

The background features a dark blue gradient with large, overlapping, semi-transparent shapes in shades of purple, pink, and orange, creating a modern, abstract design.

AWS re:Invent

NOV. 27 – DEC. 1, 2023 | LAS VEGAS, NV

AUT207-INT

Manufacturing and mobility innovation in the cloud

Wendy Bauer

(she/her)

VP, Automotive
and Manufacturing
AWS

Tony Hemmelgarn

(he/him)

President & CEO
Siemens Digital
Industries Software

Tadafumi Nogawa

(he/him)

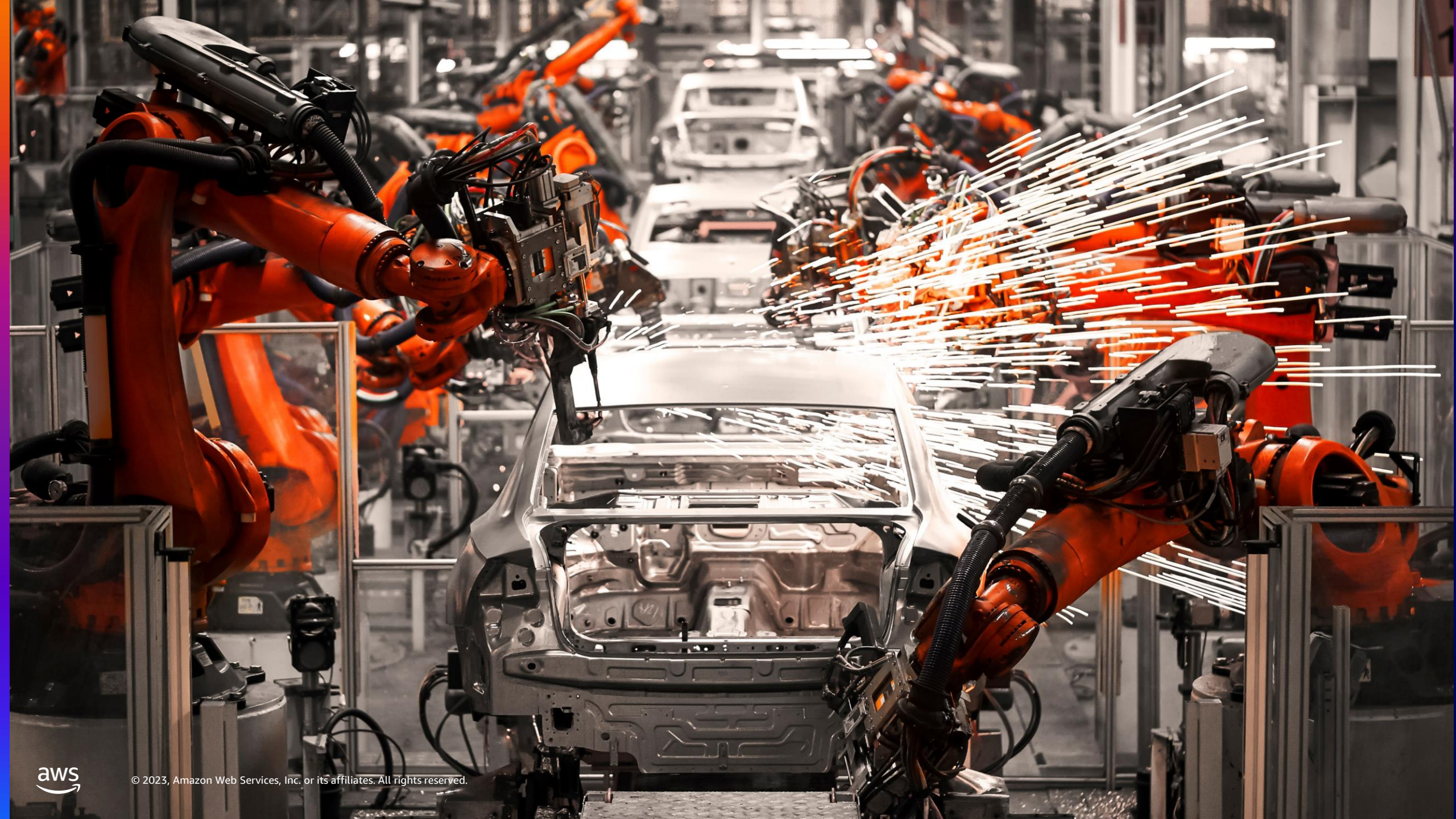
GM, Connected
Solution Development
Honda

Jay Joseph

(he/him)

VP, Sustainability and
Business Development
American Honda





The manufacturing space

Automotive



Manufacturing



Aerospace



Chemical & Agrochemical



And more



**Enable bringing
sustainable mobility, products,
operations, and services
to the world faster!**

Industry data overload

**55.7
billion**

Connected
IoT Devices

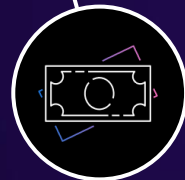
1800

Petabytes
generated by
manufacturers
per year

Today's challenges



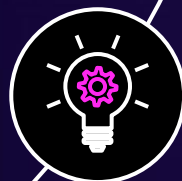
Exponential data growth



Cost management



Customer expectations



Software transformation

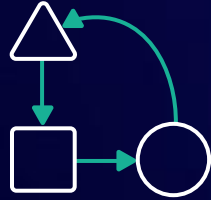
The promise of software-defined products



Better customer experiences



Products that get better with time



New services and business models



Data-driven discipline



Intelligent decision-making



Increased performance

A man wearing a white hard hat and a yellow safety vest is looking at a tablet in a factory setting. The background shows industrial machinery and a car body on an assembly line.

Manufacturing industry transformation with AWS





Customer journey

Data
Lake

```
000010111110110001110010110010  
01000110000101001100001001010111  
0101110010100110000100101011  
010111101101000111001011  
00001010011000010010  
0110100011
```

Product journey



Customer journey

Discovery & Pre-Sales



AWS Clean Rooms



Amazon Pinpoint

Customer journey

Discovery &
Pre-Sales



Negotiation,
purchase &
finance



AWS Clean Rooms



Amazon Lex



Amazon Pinpoint

Customer journey

Discovery & Pre-Sales



Negotiation, purchase & finance



After Sales



AWS Clean Rooms



Amazon Pinpoint



Amazon Lex



Amazon Connect

Customer journey

Discovery & Pre-Sales



Negotiation, purchase & finance



After Sales



Retention & Loyalty



AWS Clean Rooms



Amazon Pinpoint



Amazon Lex



Amazon Connect



Amazon Personalize



AWS Entity Resolution



Serving industrial customers for years

SIEMENS

HONDA

Cox
AUTOMOTIVE

UNOX

Dafgård's

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DEPOT

Valeo SIEMENS
eAutomotive

TORC

KONE

AMATROL

CCI

Woodside

INVISTA

TEREX
CORPORATION

SKF

BOSCH

Valmet

RIVIAN

HITACHI

AIRBUS

BMW
GROUP

DB

LG

USG BORAL

arm

VOLKSWAGEN
GROUP

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ThermoFisher
SCIENTIFIC

SANY

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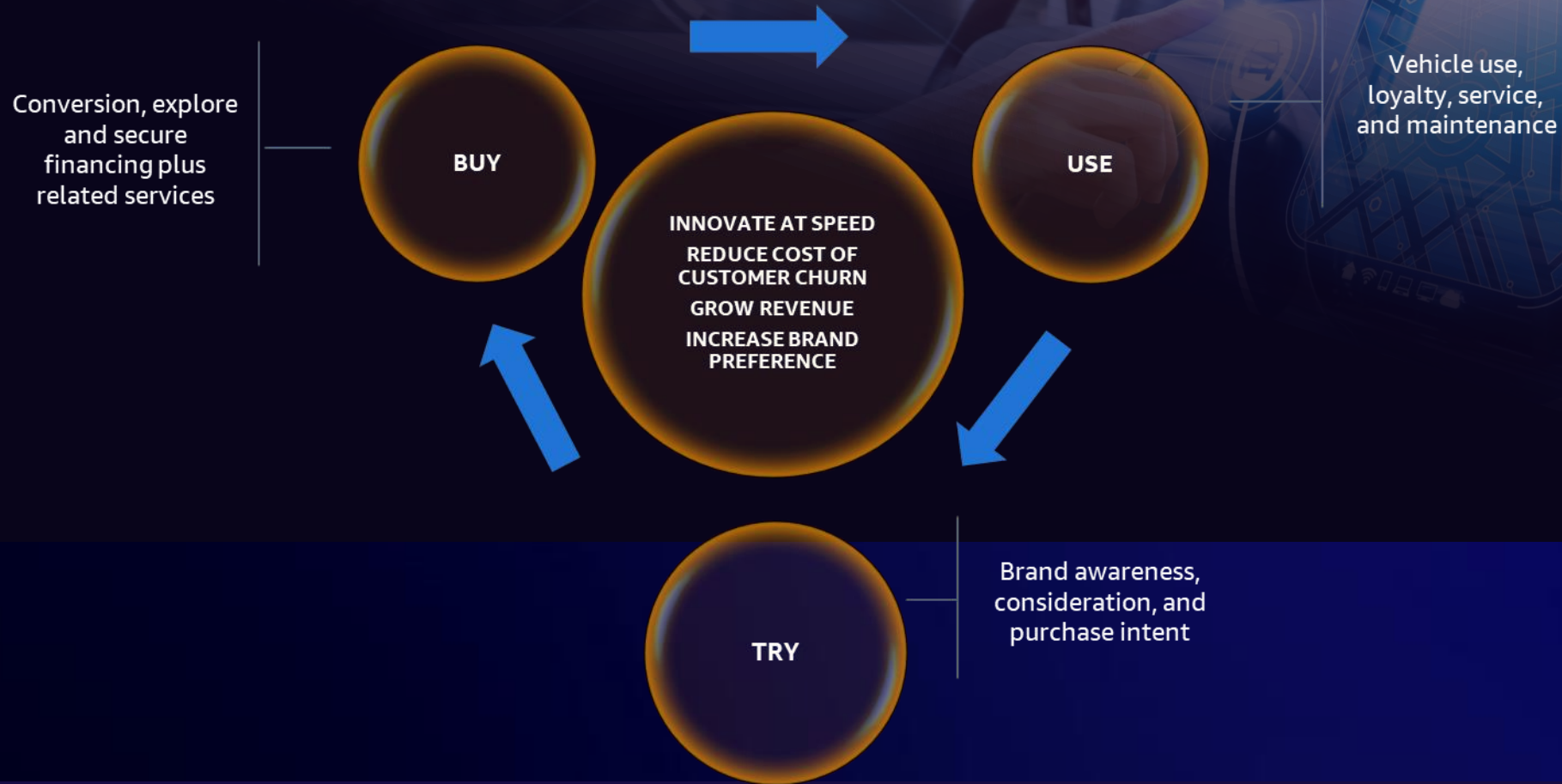
Carrier

Continental



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AWS IoT FleetWise & Salesforce Automotive Cloud



“Together, Salesforce and AWS are helping automotive companies bring together a complete view of the driver and the vehicle to power connected, immersive consumer experiences.”

