AWS re:Invent

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

CMP329

Introducing AWS Outposts servers

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Agenda



AWS Hybrid: From cloud to edge



Introducing AWS Outposts servers



AWS Outposts server experience



Getting started



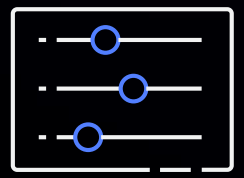
Designing for the edge with AWS Outposts

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AWS Hybrid:
From cloud to edge

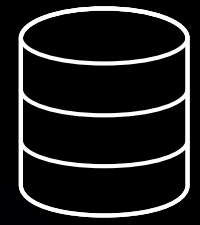
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Cloud customers have some applications that need to remain on premises



Latency sensitive

Equipment sensitive to compute latency, requiring <10 ms responses

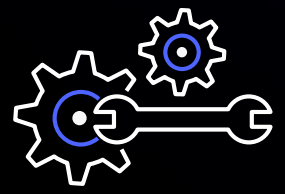


Local data processing

Customers can’t afford downtime as a result of intermittent networking

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Customers face challenges running on-premises applications today

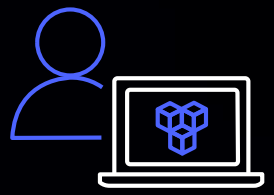


IT infrastructure

Complex procurement

Significant overhead to patch and upgrade

Application maintenance downtime and complex IT management

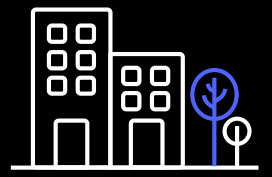


Developers

Don’t have the same services and APIs

Don’t have the same tools

Different code and processes for on premises



Business

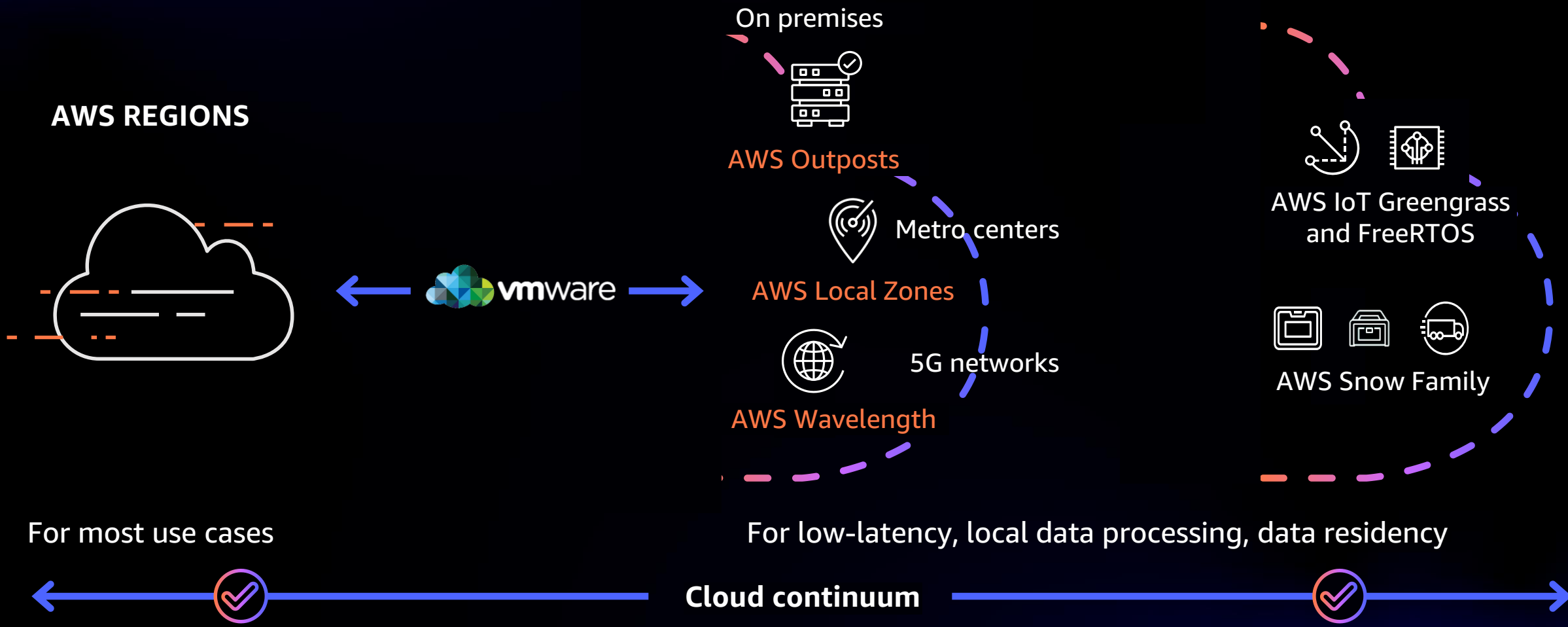
Pace of innovation lags, with delays from development to real-world use

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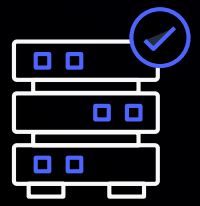
Cloud continuum

