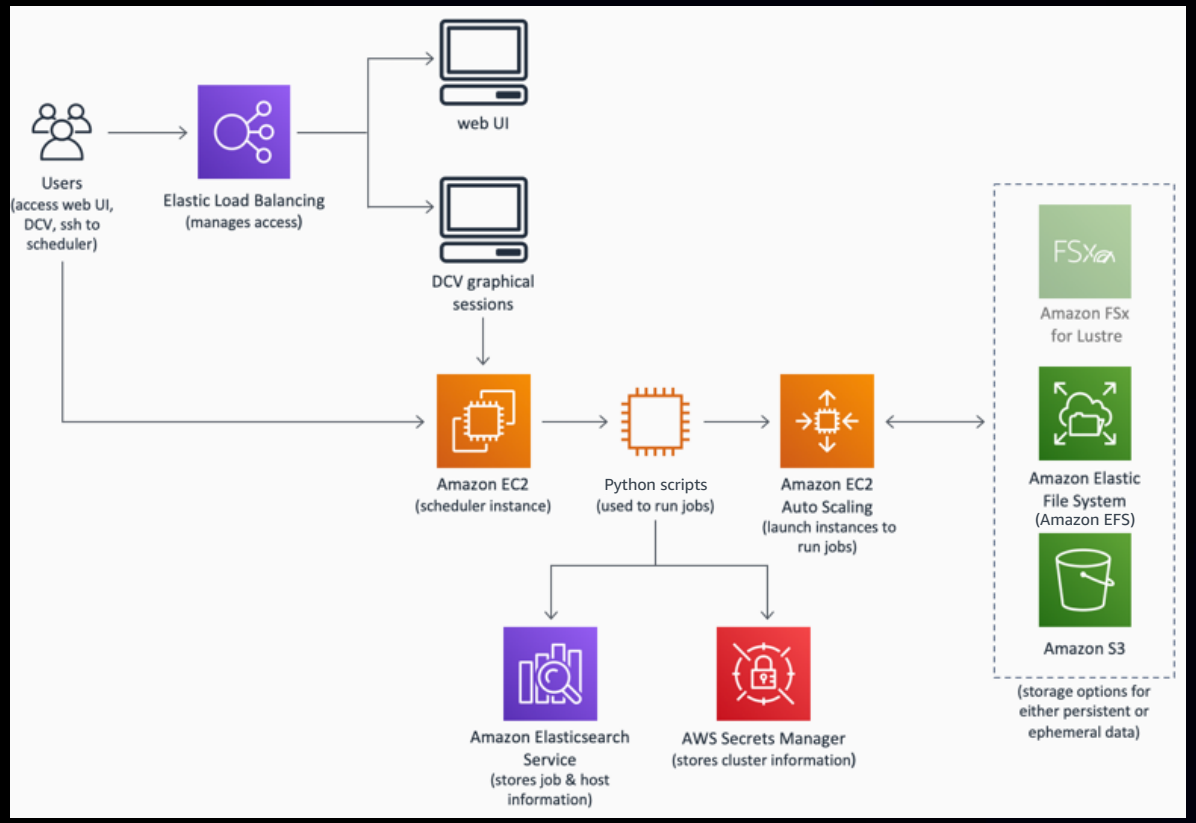
RIVIAN

Scale-Out Computing on AWS
go.aws/3vYzBap

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Why startups on AWS?

1. Startups need to move fast



RIVIAN

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Why startups on AWS?

