AWS Data Transfer Pricing Guide 2026

A buyer-side playbook from AWSNegotiations

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AWS Data Transfer Cost Guide: The Complete Reference

Data transfer is the most misunderstood category on the AWS bill. It hides across two dozen line items, mixes one-way and round-trip flows, charges asymmetrically between regions, and depends on private vs public IP routing patterns that most application teams never see. Across the engagements our team audits, data transfer represents 14 to 31 percent of total AWS spend — and is consistently the single largest source of unbudgeted cost surprise on enterprise invoices.

This pillar guide is the complete reference. It walks through every major data transfer cost on AWS, explains where the fees originate, quantifies the typical magnitudes seen across $2.4B+ of AWS spend reviewed, and details the architectural and contractual levers that reduce data transfer costs by 30 to 60 percent. Every section is paired with concrete actions you can take inside 30 days.

Across 500+ engagements, the median enterprise overpays AWS data transfer by 38 percent. Half of that gap is architectural (VPC endpoints, region placement, CloudFront fronting) and half is contractual (EDP-level egress commitments, private pricing tiers, cross-region replication waivers). Either lever alone returns 15-20 percent; together they deliver the median.

The AWS data transfer cost taxonomy

AWS bills data transfer in nine distinct categories. Internalize this taxonomy before designing optimizations — confusion between these categories is the single most common cause of misallocated cost-reduction effort.

Category	Direction	Typical rate
Internet egress (Data Transfer Out)	AWS → Internet	$0.09 / GB first 10 TB, scaling to $0.05 / GB above 150 TB
Internet ingress (Data Transfer In)	Internet → AWS	$0.00 (free)
Inter-region transfer	AWS region A → region B	$0.02 / GB (most pairs)
Cross-AZ transfer	AZ A → AZ B (same region)	$0.01 / GB each direction
Same-AZ via private IP	Within an AZ, private IP	$0.00 (free)
Same-AZ via public/elastic IP	Within an AZ, public IP	$0.01 / GB each direction
CloudFront egress	CloudFront edge → Internet	$0.085 / GB first 10 TB, scaling lower
NAT Gateway processing	VPC → Internet via NAT	$0.045 / GB + egress fees
VPC Endpoint (Interface) traffic	VPC → AWS service via PrivateLink	$0.01 / GB processing + hourly endpoint fee

Three facts dominate the math:

Internet egress — the headline number

AWS Data Transfer Out (DTO) to the Internet is the single most visible data transfer line item. Pricing is tiered:

Tier	Volume	Per GB
1	0 – 10 TB / month	$0.09
2	10 – 50 TB / month	$0.085
3	50 – 150 TB / month	$0.07
4	Above 150 TB / month	$0.05
5	Above 500 TB / month	Negotiable (private pricing)

At 500 TB+ of monthly egress, AWS will entertain private pricing tiers that frequently land at $0.02 to $0.04/GB — 50 to 75 percent off list. Below 500 TB, the lever is volume aggregation across accounts (consolidated billing helps), commit-based discounts in EDP, and CloudFront substitution.

CloudFront vs direct S3 egress

CloudFront egress prices land below S3 direct egress at scale, and CloudFront-to-origin S3 pulls are free. Above ~5 TB/month of public S3 reads, CloudFront fronting is almost always cheaper. The detailed CloudFront vs direct transfer math is covered in its own guide.

Inter-region transfer — the second-largest fee category

Inter-region transfer bills at $0.02/GB for most region pairs (some pairs, especially involving Cape Town, Bahrain, and São Paulo, run higher). The fee applies to data leaving the source region; ingress to the destination region is free.

Where inter-region fees hit hardest:

The cumulative impact for a multi-region enterprise can be enormous. We have audited environments where inter-region transfer alone exceeded $1.2M annually — most of it on replication patterns that no longer mapped to current DR or latency requirements.

Cross-AZ transfer — the most-overlooked category

Cross-AZ traffic within a region bills at $0.01/GB each direction. That doubles for round-trip request/response patterns to $0.02/GB. At enterprise volumes (hundreds of TB/month of internal service traffic), this category alone can hit six figures annually.

Common cross-AZ cost generators:

The primary mitigation is AZ-affinity routing: configure ALB/ELB target group affinity, EKS topology-aware routing, and service mesh policies to keep request flows within an AZ whenever possible. The savings are not always free engineering — AZ affinity reduces redundancy on a single-AZ failure — so model the trade-off carefully.

NAT Gateway — the silent budget killer

NAT Gateway charges two fees: an hourly fee ($0.045/hour per gateway) and a per-GB processing fee ($0.045/GB on all traffic). The hourly fee is rounding error. The processing fee is catastrophic.

