CP-02

Reinventing hybrid and extending cloud to the edge with Local Zones

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Principal PMT
AWS

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Agenda

AWS Infrastructure

Reinventing hybrid and edge computing

Local Zones

Customer use cases

Getting started with Local Zones

Outposts, Wavelength, and the Snow Family

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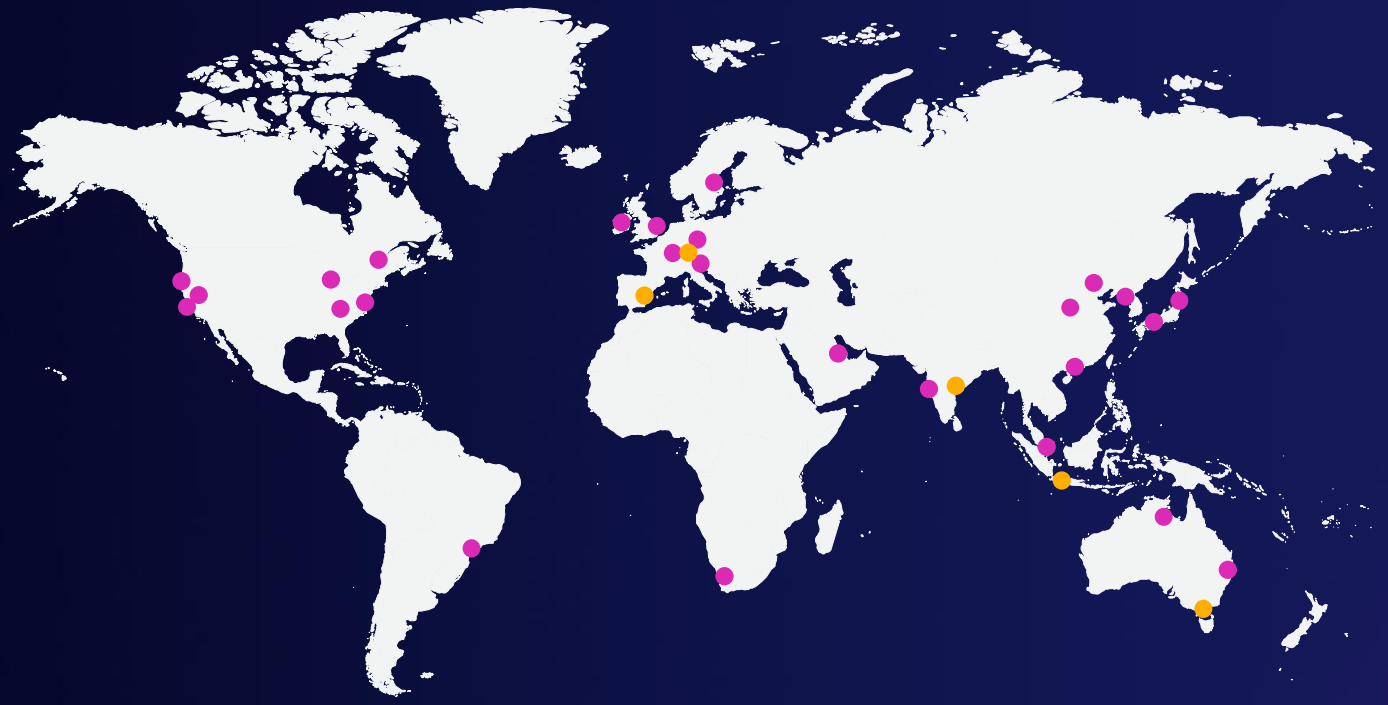
AWS Global infrastructure



26 geographical regions

84 availability zones

230+ POPs

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- **Private global backbone**
- **80+ Direct Connect locations**

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Enterprises are rapidly moving to the cloud

Most workloads can easily be migrated to the cloud, allowing organizations to accelerate their digital transformations

Some workloads require **low latency** or **local data processing,** or have **data residency** requirements

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Unique challenges for some customers

