
AWS
re:Invent

EMB016

Introducing AWS Outposts in two new sizes

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Sr. Technical Product Manager

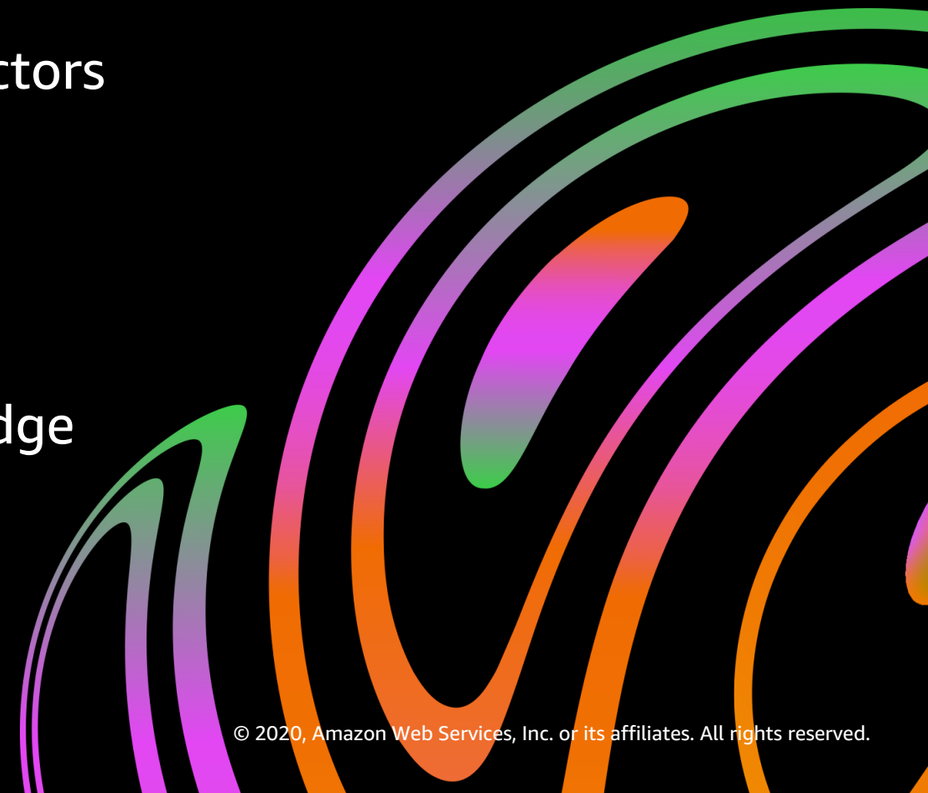
AWS

AWS re:Invent

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Agenda

- Customer challenges on-premises
- AWS Outposts overview
- New server form factors
- Getting started
- Designing for the edge with AWS Outposts



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Customer challenges on-premises



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Application continuum

EASE OF MIGRATION TO CLOUD

AWS Regions

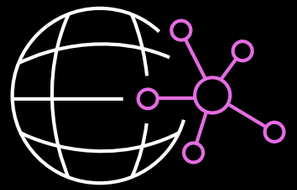
Web and enterprise



Most web and enterprise applications (email, collaboration, and web applications)

AWS Regions or on premises

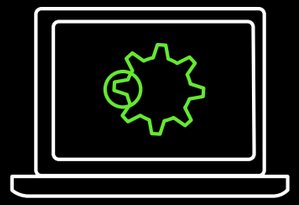
Residency



Data and infrastructure must reside in specific countries, states, or provinces

On premises

Local data processing



Large data sets that can’t be easily moved

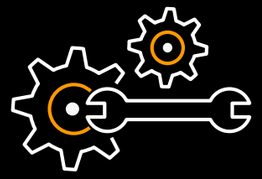
Low latency



Sensitive to compute latency, requiring <10 ms responses

Easier — Move to cloud — Harder

Customer challenges with on-premises applications



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

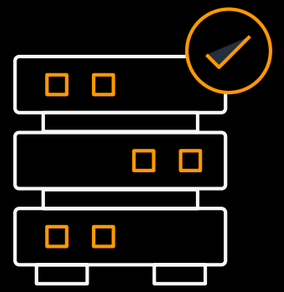
AWS Outposts overview



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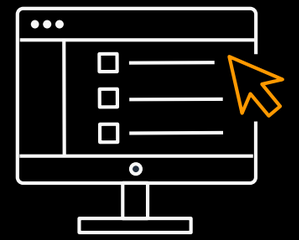
AWS Outposts: Bringing AWS on-premises