2. Startups need the right tool for the right job

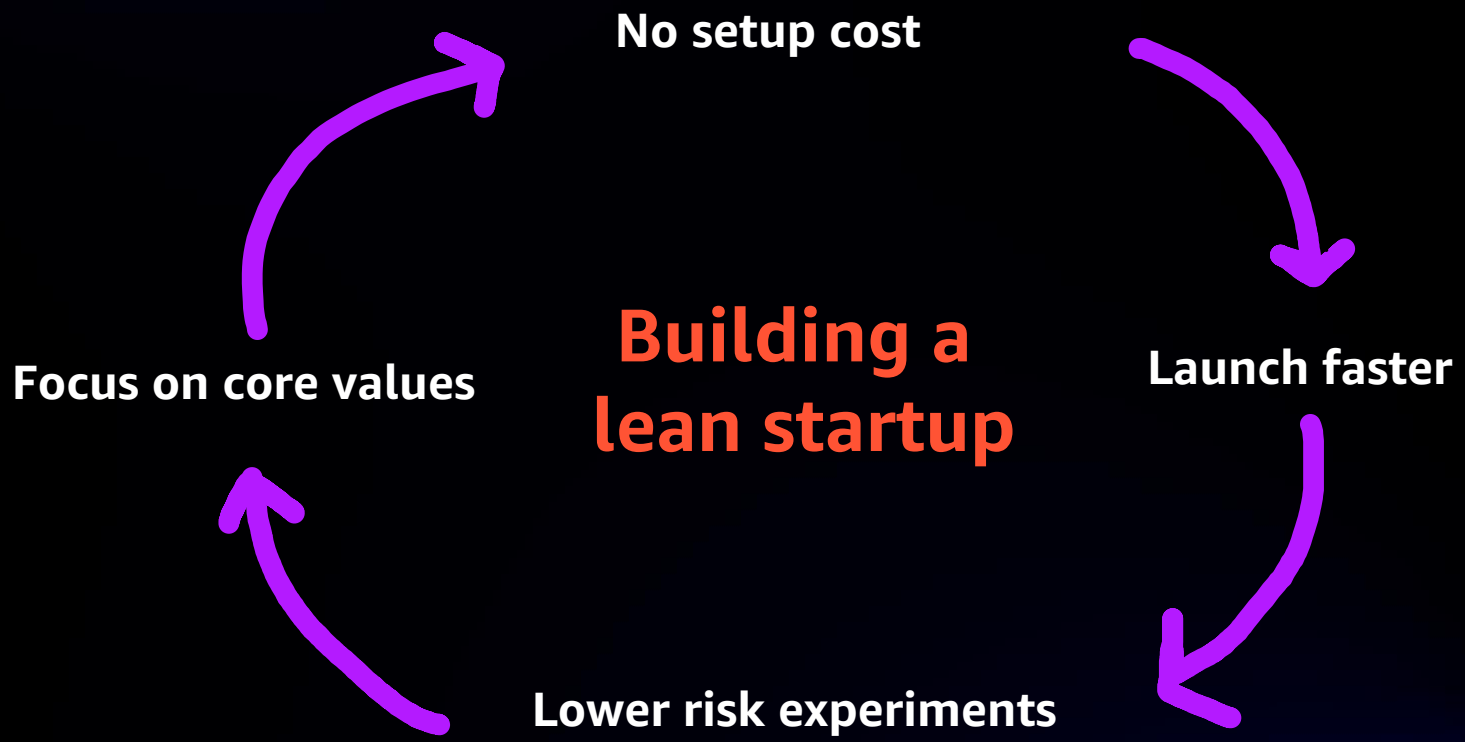
200+ services

90%

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Why startups on AWS?

3. Startups need to run lean



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What sustainable solutions are startups building on AWS?

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Startups building sustainability solutions on AWS



























aws

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Startups building sustainability solutions on AWS



























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Startups building sustainability solutions on AWS



RIVIAN

BLU DOT

BEEWISE

KEEOU

CARBON LIGHTHOUSE

Lime

tibber

IONENERGY

SOFAR

SAILDRONE

SOLCAST

BETA TECHNOLOGIES

aws

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Startups building sustainability solutions on AWS



























