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# **AWS environment EC2 & RDS Instances pricing**

What are the parameters that will impact the price?

How we you reduce the price?

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What can we look at to optimize the cost?

# Parameters that impact pricing

## EC2 instance

- **Instance type:** Prices vary based on their computational power, memory, storage, and networking capabilities.
- **Region:** Infrastructure's costs and demand of the region also makes varies.
- **Usage hours:** Duration of the running instance (typically by hour)
- **Reserved Instances (RI) or Savings Plans:** usage over a period with Reserved Instances or Savings Plans.
- **On-Demand vs. Spot Instances:** On-Demand instances are billed at a fixed rate per hour, while Spot Instances allow you to bid for unused capacity, potentially reducing costs.
- **Instance size:** The larger the instance, the more resources you get and the more you pay.
- **Processor, processor optimization and use of bursts:** it really can pay to make an effort to analyze the value for money offered by the different processors available both across instances and within instance types.
- **Use of elastic graphics and elastic inference:** The use of Elastic Graphics and Elastic Inference incurs additional costs on top of EC2 instance pricing, providing GPU and AI inference capabilities respectively.
- **Software stack:** Software stack basically means operating system and database. Basically, Linux-based operating systems are priced more affordably than Windows.

# Parameters that impact pricing

## RDS Instance

- **Instance type:** Similar to EC2, RDS instances have different types with varying pricing based on CPU, memory, storage, and networking capabilities.
- **Multi-AZ deployment:** Multi-AZ deployments incur additional costs compared to single-AZ deployments.
- **Storage:** Charges apply for allocated storage and I/O operations.
- **Backup storage:** Storing automated backups and manual snapshots incurs additional charges.
- **Data transfer:** Data transferred out of RDS instances to the internet or other AWS services may incur costs.
- **Instance Sizes :** RDS instance sizes directly influence pricing by determining the allocated compute resources, with larger sizes correlating to higher costs.
- **RDS Aurora Pricing and Autoscaling:** impact costs by adjusting prices based on instance sizes and dynamically managing resources, potentially optimizing expenses.

# Price Reducing Techniques

## EC2 instance & RDS

There are multiple factors contributing to the costs saving like : Use appropriate instance types, Utilize Reserved Instances or Savings Plans, Optimize storage, Monitor and adjust usage  
Also there are advanced tools that take care of all the factors and guarantee quick big wins:

- **Vantage** gives a set of analysis dashboards and a structured cloud cost and pricing API to help customers track AWS spend. <http://vantage.sh/>
- **Zesty** can further reduce AWS costs if you're already using discount offerings. It can be used to reduce the number of instances running On-Demand, cover the remaining delta of instances that are not on discounts, save on expiring commitments. See your savings potential in minutes with a POC onboarding <https://zesty.co/>

# Price Reducing Techniques

More reducing methods

- **Usage AI** is incorporated into a customer's AWS environment via a secure IAM Policy + Role and proceeds to effectively wholesale no upfront Reserved Instances (RIs) and underwrite them with a Guaranteed Buyback Clause, thus meaning you'll receive the 57% savings of a 3-year, no-upfront RI without the need to commit to the full term. <https://usage.ai/>
- **Middleware's Observability Platform** provides you deeper cost visibility across all your cloud resources. It makes it simple to identify and address cost inefficiencies by automatically surfacing changes in your cloud expenses and visualizing cost data with the rest of your metrics, traces, logs, and other telemetry.  
For example, if an application uses more resources than it needs, it can be scaled down to reduce costs. Additionally, observability can help identify and track underutilized resources that can be turned off or scaled-down, further reducing costs.

# Price Optimization Techniques

## EC2 instance & RDS

To optimize AWS financial costs, there are several key practices every customer should adopt:

Right-size instances, Implement auto-scaling, Schedule instances to run only when needed, Optimize storage usage, Regularly review and delete unused resources, Continuously monitor and analyze cost reports

- **Tools and Technologies for Advanced Cost Optimization**

Utilizing cutting-edge technologies for cost optimization:

1. **AWS Cost Explorer**

a robust cost allocation visualization engine.

The user-friendly interface facilitates effective management of AWS costs and usage over time.

also manages and saves on storage costs using Amazon S3 Intelligent-Tiering, a cloud storage class that delivers automatic cost savings by moving objects between four access tiers when access patterns change.

2. **Alert Logic AWS Financial Management Strategies**

Alert Logic offers essential tools for financial management strategies.

Define key cost metrics and allocate costs across AWS accounts, particularly for shared service usage.

# Price Optimization Techniques

## More advanced techniques

- **Maximizing Cost Efficiency with AWS Pricing Strategy**  
**Savings Plans:** strategically purchased a 3-year term Savings Plan, securing a 45-50% discount on hourly on-demand usage for instances, Lambda functions, and Fargate tasks.
- **Reserved Instances:** By identifying long-term workloads, investing in Reserved Instances for RDS, achieving an immediate 30% average savings. Similar savings were realized for OpenSearch and ElastiCache.  
This approach ensures significant cost optimization while maintaining performance and reliability.
- **Getting Unit Cost Intelligence With CloudZero:**  
Cloud zero provides Easily view your AWS costs, Get a detailed look at how your people, products, and processes affect your Amazon EC2 costs, You can pinpoint where to cut costs because you can see where your money goes , Identify exactly where to increase investment , Combine your AWS costs with cost data from Azure and Receive near real-time, noise-free alerts via Slack whenever your usage reaches a specified threshold, ensuring you don't go over your budget.
- **Distributing workloads across regions** helps save costs by providing redundancy and resilience, reducing downtime, and optimizing performance for end-users. It eliminates the need for expensive high-availability architectures, ensuring efficient resource utilization and cost savings.