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

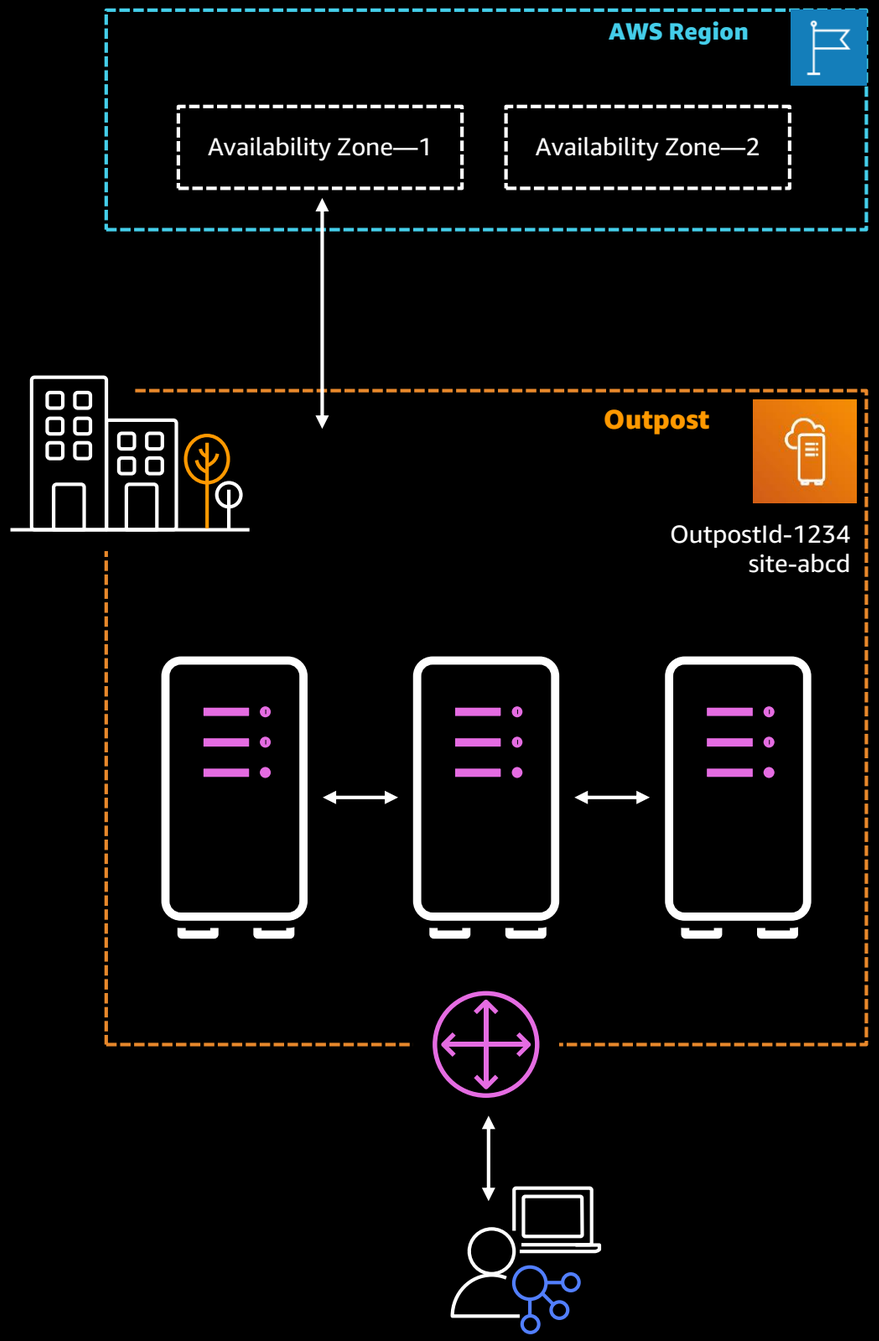
What is AWS Outposts?