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Beta Technologies

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BETA
TECHNOLOGIES

Electric aircraft



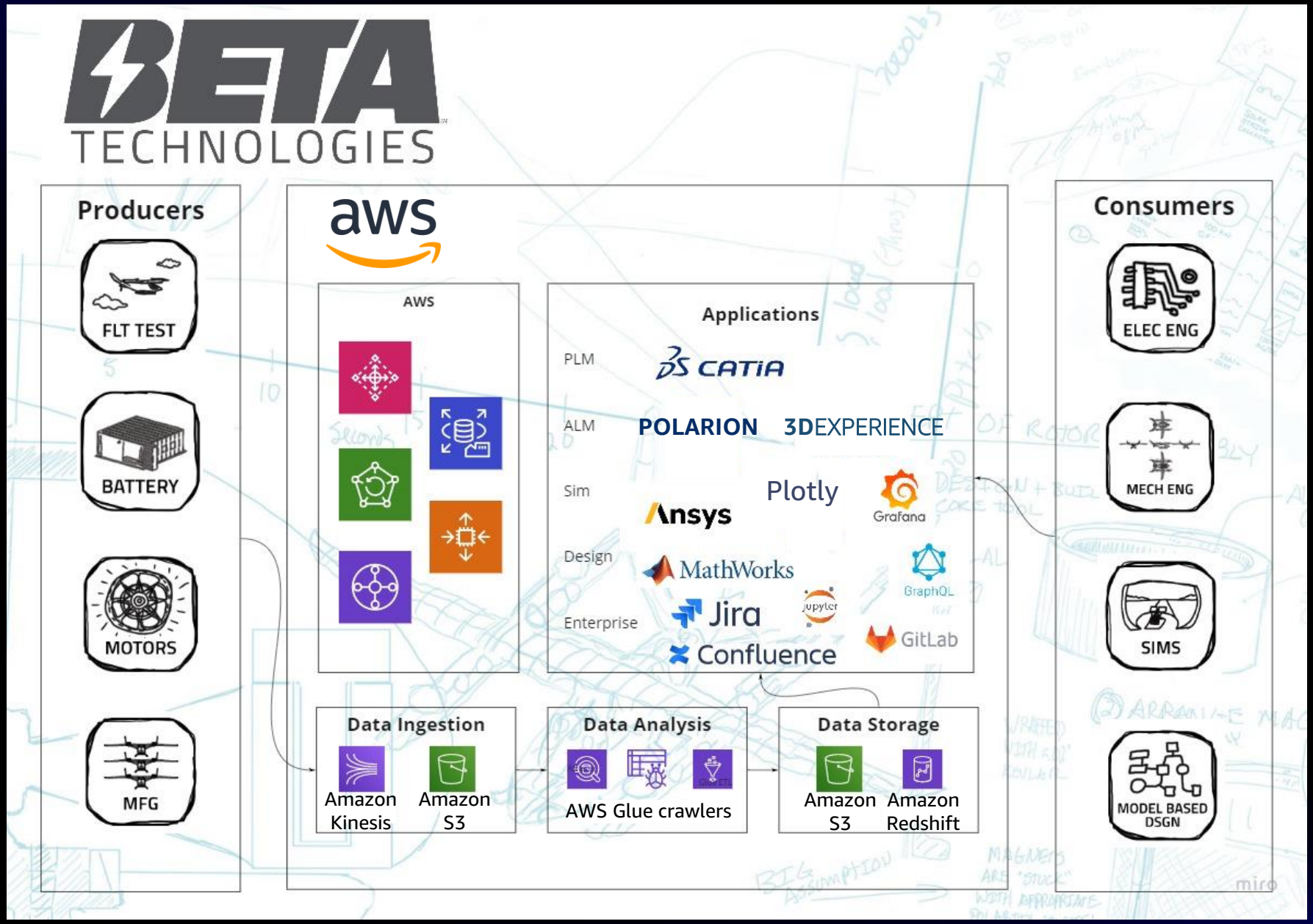
We’re building an aerospace company focused on sustainable solutions to meet the need for faster deliveries

Simulation & training



Charging network





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ION Energy

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Accelerating Earth's new energy transition using AWS

Akhil Aryan
CEO & Co-Founder
ION Energy

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Who am I?

Entrepreneur.
Philosopher.
Storyteller.
CEO at ION Energy

ION ENERGY

Accelerating Earth's transition to an all-electric future



Our energy ecosystem is fundamentally changing

This is the greatest opportunity of our generation

Generation



Distribution

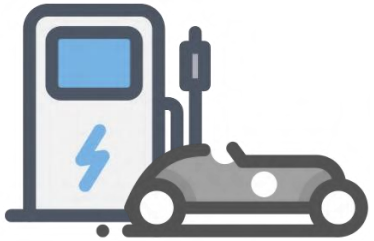


2000–2030

Storage



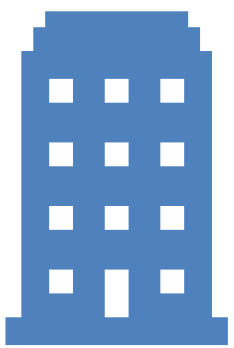
Consumption



2020–2050

The monolithic architecture is fragmenting

The power is shifting to independent owners & operators



Utility companies

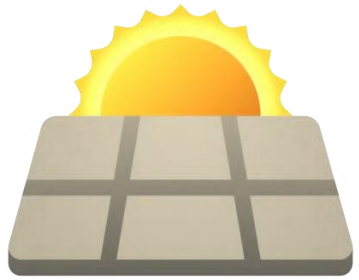




Independent owners & operators

What does this mean for you?