AWS – DELIVERING CLOUD WHERE CUSTOMERS NEED IT



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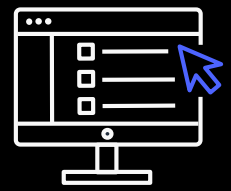
AWS Outposts: Bringing AWS on premises



Same AWS-designed infrastructure as in AWS data centers (built on AWS Nitro System)



Fully managed, monitored, and operated by AWS as if in AWS Regions



Single pane of management in the cloud providing the **same APIs and tools** as in AWS Regions

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AWS Outposts rack

- Industry standard **42U rack**
- **Fully assembled,** ready to be rolled into final position
- **Installed by AWS,** simply plugged into power and network
- **Centralized redundant power conversion unit** and DC distribution system for higher reliability, energy efficiency, easier serviceability
- **Redundant active components** including top of rack switches



Introducing AWS Outposts servers

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Smaller form factor brings the AWS Outposts service to edge sites in 2021

- Designed for high performance compute at edge sites like cell towers, retail locations, and healthcare clinics
  - Fit into data center space, IT closets along with other IT equipment
- Outposts servers are 1–2 rack units high (1.75–3.5”), and fit into standard EIA-310 19” width racks
- Lower power draw and lower bandwidth requirement than Outposts racks
- Launch Nitro-based Amazon EC2 instances and instance storage, with both Intel and AWS Graviton2 processor options
- Now let’s meet the servers!

Outposts racks



42U – 80 inches tall

Outposts servers – NEW!



2U–3.5 inches tall



1U–1.75 inches tall



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Outposts servers: 2U with Intel processor

- C6id instances with Intel Xeon Scalable processors (Ice Lake) with core turbo frequency of 3.5 Ghz
- Either .16xlarge or .32xlarge instance capacity
- Up to 128 vCPU, 256 GiB RAM, 4x 1900 GiB NVMe SSD
- 2U (3.5”) high, 17.5” wide, 30” depth, 36 lbs
- 0.4 up to 1.5 kVA steady-state power draw, with AC and DC options; 66–78 dBA acoustic range
- 10G networking port
- Interface for initial installation
- Nitro Security Key

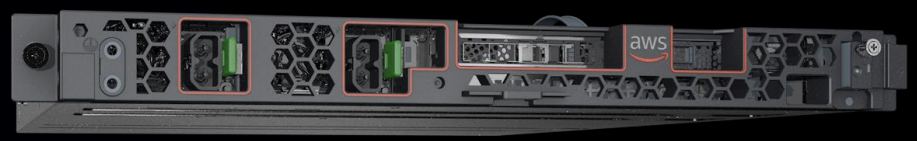


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Outposts servers: 1U with AWS Graviton2 processor

- C6gd instances with Graviton2 processors
- 16xlarge capacity
- Up to 64 vCPU, 128 GiB RAM, 2x 1900 GiB NVMe SSD
- 1U (1.75”) high, 17.5” wide, 24” depth, 28 lbs
- 0.4 – .8 kVA steady-state power draw, with AC and DC options
- 10G networking port
- Interface for initial configuration
- Nitro Security Key



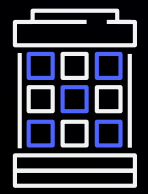
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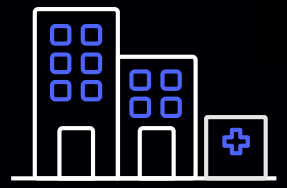
AWS Outposts server experience

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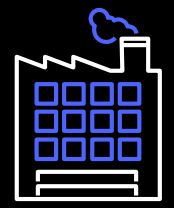
New Outposts server form factors are ideal for operations at the edge



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



Healthcare providers want to use the latest technology to process patient data on site so they can deliver great care quickly