Challenges

Low latency workloads

Modernization initiatives

Data residency

Solutions today

Self-managed

Complex

Costly

Customer feedback

AWS services even closer to end users or data sources

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Reinventing hybrid cloud

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The Cloud Continuum

AWS—DELIVERING CLOUD WHERE CUSTOMERS NEED IT

AWS Regions

AWS Outposts

AWS Local Zones

AWS Wavelength

On premises

Metro centers

5G networks

AWS IoT
edge services

AWS Snow Family

For most use cases

For low-latency, local data processing, and data residency

Cloud Continuum

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Providing the same experience across environments

Same reliable, secure, and high-performance infrastructure

Same operational consistency

Same services and APIs

Same tools for automation, deployments, and security controls

Same pace of innovation as in the cloud

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AWS Local Zones

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AWS Local Zones

Meet **latency, local data processing, and data residency*** requirements in more locations, without deploying self-managed infrastructure

- AWS deployed and operated infrastructure in large metro centers
- Elastic, on-demand resources, with pay-as-you-go pricing
- Same AWS core services and developer experience
- Integrated with AWS Region services through the AWS backbone

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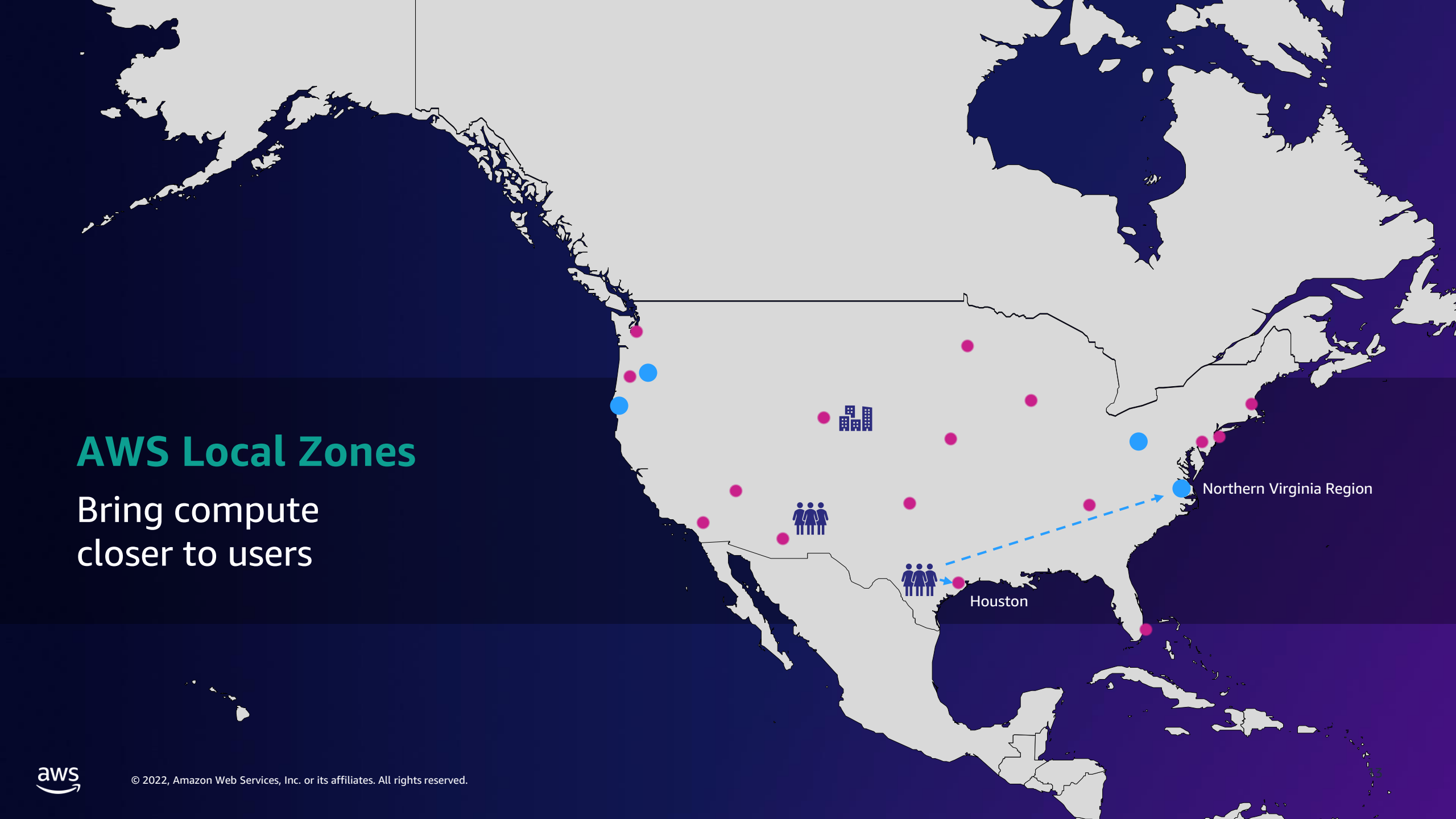