Achyut Jajoo, SVP Auto & Manufacturing, Salesforce



Product journey

Research & Development



Amazon WorkSpaces



Autonomous Driving Data Framework



Research and Engineering Studio



EC2 DL2Q

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Product journey

Research &
Development

Design
Optimization



Amazon WorkSpaces



Amazon SageMaker



Autonomous Driving Data Framework



Amazon CodeWhisperer



Research and Engineering Studio



EC2 DL2Q

Product journey

Research &
Development



Design
Optimization



Manufacturing
Operations



Amazon WorkSpaces



Autonomous Driving Data
Framework



Research and Engineering
Studio



EC2 DL2Q



Amazon
SageMaker



Amazon
CodeWhisperer



Amazon Monitron



AWS IoT TwinMaker



AWS IoT SiteWise



Amazon Lookout for Vision

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Product journey

Research &
Development



Design
Optimization



Manufacturing
Operations



Amazon WorkSpaces



Autonomous Driving Data
Framework



Research and Engineering
Studio



EC2 DL2Q



Amazon
SageMaker



Amazon
CodeWhisperer



Amazon Monitron



AWS IoT TwinMaker



AWS IoT SiteWise



Amazon Lookout for Vision



Amazon Supply Chain

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Product journey

Research & Development



Design Optimization



Manufacturing Operations




Product Experience



 **Amazon WorkSpaces**

 **Autonomous Driving Data Framework**

 **Research and Engineering Studio**

 **EC2 DL2Q**

 **Amazon SageMaker**

 **Amazon CodeWhisperer**

 **Amazon Monitron**

 **AWS IoT TwinMaker**

 **AWS IoT SiteWise**

 **Amazon Lookout for Vision**

 **Amazon Supply Chain**

 **AWS IoT FleetWise**

 **Connected Mobility Platform (Solution) 2.0**

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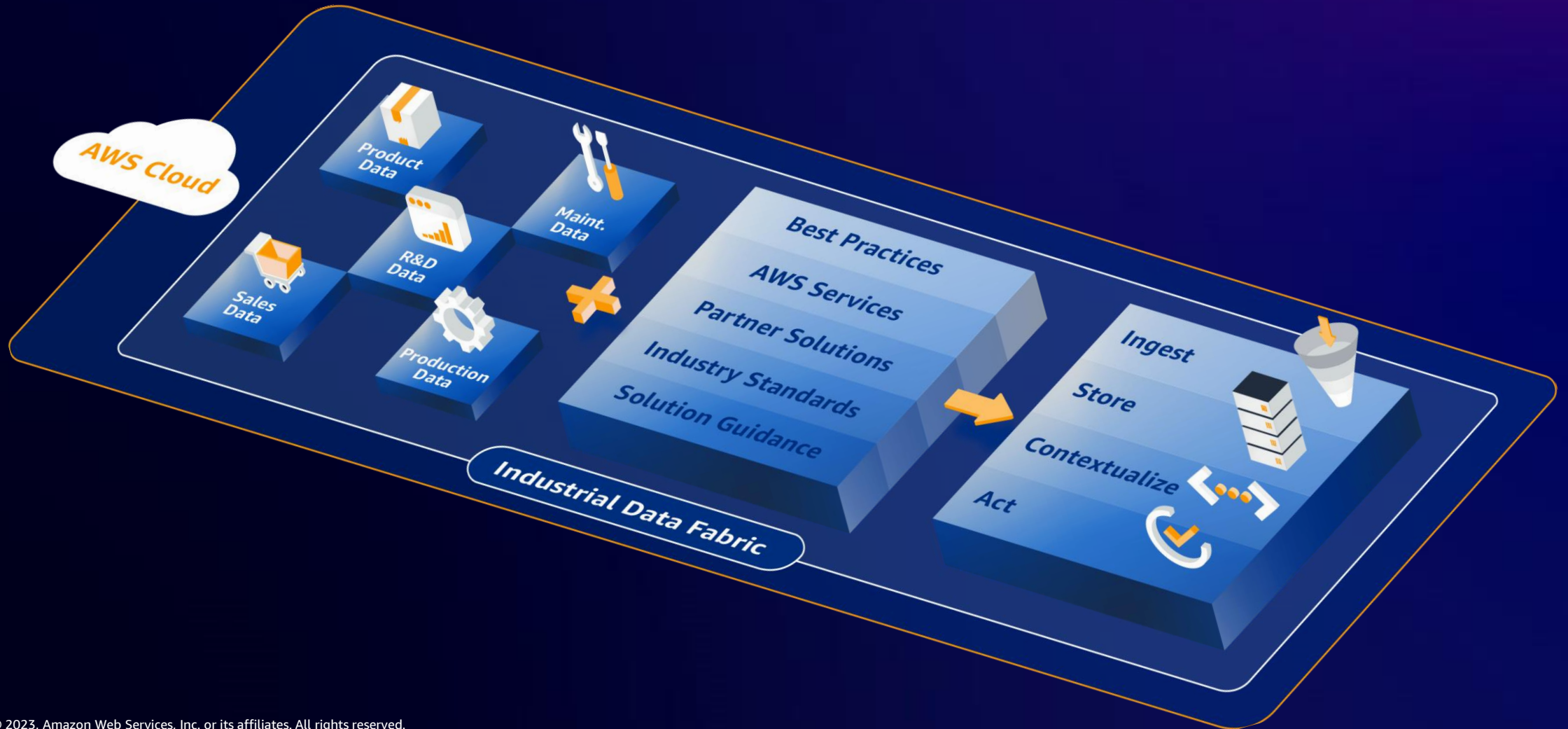
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Industrial Data Fabric

AWS WELL-ARCHITECTED FRAMEWORK WITH PRESCRIPTIVE GUIDANCE



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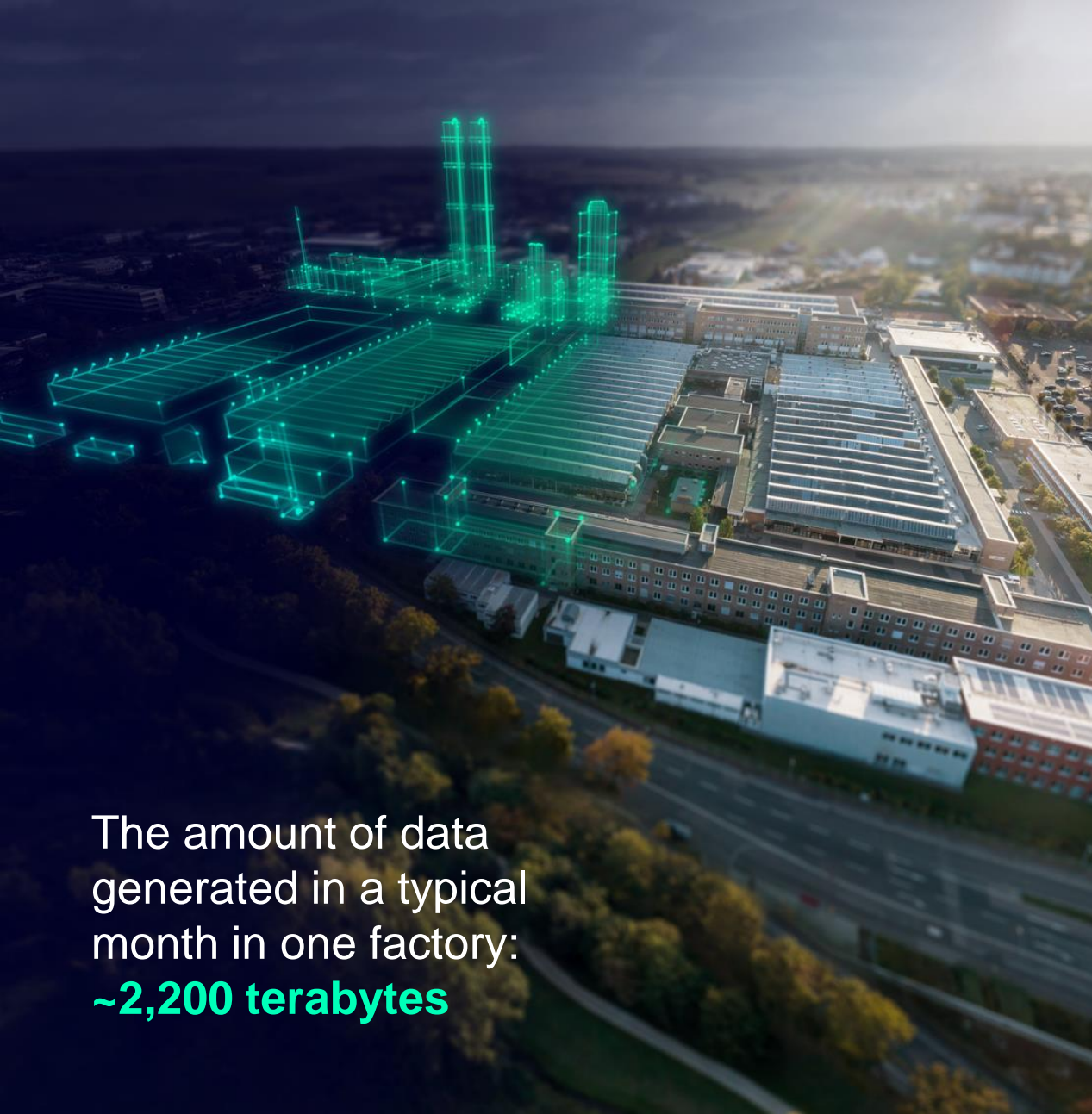