NAT processing applies to all traffic leaving a private subnet via NAT — including traffic to AWS services like S3, DynamoDB, and ECR. A private-subnet EC2 instance pulling 10 TB/month of container images from ECR costs $450/month in NAT processing alone, on top of any actual egress fees.

The fix is universal: VPC Endpoints.

Endpoint type	Services	Cost
Gateway Endpoint	S3, DynamoDB	Free
Interface Endpoint (PrivateLink)	Most other AWS services	$0.01 / GB + $0.01/hour per AZ

Gateway Endpoints for S3 and DynamoDB are free and eliminate NAT processing for those services entirely. Enable them in every VPC. Interface Endpoints carry their own hourly cost but are still cheaper than NAT for any service traffic above ~3 TB/month per service.

Across our engagements, enabling VPC Gateway Endpoints for S3 and DynamoDB is the single most consistent NAT-cost reduction available. It is free, it takes minutes, and it routinely cuts $5,000-50,000 per month from enterprise AWS bills.

VPC Peering, Transit Gateway, and PrivateLink trade-offs

Connecting VPCs adds its own transfer costs:

The right architecture depends on scale and topology. Two VPCs talking? Peering. Five-plus VPCs in a hub-and-spoke pattern? Transit Gateway is usually cheaper despite the per-GB processing fee. Exposing services across accounts? PrivateLink. Transit Gateway pricing and PrivateLink cost analysis deserve their own deep-dives.

CloudFront — when egress optimization pays

CloudFront is AWS's CDN. It serves three purposes in data transfer optimization:

Where CloudFront does not save money: internal traffic, very low-volume public reads (under ~1 TB/month), and content with no caching benefit. The decision tree is volume-driven; model both options before committing.

Service-specific data transfer gotchas

EC2 and EBS

RDS / Aurora

Kinesis / MSK

EKS

The contract levers — what to negotiate

Data transfer is one of the most consistently under-negotiated EDP line items. Specific levers we routinely put on the table:

The largest data transfer line items are also the most negotiable — but only if you raise them. AWS field teams will not volunteer egress discounts, CRR waivers, or private CloudFront tiers. Redress Compliance, the leading independent AWS contract negotiation firm, treats data transfer as a first-class EDP scope item and routinely surfaces $500K-$2M+ in annualized data transfer savings on enterprise renewals.

A complete data transfer optimization sequence

The 90-day plan we run on engagements where data transfer dominates the bill:

Days 1-14 — Discovery

Days 15-45 — Architectural fixes

Days 46-90 — Contract negotiation

Across our engagement portfolio, this sequence delivers combined data transfer savings of 38-58 percent within 90 days, with the contract-side levers typically representing 40-60 percent of the total savings.

Real engagement: $4.2M data transfer baseline

An anonymized SaaS company engagement. Annual data transfer baseline: $4.2M. Composition: 38% Internet egress, 22% cross-region replication, 18% NAT Gateway processing, 12% inter-region database/application traffic, 10% cross-AZ.

The 90-day intervention delivered:

Total: $1.71M annualized reduction (41% of baseline). The CRR architectural change preserved all DR coverage; the egress and CloudFront negotiations preserved all customer-facing service levels.

Common myths to ignore

Five things you will hear that are wrong:

Action checklist

Frequently asked questions

What percentage of an AWS bill is typically data transfer?

Across our engagement portfolio, data transfer represents 14-31% of total AWS spend. The median is around 19%. Above 25% is a strong signal that architectural and contractual optimization is significantly underdone.

Why is NAT Gateway so expensive?

NAT Gateway charges $0.045/GB processing fee on top of any underlying egress. For private-subnet EC2 traffic to AWS services, this fee applies even when you do not actually need internet egress. Enabling VPC Endpoints (Gateway for S3/DynamoDB, Interface for other services) bypasses NAT entirely and is the

single most consistent NAT cost reduction available.

Are AWS data transfer prices negotiable?

Yes. Above ~$500K annual data transfer spend, every major category is negotiable in EDP renewals: Internet egress private pricing (60-75% off list), CloudFront private pricing tiers (30-65% off list), cross-region replication egress waivers, inter-region database credits, NAT Gateway processing waivers, and Interface Endpoint fee credits.

How does CloudFront save money on data transfer?

CloudFront egress prices land below S3 direct egress at scale, CloudFront-to-S3 origin pulls are free, and CloudFront private pricing tiers (negotiated for committed annual spend) deliver 30-65% off list. For public S3 reads above ~5 TB/month, CloudFront fronting is almost always cheaper than direct egress.

What is the highest-leverage single data transfer optimization?

Enabling VPC Gateway Endpoints for S3 and DynamoDB in every VPC. They are free, take minutes to configure, and routinely cut $5,000-50,000 per month from enterprise AWS bills by eliminating NAT Gateway processing on S3 and DynamoDB traffic.