AWS Local Zones

Bring compute closer to users

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Local Zones in the US

17 generally available

**2 Local Zones in LA*

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Use cases

Latency-based

Improved performance for end users

- Gaming
- Social media
- Telecommunications

Location-based

Data residency

- Financial services
- Public sector

Enterprise migration and modernization

- Two-step migrations
- Modernization and innovation initiatives

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Supercell: Real-time multiplayer gaming

The challenge

Single digit millisecond latency is critical for an optimal end user experience in online gaming. Supercell and other companies have maintained on-premises installations around the world to meet the latency requirements to serve their global community of online gamers.

Solution

Supercell now deploys latency sensitive game servers in AWS Local Zones, closer to their end users to achieve the low latency they need without the hassle of maintaining and managing their own on-premises infrastructure.

Business outcome

Supercell delivers superior performance and end user experience for their end users worldwide.

"We deploy game servers in multiple AWS Regions today to serve our end-users globally. We are also using AWS Local Zones in the US in order to bring the latency-sensitive portions of game servers closer to more end users."

Juho Mäkinen
Lead of Infrastructure and Services, Supercell

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Netflix: Content creation

The challenge

Artist's workstations require less than five millisecond latency from their offices or animation hubs to their workstations to have a smooth, jitter free, content creation experience. Historically, artist workstations have stayed on-premises to meet the latency required to power their tools.

Solution

Netflix uses the LA Local Zones with AWS Direct Connect to achieve 1-2 millisecond latency from their animation hub to the Local Zones, run latency-sensitive workloads such as live production video editing closer to artists.

Business outcome

Netflix is able to provide their artists with a smooth experience with remote workstations across cities in the USA because of their proximity to Local Zones.

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MindBody: Enterprise migration

The challenge

For enterprises like MindBody, a large portfolio of interdependent applications running in on-premises data centers makes cloud migration complicated and challenging.

Solution

MindBody used LA Local Zones to establish a hybrid environment that provides low latency communication between applications running in the Local Zone and their on-premises installations.

Business outcome

MindBody is able to migrate applications incrementally, drastically simplifying the migration process, and enabling on-going hybrid deployments.

