

Service Name

AWS Outposts

Service Overview

AWS Outposts is a fully managed service that extends AWS infrastructure, services, APIs, and tools to customer premises. It enables customers to build and run applications on-premises using the same programming interfaces as in AWS Regions, while using local compute and storage resources for lower latency and local data processing needs. An Outpost is a pool of AWS compute and storage capacity deployed at a customer site, which AWS operates, monitors, and manages. Available in rack and server form factors, Outposts provides consistent hybrid experience with native AWS services including EC2, EBS, S3, RDS, and container services running locally while maintaining connection to the parent AWS Region.

Key Use Cases

- **Low-latency applications:** Workloads requiring sub-millisecond latencies and real-time processing near end users or on-premises systems
- **Data residency and compliance:** Applications that must keep data on-premises due to regulatory requirements, data sovereignty, or compliance mandates
- **Local data processing:** Processing large volumes of data locally before sending insights to the cloud, reducing data transfer costs and improving performance
- **Hybrid workloads:** Applications with local system interdependencies that need seamless integration between on-premises and cloud resources
- **Edge computing:** Running compute and storage services at edge locations for IoT, manufacturing, healthcare, and content delivery use cases

Features

- **Compute Services:** Amazon EC2 instances (M5, C5, R5, M7i, C7i, R7i, G4dn), Amazon ECS clusters, Amazon EKS nodes, with support for both general purpose and specialized workloads
- **Storage Services:** Amazon EBS volumes with gp2 storage, Amazon S3 on Outposts buckets, EBS Local Snapshots, and support for third-party block storage integration
- **Database Services:** Amazon RDS DB instances, Amazon DynamoDB, Amazon DocumentDB, and Amazon ElastiCache nodes running locally on Outposts
- **Networking:** VPC extension, local gateway connectivity, Application Load Balancers, customer-owned IP addresses, and direct VPC routing to on-premises networks
- **Container Services:** Amazon ECS, Amazon EKS, AWS Fargate support for containerized applications with local orchestration capabilities

- **Management Tools:** AWS Systems Manager, AWS Config, AWS Resource Access Manager, and standard AWS APIs, CLI, and SDKs for consistent management experience

Value Proposition

AWS Outposts provides unique advantages for organizations requiring on-premises compute while maintaining cloud benefits. Unlike traditional infrastructure, customers receive fully managed AWS services with automatic updates, patches, and maintenance handled by AWS:

- The service offers true hybrid consistency with identical APIs, tools, and services as AWS Regions, eliminating operational complexity
- Key differentiators include ultra-low latency for real-time applications, guaranteed data residency for compliance requirements, seamless integration with existing AWS workloads, and the ability to scale on-premises capacity without managing hardware procurement or lifecycle management
- Organizations avoid upfront infrastructure investments while gaining enterprise-grade security, reliability, and the AWS ecosystem's breadth of services locally

Service Integration

AWS Outposts integrates extensively with core AWS services to provide seamless hybrid functionality. VPC services extend naturally to Outposts with subnets, security groups, and routing tables:

- IAM provides unified identity management across on-premises and cloud resources
- CloudWatch enables monitoring and logging for Outposts resources alongside regional services
- AWS Direct Connect and VPN services establish secure connectivity to parent AWS Regions
- S3 integration supports data transfer between local S3 on Outposts and regional S3 buckets
- Route 53 provides DNS services with local resolvers available on racks
- AWS Backup, DataSync, and Elastic Disaster Recovery enable data protection strategies
- Container services integrate with Amazon ECR for image management, while database services maintain compatibility with AWS database tools and features

Onboarding and Offboarding

Getting started with AWS Outposts involves several key steps managed through the AWS Console. First, customers create an Outpost site defining the physical location and network requirements:

- Next, they create an Outpost configuration specifying compute and storage capacity needs, then place an order selecting payment options and deployment details
- AWS handles delivery, installation, and activation, requiring customer-provided power, cooling, and network connectivity
- During installation, AWS technicians configure the service link to the parent AWS Region and integrate with the local network
- Customers must have appropriate IAM permissions and enterprise support subscription
- After activation, standard AWS APIs, CLI, and console access enables resource provisioning and management identical to cloud operations

Getting Started Guide: <https://docs.aws.amazon.com/outposts/latest/userguide/get-started-outposts.html>

Data Removal

At term end, customers have options to renew, return, or convert to month-to-month billing. For data removal, customers must terminate all EC2 instances, delete EBS volumes and S3 buckets, remove VPC associations, and destroy the AWS Nitro Security Key (NSK) which cryptographically shreds all data on the Outpost. AWS provides at least 5 business days notice for decommissioning. The retrieval team powers down equipment, and customers can destroy the NSK themselves or have AWS do it during retrieval, ensuring complete data destruction.