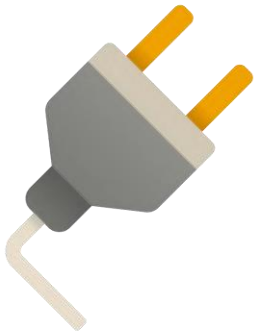
Consumers will be more empowered to participate in energy



Generate



Store



Supply



Save money

New energy assets come in many forms

From scooter fleets to solar farms



Electric vehicles



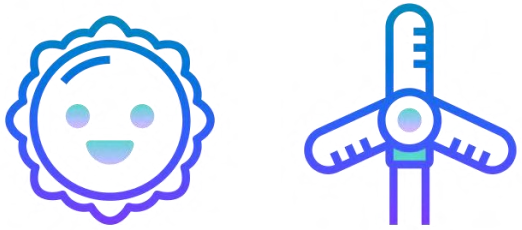
Charging infrastructure



Utility scale storage



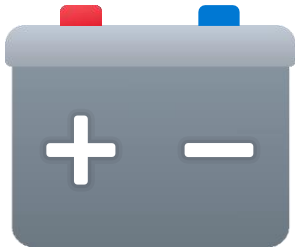
Telecommunications & UPS



Solar/wind generation

New asset class, so everyone is experimenting

Technology, health monitoring, maintenance, EOL valuations, etc.



Lead acid battery

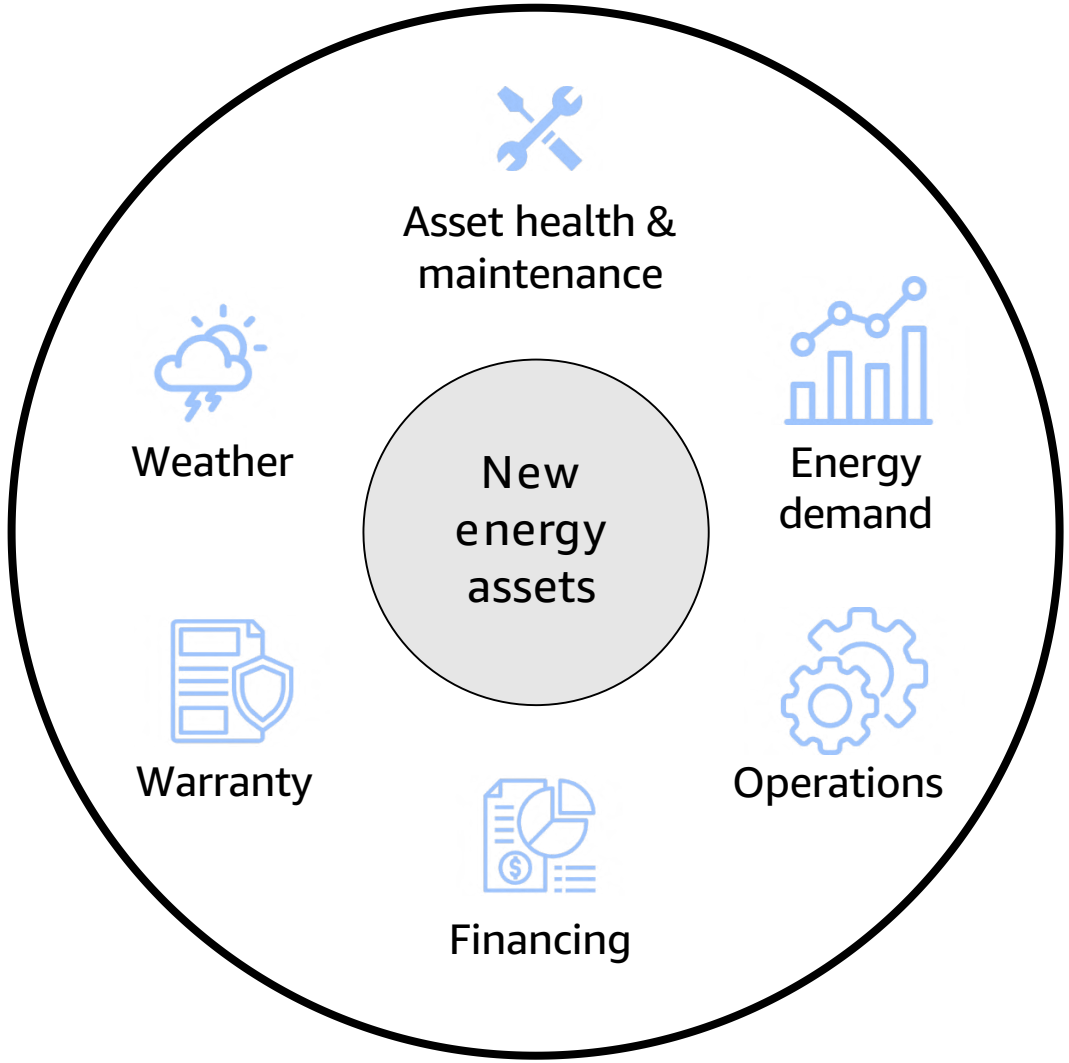
Standard chemistry
No BMS or sensors
Replace every 1–2 years
2%–3% of asset cost