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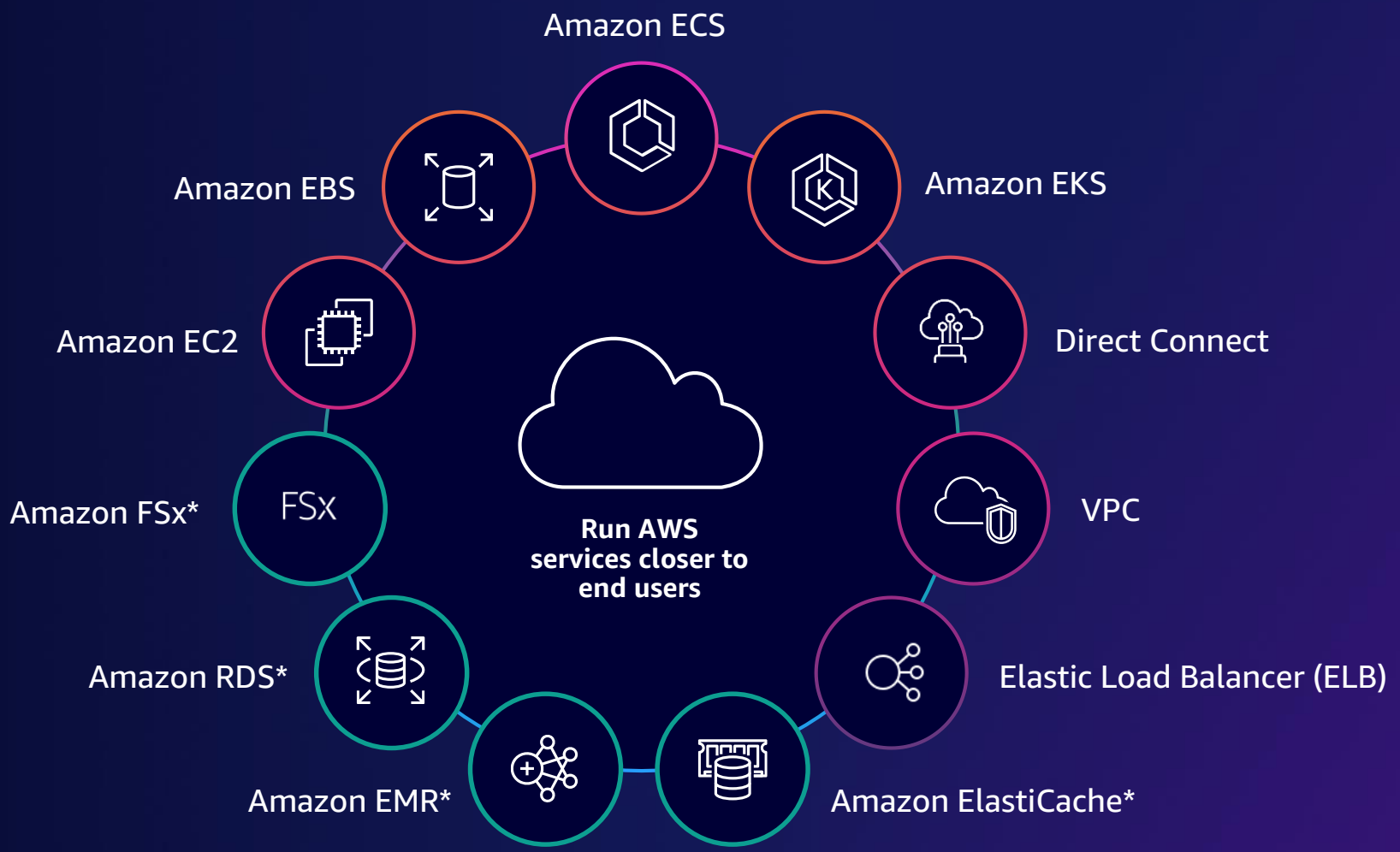
Services available in Local Zones



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* Some services only available in select Local Zones

Regional services fully integrated

In Region

Amazon Cloud Trail

Amazon Cloud Formation

Amazon EC2 Autoscaling

Amazon Cloud Watch

Amazon S3

Amazon DynamoDB

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AWS Marketplace partner solutions

FIND, TEST, BUY, AND DEPLOY SOFTWARE INTO LOCAL ZONES

DevOps	Security	Storage	Networking	Database	Business apps	AWS Data Exchange	Professional services
APPDYNAMICS	FORTINET	NetApp	f5	snowflake	A CLOUD GURU	Facteus	rackspace technology
New Relic.	CROWDSTRIKE	druva	CISCO	databricks	APPTIO	EPSILON	PRESIDIO Future. Built.
ca technologies	splunk>	N2WS a Veeam company	CITRIX	SAP	Adobe	FOURSQUARE	shi
MICRO FOCUS	paloalto NETWORKS	PURESTORAGE	aviatrix	mongoDB.	outsystems	FACTSET	GUIDEPOINT SECURITY
dynatrace	TREND MICRO	COHESITY	NGINX	Couchbase	Acumatica The Cloud ERP	Tradeweb	CDW
PagerDuty	sumo logic	BURST	JUNIPER NETWORKS	TERADATA.	CALABRIO	NielsenIQ	OPTIV

