

## CLOUD CONCEPTS

### (AWS Core Services Overview: Cloud Watch, RDS & Route 53, SNS and Load Balancer)

Amazon CloudWatch monitors your Amazon Web services (AWS) resources and the applications you run on AWS in real time.

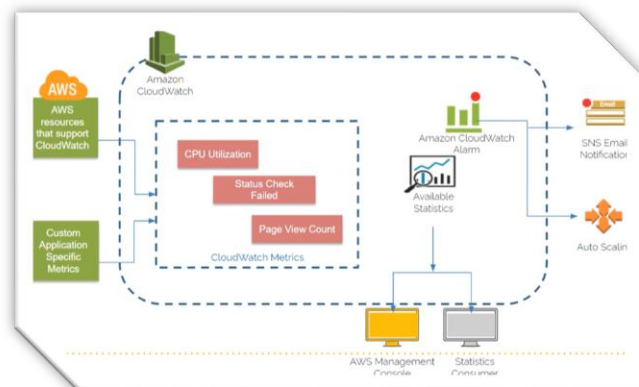
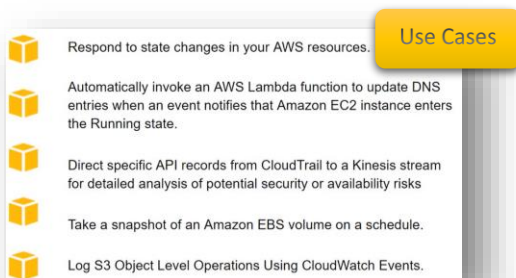


#### Amazon Cloud Watch

monitors Amazon Web Services Resources and applications that are run on AWS in real time. It also talks about the traffic coming towards the server i.e., the type of traffic, amount, or percentage of traffic. Amazon Cloud Watch is just like the task manager running on your computer that gives you the insights of your system resources like CPU utilization, storage, network consumption etc.

Cloud watch is a monitoring service and provides you with different metrics, generates alarms under certain conditions and creates logs. It is an integrated service used with other services.

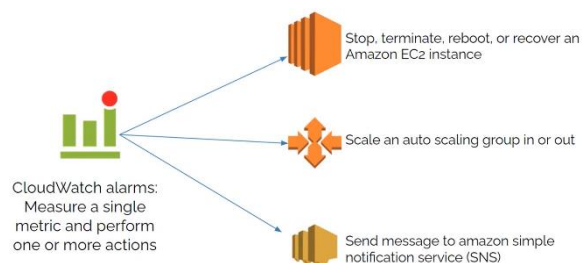
- Metrics
- Alarms
- Events
- Logs
- Dashboards



Amazon EC2 If CPU Utilization is **> 60%** for **5** minutes...

Amazon RDS If number of simultaneous connections is **> 10** for **one** minute.





Amazon load Balancing If number of healthy hosts is **< 5** for **10** minutes...



E & OE

Handouts: Drakhshan Bokhat

- Amazon cloud watch basic level monitoring is free but detailed monitoring is paid. The resources are monitored after 5 minutes but this span can be reduced to 1 minute.
- All the logs generated by AWS Services are stored in S3 even custom logs generated are also stored in S3.
- Cloud watch function is integrated with AWS lambda so when any event occurs cloud watch triggers lambda function and through IAM.

-  **Watches a single metric.**
-  **Performs one or more actions.**
  - ✓ Based on the value of the metric relative to a threshold over a number of time periods.
-  **The action can be:**
  - An Amazon EC2 action
  - An Auto Scaling action
  - A notification sent to an Amazon SNS topic
-  **Publish your own application metrics.**



Use simple rules to match events and route them to one or more target functions or streams

Aware of operational changes when occur

Respond to these changes and takes corrective measures

Schedule automated actions that trigger at certain times

Monitor and troubleshoot systems and applications using existing log files

Retrieve the associated log data from cloud watch logs

Includes an installable agent for ubuntu, Amazon Linux and Windows at no additional charge

Monitor EC2 instances in real time and AWS Cloudtrail Logged events

Archive Log Data

- Cloud trails includes user (IAM) level monitoring.

## Challenges of Relational Databases

- Server maintenance and energy footprint
- Software install and patches
- Database backups and high availability
- Limits on scalability
- Data security
- OS install and patches



**Amazon Relational Database** is already configured and properly set up for you just like EC2 with all initial setup!



**Amazon RDS** : is managed service that sets up

and operates a relational database in the cloud.

- When you use Amazon RDS service it is launched with an instance (DB instance) containing servers just like EC2 and storage like EBS. Amazon supports six types of data bases and it manages all the related tasks like opearting system installation and patches (time to time updation of packages).

You Manage:



Application optimization

AWS manages:



OS installation and patches



High availability



Server maintenance



Database software install and patches



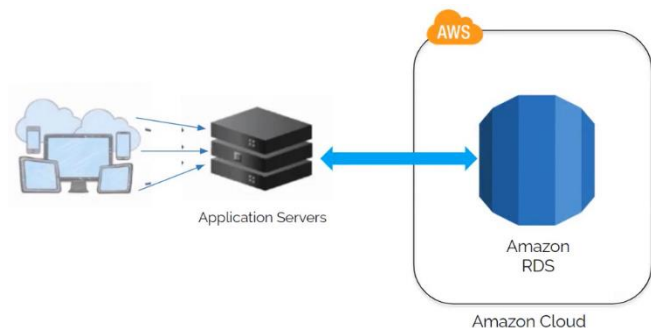
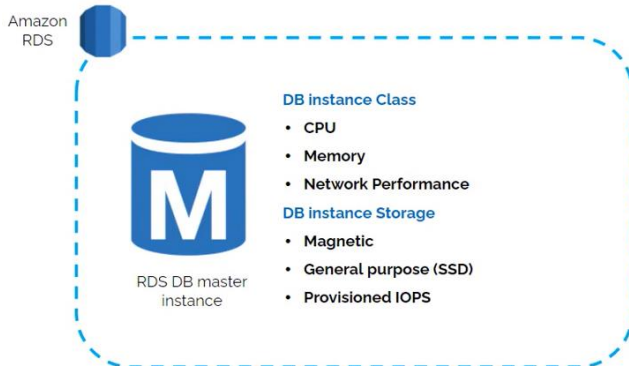
Database backups



