

→ Account Management, Billing & Support Section

→ AWS Organizations:

- Global Service

- Allows to manage multiple AWS accounts

- Main account: master account

- Cost Benefits:

1) Consolidated Billing: Single payment method

2) Billing benefits from aggregate usage

3) Pooling of reserved EC2 instances for optimal savings

- API is available to automate AWS account creation

- Restrict account privileges using Service Control Policies (SCP).

→ Multi Account Strategies:

- Create accounts: per department, cost center, dev/test / prod, regulatory restrictions

error resource isolation, to have separate per-account service limits, isolated account for logging.

- We tagging standards for billing purposes

Enable CloudTrail: send logs to central s3 account

Send cloudwatch logs to central logging account.

→ Service Control Policies (SCP)

- Whitelist / Blacklist IAM actions

- Applied at the ou or account level

- Does not apply to Master account

- Applied to all users and roles

- Does not affect service-linked roles.

- Must have an explicit allow.

We cases:

1) Restrict access to certain services

2) Enforce PCI compliance by explicitly disallowing services

→ AWS Organisation & Consolidated Billing.

When enabled, provides you with:

1) Combined Usage - To share the volume pricing, Reserved Instances and savings plans discounts.

2) One Bill - get one bill for all AWS accounts in the AWS organisation.

The management account can turn off Reserved instances discount sharing for any account in the AWS organisation, including itself.



AWS Control Tower:

Easy way to set up and govern a secure and compliant multi-account AWS environment

Based on best practices.

Benefits:

1) Automate the setup of your environment in a few clicks

2) Automate ongoing policy management, using guardrails.

3) Detect policy violations and remediate them.

4) Monitor compliance through an interactive dashboard.

* AWS Control Tower runs on top of AWS Organisation *

It automatically sets up AWS Organisation to organise accounts and implement SCPs (Service Control Policies).

Pricing models in AWS:

4 pricing models.

Pay as you go

Save when you reserve

Reservations are available for EC2 Reserved Instances, DynamoDB Reserved Capacity, ElastiCache Reserved Nodes, RDS Reserved Instances, Redshift Reserved Nodes.

Pay less by using more: volume-based discounts

Pay less as AWS grows.

Free services & free tier in AWS:

IAM

VPC

Consolidated Billing

- Elastic Beanstalk
- CloudFormation
- Auto Scaling groups } You do pay for the resources created

- Free tier: EC2 t2.micro instance for a year
S3, EBS, ELB, AWS Data Transfer.

Computing Price: EC2

- Only charged for what you use
No of instances

- Instance config: Physical capacity, Region, OS and software, Instance type, Instance size.
ELB running time & amount of data processed

- Detailed monitoring -

- On-demand instances:

- Min of 60s

- Pay per second (Linux / Windows) or per hour (others)

- Reserved Instances:

- Up to 75% discount compared to on-demand

- 1/3 yrs commitment

- All upfront, partial or no.

- Spot Instances:

- Up to 90% discount compared to on-demand on hourly rate.

- Bid for unused capacity

- Dedicated Host:

- On demand

- Reservation for 1/3 yrs commitment

- Savings plans as an alternative to save on sustained usage.

get(1)
①

→ Compute pricing - Lambda & ECS

- Lambda:

1) Pay per call

2) Pay per duration

- ECS:

1) No additional fees, you pay for AWS resources stored and created in your application

- Fargate:

Fargate Launch Type Model: Pay for vCPU and memory resources allocated to your applications in your containers.

→ Storage Pricing - S3

- Storage class: S3 Standard, S3 Infrequent Access, S3 One-zone IA, S3 Intelligent Tiering, S3 Glacier, S3 Glacier Deep Archive.

- No. and size of objects

- No. and size type of requests

- Data transfer OUT of the S3 region

- S3 Transfer Acceleration

- Lifecycle Transitions

- Similar service EFS (pay per use, has infrequent access & lifecycle rules).

Storage Pricing - EBS

throughput - provisioned traffic

- Volume Based (based on performance)
- Storage volume in GB per month provisioned
- IOPS: (Input/Output Operations per second):
 - 1) General purpose SSD (Solid State Drives): Included.
 - 2) Provisioned IOPS SSD: Provisioned amount in IOPS
 - 3) Magnetic: No. of requests per second
- Snapshots: Added data cost per GB per month.
- Data Transfer: Outbound data transfer are tiered for volume and discounts, inbound is free

Database Pricing - RDS

- Per hour billing price for each instance
- DB characteristics: Engine, size, memory class
- Purchase Type: on-demand, Reserved Instances (1/3 yrs) with required up-front
- Backup storage: No additional charge up to 100% of your total dB storage for a region

Additional Storage (per GB per month)

- No. of input and output requests per month
- Deployment type (Storage and I/O are variables): Single, Multiple AZs, etc.
- Data Transfer: Outbound data transfer are tiered for volume and discounts, inbound is free.

on no writing traffic HA

283 - pricing aspects

→ Content Delivery - CloudFront

- Pricing is different across different geographic regions.
- Aggregated for each edge location, then applied to your bill.
- Data transfer costs volume discount.
- No. of HTTP / HTTPS requests.