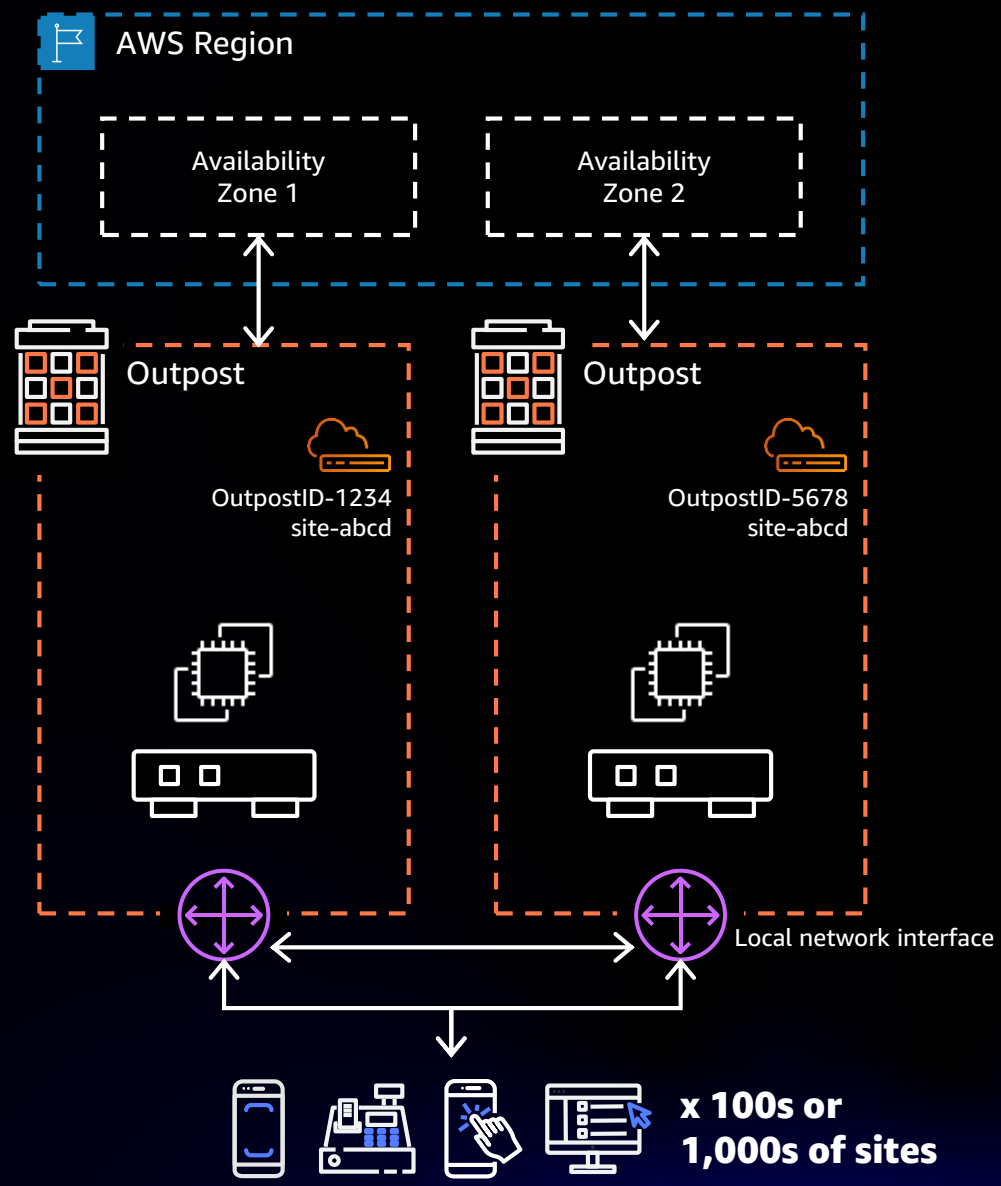
Factories and distribution centers need compute at the edge to integrate IoT data, monitor systems, and manage private campus 5G networks

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How does the Outposts service work?

- An **Outpost is a logical construct** that is used to manage infrastructure on your site
- **Extend architecture** from the AWS Region and integrate local workloads over your network using an L2 local network interface
- Each server has a unique Outpost ID; for higher availability, configure application failover over local network paths
- Use tags and tools like AWS CloudFormation to automate provisioning and deployments across global site locations



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AWS Outposts brings AWS native service experience to the edge

Compute and storage



Run virtual machines with Amazon EC2 instances and instance storage – manage them using the *same* tools as in Region

Networking



Amazon VPC enables seamless network integration

Containers



Use Amazon Elastic Container Service (Amazon ECS) and [Coming Soon] Amazon Elastic Kubernetes Service (Amazon EKS) managed container services