AWS Outposts is a service that brings AWS services and operating models to customer premises

An ‘Outpost’ is a logical construct that is used to pool capacity from 1 or more racks of servers

Customers can extend architecture to span the AWS Region and their site, and integrate to local networks for seamless networking

Outposts racks support scalable workloads with 100+ racks of capacity



AWS Outposts: rack form factor

Industry standard 42U rack, designed for data center-grade workloads

Installation and repairs are handled by AWS

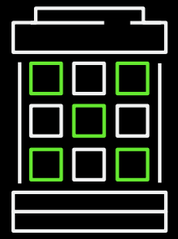
Recommend 1+ Gbps of network bandwidth, a rack position space, and 5+ kVA power

Scale to dozens of racks of capacity, with fully integrated networking management

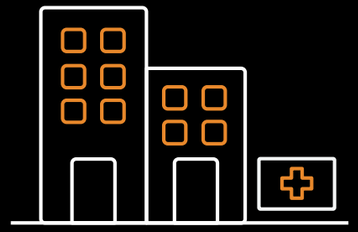
Wide range of AWS services on-premises for large workloads requiring servers of compute and dozens of TiB to PB of durable storage



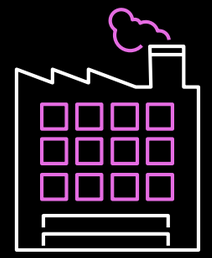
Some customers have workloads where a 42U rack cannot go…



Retail stores or branch offices have applications that need to integrate with on-premises systems and process local transactions



Healthcare providers want to process large data sets using the same tools at large and small sites



Factories and distribution centers build apps that drive automation and production lines, but may have constrained bandwidth available

New server form factors



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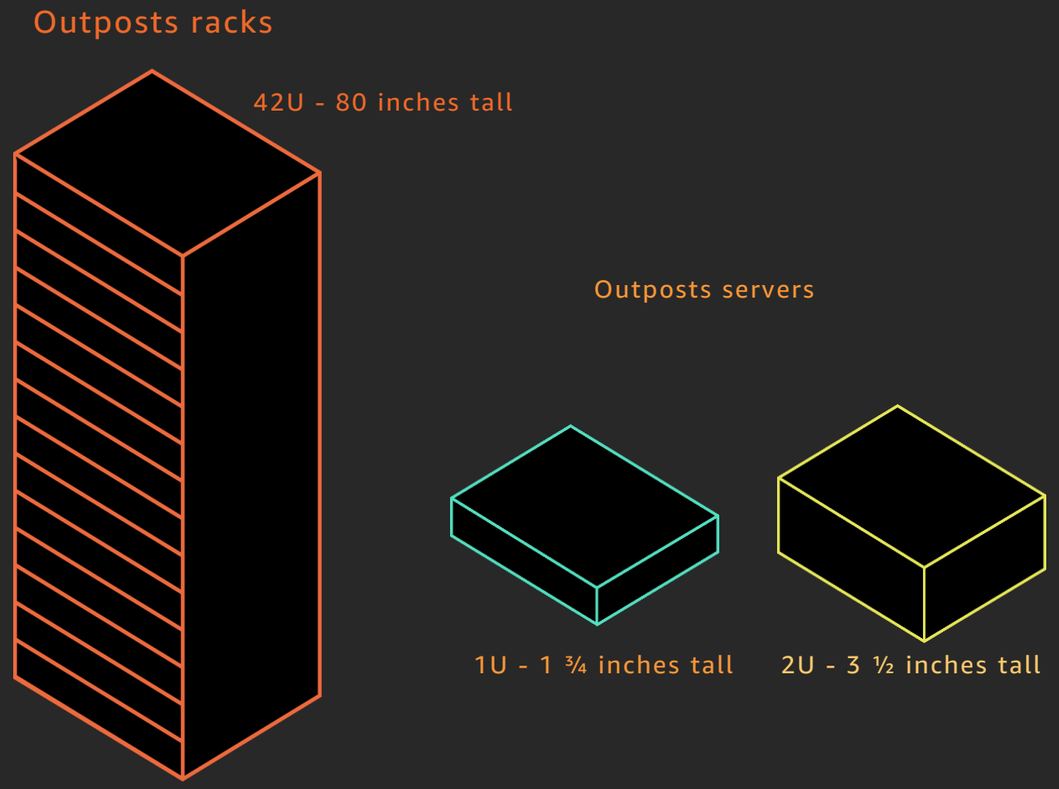
Smaller form factor brings the AWS Outposts service to edge sites in 2021