Backup/Restore and Disaster Recovery

AWS Outposts supports multiple backup and disaster recovery strategies. EBS snapshots can be stored locally on S3 on Outposts or in the parent AWS Region for redundancy. S3 Versioning and Cross-Region Replication protect object data. AWS Elastic Disaster Recovery continuously replicates instances and storage between Outposts, on-premises systems, and AWS Regions. DataSync facilitates data transfer for backup purposes. Third-party backup solutions from AWS Partners provide additional options for comprehensive data protection strategies.

Backup Capabilities

AWS Outposts provides native backup capabilities through EBS snapshots stored locally or in AWS Regions, S3 object versioning and replication, and integration with AWS Backup service. Local snapshots on S3 on Outposts meet data residency requirements while regional snapshots provide geographic redundancy. The service supports automated backup policies and point-in-time recovery for applications and databases running on Outposts infrastructure.

Disaster Recovery

AWS Outposts supports disaster recovery through AWS Elastic Disaster Recovery (DRS) which replicates instances between Outposts, on-premises systems, and AWS Regions. Multi-AZ deployments across multiple Outposts provide local redundancy:

- Route 53 health checks enable automatic failover
- Application Load Balancers distribute traffic and support failover scenarios
- The service maintains connectivity to parent AWS Region for control plane operations during local failures

Recovery Objectives

AWS Outposts enables customers to meet aggressive RPO and RTO objectives through local data processing and storage capabilities. Local snapshots and replication can achieve RPO measured in minutes, while automatic failover mechanisms and redundant infrastructure support RTO targets of minutes to hours. Multi-rack deployments and regional backup strategies provide multiple recovery tiers to match business requirements and criticality levels for different workloads.

Service Constraints

Service Quotas: <https://docs.aws.amazon.com/outposts/latest/userguide/outposts-limits.html>

FAQ: <https://aws.amazon.com/outposts/rack/faqs/>

Technical Requirements

Service Documentation: <https://docs.aws.amazon.com/outposts/latest/userguide/what-is-outposts.html>

User Guide: <https://docs.aws.amazon.com/outposts/latest/userguide/index.html>

API Reference:

<https://docs.aws.amazon.com/outposts/latest/APIReference/Welcome.html>

Pricing Overview

Please see the AWS UK G Cloud 15 Pricing Document accompanying this service in the Digital Marketplace.

Public Pricing: <https://aws.amazon.com/outposts/rack/pricing/>

Cost Optimization

AWS Outposts offers several cost optimization approaches unique to hybrid infrastructure. Customers can optimize by right-sizing Outpost configurations to match workload requirements, avoiding over-provisioning:

- Local data processing reduces data transfer costs to AWS Regions
- Choosing appropriate payment options (All Upfront, Partial Upfront, No Upfront) based on cash flow preferences provides cost flexibility
- Shared resource models through AWS Resource Access Manager enable cost sharing across accounts
- Local S3 storage reduces regional storage and transfer costs
- Consolidating multiple workloads on single Outposts maximizes hardware utilization and reduces per-workload costs

Savings Considerations

Primary cost savings come from eliminating traditional data center infrastructure management overhead, including hardware procurement, maintenance contracts, and specialized staff. Reduced data transfer costs through local processing and storage provide ongoing operational savings:

- Avoiding over-provisioning through AWS's managed capacity and right-sizing recommendations optimizes costs
- Three-year term commitments provide significant discounts over month-to-month pricing
- Shared infrastructure costs across multiple workloads and applications improve overall ROI
- Integration with existing AWS tooling and automation reduces operational expenses compared to managing separate on-premises solutions