NXP

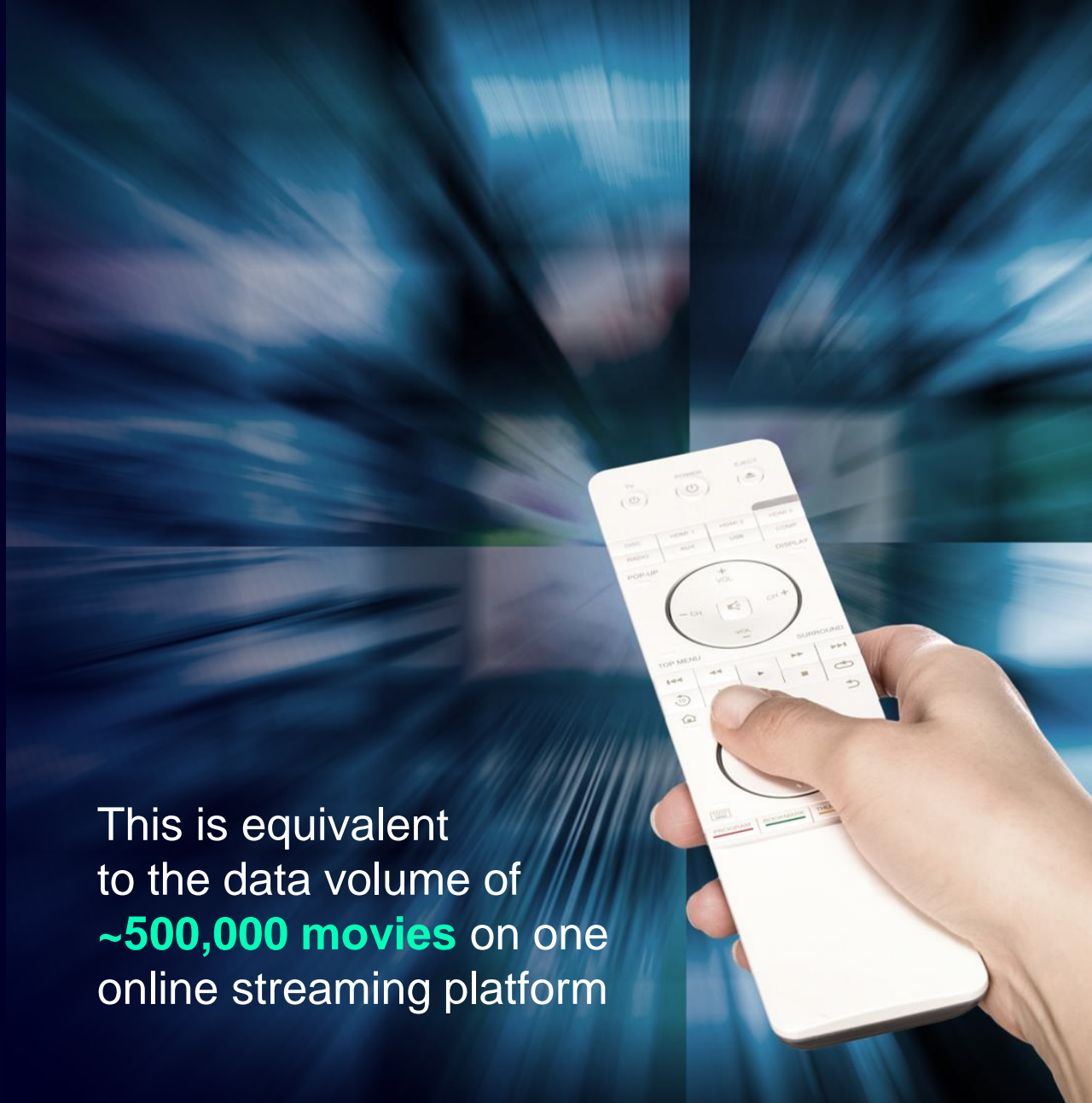
Create without limits

Tony Hemmelgarn

Siemens Digital Industries Software



The amount of data generated in a typical month in one factory:
~2,200 terabytes

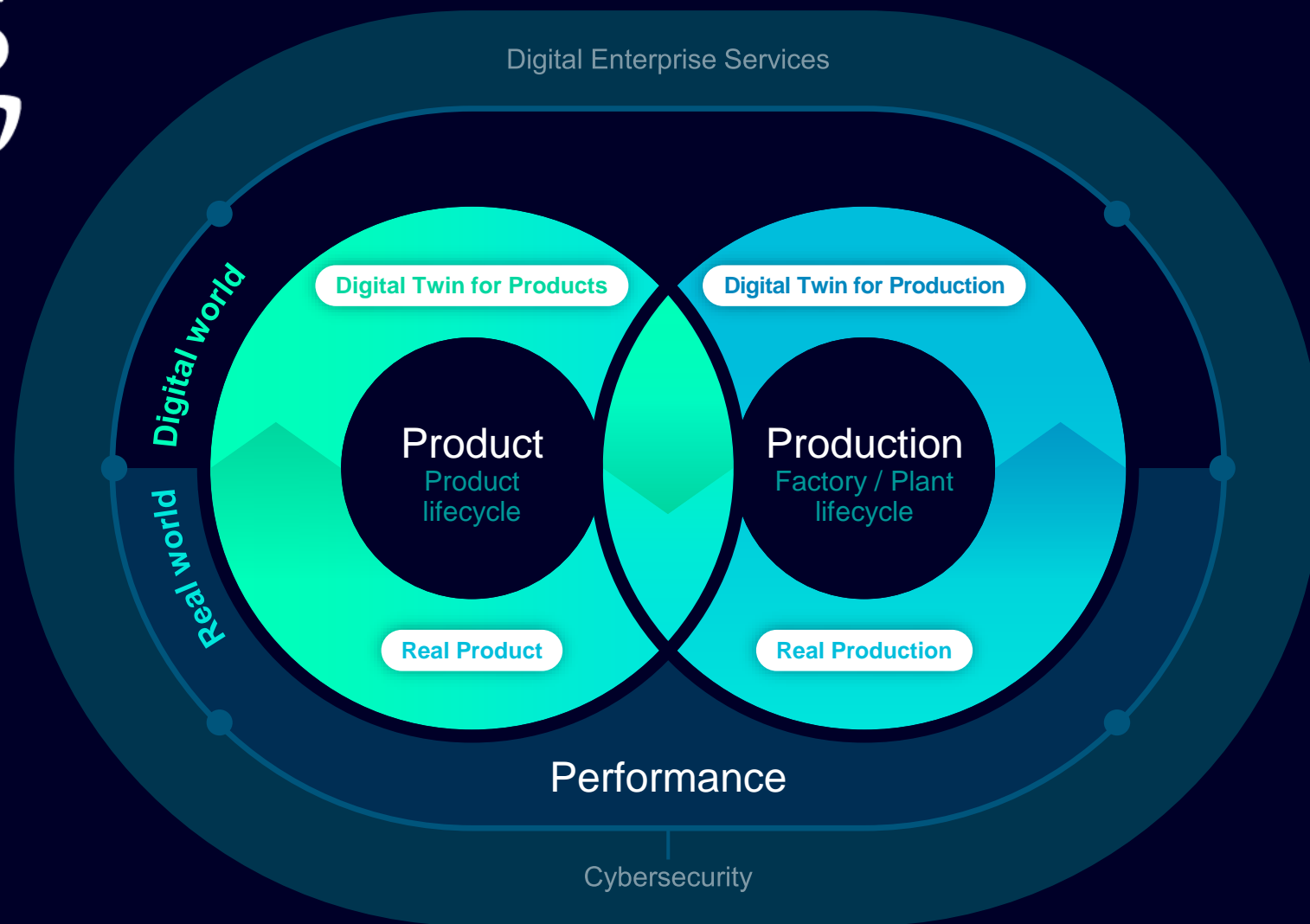


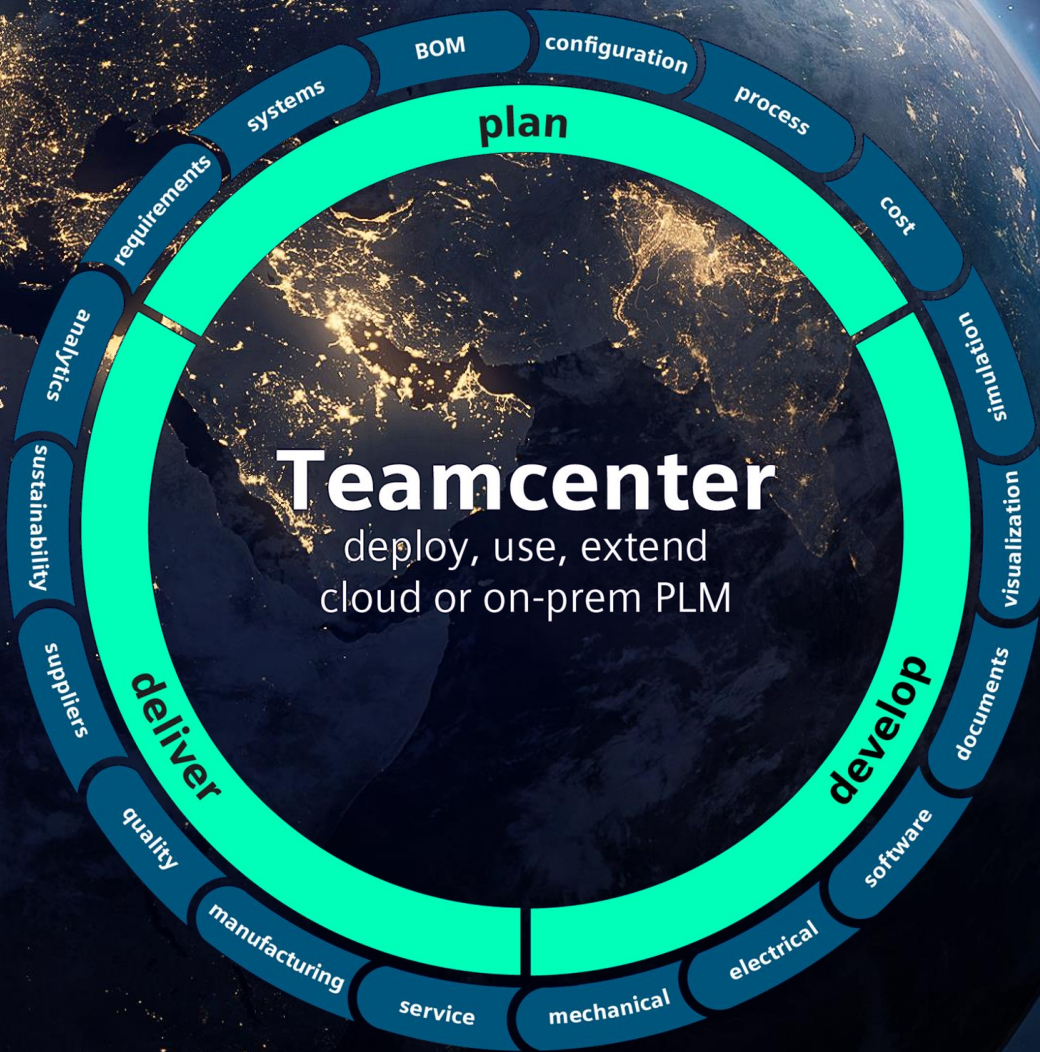
This is equivalent to the data volume of
~500,000 movies on one online streaming platform



COMPREHENSIVE DIGITAL TWIN

Combining the real and digital worlds





Leading choice in PLM

#1

Preferred by customers, validated by experts, chosen by industries

Powering innovation

Making more of the products you use every day possible

Leading-edge

Delivering the future of PLM, today

Teamcenter X



cut costs



always
up to date



scale



secure and
reliable



Time to value

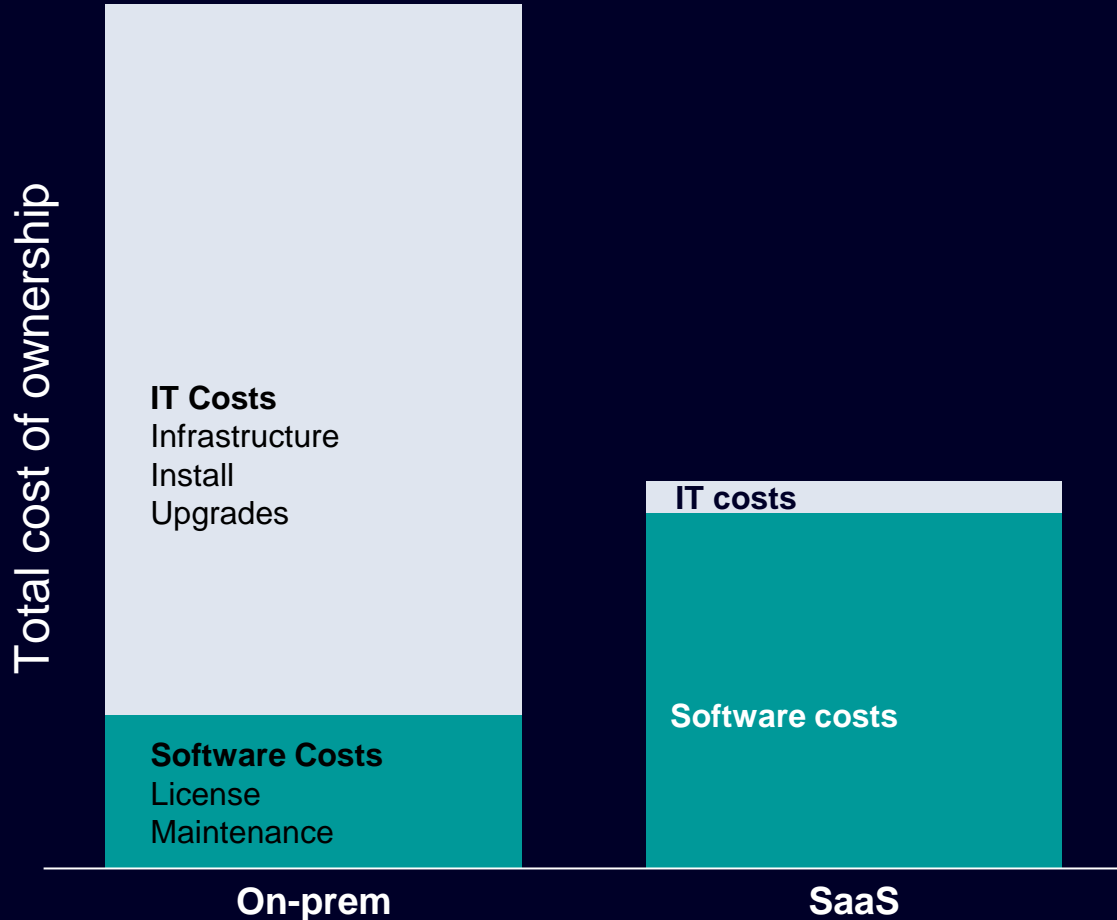


global reach



Teamcenter X transform to cloud ROI