IoT workloads

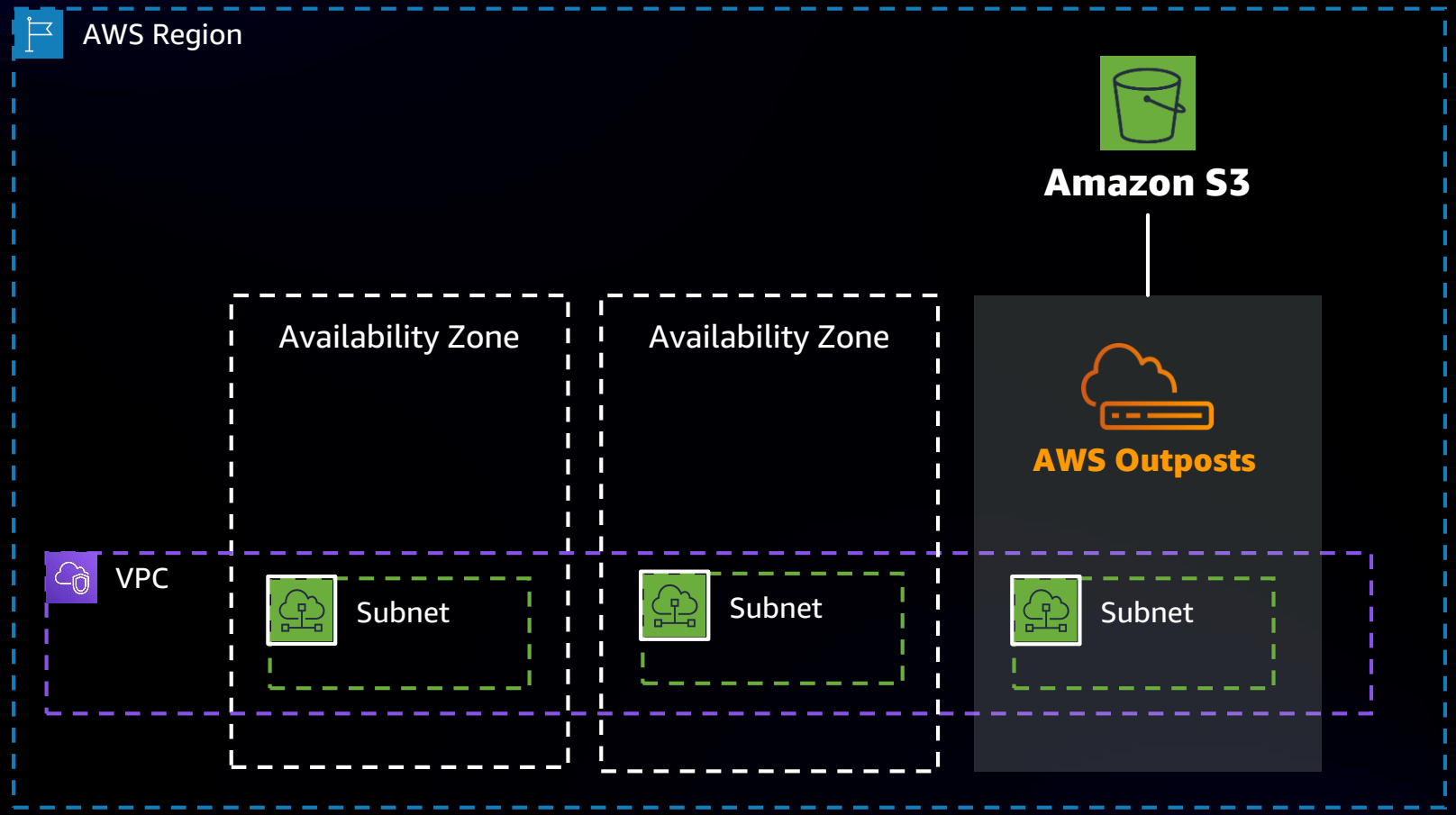


Run AWS IoT Greengrass or Amazon SageMaker Neo models

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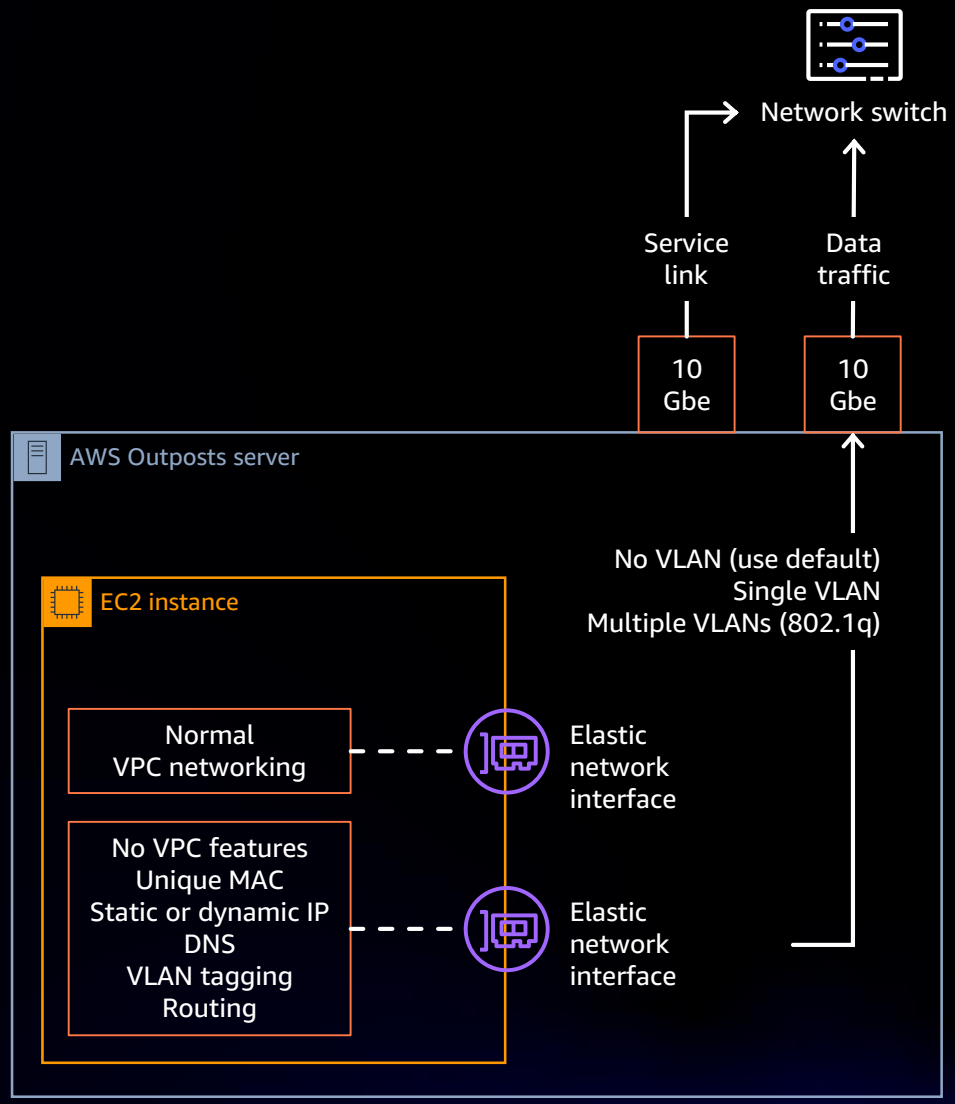
Seamlessly extend your regional VPC