→ Networking Costs in AWS per GB

- Use private IP instead of public IP for good savings and better network performance.
- Use same AZ for maximum savings.

Tree for traffic in similar set of ports

- Tree if using private IP
- \$0.01 if using private IP ~~IP address~~
- \$0.02 if using Elastic IP / Public IP ~~(inter-region)~~
- \$0.02 (Inter-region) ~~with regards to 80~~

→ Savings Plan ~~Plan review period~~ (288)

- Commit to a certain \$ amount per hour for no time ~~1/3 yrs~~ ~~approx 26 days~~ total cost for 1000

- Easiest way to setup long-term commitments.

- EC2 Savings plan: long term for all

1) Upto 72% discount ~~from the regular~~

2) Commit to usage of individual instances families in a region ~~long term for all~~

3) Regardless of AZ, size, OS or tenancy

4) All upfront, partial or no.

1) Compute Savings Plan: Up to 66% discount per month.
2) Regardless of Family, Region, size, OS, tenancy, compute options.

3) Compute options: EC2, Lambda, Fargate. Setup from the AWS Cost Explorer console.

→ AWS Cost Optimizer

Reduce costs & improve performance by recommending optimal AWS resources for your workloads. Helps choose optimal configurations and right-size your workloads.

Uses ML to analyze your resources/config and their utilization CloudWatch metrics.

Supported resources: EC2 instances, EC2 ASG, EBS Volumes, Lambda functions

- Lower your costs up to 25%.

- Recommended savings example exported to S3.

more MAT, S3 storage, Lambda, RDS, VPC

→ Billing and Costing tool

Estimating costs in the Cloud Cost Estimator.

Tracking costs in the Cloud Cost Monitor.

1) Billing Dashboard and Metrics Stream

2) Cost Allocation Reports and Amazon Budgets

3) Cost and Usage Reports and Amazon Budgets

4) Cost Explorer

Monitoring against cost plans

1) Budget alerts (via CloudWatch Metrics)

2) Budgets for notifications from Cost Explorer

Notification publishing millions of alerts per hour



AWS Pricing Calculator

Estimate the cost for your solution architecture.



Cost Allocation Tags

Used to track your AWS costs on a detailed level.



AWS generated tags are automatically applied to the resource you created. Starts with prefix aws. Starts with



User-defined tags have user defined by the owner



Starts with Prefix user. Starts with



Tagging and Resource Groups

Tags are used for organizing resources:

1) EC2 instances, images, LBs, Security Groups

2) RDS, VPC resources, Route 53, IAM users

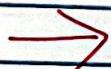
3) Resources created by CloudFormation

All tagged with the same tags

Can be used to create Resource Groups

Create, maintain and view a collection of resources that share common tags.

Manage these tags using the Tag Editor



Cost and Usage Reports

Dive deeper into your AWS costs & usage.

Contains the most comprehensive set of AWS cost and usage data available, including additional

metadata about AWS services, pricing and reservations.
Lists AWS usage for each service category used by
an account and its IAM users in hourly or daily
time line items, as well as ~~any usage that you have~~
~~activated for cost allocation purposes.~~
Can be integrated with ~~Athena, Redshift or~~
QuickSight.

Cost Explorer:

Visualize, understand and manage your AWS costs and usage over time. Using this
Create custom reports that analyse cost &
usage data across accounts.

Analyse your data at a high level (total costs and usage across all accounts)

Or monthly, hourly, regional level granularity.

Choose an optimal Savings plan.

Forecast usage up to 12 months based on previous usage.

Billing Alarms

Metrics of how our

CloudWatch

Billing data metrics are stored in CloudWatch Metrics

(us-east-1) no notifications

Billing data are for all worldwide AWS costs.

For actual cost, not for projected cost

Intended a simple alarm (not as powerful as AWS Budgets).

Similar to

CloudWatch Metrics

Scanned with CamScanner

• Initiatives like pricing, minor AWS tools, infrastructure
and AWS services have cost of server AWS. This
points to AWS Budgets as how we control costs

- Create a Budget towards send email notifications cost
- included the budget items let you know what is not
- 3 types of budgets:

1) Usage

2) Cost

AWS reparation: AWS budget, AWS CloudWatch Metrics

For reserved instances (RIs): AWS CloudWatch Metrics

Tracks utilization over months (years)

Supports EC2, Elasticache, RDS, Redshift

Up to 15 notifications per budget

Same options as AWS cost Explorer!