Global electronics customer's realized benefits



\$ 54%
Lower cost
of ownership

40%
Better load
performance

Overall customer benefits
Lower total cost of ownership
Faster time to value
Security and compliance
Always up to date
Reduced downtime
Scalable



TEAMCENTER Q&A

INBOX

0 / 0 / 0

New Total Past Due

SAVED SEARCHES

ADVANCED SEARCH

ID DISPLAY RULES

PROGRAMS

SCHEDULE TASKS

SCHEDULES

SUBSCRIPTION

PROJECTS

LOGICAL OBJECTS

PREFERENCES

DECLARATIONS

DPV

CHANGES

REPORT PROBLEM

PROGRAM DELIVERABLES

CALM ADMIN

HELP

PRINTOUTS

REPORTS

CLASSIFICATION

MY GALLERY

CREATE SPECIFICATION

IMPORT SPECIFICATION

MANUFACTURING RESOURCE LIBRARY

MY EXCHANGES

SUPPLIER EXCHANGES

WORKFLOW DESIGNER

To compete and stay relevant you must ...

Innovate

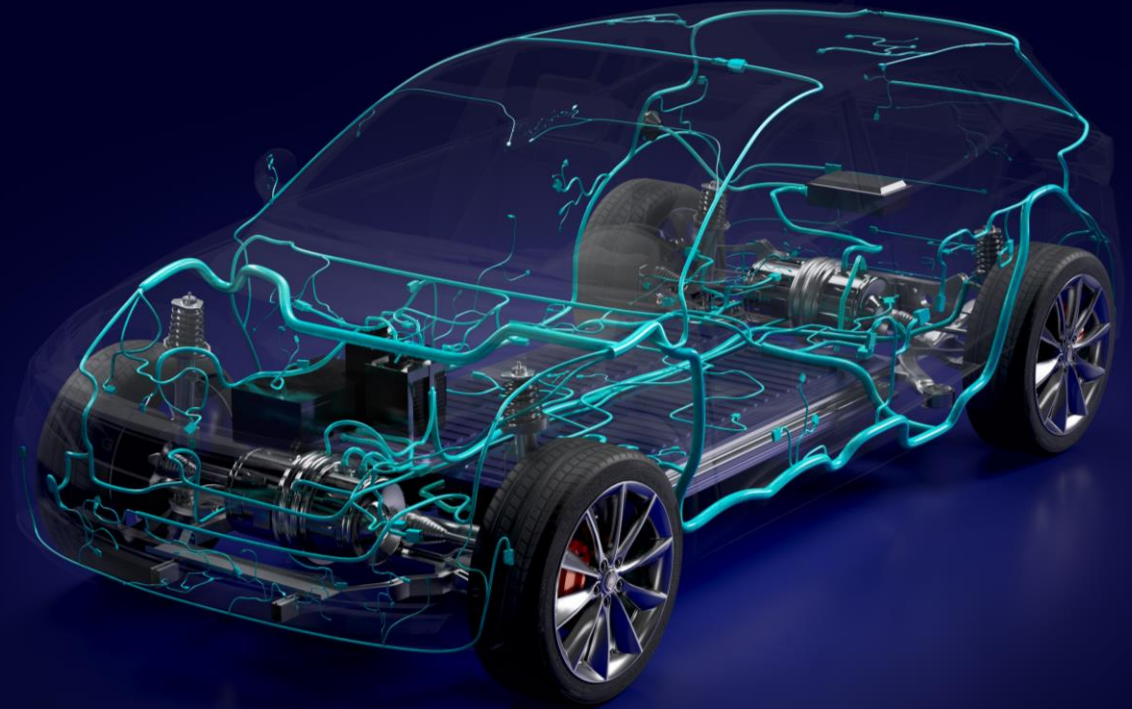
software and hardware decision-making
into the design process