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 Graviton2 processor options

64+ vCPU and 4+ TiB NVMe storage per-device



Run AWS compute services for low latency and local processing

Compute and storage

Run virtual machines with Amazon EC2 instances and instance storage

Containers

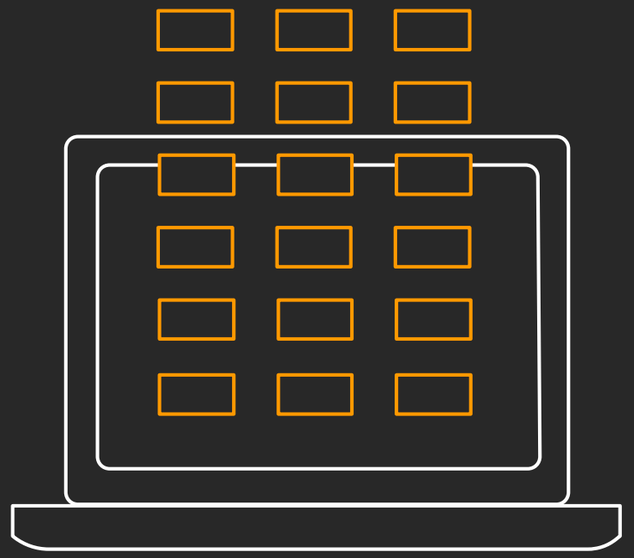
Use Amazon Elastic Container Service (Amazon ECS) and Amazon Elastic Kubernetes Service (Amazon EKS)