Budgets are free of charge \$0.025/day

Budgeting option limit no more than

beyond within \$1 of your target

→ Trusted Advisor

No need to install anything

High level AWS account assessment

Analyze beyond AWS account provides recommendation on 5 categories

1) Cost Optimization within your AWS

2) Performance

3) Security of your AWS looks not

4) Fault tolerance signs to help not I

5) Service limits (step by step AWS to

ThruNet+ Advisor Support Plan

Microsoft Support Plan IT zwA
Core checks sozinha lat
Basisprisell

Basic & Developer Support Practices

53 Bucket permissions

Security Groups - Specific Ports Used

Afterwards ~~the~~ ~~public~~ ~~fronts~~ ~~Under~~
other soft smooth white

EBSEN Public Health Projects

RDS Public Snapshots, mirror and Service

Service limits.

~~Basel II~~ ~~Enterprises~~ ~~Standard~~ ~~Capital~~

~~enterprise~~ Support & plain 8
Full checks available on the Eng

Ability to activate fibroblast proliferation

eaching clients in groups (prior to 1990)
Professionalism

Programmatisches Aussonderung Abwesenheit

~~AWS Support Plan Premium~~

NWS Support Plans Pricing:

clustering of SW at habitat

linkage to two HcR - proteins present.

Enterprise On-Ramp · 2020 T9A

Enterprise work flows (using existing tools)

• reusing trigger
als Basis für alle anderen

NS Basic Support Plan: continuing
Customer Support & Consulting

Customer Service & Communities

Customer service- und Dokumentations software
Supportsurfer fürums-gerecht (Windows und)

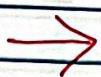
Supporting arguments against (justification)

2)

AWS Trusted Advisor: Access to the 7 core Trusted Advisor checks and guidance to provisioning your resources following best practices to increase performance and improve security.

3)

AWS Personal Health Dashboard: A personalized view of the health of AWS services, and alerts when your resources are impacted.



AWS Developer Support Plan.

All Basic Support Plan + Business telephone email access to Cloud

Support Associates

Unlimited cases / one primary contact

Care severity / response times:

General guidance < 24 Business hours

System impaired < 12 Business hours.



AWS Business Support Plan (G24/7)

Intended to use for production workloads.

Trusted advisor - Full set of checks + API access.

24x7 phone, email, chat access to cloud

Support Engineers.

Unlimited cases / contacts.

Access to Infrastructure Event Manager

plus for additional fee. 24x7 remote of

Care severity / response times

- General guidance for business critical workloads. System impaired < 12 business hrs. \rightarrow production system impaired < 24 hrs.
- Production system down < 1 hr. \rightarrow

\rightarrow AWS Enterprise On-Ramp Support Plan (24x7)

- Intended for production or business critical workloads. \rightarrow All business critical workloads. \rightarrow All business critical workloads. \rightarrow All business critical workloads.
- All of Business Support Plan + all Access to a public Technical Account Manager (TAM).
- Managed Support Team (for billing & account best practices). \rightarrow No browser or plugin required.
- Infrastructure Event Management, well-architected & operational reviews.
- Care Severity / Response times: \rightarrow Same as Business Support Plan.
- Business-critical system down < 130 min.

\rightarrow AWS Enterprise Support Plan (24x7)

- Intended to be used if you have mission critical workloads.
- All of Business Support Plan + all Access to a designated Technical Account Manager (TAM) \rightarrow No browser or plugin required.
- Conierge Support Team (for billing & account best practices).
- Infrastructure Event Management, well-architected & operational reviews.

- Care sensitive response timeship to 1 hour
- Same as Business Support Plan no more than 2 hours
- Business > critical system down < 15 hours

*

Account > Best practices Summary *

- Operate multiple accounts using Organizations (AWS SCP, Service control policies) to restrict account power.

Justification: easily set up multiple accounts with best practices with AWS Control Tower.

- Use Stage & Prod Application Tags for easy management & Billing at 2000 A

through IAM guidelines: MFA, least privilege, minimization of policy, password protection.

- Config to record all remediation configurations & Compliant after fix without

CloudFormation to deploy stacks across accounts and regions (prior to 2020)

Trusted Advisor to get insights, support & plan adapted to your needs. Review

Send service logs and access logs to S3 or CloudWatch logs (using CloudTrail)

CloudTrail to record API calls made within your accounts or from inviting

If your account is compromised:

Change in the root password, delete and rotate all passwords / keys, contact the AWS Support team (within 24 hours)

New IAM users and events without review history of testing

Billing & Costing Tools - Summary *

Compute Optimizer: Recommends resources' configurations to reduce cost.

Pricing Calculator: Cost of services on AWS.

Billing Dashboard: High level overview + free tier dashboard.

Cost Allocation Tags: Tag resources to create detailed reports.

Billing dataset and **Cost Usage Reports:** Most comprehensive

Cost Explorer: View current usage (detailed) and forecast usage.

Billing alarms: In ^{w-}east-1 - track overall and per-service billing.

Budgets: More advanced - track usage, costs, RT, and get alerts.

Savings plans: Easy way to save based on long term usage of AWS.