Collaborate

across engineering, automation,
manufacturing and service

Validate

software and hardware integration
to identify errors early



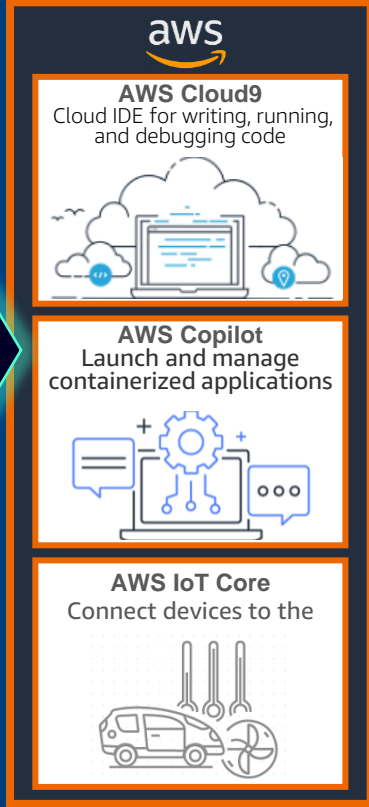
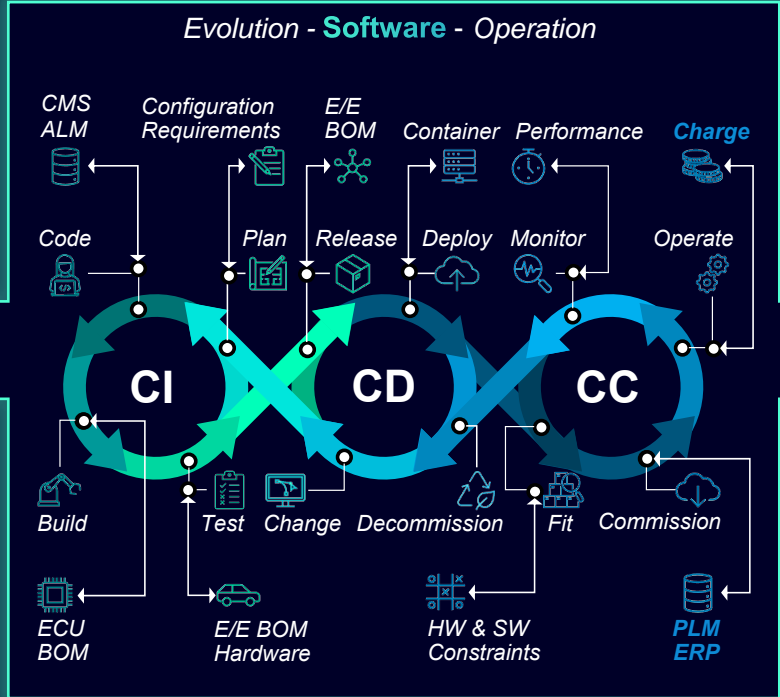
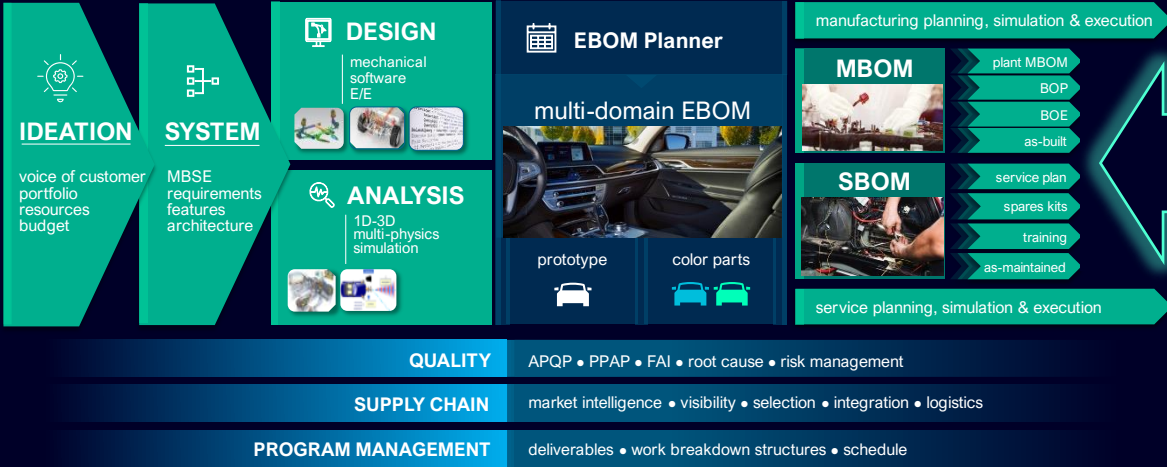
Transforming into the SDV enterprise

Scalable partner framework – for engineering, deployment and operation



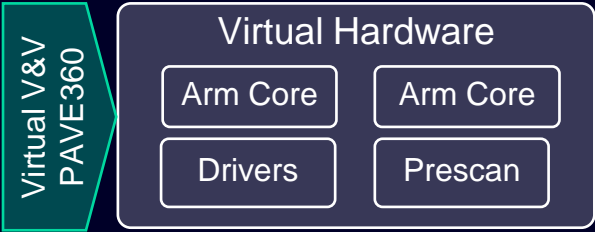
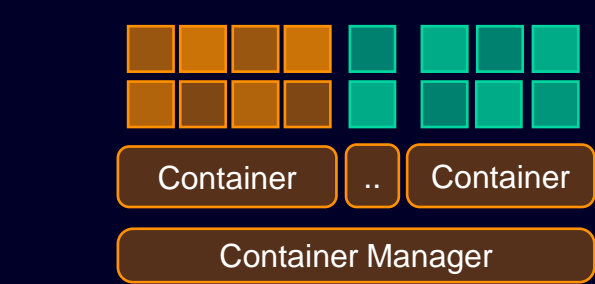
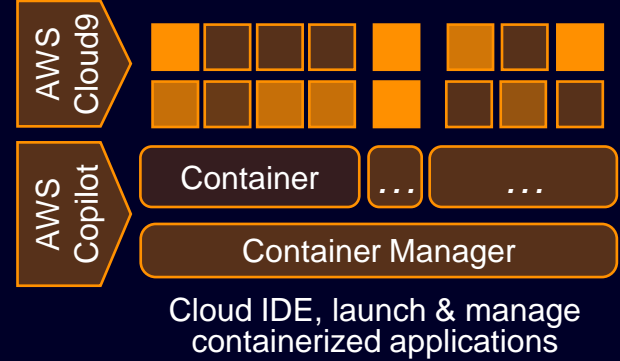
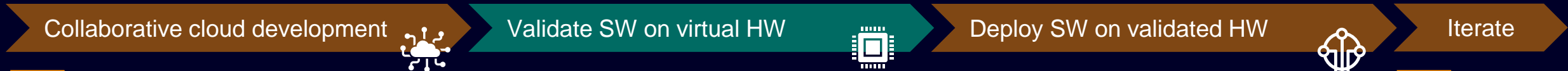
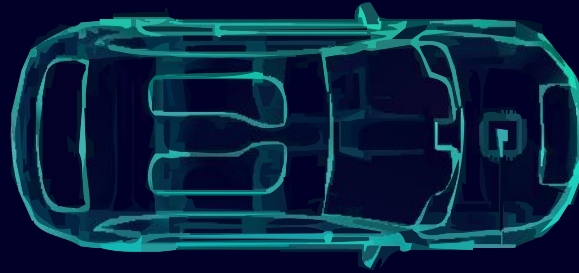
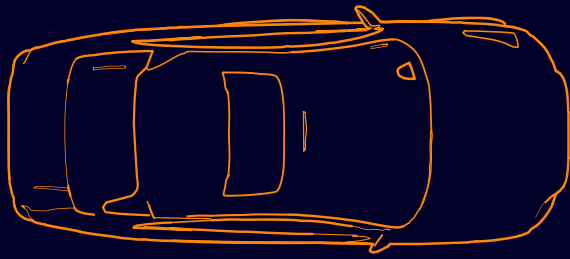
Transforming into the SDV enterprise

Scalable partner framework – for engineering, deployment and operation

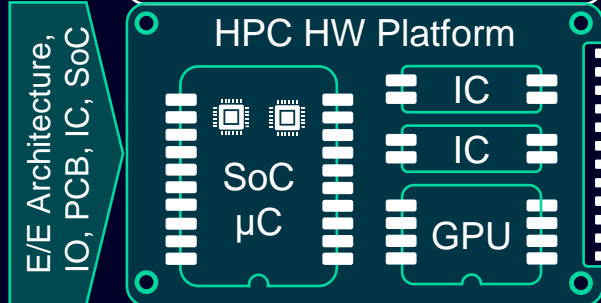
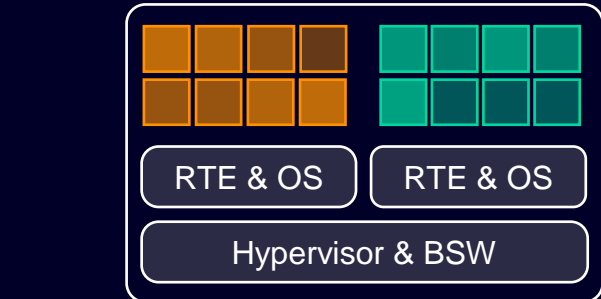