Networking

Amazon VPC enables seamless network integration

IoT workloads

Run AWS IoT Greengrass or Amazon SageMaker Neo models



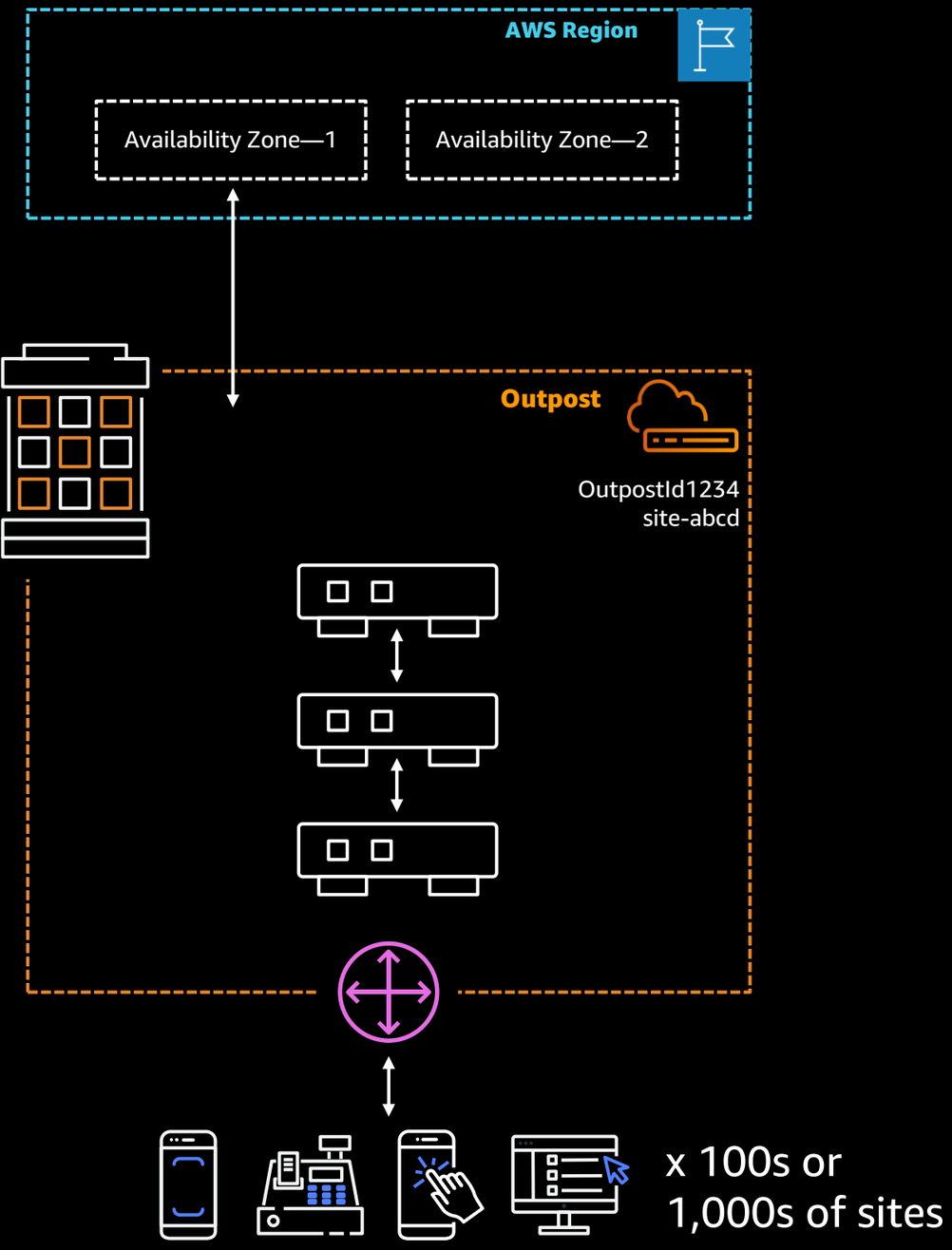
Deploy apps locally

Create an Outpost

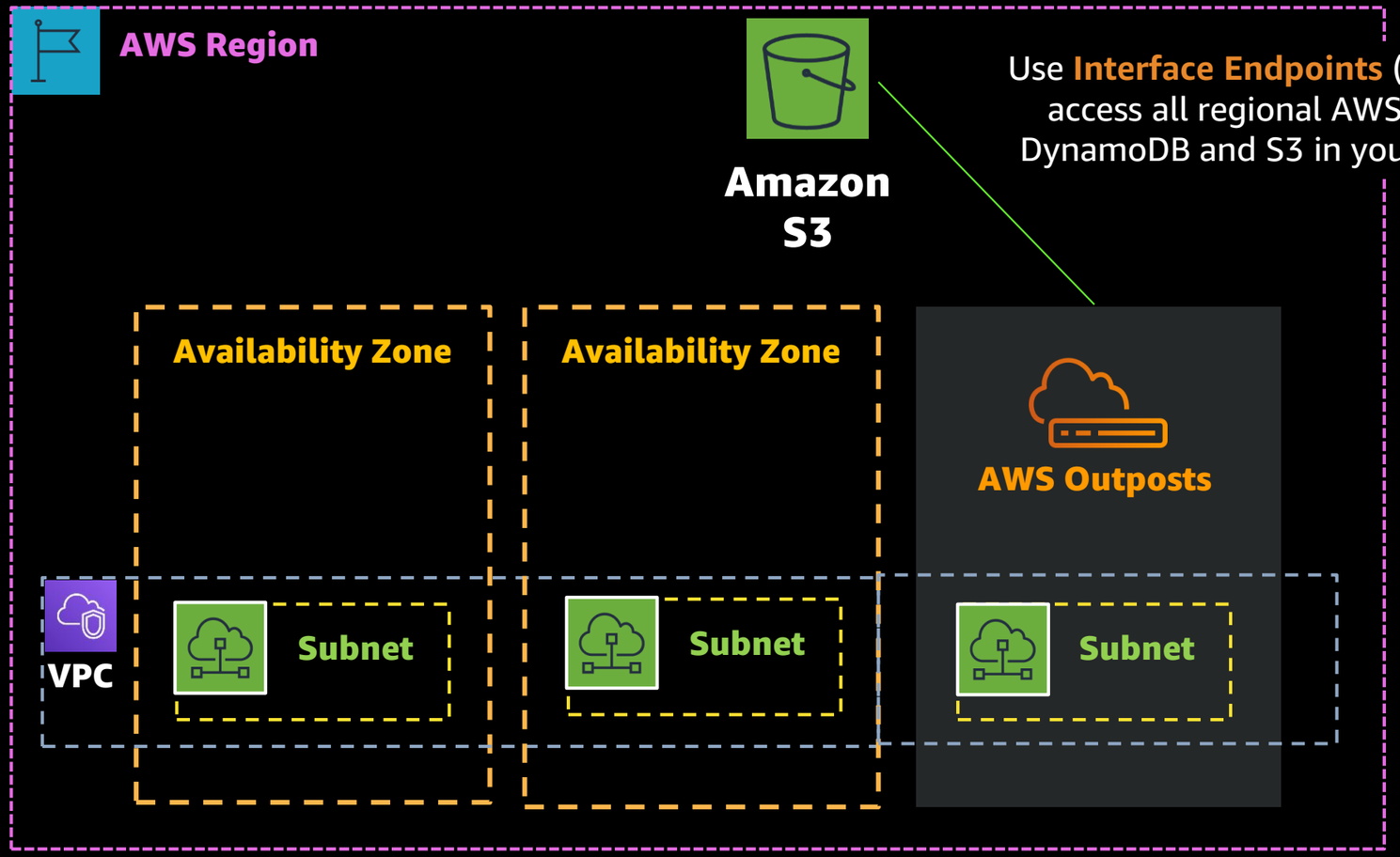
Configure communication with the AWS Region, and with local workloads over your network