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AWS Local Zones pricing

No fees for enabling Local Zones

Service price varies per location

On demand, pay-as-you-go pricing

Enterprise and savings plans apply

AWS Marketplace same as parent Region

Data transfer costs same as parent Region

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How it works

AWS Local Zones

Opt-in to AWS Local Zones location from Console or API Endpoint

Extend your Amazon VPC to the AWS Local Zone

Build and run your low latency applications in the AWS Local Zone

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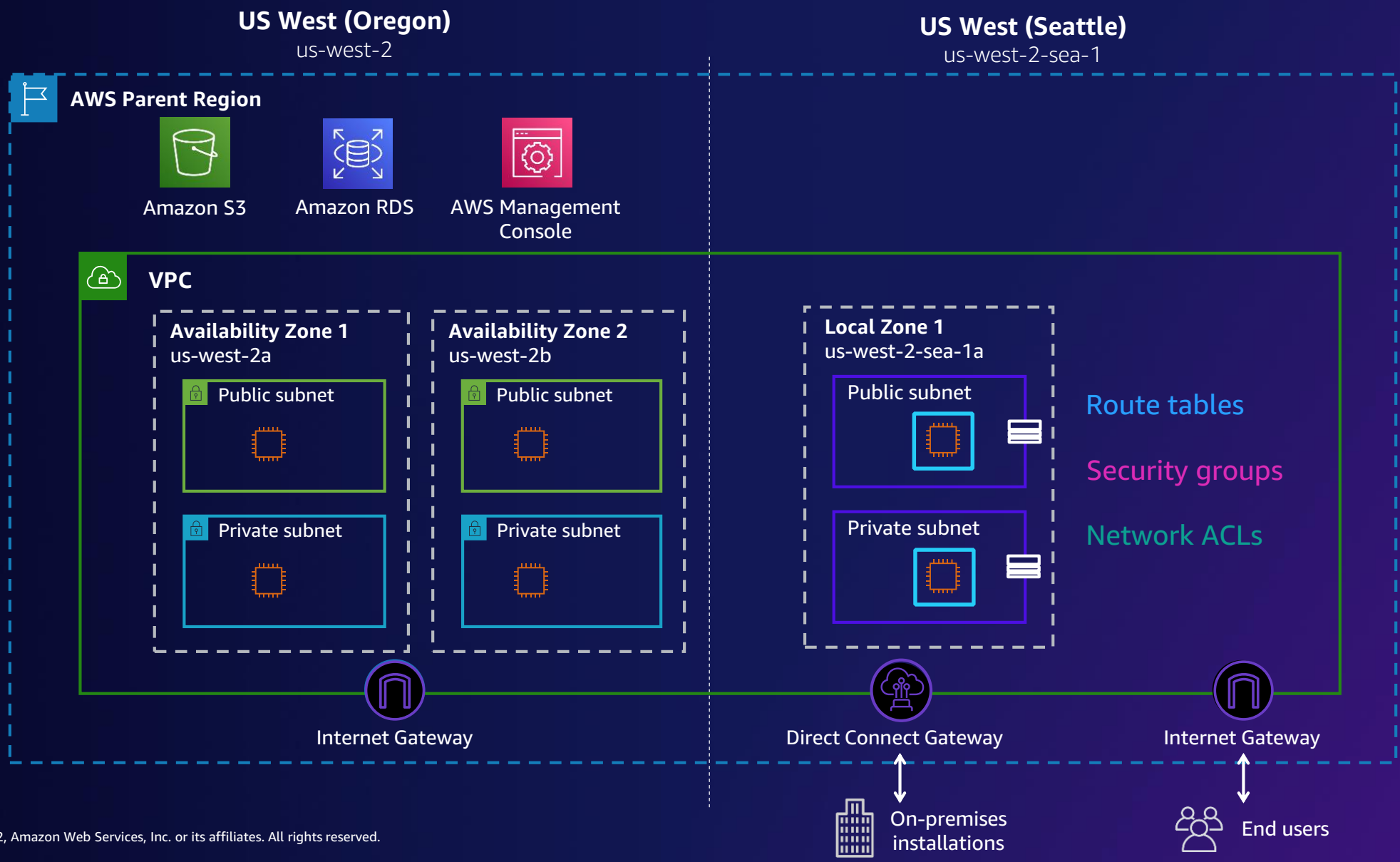
AWS Local Zones architecture