Software Defined Vehicle

Integrated vehicle software platform



Virtual Arm HW in the cloud - continuous SW development & V&V



Deploy SW on compliant HW, platform certification, sustainment



Mendix pioneered low code market to empower IT and non-IT workforce

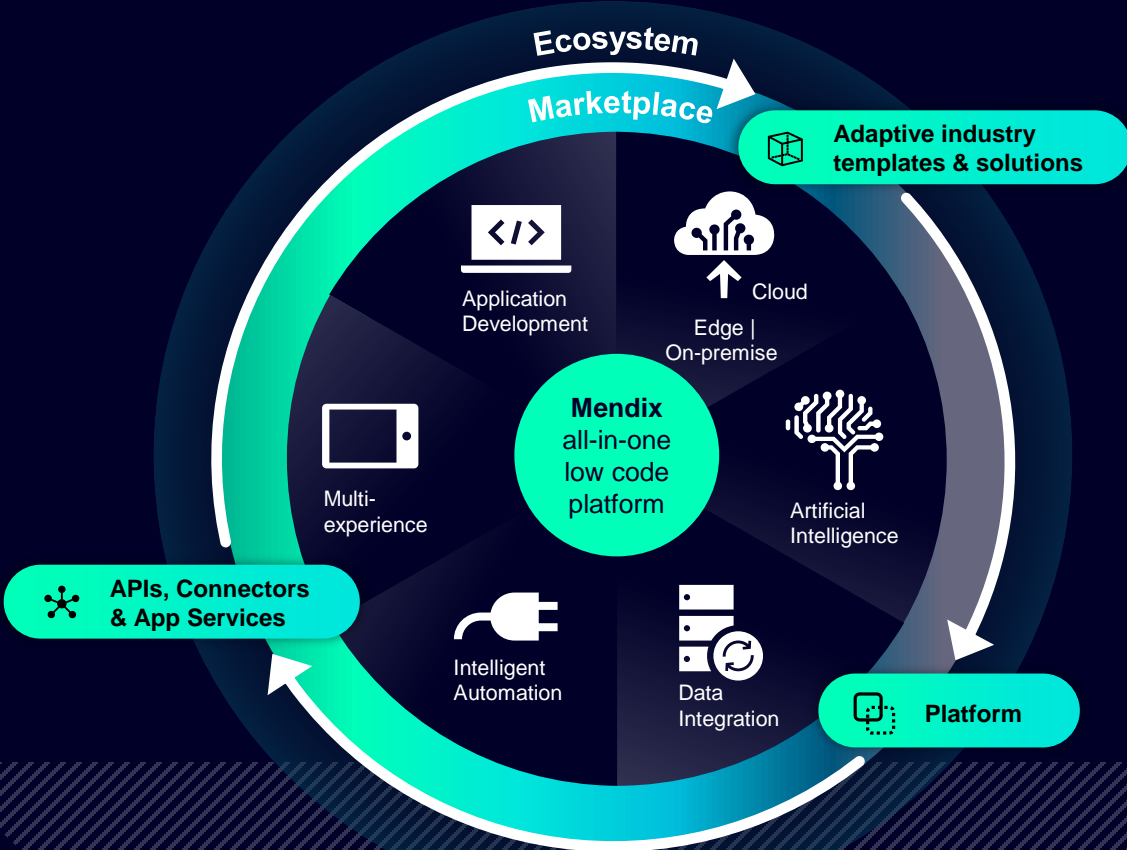
An integral part of Siemens Xcelerator



Attached to Siemens Xcelerator

Embedded in Siemens Xcelerator

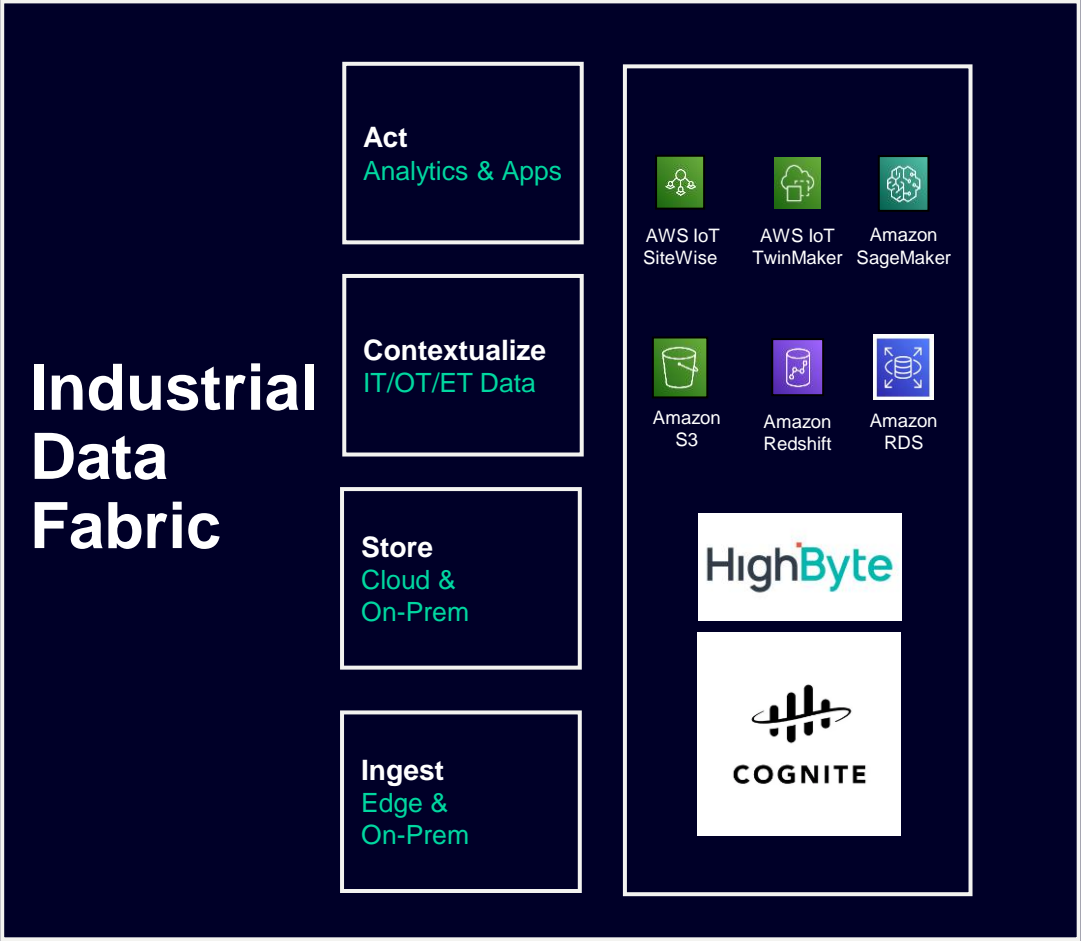
Scale with our ecosystem partners



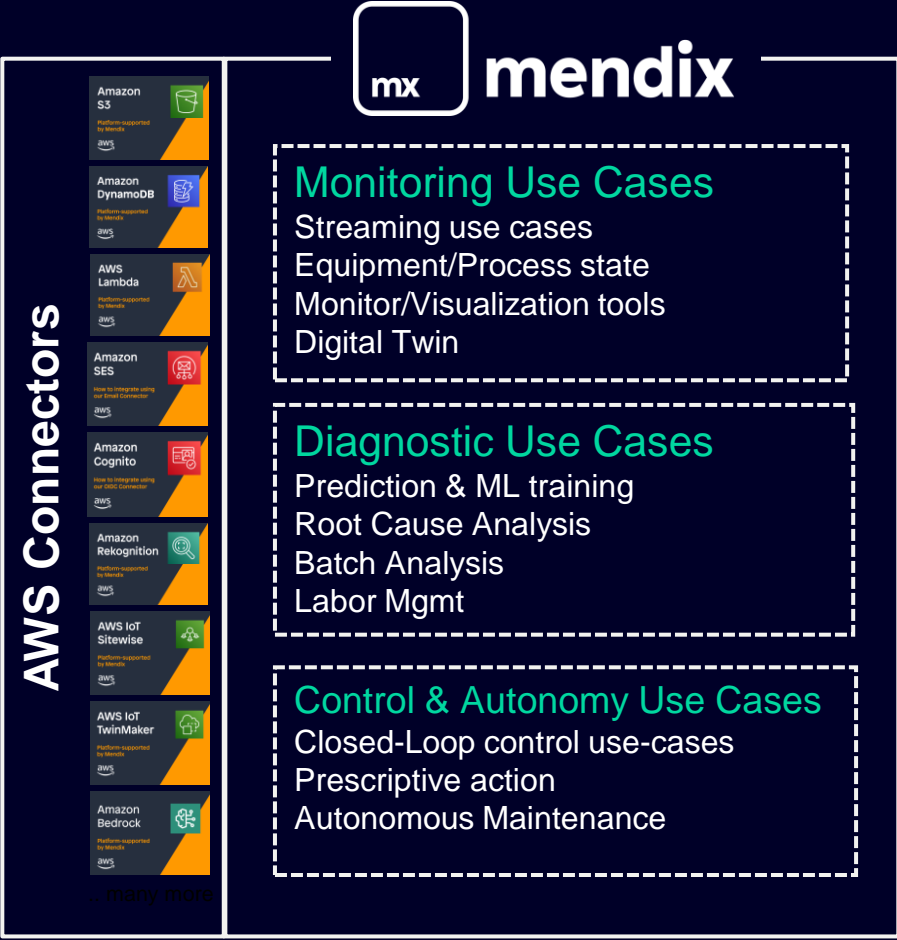
Extend, personalize and compose applications

With full deployment flexibility tailored to our customer needs

Use Low Code to make data meaningful, valuable, and available with AWS Partners and AWS services