Lithium-ion battery

Many chemistry options
Advanced BMS and sensors
Replace every 5–7 years
20%–40% of asset cost



ALTERGO

Modern asset management platform for energy

Asset agnostic

A single platform for all distributed energy assets



Electric vehicles



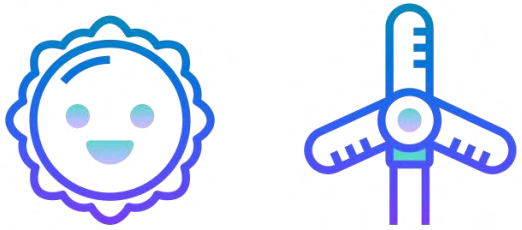
Charging infrastructure



Utility scale storage



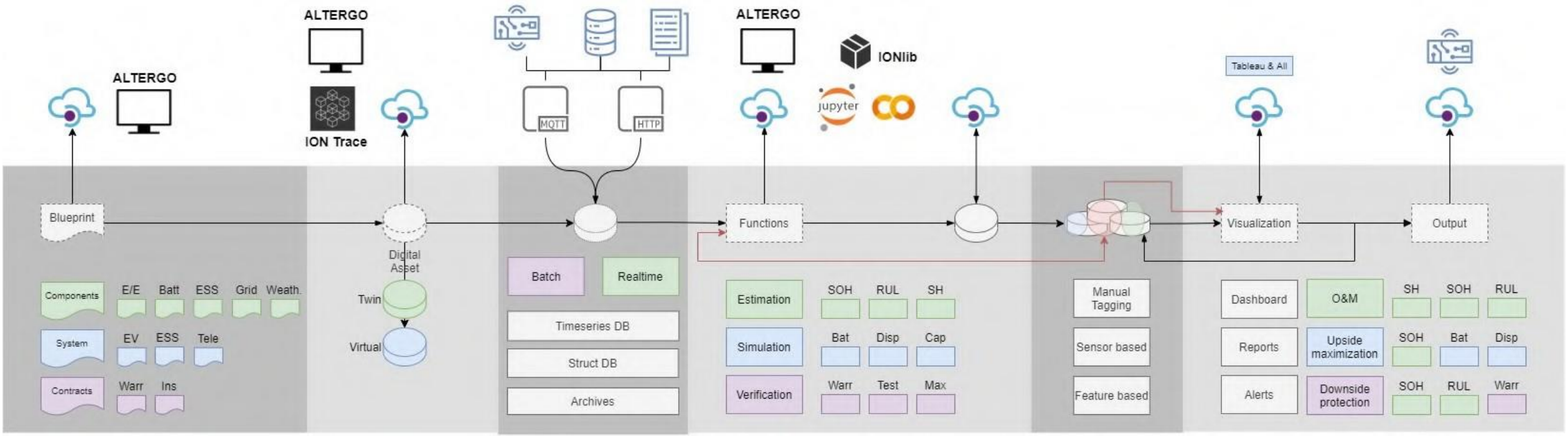
Telecommunications & UPS



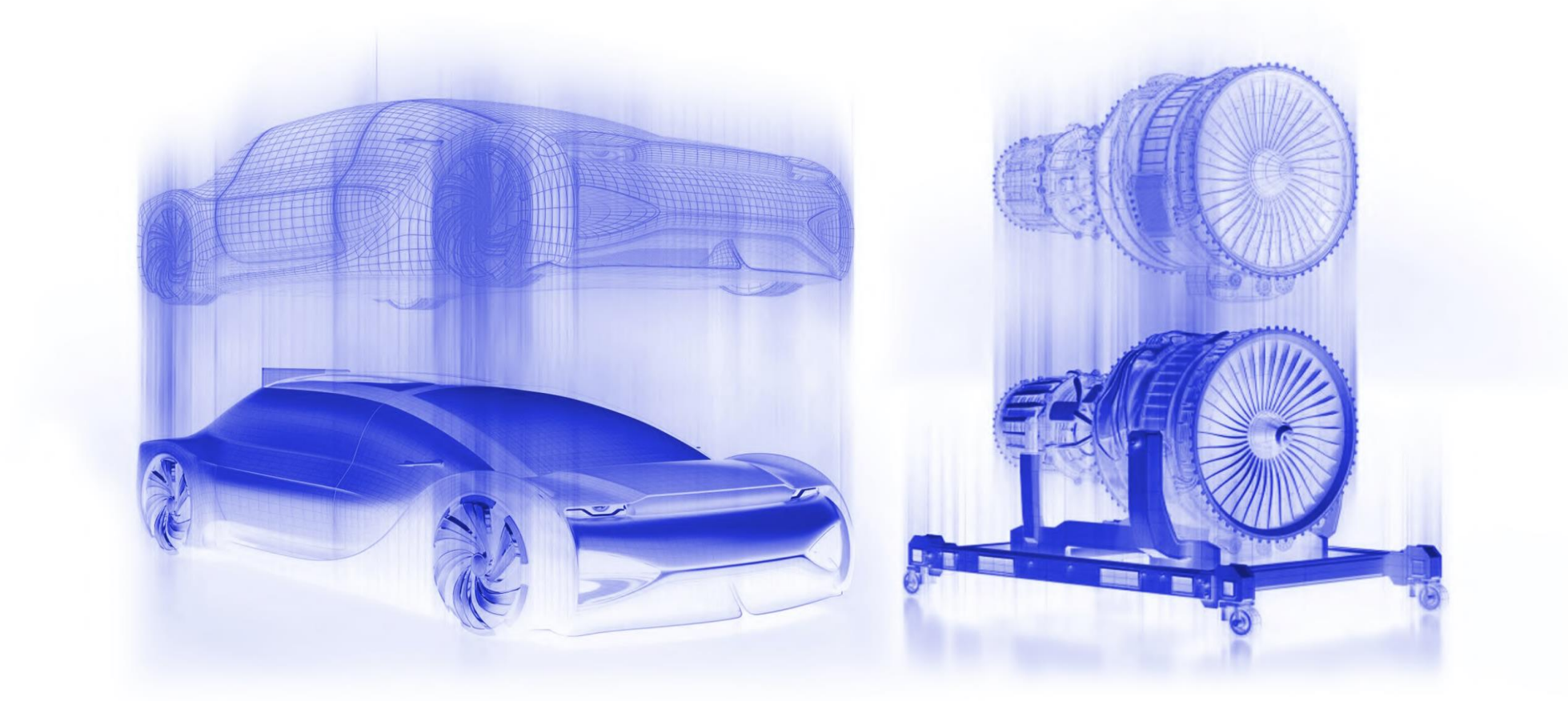
Solar/wind generation

Powered by digital twins and ML/AI

Unify data and build an ML-enabled application – All in one platform



What are digital twins?



A digital representation of physical assets & all their components

What can we do with digital twins?

Run simulations for predictive analytics

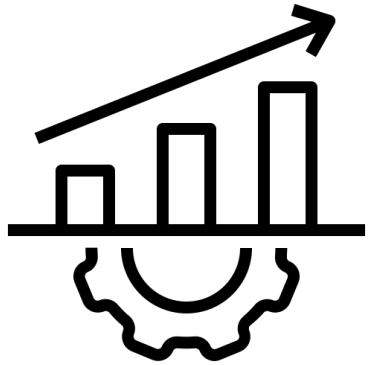


Downside protection

Data-driven designing

Predictive O&M

Anomaly detection



Upside maximization

Dispatch optimization

Fleet uptime improvement

Performance benchmarking

Remove dependency, reduce costs

Stop logging into 6 different “platforms”