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Architecting for higher availability

AWS Local Zone
ex: US East (Atlanta)

AWS Region
ex: US East (North Virginia)

AWS Local Zone
ex: US East (Dallas)

AWS Local Zone
ex: US East (Houston)

AWS Local Zone

AWS Outposts
Self-hosted or
co-location data center

AWS Local Zone

On-premises Data Center

Care must be taken when engineering, to meet data residency and fault domain considerations

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AWS Outposts

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AWS Outposts brings the cloud on premises

AWS Outposts family

NEW!
1U Single Server
1¾ inches tall

NEW!
2U Single Server
3½ inches tall

42U Full Rack
80 inches tall

Same AWS infrastructure, services, APIs, and tools on premises

Choose between a 1U form factor with an AWS Graviton2 processor or a 2U form factor with an Intel processor, or an Outpost Rack with a blend of compute instances

Run AWS services locally, including Amazon EC2, Amazon EKS, S3 on Edge (rack only), and AWS IoT Greengrass

Server installation by either your own on-premises personnel or a third-party vendor, Rack installation by AWS

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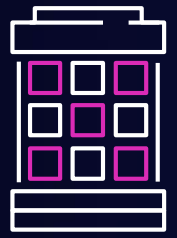
AWS Outposts are ideal for operations at the edge



Retail stores or branch offices are running point-of-sale, security, and network administration systems

Healthcare providers want to use the latest technology to rapidly evaluate patient monitoring devices so they can accelerate medical diagnosis

Factories and distribution centers need compute at the edge to integrate IoT data, monitor systems, and quickly alert operators of relevant changes

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AWS Wavelength

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AWS Wavelength: Global partnerships

5G Partners

verizon

KDDI

SK telecom

vodafone business

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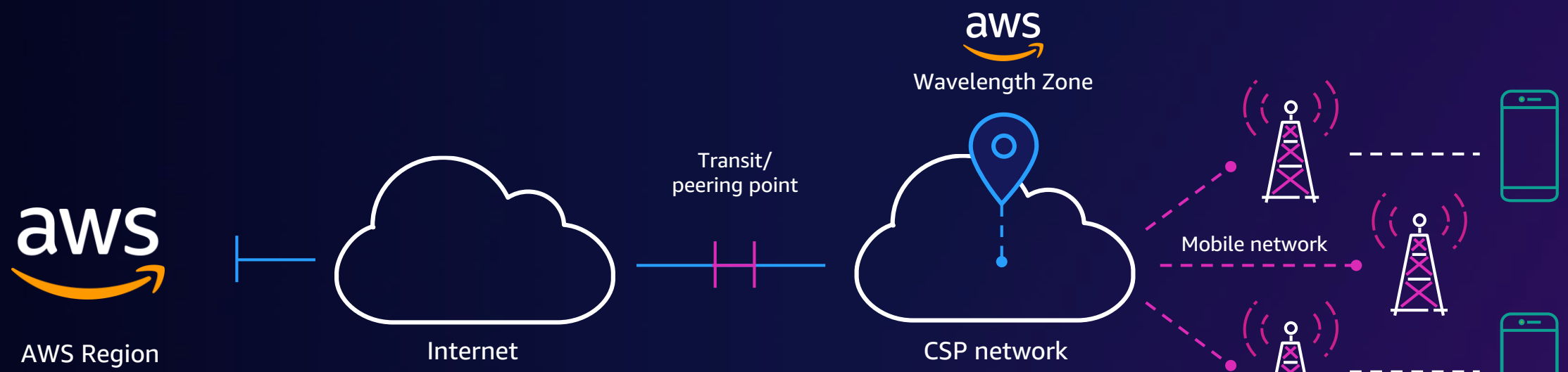
AWS Wavelength in a 5G network