Curated, contextualized, unified IT/OT data sets to consuming applications



LOGIN

 Sign In



THE SUCCESS FACTOR

Leverage the
infinite power
of data



Auto

Top 23 OEMs

Top 20 EV



Battery

8-10 suppliers

87% of battery production



Partner of choice

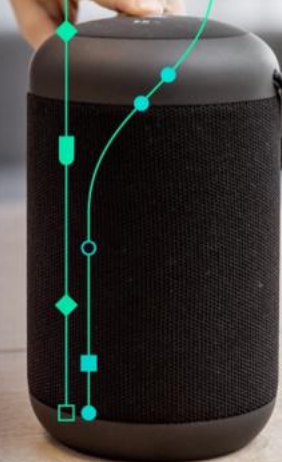
A&D

100%



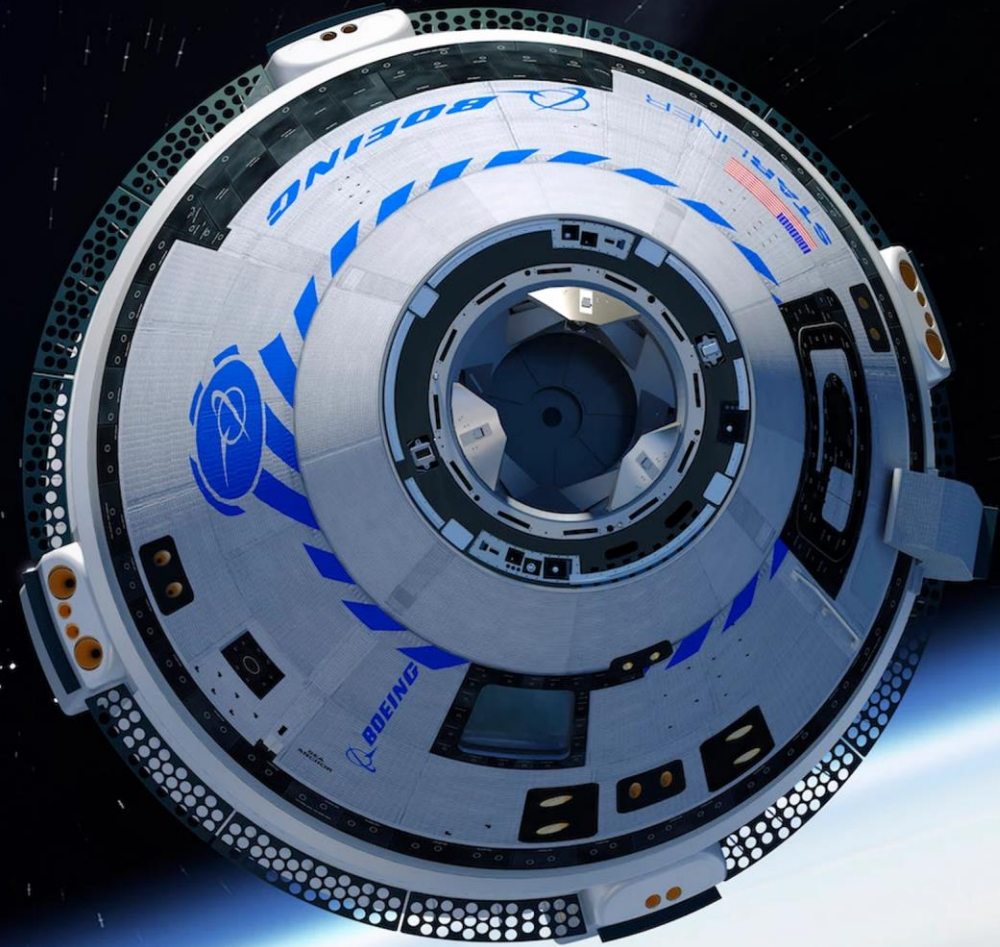
Consumer electronics

9 out of 10



SIEMENS

Create without limits



SIEMENS



Innovation can **transform industries**



GENERATIVE
AI

\$74.5

Billion in
automotive

\$1.85

Trillion across
all industries

Why artificial intelligence for manufacturing?



Customer needs

Anticipate needs to design better products



Decision making

Reduce time to make critical data-informed decisions



Business agility

Improve business operations to be more efficient



Technological innovation

Gain an edge for competitive advantage

Serving industrial customers for years

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The tipping point for **generative AI**



**MASSIVE
PROLIFERATION
OF DATA**

**AVAILABILITY OF
SCALABLE
COMPUTE
CAPACITY**

**MACHINE
LEARNING
INNOVATION**

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Software-defined mobility and electrification at Honda

Tadafumi Nogawa

General Manager, Connected Solution
Development
Honda

Jay Joseph

Vice President of Sustainability and
Business Development
American Honda



Honda's first original product



HONDA
The Power of Dreams

A silver Honda motorcycle parked on a city street. The background shows a brick building with the Honda logo and slogan.A red Honda Civic sedan parked in front of a modern building at dusk.A Honda aircraft on a runway, with another aircraft visible in the background.

A leading global power unit manufacturer

28,000,000 units/year

A person riding a red Honda ATV on a beach. The background shows the ocean and some people.A Honda Formula 1 racing car on a track.A white Honda AVX autonomous vehicle on a road.

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HONDA
The Power of Dreams

Honda is initiating deep cross-domain collaboration between
in-car and out-car to achieve
software-defined **mobility**



How to achieve software-defined mobility

Challenge



Each department has been working independently



The schedule of hardware requirement decision and the out-car cloud development was different

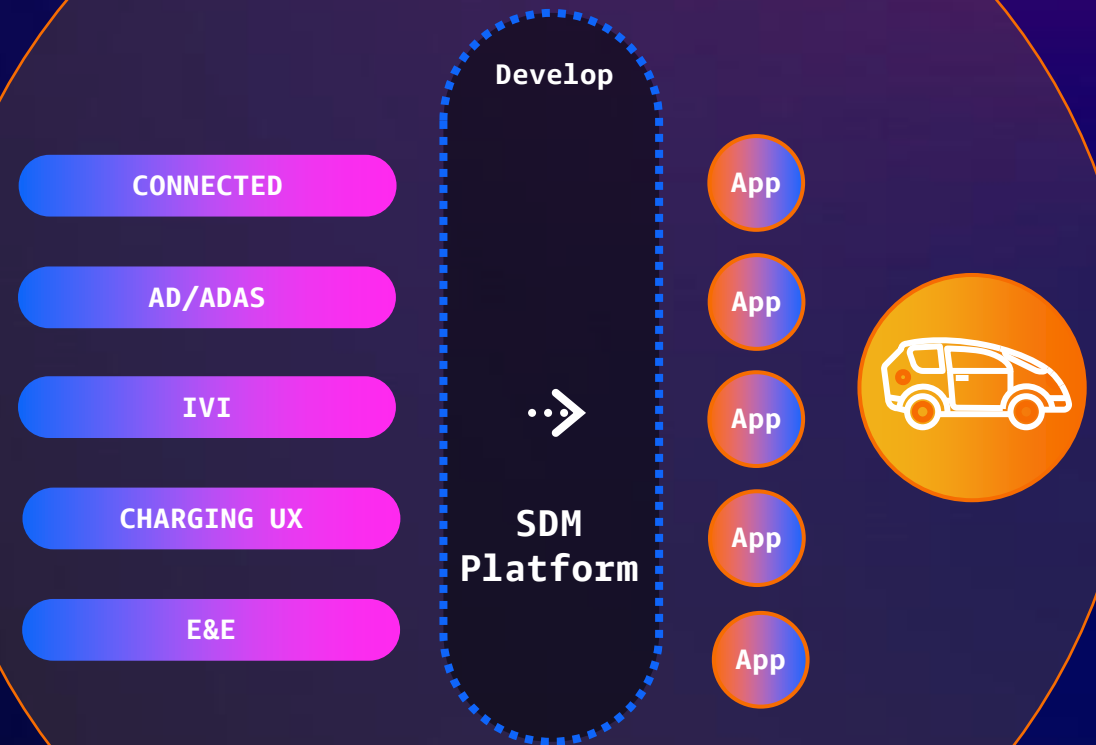


Time-consuming coordination between departments does not speed up entire car development