Design & simulation



OEM analytics



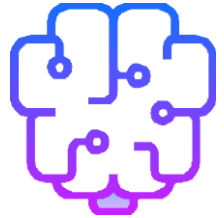
Data management



Data visualization & BI



O&M analytics



ML/AI

ION ENERGY

An “Iron Man suit” for your teams

A no-/low-code environment deployed in 4 weeks



Build your digital twin



Unify all the data sources



Ready-to-use applications



SDK to build custom apps

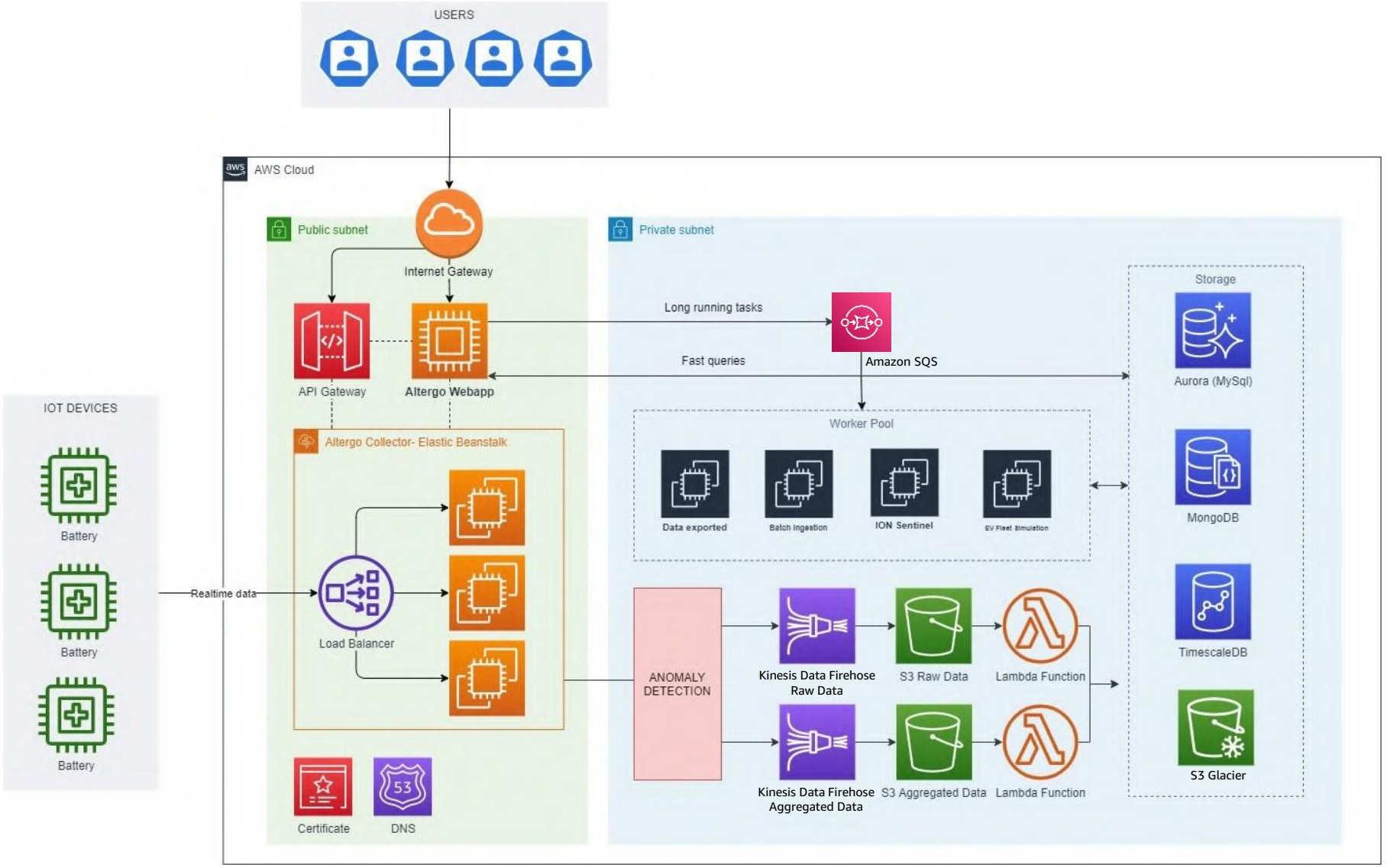


Run predictive analytics using ML/AI



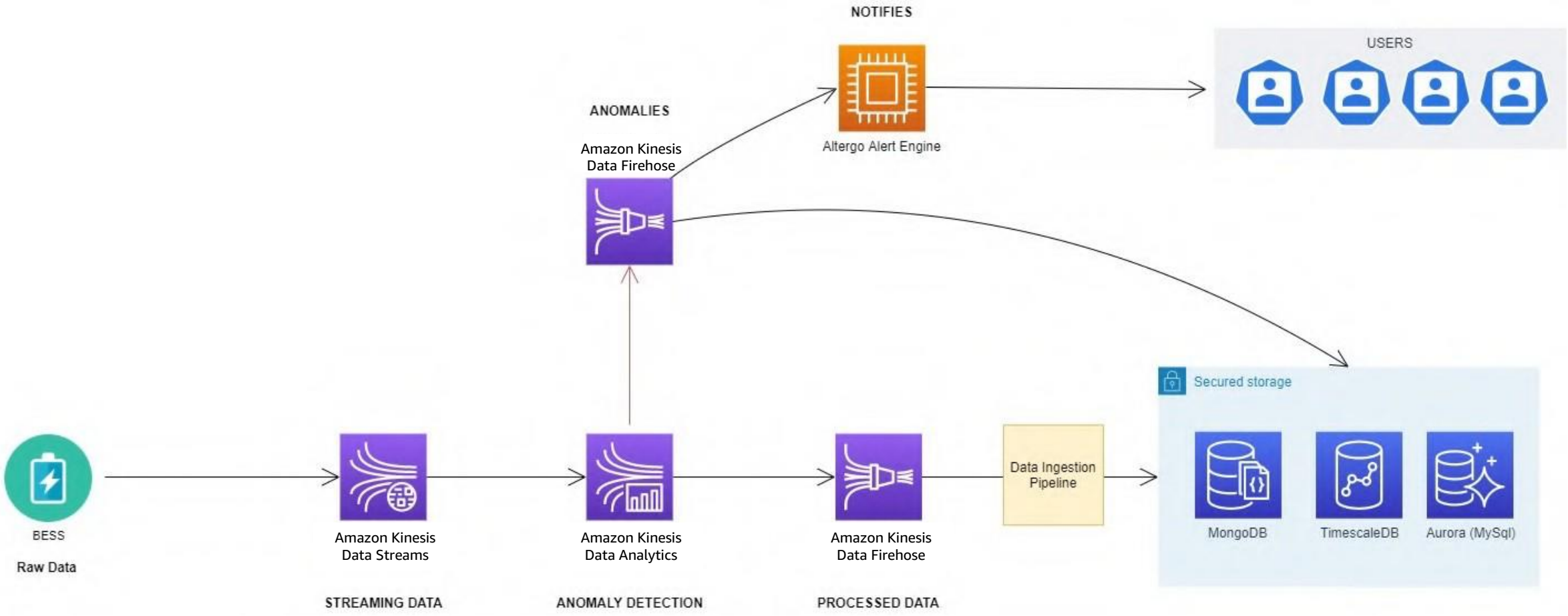
Increase operational revenue

How AWS helps make it happen?

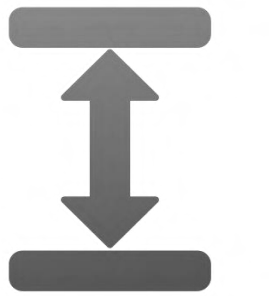