Instances in the Outpost can securely talk to other instances in the VPC via private IP addresses

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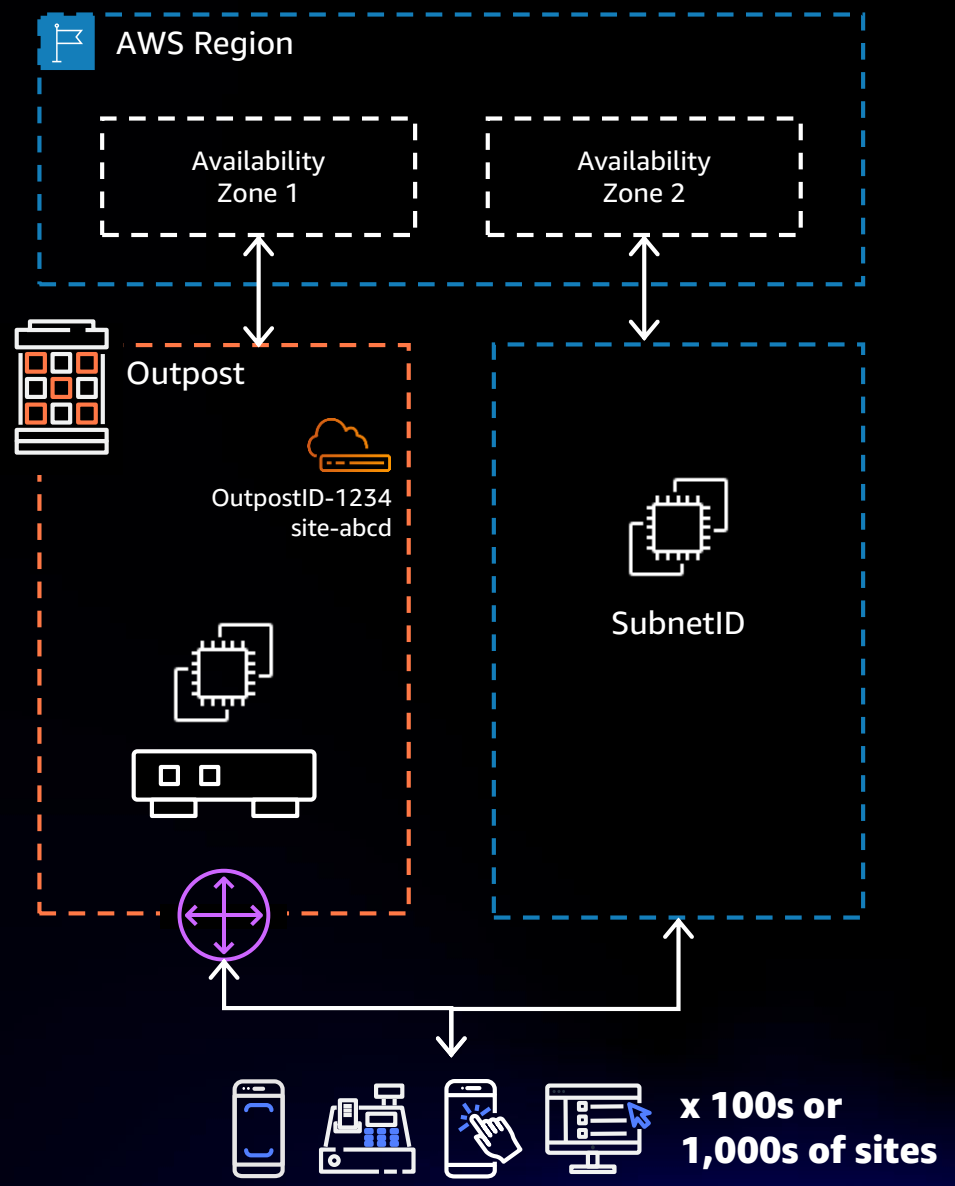
Communicate with your local network using new local network interface



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Architect across on-premises and in-Region

- **With consistent EC2 and ECS integration, customers have the ability to run primary on premises and secondary in-Region**
- **Design an architecture that meets your space, power, and networking needs at global locations**



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49 supported countries and territories



1. Outposts is available in Bogota and Valle del Cauca with support for additional departments coming soon

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Outposts server partners

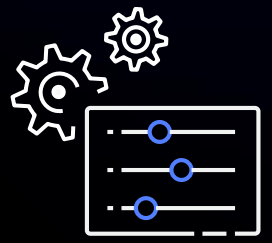
Storage	Networking	Security	Telco	Travel hospitality
PURESTORAGE®	CISCO	CROWDSTRIKE	ATHONET	VISTRY
CLOUDIAN®	vmware®		MAVENIR	Shiji

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Getting started

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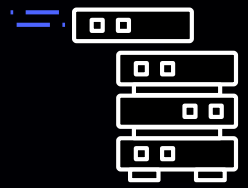
Get started with AWS Outposts servers