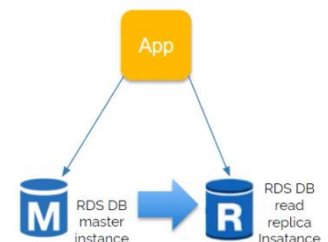
Scaling Power and rack & stack

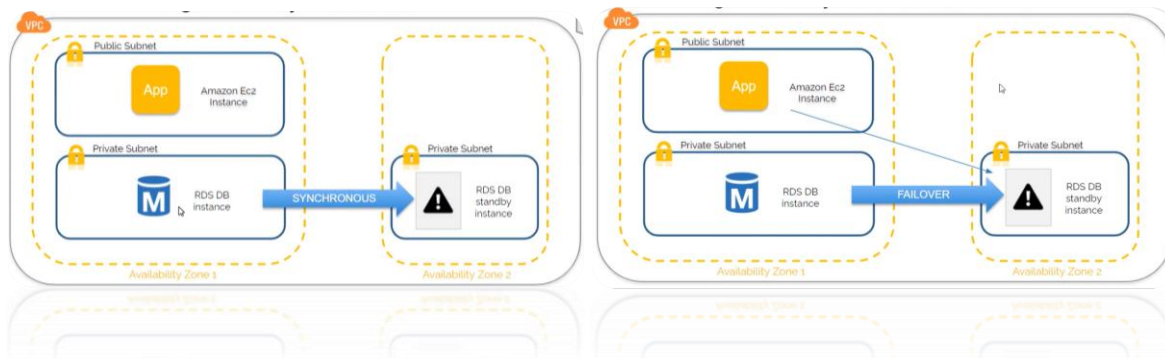
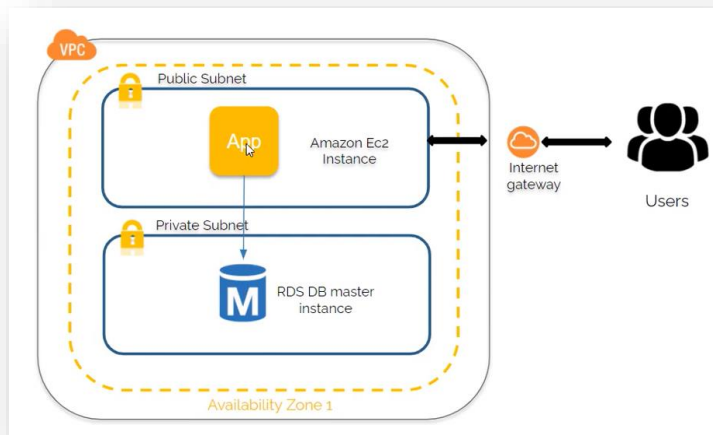


Server maintenance



- Read replica is used for READ ONLY queries. In the given scenario many read replicas of the master data base are created to make it highly available. So, in case of any failure data is recoverable. In case of read heavy database workloads read queiries offload from master DB instance, if needed read replicas can be prompted to master DB. For replication Asynchronous method is used.
- In the given scenario for high availability DB is launched in multiple AZs, the master DB is in the private network and is accessed thourgh the application installed in the launched (EC2 instance). IN AZ2 the copy of the database is kept as a abckup in case of failure. This all is inside th VPC.





Highly scalable



Easy to administer



Available and durable

### Web and Mobile Application

- High throughput
- Massive storage scalability
- High availability

### E-commerce Application

- Low-cost database
- Data security
- Fully managed solution

### Mobile and Game Online

- Rapidly grow capacity
- Automatic scaling
- Database monitoring



High performance



Secure and compliant



**AWS Route 53** translates URL names, such as `www.wordpress.com`, into their corresponding numeric IP addresses.



Users



Amazon Route 53  
(DNS Service)



Application X

- Route53 is a domain name system or DNS, which is a service design to provide businesses and developers reliable and highly scalable way to route end users to end points. These end points could be an application which needs to be translated into IP addresses for computing services to talk to each other.

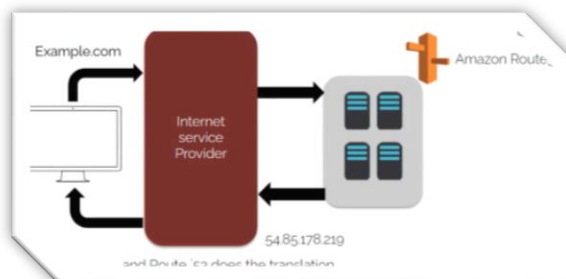
### Route 53: Your Managed DNS Translator



- Global, highly available DNS
- Domain registration
- Public and private DNS names
- Multiple routing algorithms
- Both IPv4 and IPv6
- Integrated with other AWS cloud services



- Integrated with other AWS cloud services
- Both IPv4 and IPv6



Simple



Geo-location



Failover



Weighted  
round robin



Latency-based



Multi-value  
answer

