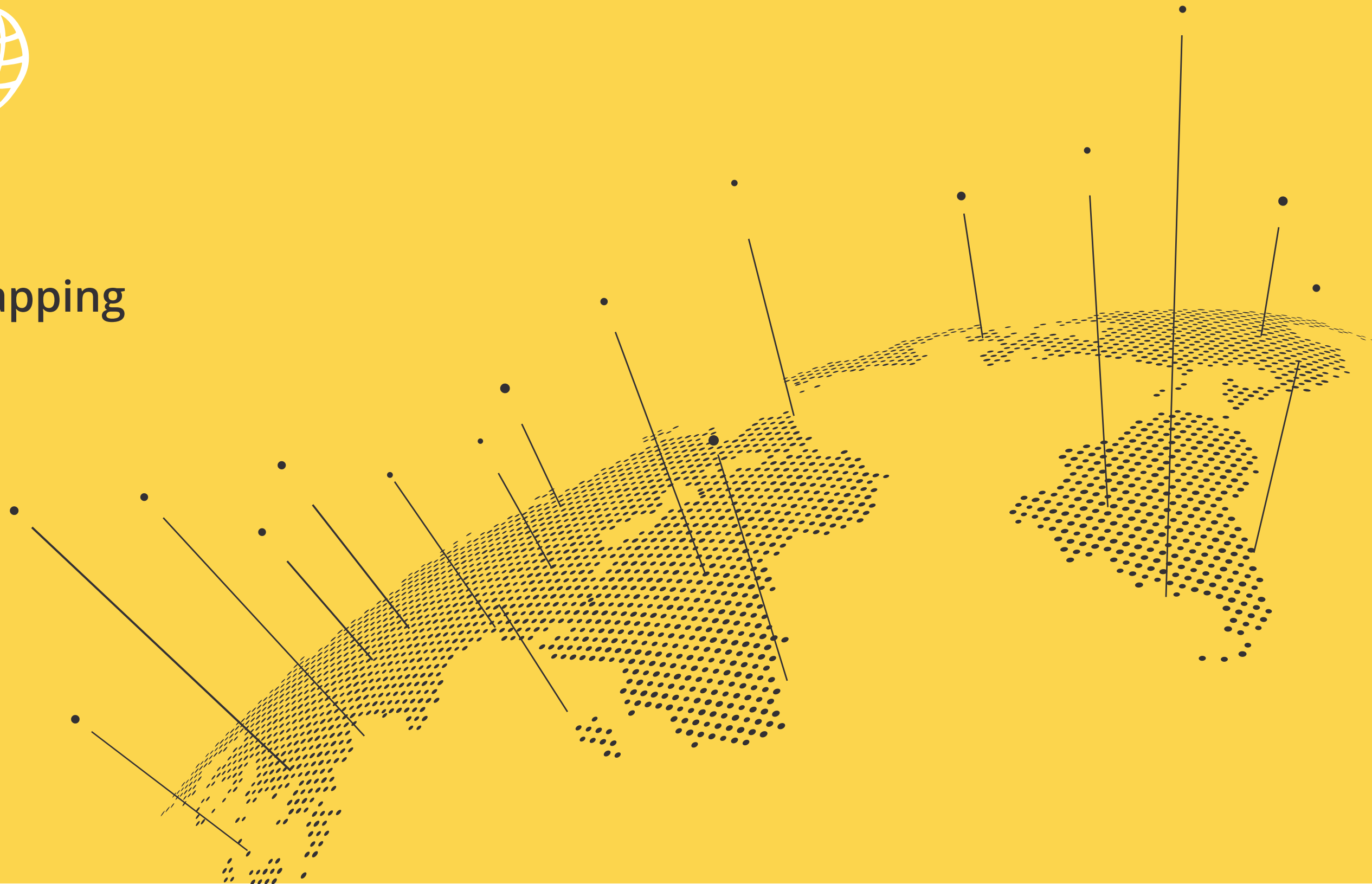





Real Time Dependency Mapping White Paper





When it comes to cloud migration and embracing public cloud architecture, many companies first question is, “how much is this going to cost me?” Unfortunately, unlike a simple market purchase, there isn’t always one clear answer for enterprises looking to move to the cloud. Your AWS costs can be split into compute, storage and data transfer. This white paper will look at everything you need to know about data transfer costs, and how you can optimize these for success.