Order

Create a site and Outpost, then order Outposts servers

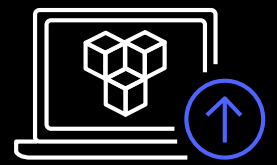
1



Simple DIY install

AWS delivers server(s), which your team can install

2



Launch

Launch and run AWS resources locally

3

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Prerequisites



Standard rack space

(EIA-310 19” width, 1–2U high rack position)
Space that accommodates 66 – 78 dB equipment (e.g., IT closet or server room)



Network connection to an AWS Region

On-premises networking devices with physical links over 10G ports
Internet connection via ISP or AWS Direct Connect



Onsite resource or third party to perform physical installation



Enterprise support

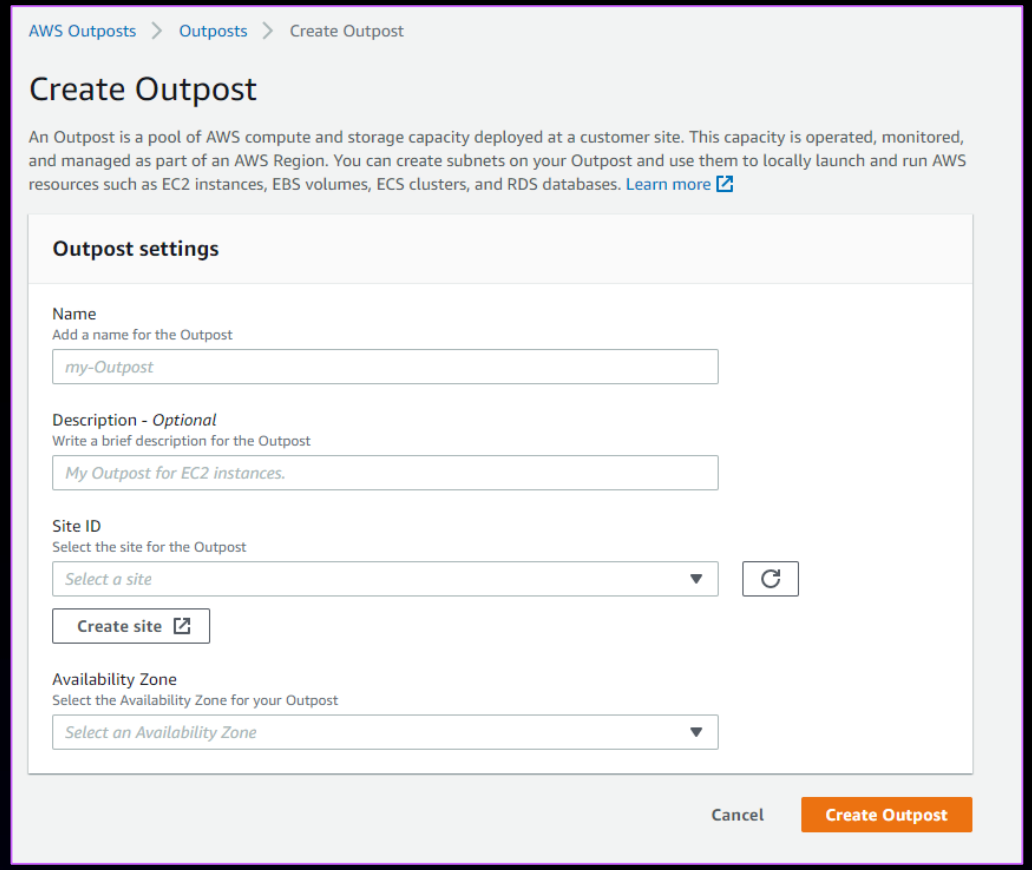
(24/7 customer support and more)

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STEP 1

Order

- Create a site by entering your address and relevant power and networking details
- **Create an Outpost,** which will be used to manage device capacity
- Use **tags for fleet management** by grouping your sites and/or your Outposts
- Simply **select a device SKU and submit your order**
- View your order status and configure alerting on the AWS Management Console