ION ENERGY

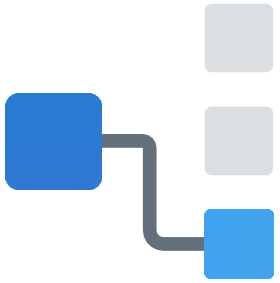
Anomaly detection using Amazon Kinesis



Build alpha and IP privacy



Arm's length processing

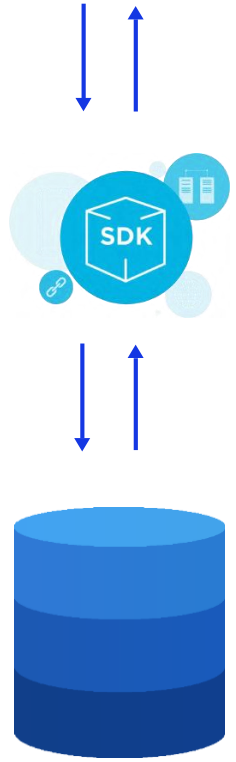


Single tenant VPC on AWS



Making each one different

ALTERGO



Proprietary IP models, algorithms & strategies



Together, we can build an all-electric future

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Thank you!

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@dtrapezoid on Twitter

Akhil Aryan
CEO & Co-Founder ION Energy

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