Add 1+ servers associated with the same OutpostId

Use tags and tools like AWS CloudFormation to automate provisioning and deployments across global site locations

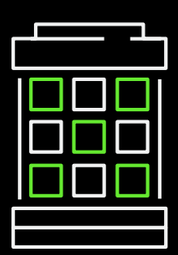


Seamlessly extend your regional VPC

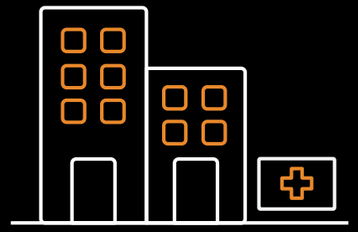


Instances in the Outpost can securely talk to other instances in the VPC via private IP addresses

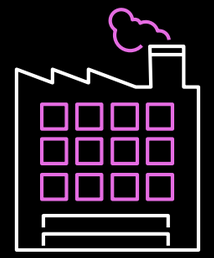
New form factors are ideal for operations at the edge



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



Healthcare providers want to use the latest technology to assess patient medical images and process 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 quickly alert operators of relevant changes

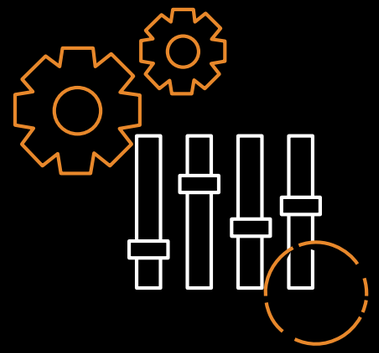
Getting started



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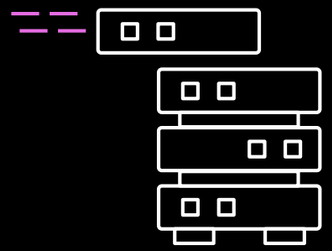
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Get started with AWS Outposts servers



1. Order

Create a site and Outpost, then order Outposts servers



2. Simple DIY install

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



3. Launch

Launch and run AWS resources locally

Prerequisites



Standard rack space
(EIA-310 19" width, 1–2U high rack position)



Network connection to an AWS Region

- On-premises networking devices with physical links over 1G or 10G ports
- Internet connection via ISP or AWS Direct Connect



On-site resource or third-party to perform physical installation



AWS Enterprise Support
(24x7 customer support and more)