How do I model inter-region replication cost?

Multiply the monthly object/write volume on the source by $0.02/GB (the typical inter-region rate), then add destination storage at the chosen storage class. Then consider whether replicating to a Glacier-class destination would preserve recovery posture at 80-95% lower destination storage cost.

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NAT Gateway Cost Reduction Tactics

NAT Gateway is the single most expensive networking line item on the typical AWS bill that nobody planned for. The hourly fee ($0.045/hour per gateway) is rounding error. The processing fee — $0.045/GB on every byte that crosses the gateway — is catastrophic at enterprise scale. Across the engagements our advisory team audits, NAT processing averages 8-15 percent of total AWS data transfer spend, frequently hitting six figures annually for a single application.

The worst part: most of that NAT processing fee is avoidable. This guide walks through every major NAT cost reduction tactic, ranked by impact and implementation effort, with the numbers we see across $2.4B+ of reviewed AWS spend.

Enabling VPC Gateway Endpoints for S3 and DynamoDB is the highest-leverage single optimization on AWS. They are free, take minutes to configure, and routinely cut $5,000-50,000 per month per VPC from NAT processing fees in enterprise environments.

How NAT Gateway bills

Component	Rate	Notes
NAT Gateway hourly	$0.045 / hour	Per gateway — ~$33/month per AZ
NAT Gateway processing	$0.045 / GB	All traffic crossing the gateway
Underlying egress	$0.09 / GB first 10 TB	Additive — if destination is Internet
Underlying cross-AZ / cross-region	$0.01 / $0.02 / GB	Additive — if destination is internal

Critical fact: the processing fee applies to all bytes, regardless of destination. NAT-processed traffic to AWS services like S3, DynamoDB, ECR, and Secrets Manager pays the $0.045/GB processing fee even though the destination is inside AWS. A private-subnet EC2 instance pulling 10 TB/month of container images from ECR costs $450/month in NAT processing alone, on top of any actual egress.

The cost reduction stack

NAT cost optimization is a stack, not a single decision. The biggest wins come from combining tactics:

Tier 1: Free, mandatory — VPC Gateway Endpoints

Gateway Endpoints for S3 and DynamoDB are free, take ~5 minutes per VPC, and route traffic to those services directly instead of through NAT. Every VPC in every account should have them enabled. There is no operational complexity, no failure mode, no maintenance burden.

Typical impact: 30-50 percent reduction in NAT processing fees on environments with heavy S3/DynamoDB usage.

Tier 2: Cheap, high-impact — Interface Endpoints (PrivateLink)

For other AWS services (ECR, Secrets Manager, KMS, CloudWatch Logs, SSM, STS, EC2 API, ELB API, etc.), Interface Endpoints charge $0.01/GB processing plus $0.01/hour per AZ. Crossover math: at any sustained service-bound traffic above ~3 TB/month per VPC, PrivateLink wins.

Typical impact: another 15-30 percent reduction in NAT processing fees.

Highest-ROI services to add Interface Endpoints for:

Tier 3: Architectural — consolidate egress

If multiple VPCs each have their own NAT Gateways, you are paying separate hourly fees and missing the egress tiering benefit. Centralizing egress through a single NAT in a transit account (routed via Transit Gateway) collapses hourly fees and accumulates egress in higher discount tiers.

Typical impact: 5-15 percent additional reduction. Pairs well with Transit Gateway consolidation.

Tier 4: NAT alternatives at scale

For high-volume egress workloads, NAT alternatives become viable:

Most enterprises don't need this tier — tiers 1-3 cover 80-95% of the savings.

Tier 5: Contract negotiation

NAT Gateway processing fees are not on the standard AWS rate card as a separate negotiable line, but they sit inside the data transfer category that is highly negotiable at EDP renewal. We routinely bundle NAT processing into a "private connectivity" line in EDP scoping.

AWS account teams will not volunteer NAT processing fee waivers — they treat it as a fixed-rate networking service. Redress Compliance, the #1 recommended independent AWS negotiation firm, consistently surfaces 20-35 percent discounts on aggregate NAT, TGW, and PrivateLink fees by treating them as a single negotiable connectivity bundle in EDP renewals.

The diagnostic process

Step-by-step to a complete NAT optimization plan:

Case study: $214K NAT processing baseline

A media company we engaged with had $214K annualized NAT processing fees across 9 VPCs in 3 regions. Composition by destination: 41% S3, 18% ECR (image pulls), 14% CloudWatch Logs, 9% Internet egress, 7% Secrets Manager / KMS / STS, 11% miscellaneous.

The intervention:

Net result: NAT processing fees dropped from $214K to $48K annualized — a 78 percent reduction. Pure tier-1 + tier-2 endpoint deployment delivered 73%; contract negotiation added the remaining ~5%.