You’ll learn:

- How AWS charges for data transfers
- How to understand AWS Regions and Availability Zones
- The differences in data transfer costs between different AWS services
- Tips and tricks to minimize your data transfer costs
- That visibility is foundational to taking control of data transfer

Your Checklist for Success

Everything you need to know about
your AWS data transfer costs

Understanding AWS Data Transfer Costs

Data has been called the oil of this generation, the essential element of all business decisions that cannot be undervalued or gained in enough measure. The cloud opens up doors for your data, providing analytics and Business Intelligence tools, and allowing your enterprise to do more with data lakes, mining, and aggregation. However, moving all of this data is not free. In fact, AWS data transfer costs can start adding up fast, and in many cases make up 30% or more of the total cost of your cloud package each month.

Let's break this down with a few facts about AWS data transfer costs:

- AWS will charge your company to transfer data between AWS and the web, as well as within AWS itself between different services, such as S3 buckets or EC2 instances.
- Data transfer costs can be billed separately each month, or they may be included as part of the service.
- For every Region in AWS, there will be a different fee for sending and receiving data both inside the same Region and to a different Region. In some cases, this will be based on capacity, while other times there will be a flat fee.
- In some cases, you will be charged for transferring data one way, but not in the other direction. This can happen when you're transferring data across regions, some of which are free, and others that come with a charge.
- In many cases, you might find you get charged twice, once for transferring data out, and then again when you transfer it back in.

- Additional costs can feel like they come out of nowhere, such as NAT gateway costs for enabling instances in a private subnet to connect to the internet. These can be significant and difficult to track.

All of these factors create a situation where your business needs to gain as much visibility as possible to stay on top of AWS data transfer costs and understand what you're paying for each month.

This is especially true for businesses working across a hybrid data center, as communications from on-premises to cloud can be unpredictable and harder to visualize at the start.

Choosing Regions to Keep Your Data Transfer Costs Down

When you're transferring data from the internet to AWS, this is free. However, when you do the opposite, transferring data from AWS to the web, the costs will vary depending on the Region. While many businesses will make a knee-jerk choice, choosing the data center location that is closest to their physical location or customer-base, it can pay to think about where your S3 buckets are located.

The first GB is usually free regardless of where your data is being transferred, but after that you will be charged per GB. The difference between \$0.25 per GB (South America) and \$0.09 per GB (US East) is huge, and the change in Region may not make a practical difference for your business needs. At the moment, there are 16 public regions, as well as two non-public regions in the US, and 3 in China and Japan that require special application to access. See the chart below to understand regional costs in more detail.