Step 1:
Order

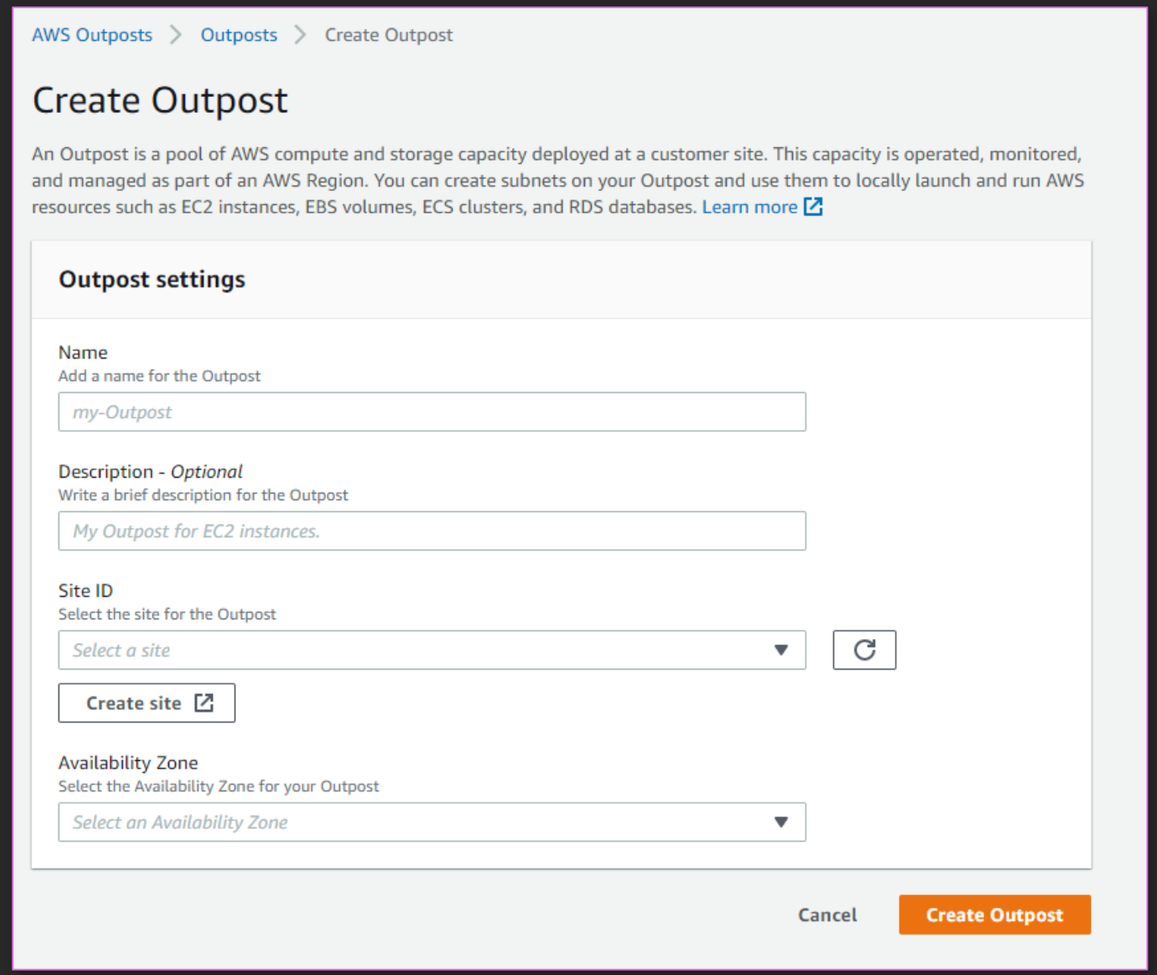
Create a site by entering your address, and relevant power and networking details

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



Step 2:
Delivery & install

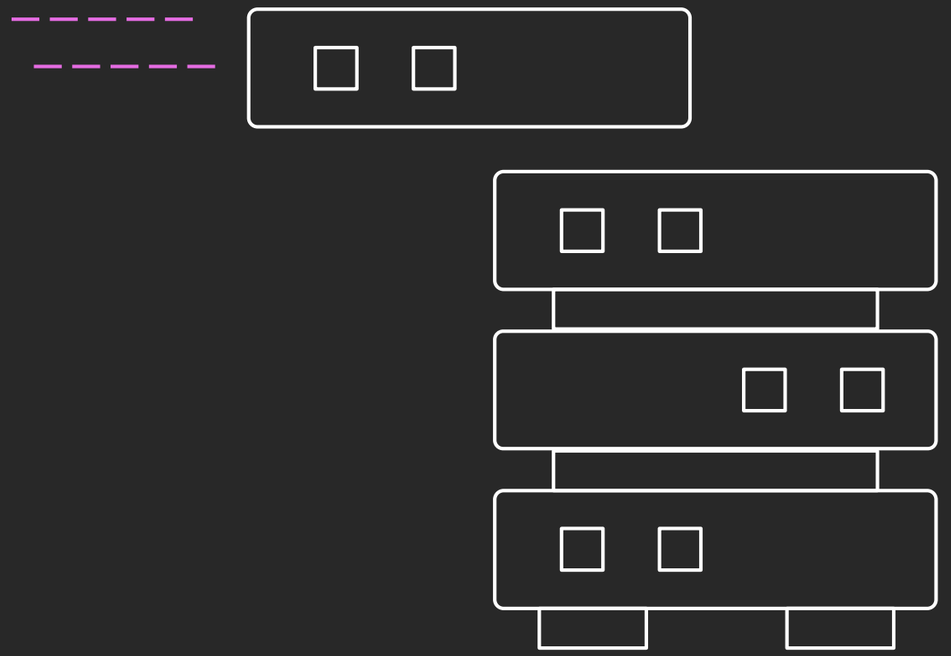
AWS delivers to your site based on your preferred delivery window