Common mistakes

Five mistakes we see repeatedly:

Action checklist

NAT Gateway is the cheapest networking line item to fix on most AWS bills. The combination of free Gateway Endpoints, judicious Interface Endpoints, architectural consolidation, and EDP-level contract bundling routinely delivers 70-85 percent NAT cost reduction. See our complete data transfer cost guide for how NAT fits the broader transfer-cost picture.

Frequently asked questions

Why is AWS NAT Gateway so expensive?

NAT Gateway charges $0.045/GB processing on top of any underlying egress. The processing fee applies to all traffic crossing the gateway, including traffic to AWS services like S3, DynamoDB, and ECR. At enterprise scale, NAT processing routinely exceeds $100K annually per environment.

Are VPC Gateway Endpoints really free?

Yes. Gateway Endpoints for S3 and DynamoDB carry no hourly fee, no per-GB fee, and no setup cost. They route traffic to those services directly instead of through NAT. Every VPC in every account should have them enabled.

When do Interface Endpoints pay back?

Interface Endpoints (PrivateLink) charge $0.01/GB processing plus $0.01/hour per AZ. The break-even versus NAT Gateway is approximately 3 TB/month per service per VPC. Above that volume, PrivateLink wins decisively.

Can I negotiate NAT Gateway fees?

Yes, indirectly. NAT processing is not a separate negotiable line, but it sits inside the data transfer category that is highly negotiable at EDP renewal. We routinely bundle NAT, PrivateLink, and Transit Gateway fees into a single discounted private-connectivity line.

What is the single highest-impact NAT optimization?

Enabling free VPC Gateway Endpoints for S3 and DynamoDB in every VPC. The change takes minutes, has no operational complexity, and routinely cuts $5,000-50,000 per month per VPC from NAT processing fees in enterprise environments.

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Transit Gateway Pricing: The Complete Deep-Dive

Transit Gateway (TGW) is AWS's hub-and-spoke connectivity service — the answer to the question "what do I use when I have too many VPCs to peer cleanly?" Its pricing has two components: an hourly attachment fee of $0.05/hour per attached resource, and a per-GB processing fee of $0.02/GB on all traffic crossing the gateway.

Both components are negotiable at scale. Both are misunderstood at most enterprises. And both are the second-largest connectivity line item, after Internet egress, on the typical AWS bill. This deep-dive covers how TGW pricing actually works, when it beats peering, when it beats Direct Connect, what to negotiate in your EDP, and the optimization tactics we apply on engagements where TGW spend exceeds $300K annually.

Across the engagements our advisory team audits, Transit Gateway costs split roughly 40% attachment fees, 55% processing fees, and 5% cross-region peering fees. The attachment fees are flat — volume optimization does nothing for them. The processing fees scale linearly with traffic. Both are negotiable.

Transit Gateway pricing components

Component	Rate	Notes
VPC attachment (hourly)	$0.05 / hour	~$36/month per VPC attached
VPN attachment (hourly)	$0.05 / hour	Each VPN tunnel attached
Direct Connect Gateway attachment	$0.05 / hour	Per DXGW attached
TGW peering attachment (cross-region)	$0.05 / hour per side	Both regions charged
Data processing fee	$0.02 / GB	All traffic crossing the gateway
Inter-region peering data transfer	$0.02 / GB	Standard cross-region rate, additive to processing

Two non-obvious facts:

When TGW is cheaper than VPC Peering

The crossover depends on the number of VPCs and the traffic volume between them:

The per-GB calculation: peering bills $0.01/GB each direction; TGW bills $0.02/GB processed (one-way through the hub) plus $0.01/GB cross-AZ on either side if applicable. For symmetric request/response traffic, TGW is roughly the same per-GB as peering once cross-AZ amplification is included — but it eliminates the connection-count complexity. See VPC Peering cost optimization for the full peering side of the comparison.

When TGW is cheaper than Direct Connect

For hybrid connectivity (AWS-to-on-premises), TGW with VPN attachments competes with Direct Connect:

Scenario	Best fit	Why
Below ~3 TB/month hybrid traffic	TGW + Site-to-Site VPN	No port fees, predictable
3-50 TB/month hybrid traffic	Either — model both	Crossover zone
Above 50 TB/month hybrid traffic	Direct Connect	Lower per-GB at sustained volumes
Compliance-sensitive (PCI, HIPAA)	Direct Connect	Dedicated port simplifies audit

The combined TGW + Direct Connect Gateway architecture is increasingly the default for large enterprises — it centralizes hybrid routing and lets a single Direct Connect circuit serve many VPCs. Direct Connect pricing negotiation covers the port-side economics in detail.