TRADITIONAL ORGANIZATION

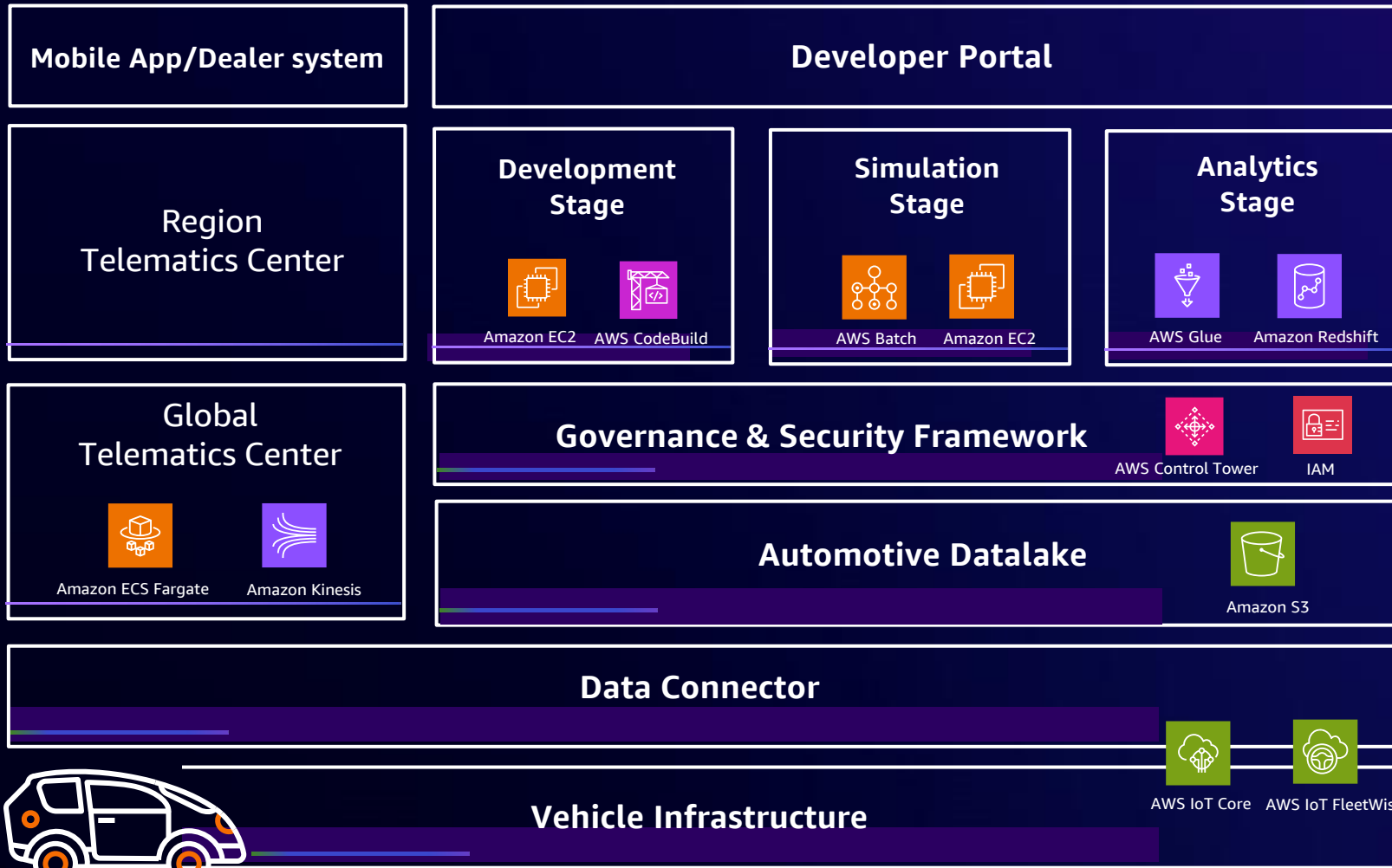


CROSS-DOMAIN ORGANIZATION



At a **“爆速”** Pace
“Baku-Soku”

Digital proving ground



Out-car side ECU developer

Development ECU application on cloud



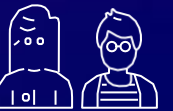
In-car side ECU developer

Development ECU application on cloud



Data scientists

Exploration, integration, predictive models



Data experts

Ad-hoc reports, create KPIs



Third-party company

Real-time data feeds



SDM CCoE

Dashboarding, use KPIs, slice and dice



Honda & AWS: Working **together** for a **software-defined mobility future**



**Working together
since 2013**



**Over 10 years of
AWS knowledge**



**Amazon culture
and mechanism**

Software-defined mobility for all Honda products



Honda eMaas



AD/EV



Motorcycle



One Mile



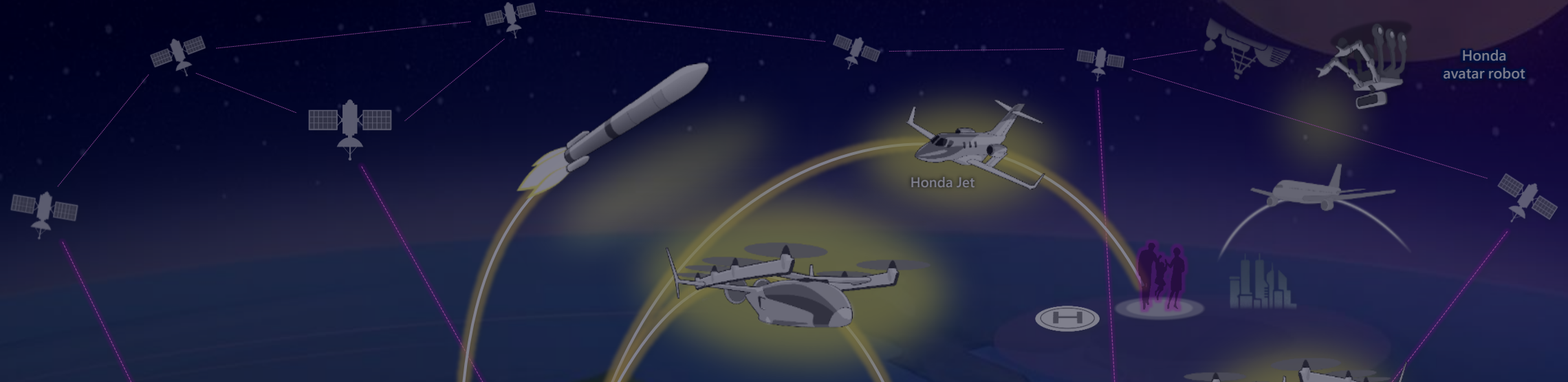
Marine



Honda Jet



Honda avatar robot



HONDA
The Power of Dreams

How we move you.
CREATE ► TRANSCEND, AUGMENT



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The Power of Dreams

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The Power of Dreams

How we move you.
CREATE ► TRANSCEND, AUGMENT

Using insights from vehicle electrification to transform products and services

Jay Joseph

Vice President, Sustainability &
Business Development



Transitioning from a carbon-centric world



Evolution from carbon-centric to sustainable clean energy



Customer-centric energy management system



Integrated energy management

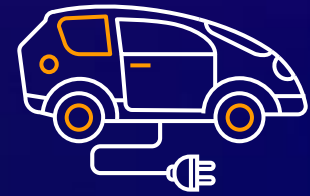
Vehicle charging experience



Charging experience

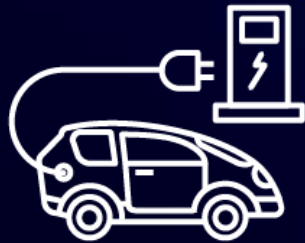


Public charging



At-home charging

Honda's customer experience roadmap



Electric vehicle range management

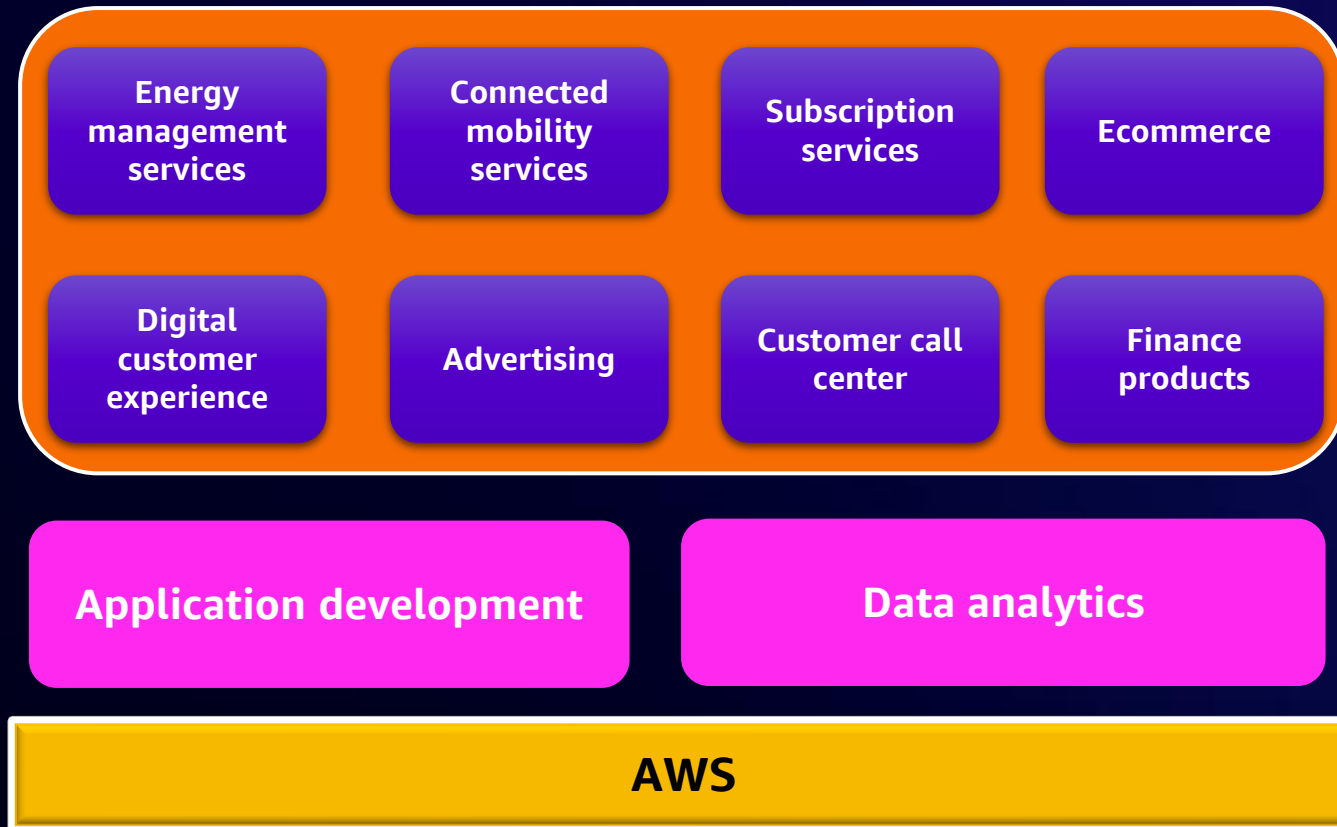


Customer applications



Vehicle-to-grid connectivity

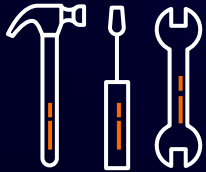
Building Honda's vision on AWS



**AWS Solutions powering
Honda's innovation flywheel**

AWS Competency Program

AUTOMOTIVE AND MANUFACTURING COMPETENCIES LAUNCHED IN 2023



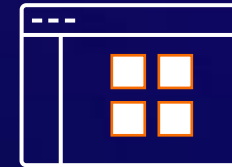
Build

Industry solutions



Engage

With industry
experts



Deploy

Ready-made
industry solutions

AWS automotive and manufacturing



The future

Helping develop and enable our customer's vision is a core pillar of AWS value



Faster

Accelerating innovation with the deepest and broadest cloud platform and purpose-built services and solutions



Together

Transforming better through powerful collaboration

Thank you!



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