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

AWS remotely provisions and configures the device

1–6 servers at a site can be configured as a single pool of capacity within the same ‘Outpost’



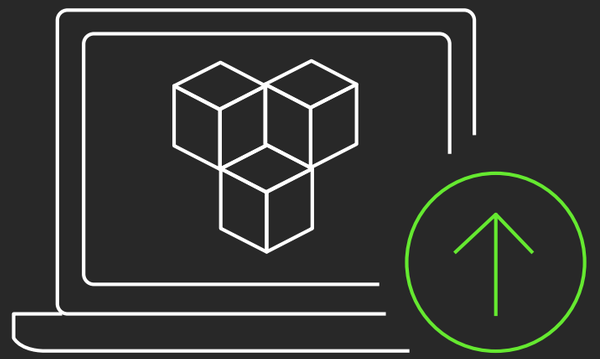
Step 3:
Launch

Create a subnet

Launch an instance on the Outpost

Associate the VPC with your local network

Use management tools like CloudFormation, tagging, and Amazon CloudWatch



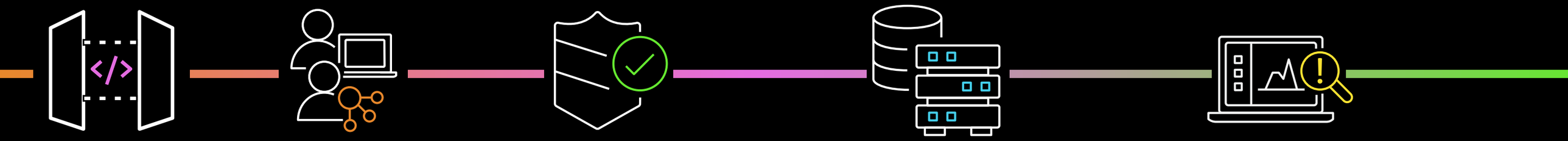
Designing for the edge with AWS Outposts



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Extend AWS with consistent tools to achieve performance, security, and availability



Use the same APIs and tools

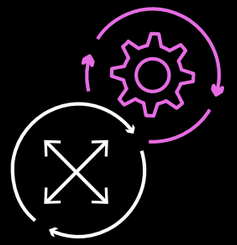
Design for the shared responsibility model

Build securely

Consider availability and redundancy

Monitor networking

AWS Outposts: Addressing customer challenges, now available for space-constrained locations



Customers' workloads require low latency and local data processing



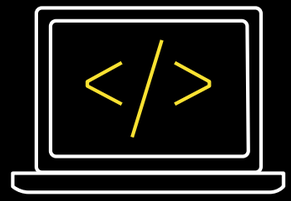
AWS Outposts simplifies IT management with an integrated model



New server form factor brings Outposts to space-constrained sites



Simple ordering and management experience



Amplify developer productivity with the same APIs, tools, and security posture

Bring AWS to your premises … and beyond!

Microcontrollers & IoT devices



- FreeRTOS
- AWS IoT Greengrass
- IoT
- Amazon Kinesis Video Streams
- Amazon SageMaker Neo

Rugged & Disconnected edge



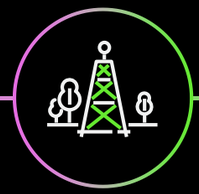
- AWS Snowball Edge
- AWS Snowcone

On-premises



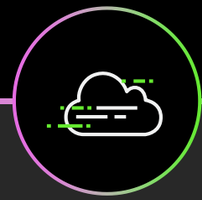
- AWS Outposts
- AWS Storage Gateway
- AWS IoT SiteWise
- AWS RoboMaker

5G telco networks



- AWS Wavelength

Metro centers, PoPs & Regions (AWS Cloud)





24 Regions

77 Availability Zones

220+ PoPs

210+ Edge locations



- AWS Local Zones

Thank you!



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