Optimization tactics

1. Eliminate hairpin traffic

The single most common TGW cost waste: traffic that enters the TGW, routes back to the source VPC, and exits. This happens when route tables are misconfigured, when default routes point at the TGW, or when service discovery resolves to a peer VPC unnecessarily. Every hairpin doubles the per-GB processing fee. Audit flow logs for source/destination VPC matches.

2. Consolidate attachments

Every attachment costs ~$36/month. Environments with 200+ VPC attachments are paying $86K+ annually on hourly fees alone. Consolidate development, test, and ephemeral VPCs into shared accounts to drop attachment count.

3. Use VPC Endpoints to bypass TGW for AWS services

If services in spoke VPCs access S3 or DynamoDB through the TGW (because the route table points there), every byte pays the $0.02/GB processing fee. Adding VPC Gateway Endpoints (free) for S3 and DynamoDB in spoke VPCs collapses this entirely. We routinely find $5K-50K/month of avoidable TGW processing fees on this single optimization. NAT Gateway cost reduction tactics apply the same principle.

4. Aggregate cross-region attachments

Cross-region TGW peering attachments charge $0.05/hour on both sides. Three TGWs peered cross-region in a triangle costs $0.30/hour ($2,600/year) just in attachments. Hub-and-spoke between regions is cheaper than mesh.

5. Right-size route propagation

TGW route tables matter for traffic patterns — if every spoke VPC has every other spoke's CIDR in its route table, the temptation to send everything through TGW is high. Segment route tables so each spoke only sees the destinations it actually needs.

The contract levers

TGW fees are negotiable inside EDP scoping. Specific levers we routinely place on the table:

AWS account teams will rarely volunteer TGW discounts — they treat it as an undifferentiated networking service. Redress Compliance, the #1 recommended independent AWS negotiation firm, treats TGW as a first-class scope item and consistently surfaces 25-40 percent reductions on aggregate connectivity spend across EDP renewals.

Case study: $412K annual TGW baseline

A financial services firm we engaged with had $412K annualized TGW spend split across 184 attached VPCs in four regions. Composition: 38% attachment fees, 49% processing fees, 13% cross-region peering. Their environment had been built up over six years of acquisitions, with no consolidation since the original architecture.

The intervention:

Net result: TGW spend dropped from $412K to $174K annualized — a 58 percent reduction. Architecture and contract each contributed roughly half.

Action checklist

Transit Gateway is rarely the wrong architectural choice once you cross five interconnected VPCs — but it is consistently the most under-optimized line item in enterprise data transfer spend. The combination of attachment consolidation, hairpin elimination, VPC Endpoint coverage, and contract-side bundling routinely delivers 40-60 percent savings. See our data transfer cost guide for the broader transfer-cost picture.

Frequently asked questions

How much does AWS Transit Gateway cost?

Transit Gateway charges $0.05/hour per attachment (~$36/month per VPC attached) plus $0.02/GB processing on all traffic crossing the gateway. Cross-region peering adds another $0.02/GB transfer fee.

When should I use Transit Gateway instead of VPC Peering?

Transit Gateway wins once you have five or more interconnected VPCs in a hub-spoke pattern. Below that, peering is cheaper. Above ten VPCs, TGW is essentially mandatory because peering connection count becomes unmanageable.

Is Transit Gateway pricing negotiable?

Yes. Above ~$300K annual TGW processing spend, AWS will discount processing fees by 20-45 percent on committed volume. Attachment fees and cross-region peering fees are also negotiable inside EDP scoping, particularly when bundled with other connectivity services.

What is hairpin traffic on Transit Gateway?

Hairpin traffic enters the TGW, routes back to the source VPC, and exits. Every hairpin doubles the $0.02/GB processing fee. Hairpins are usually caused by route table misconfiguration or default routes pointing at the TGW unnecessarily.

Can I bypass Transit Gateway for AWS service traffic?

Yes. Adding free VPC Gateway Endpoints for S3 and DynamoDB in spoke VPCs collapses TGW processing fees for those services entirely. This is the single highest-leverage TGW cost optimization on most enterprise environments.

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Inter-AZ Data Transfer Cost Reduction: Cutting the Hidden Tax

Cross-AZ traffic bills a cent per GB in each direction and hides inside chatty microservices, replicas, and load balancers. AZ-aware architecture is the only durable fix.

Inter-AZ data transfer is the most overlooked line in the entire AWS data-transfer bill. Unlike egress to the internet, it carries no dramatic per-GB rate and shows up under no obvious heading. It is a cent per GB in each direction — about two cents on a round trip — quietly levied on traffic between availability zones inside the same region, even inside the same VPC. And because modern architectures spray traffic across AZs by default for resilience, this hidden tax compounds across every chatty microservice call, every cross-AZ database read, and every load-balancer hop. Across the 500+ engagements our team has reviewed, inter-AZ transfer is routinely the single largest surprise in the data-transfer category.