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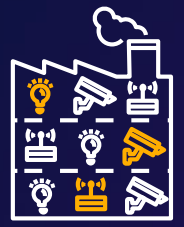
AWS Wavelength use cases

Healthcare

AI/ML solution for processing and analyzing video, images and data for real-time diagnosis

Connected Vehicles (C-V2X)

Realtime monitoring of data from sensors for road safety, secure connectivity, in-car telematics and autonomous driving



Smart Factory

Accelerating the Industrial Edge with AI/ML, Video Recognition for software defined manufacturing

Gaming

Cloud gaming streaming for high quality, interactive gaming with very low latency

AR/VR/XR

Rendering high fidelity graphics, images, videos for immersive experience in Retail, Healthcare and Enterprise

Media and Entertainment

4K/8K Video streaming for an in-venue experience of events, sports

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AWS Snow Family

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AWS Snow Family evolution

Set of services and functionality on the partially to fully disconnected and secure edge

Allows data collection, data processing, and data movement from the edge to AWS

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AWS Snowcone

SMALL, PORTABLE, RUGGED, AND SECURE EDGE COMPUTING AND DATA TRANSFER DEVICE

- Military-grade security
- 4.5 lb (2.1 kg)
- Portable computing anywhere
- Withstands harsh environments
- Off-line and online data transfer
- 8 TB of usable storage for HDD
- 14 TB of usable storage for SSD
- 2 CPU, 4 GB compute

Use cases

Industrial IoT, healthcare IoT, content distribution, content aggregation, data migration, logistics, autonomous vehicles, and transportation

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AWS Snowball Edge

Compute-optimized

42 TB of usable Amazon S3–compatible storage

52 vCPUs and 208 GiB of memory

Optional NVIDIA Tesla V100 GPU

SBE-C and SPE-G instances (equivalent to C5, M5a, G3, P3)

Storage-optimized

80 TB of usable Amazon S3–compatible storage

SBE1 instances (equivalent to C5)

Up to 40 vCPUs, 80 GiB of memory, 1 TB SATA SSD

Object storage clustering available

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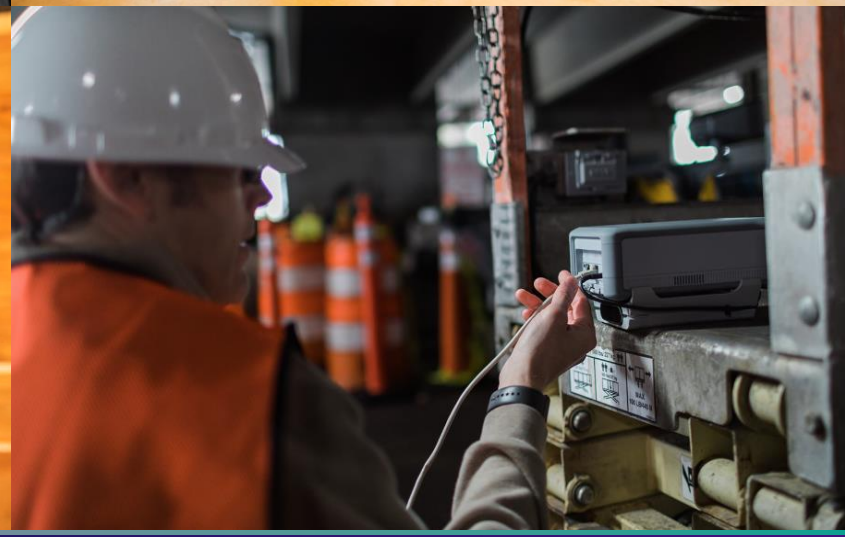

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