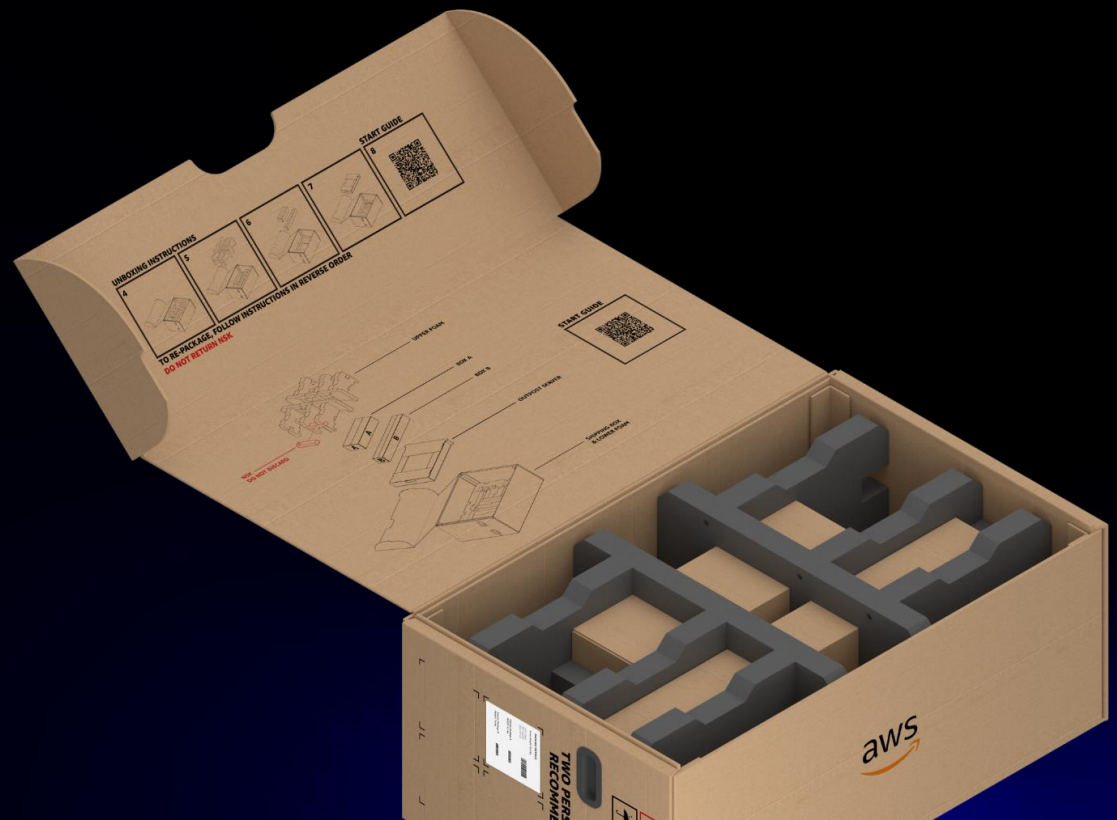


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STEP 2

Delivery and install

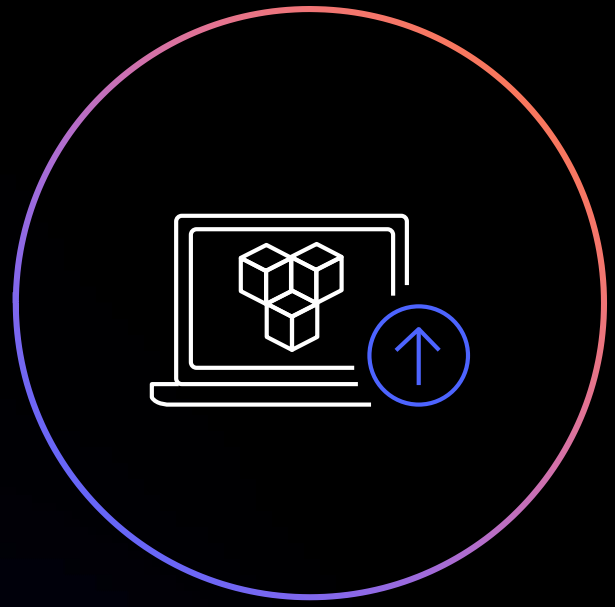
- **AWS delivers to your site** based on your preferred delivery window
- On-premises resource mounts the device in your server rack and **connects the device to power and networking**
- Once connected to your network, the **server "phones home"** to create a connection to the AWS Region
- Once connection is up, they are free to go!
- **AWS remotely provisions and configures** the device
- Outpost marked as **active** and ready to start



STEP 3

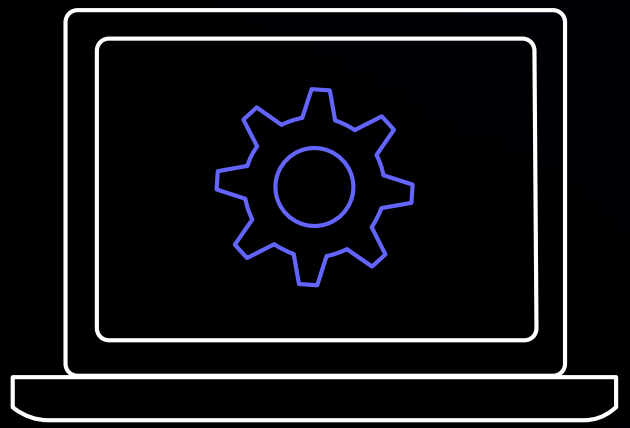
Launch

- Create a subnet
- Launch an instance on the Outpost, including instance-attached storage
- Associate the VPC with your local network
- Use management tools like CloudFormation, tagging, and Amazon CloudWatch
- Amazon EBS-backed AMIs can launch from local instance store



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Same AWS APIs and tools as in the AWS Region

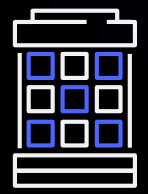


- EC2 Auto Scaling Group
- CloudTrail
- AWS CloudFormation
- Cloud9
- CloudWatch
- Systems Manager

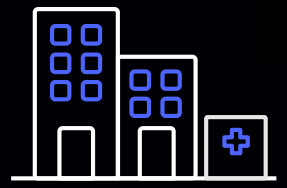
And more...