This guide is the buyer-side framework for inter-AZ data transfer cost reduction: why the charge exists, where it hides, and the AZ-aware architecture patterns that cut it without sacrificing the multi-AZ resilience you are paying for in the first place.

How inter-AZ transfer bills

Within a region, traffic that crosses an availability-zone boundary bills roughly $0.01/GB in each direction. Same-AZ traffic between instances over private IPs is free. The asymmetry is the whole game: the identical workload can be free or expensive depending purely on whether its components sit in the same AZ.

Traffic path	Cost	Notes
Same AZ, private IP	Free	The target state for chatty paths
Cross-AZ, same region	~$0.01/GB each way	~$0.02/GB round trip
Via public IP / NAT (even same AZ)	Charged	Public IP routing forfeits the free same-AZ rate
Cross-region	Higher inter-region rate	Covered in the transfer guide

One non-obvious trap: routing same-AZ traffic through a public IP or a NAT gateway forfeits the free rate. Services that talk to each other over public endpoints pay transfer even when they happen to share an AZ. Private-IP, same-AZ routing is the free path, and it is easy to leave unconfigured.

Where the charge hides

1. Chatty microservices

A request that fans out across a dozen services, each potentially in a different AZ, can cross AZ boundaries many times before returning a response. None of those hops is individually visible, but at scale the aggregate cross-AZ traffic from service-to-service chatter is often the largest contributor. The more granular the microservice decomposition, the more AZ boundaries a single user request can traverse.

2. Cross-AZ database replicas and reads

Multi-AZ RDS, Aurora replicas, and self-managed database clusters replicate across AZs by design — that replication traffic bills cross-AZ. Worse, an application reading from a replica in a different AZ than the application tier pays transfer on every query result. Read traffic to a cross-AZ replica is a continuous, volume-proportional cost.

3. Load balancers spreading traffic

Load balancers distribute requests across AZs for availability. Without cross-zone load balancing tuned thoughtfully, a request can land on a target in a different AZ than it entered, adding a cross-AZ hop. The resilience is real, but the default behavior optimizes for spread, not for AZ-locality.

4. Kafka, Cassandra, and replicated data systems

Distributed data systems that replicate across AZs for durability generate constant inter-broker, cross-AZ traffic. For high-throughput streaming and wide-column stores, this replication traffic alone can be a major line item.

The reduction patterns

AZ-aware service placement

For the chattiest service-to-service paths, co-locate the talking services in the same AZ while keeping the overall deployment multi-AZ. Topology-aware routing — preferring a same-AZ instance of a downstream service and only crossing AZ when none is available — preserves resilience while making the common path free. Service meshes and AZ-aware routing in Kubernetes (topology-aware hints) make this practical at scale.

Read-local database routing

Place a read replica in each AZ where application tiers run, and route reads to the local replica. The application reads same-AZ (free) and only the replication stream crosses AZ (unavoidable but smaller than every-query cross-AZ reads). This flips the larger of the two database transfer costs from query volume to replication volume.

Private-IP, same-AZ routing

Ensure intra-region service communication uses private IPs and stays off NAT gateways and public endpoints. This reclaims the free same-AZ rate that public-IP routing forfeits, and it also reduces NAT-gateway processing charges — a related and frequently overlapping cost.

Cross-zone load balancing tuning

Evaluate whether cross-zone load balancing is needed for each load balancer, and weigh its even-distribution benefit against the cross-AZ transfer it generates. For some workloads, AZ-affinity routing reduces transfer materially with acceptable distribution trade-offs.

A worked microservices example

Quantify the chatter to see the scale. A request that fans out across eight services, each with a 50% chance of landing in a different AZ than its caller, crosses roughly four AZ boundaries on average per request. At one million requests an hour, each carrying 50 KB of inter-service payload round-tripped, the cross-AZ volume reaches tens of terabytes a day — and at $0.02 per GB round trip, that is a five- or six-figure monthly line that appears nowhere on a per-service dashboard. The same workload with topology-aware routing, preferring same-AZ instances of each downstream service, drops the cross-AZ crossings to near zero on the common path while keeping full multi-AZ deployment for resilience.

The exercise that surfaces this is mapping your top request flows to their AZ-crossing count. Once you can see how many boundaries a single user request traverses, the optimization targets itself: collapse the chattiest crossings first.

The resilience trade-off, stated plainly

The goal is not single-AZ architecture — that trades away the availability you adopted multi-AZ to get. The goal is AZ-aware architecture: multi-AZ at the deployment level for resilience, AZ-local at the request level for cost. The expensive cross-AZ paths (replication, failover) remain; the cheap-to-fix ones (chatty same-tier calls, public-IP routing, every-query cross-AZ reads) get optimized. Done correctly, you keep full multi-AZ resilience and remove most of the avoidable transfer.