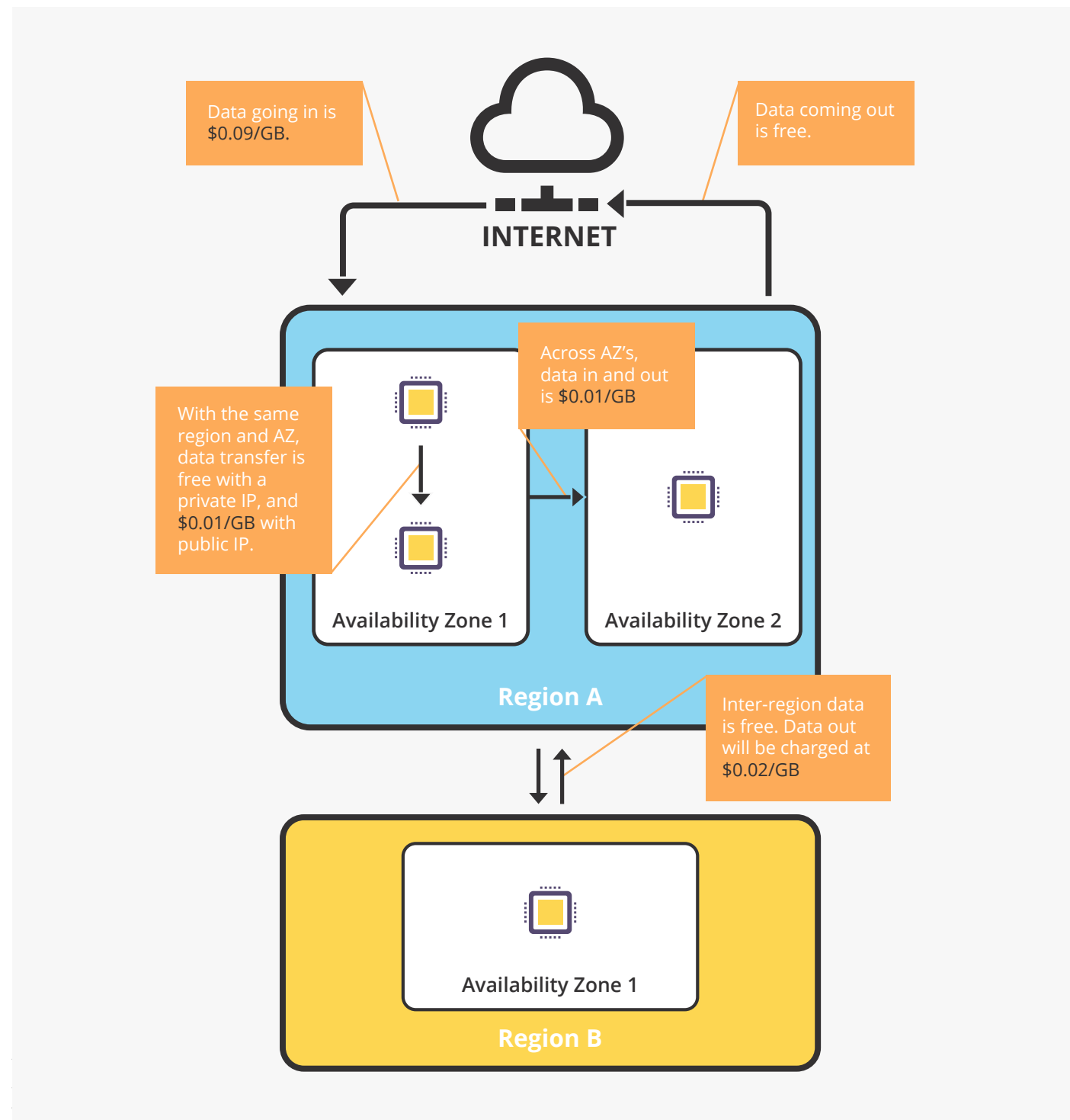
Regions AWS	Cost of Transferring the Next 40 TB of Data OUT from EC2 to the Internet (per month)
South America (Sao Paulo)	\$0.25 per GB
US East (N. Virginia)	\$0.09 per GB
US East (Ohio)	\$0.09 per GB
US West (Oregon)	\$0.09 per GB
Asia Pacific (Mumbai)	\$0.1093 per GB
Asia Pacific (Singapore)	\$0.12 per GB
EU (Frankfurt)	\$0.09 per GB
EU (London)	\$0.09 per GB
AWS GovCloud (US)	\$0.155 per GB
Asia Pacific (Seoul)	\$0.126 per GB
Asia Pacific (Sydney)	\$0.114 per GB
Asia Pacific (Tokyo)	\$0.114 per GB

Transferring Data within AWS Itself

There are two different ways to transfer your data within AWS, across regions, or within regions. If you're transferring data between different AWS services across regions your costs will vary depending on the source and target regions. Data transfer into an AWS region from another is always free. Your costs will originate from the outbound transfer of data alone.

In order to understand data transfer within regions, your business needs to get a grip on Availability Zones (AZ). Your costs will vary on a number of factors, but the only free way to transfer data within regions is to use the same region, the same AZ, and a private IP address. As soon as you use different AZ, even within the same region, you will start incurring costs for each transfer, in both directions - not just for outgoing data.

This graphic shows you how different data transfers will be charged differently as a result of these rules. The region rates used are for US West (Oregon).



Zones within regions, where prices can spike without businesses realizing costs are incurring at all. Where possible, keeping data transfer within a single AZ is the way to keep costs lowest overall, as well as minimizing your traffic across different regions.

A Note on Private IP Addresses

Some businesses don't take IP addresses into consideration at all, but as you can see from the graphic above, a private IP address can save you money on your monthly cloud bill. Using a public IP address, or an Elastic IP address will cost you, where a private IP address is free. Where you need to use a public or Elastic IP – make sure to compress or cache your data to save on how many GB you pay for. Ensure that you have compressed both static and dynamic content, and enforce caching at your own servers, as well as CloudFront locations. This will also make transfer faster. Don't forget to automate this behavior for new deployment and production changes, so that this is done as standard in your release cycle.

AWS Tools that Can Lighten the Load

The truth is, that with a bit of know-how, your business can certainly reduce the amount that AWS data transfer will cost each month. Smart architecture is one way to get started, asking your MSP or IT teams to create the best journey for your data, navigating a cheaper path across regions and AZs. As well as this, Amazon has some technology that can be used to leverage a better price at the end of the month for data transfer.