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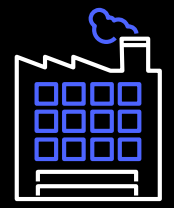
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Designing for the edge with AWS Outposts

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VISTRY

Atif Kureishy
Founder, vestry.ai

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AI for restaurant automation

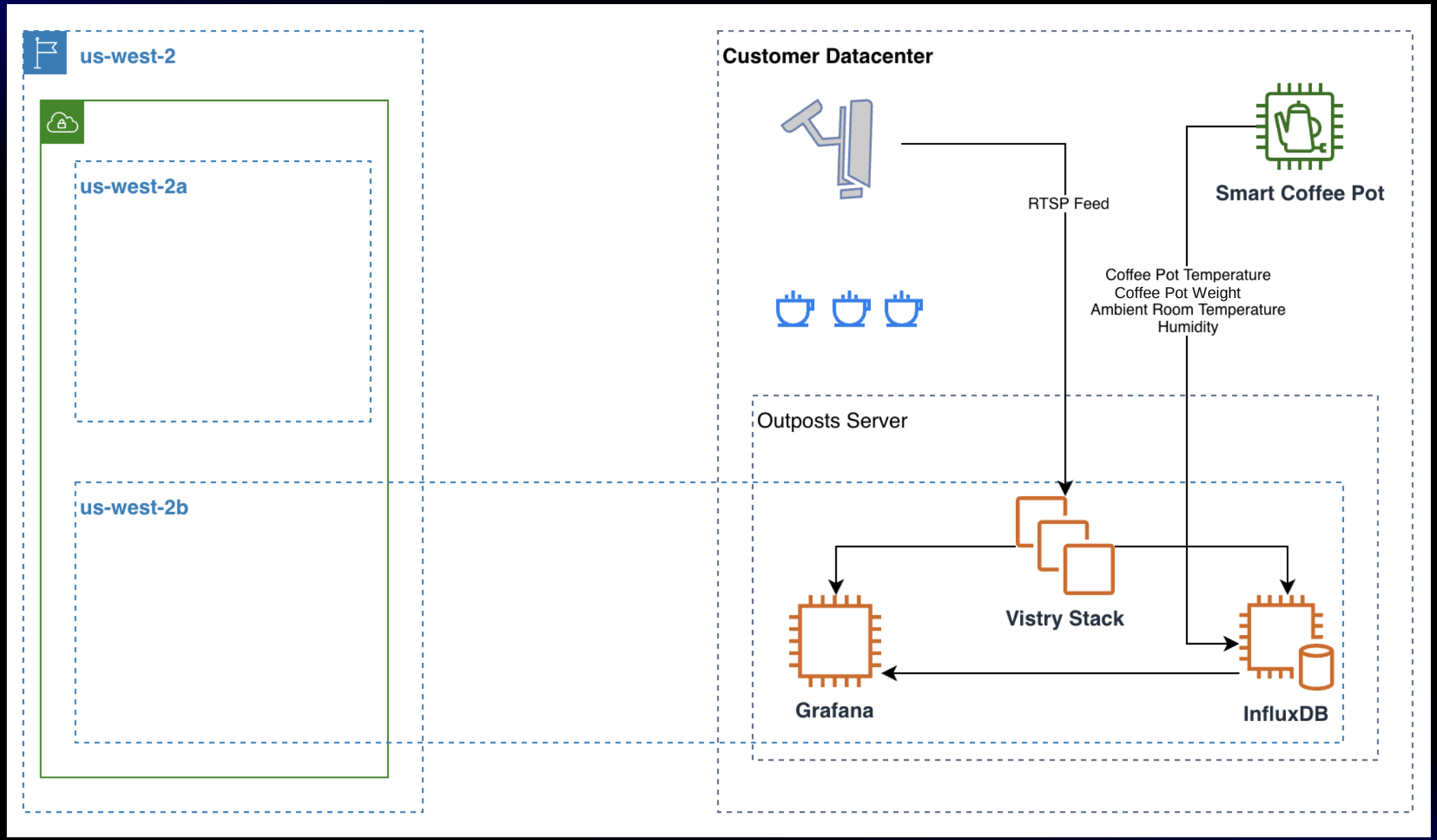
OUTPOST SERVER AT THE EDGE

We use vision, voice, and IoT data analytics (SaaS) to help restaurants measure and improve their speed and quality of service



VISTRY

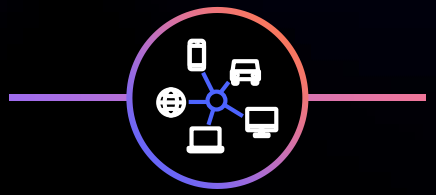
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Bring AWS to your premises . . . and beyond!

Microcontrollers and IoT devices



FreeRTOS

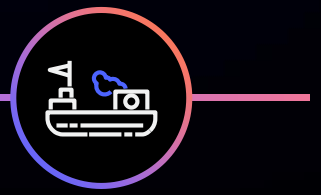
AWS IoT Greengrass

IoT

Amazon Kinesis Video Streams

Amazon SageMaker Neo

Rugged and disconnected edge



AWS Snowball Edge

AWS Snowcone

On premises



AWS Outposts

AWS Storage Gateway

AWS IoT SiteWise

AWS RoboMaker

5G telco networks



AWS Wavelength

Metro centers, PoPs, and Regions (AWS Cloud)





25 Regions

81 Availability Zones

220+ PoPs

210+ Edge locations



AWS Local Zones

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Thank you!

More resources:

https://aws.amazon.com/outposts/servers/

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