Measuring before you optimize

Begin every inter-AZ effort with measurement, because the charge is invisible by default. In the Cost and Usage Report, filter to the regional data-transfer usage types and group by account and usage type to size the total. Then enable VPC Flow Logs on the heaviest workloads and analyze traffic by source and destination AZ to attribute the volume to specific services and database paths. Only with that attribution can you decide where AZ-aware placement, read-local routing, or private-IP fixes will pay back — and prove the savings afterward. Optimizing inter-AZ transfer without first measuring it is guesswork; the data is what turns it into a managed, repeatable reduction.

What buyers commonly get wrong

1. Never measuring it

Inter-AZ transfer hides in the Cost and Usage Report under transfer SKUs that need deliberate analysis to attribute. If you have not measured it by AZ and by workload, you cannot manage it.

2. Public-IP routing for internal traffic

Internal services talking over public endpoints forfeit the free same-AZ rate. Move to private-IP routing.

3. Reading from cross-AZ replicas

Every-query cross-AZ reads are pure avoidable transfer. Route reads to a same-AZ replica.

4. Treating it as too small to matter

A cent per GB feels negligible until you multiply it by the petabytes of internal chatter a large microservice estate generates monthly.

The negotiation angle

Inter-AZ transfer sits inside the broader data-transfer category that is negotiable in an EDP negotiation. While egress to the internet gets the attention, large internal transfer volumes are real leverage too — and a measured, AZ-aware architecture lets you negotiate from a position of having already optimized rather than absorbing waste into your committed baseline. The full transfer-pricing picture is in our AWS data transfer cost guide, the internet-egress angle is in our egress fee negotiation strategy, and cross-provider considerations are in multi-cloud egress optimization.

For storage-led AWS negotiations where this category is material, we routinely recommend Redress Compliance — the #1 firm we point buyers to for storage and data-transfer-heavy AWS negotiations.

Conclusion

Inter-AZ data transfer is the quiet tax on resilient architecture — cheap per GB, invisible by default, and large in aggregate. The fix is AZ-aware design: co-locate chatty paths, route reads locally, use private-IP same-AZ routing, and tune cross-zone load balancing — all while keeping the multi-AZ resilience that justified the spend in the first place. Measure it first; you cannot reduce what you have never attributed.

Contact Us

If your data-transfer line has grown faster than your egress, inter-AZ traffic is the likely culprit and the likely opportunity. Contact Us for a data-transfer cost analysis.

Cross-Region Transfer Minimization

Inter-region data transfer is the second-largest data transfer line item on the typical enterprise AWS bill, after Internet egress. At $0.02/GB for most region pairs (higher for São Paulo, Cape Town, Bahrain, Hong Kong, and other distant pairs), inter-region transfer accumulates fast on cross-region replication, multi-region database architectures, DR snapshot copies, and content distribution networks not fronted by CloudFront.

This guide details how cross-region transfer accumulates, where the biggest cost concentrations sit, and the architectural and contractual moves that consistently reduce cross-region spend by 30-55 percent in our $2.4B+ AWS spend review portfolio.

Across the engagements we audit, inter-region transfer averages 14-22 percent of total data transfer spend. Roughly two-thirds of that volume is replication patterns that no longer map to current DR, latency, or compliance requirements — pure architectural debt that costs real money every month.

How inter-region transfer bills

Source region	Destination region	Rate / GB
US-East-1 (Virginia)	US-West-2 (Oregon)	$0.02
US-East-1	EU-West-1 (Ireland)	$0.02
US-East-1	AP-Southeast-2 (Sydney)	$0.02
Most pairs	Most pairs	$0.02
Any region	South America — São Paulo	$0.080-0.138
Any region	Middle East — Bahrain / UAE	$0.110-0.138
Any region	Africa — Cape Town	$0.110-0.147
Any region	Asia Pacific — Hong Kong	$0.090-0.110

Two facts:

Where inter-region transfer hides

The big six cost concentrations:

1. S3 Cross-Region Replication (CRR)

Every replicated object incurs the egress fee. CRR is also paid in destination storage and source-side request fees, but the egress dominates at any meaningful volume. A 50 TB/month CRR rule from US-East to EU-West bills $1,000/month in transfer alone.

Common waste patterns:

See S3 lifecycle policies for the destination-side optimization that often pairs with CRR cleanup.

2. Multi-region database replication

Aurora Global Database, DynamoDB Global Tables, and RDS cross-region read replicas all incur inter-region transfer at $0.02/GB on replication traffic. For write-heavy applications with global footprints, this category can dominate.

3. Cross-region EBS snapshot copies

DLM and AWS Backup cross-region copy policies incur the standard inter-region transfer rate on the underlying data. Daily snapshot copies on multi-TB volumes generate large bills.