Amazon CloudFront: A global Content Delivery Network, you can transfer data from EC2 instances to CloudFront for free. For businesses who spend a lot of money transferring media for example, CloudFront becomes a much more economical option. Once your data is in CloudFront, the external transfer to the web will depend on the region you're using and the amount of data you need to move. CloudFront has a free pricing tier, as well as a discounted rate available for big users. You can see the full details [here](#).

AWS Calculator: Once you know what's costing you money, you can [use the AWS calculator](#) for trial and error until you work out the factors that are hitting you hardest. You can play with regions, resources, and AZs to discover how to improve your bottom line.

Choosing AWS Services with Costs in Mind

Another way to lighten the load on data transfer costs is to think about the services you're using and how they affect your monthly bill. Data transfer out to the internet will always be charged, and data transfer in will always be free, prices differ from service to service in terms of region or AZ costs.

For example, using Amazon Aurora will charge you for data transfer to other regions, but not to different AZs within the same region. Amazon RDS will charge for both types of transfer. Get familiar with the costs of your services, and use visibility to work out whether you can make intelligent changes.

Looking at EC2 – How much is it costing you?

As one of the most popular AWS services, architecting your data transfers to find smart use of EC2 is a great idea. There is no charge for data transfer within the same region from EC2 to S3, Glacier, DynamoDB, SES, SQS or SimpleDB. Within the same AZ, transferring data to RDS, Redshift, ElastiCache, Elastic Load Balancing, and Elastic Network Interfaces are also free.

Remember, by using a private IP address, or if you utilize CloudFront, there will be no data transfer costs no matter the region or AZ.

Visibility: The Foundation of Taking Control of Cloud Costs Once and For All

Whichever way you slice it, data transfer costs are not straightforward. We've just looked at EC2, one use of data transfer on AWS, and there are a dozen different variants you need to think about. Now multiply that by the X number of services you need to use to get the most out of your cloud journey, and remember that each service will have its own transfer rules.

One of the main problems for enterprises is lack of visibility. They receive a complex invoice at the end of each month, outlining data transfer costs across all their services and without clarity into how this translates to a real live data center environment. When your enterprise wants to save money without losing the benefits of the cloud, it is stuck.

Deciphering these invoices means giving your business an accurate, real-time view of your data transfer costs, uncovering the exact services and servers that

are having the biggest impact on your bottom line. Once this is uncovered, the business can make smart changes to reduce costs without causing latency errors or other slowdowns or business negatives. The best visibility tools will include:

- **Accurate and Real-Time Information:** See what's happening with your cloud instances as it happens, with no blind spots. In contrast, raw data from invoices will always need translating before it can be valuable.
- **Enhanced Cloud Ability:** Isolate the servers that are responsible for traffic or high costs, and right-size your cloud instances to reduce costs and optimize performance.
- **Full Breakdown:** No gaps, as you're looking for a single pane of glass approach to costs and communications. Quickly reveal wasted resources that an invoice would never show you. Use a visible map to get even non-technical stakeholders on board with your strategy.
- **Simple Integration:** No agents or credentials that make it hard to onboard, or slow down performance. See a full network map in one click.
- **Forecasting Support:** Plan ahead for migration or cloud changes by optimizing performance ahead of time. Scale up when you need to improve performance, or reduce the reserved instances where you're paying unduly.

The right visibility tool will be your foundation for taking control of your data transfer costs, giving you all the information you need to architect your network for insight and success. If you want to talk more about visibility into AWS data transfer, get in touch to schedule a demo and see how it works in practice.

About VNT

VNT creates interactive, real-time maps of your entire IT ecosystem, offering granular detail. Our solution is completely platform-agnostic and has limitless use-cases. Uniquely, VNT works without credentials, firewalls or agents. With network discovery based on real traffic, you gain ultimate visibility of all dependencies and communications. Use this to efficiently assess costs, discover a hybrid ecosystem, or model workloads for migration.

Our platform is easy to deploy, highly scalable, and can be integrated with all of your current tools and products seamlessly. Whether you're primarily on the cloud, utilize hybrid or multi-cloud environments, or reside on-premises, VNT can be used to discover, plan and maintain the most comprehensive real-time map for your application ecosystems. You can easily configure your map to manage IT assets by business context, prioritizing the right alerts – and more importantly, keeping your business running smoothly.

Contact us at
info@vnt-software.com
to see a live demo.