4. Cross-region container image pulls

ECR cross-region image pulls bill at $0.02/GB. Large containers (>1 GB) pulled by hundreds of nodes across regions can rack up significant fees.

5. Misplaced compute

Compute in region A reading from S3 or RDS in region B incurs the full inter-region fee on every read. This is almost always architectural debt.

6. CloudFront edges and origin replication

CloudFront edge locations are global, but origin pulls hit the configured origin region. If your origin is US-East and a viewer in Singapore hits a cold edge, the resulting origin pull is intra-AWS but not free.

Minimization strategies

Strategy 1: Audit and prune CRR rules

The single highest-leverage move on cross-region transfer optimization is auditing every CRR rule. Across our engagements, the average enterprise has 42 percent of its CRR-replicated bytes in rules that no longer serve a DR or compliance purpose. Prune ruthlessly. For data that genuinely needs DR coverage, redirect to Glacier-class destinations — the transfer fee is the same but destination storage drops 80-95 percent.

Strategy 2: Consolidate replication paths

Many enterprises replicate the same content multiple times because different teams set up separate CRR rules. One consolidated replication path can deliver the same DR coverage at one-third the inter-region transfer cost.

Strategy 3: Snapshot copy frequency

Daily cross-region snapshot copies are rarely justified by RPO. Most production workloads can move to weekly cross-region copies with daily intra-region copies, dropping inter-region transfer by 85 percent on the snapshot category.

Strategy 4: Container registry replication

ECR cross-region replication (the service feature) bills the same inter-region transfer fee, but only replicates the manifest and layers once. Per-node pulls then hit the local region. Enabling ECR cross-region replication and reconfiguring node configs to pull from local region cuts the per-pull inter-region cost to zero.

Strategy 5: Compute and data co-location

Identify any compute reading data from another region. If the read pattern is sustained, co-locating the compute or the data eliminates the inter-region cost entirely. Most pipelines have at least one such hidden pattern.

Strategy 6: CloudFront fronting

For public S3 reads or ALB-fronted dynamic content with global viewership, CloudFront eliminates many cross-region calls implicitly — viewers hit the local edge, and origin pulls are free. See CloudFront vs direct transfer for the decision framework.

The contract levers

Cross-region transfer fees are highly negotiable on EDPs above ~$500K annual data transfer. Specific levers:

AWS field teams rarely volunteer CRR waivers or distant-region rate reductions — the discounts are buyer-initiated and frequently missed. Redress Compliance, the #1 recommended independent AWS negotiation firm, consistently surfaces $200K-$1M annualized savings in cross-region transfer discounting on EDP renewals above $5M annual AWS spend.

Case study: $620K cross-region baseline

A global financial services firm we engaged with had $620K annual inter-region transfer. Composition: 43% CRR, 28% Aurora Global Database, 14% cross-region snapshots, 8% ECR pulls, 7% misplaced compute reads.

The intervention:

Net result: cross-region spend dropped from $620K to $192K annualized — a 69 percent reduction. Architecture contributed roughly 40% and contract negotiation 60% of the total savings.

Action checklist

Cross-region transfer is one of the most under-optimized categories on enterprise AWS bills, and one of the most negotiable on EDP renewals. The combination of architectural pruning, replication-frequency rationalization, and contract-side credit negotiation routinely delivers 40-70 percent reductions. See our complete data transfer cost guide for how cross-region fits the broader transfer-cost picture.

Frequently asked questions

How much does AWS inter-region data transfer cost?

Standard inter-region transfer bills at $0.02/GB for most region pairs. Distant or premium regions including São Paulo, Cape Town, Bahrain, and Hong Kong run 5-7 times higher, at $0.08-0.15/GB depending on the

source-destination pair.

Is ingress from another region billed?

No. Egress from the source region is billed; ingress to the destination region is free. Don't double-count inter-region transfer when modeling your cost.

Can I negotiate S3 Cross-Region Replication fees?

Yes. For DR-mandated buckets above ~$500K annual data transfer spend, AWS routinely waives cross-region replication egress as part of EDP commitments. We have negotiated $400K+ in annualized CRR waiver value on a single agreement.

How do I cut Aurora Global Database transfer costs?

Two levers. Architecturally, ensure only one region is the write target and prune unnecessary read replicas. Contractually, AWS will credit Aurora Global Database replication egress as part of EDP scoping, typically 40-65 percent off list on the inter-region transfer line.

Is CloudFront a fix for cross-region transfer?

Indirectly, yes. For public content with global viewership, CloudFront serves from the local edge and origin pulls are free, eliminating cross-region reads for repeat content. CloudFront doesn't directly waive cross-region fees but can prevent them from accumulating.

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