Console and IAM

- AWS Management Console and Budgeting
- IAM(Identity and Access Management), User, Role, Policies and User Group
- Use Cases


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IAM Overview

- IAM – Identity and Access Management (Global Service)
- Root account created by default, should never be used or shared
- **Users** – are people within an organization and can be grouped. Users can be a part of multiple groups or not. Example: Arvind, Anil, Sunny, Anoop
- **Groups** – groups can contain only users and not another group
- **Policies** - Users and Groups can be assigned JSON document called policies. These policies define the permission of a user. In AWS we apply the least privilege principle.


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Policies Structure

- Version – policy language version, always include ‘2012-10-17’
- Id – identifier of the policy(optional)
- Statements – can be one or more. (required). Statement consists of:
  - Sid – an identifier of the statement (optional)
  - Effect – whether the statement allows or denies access
  - Principal – account/user/role on which this statement should be applied to.
  - Actions – list of actions this policy allows or denies.
  - Resource – list of resource on which this policy should be applied.
  - Condition – condition for when this policy should be applied. (optional)

```
{
  "Version": "2012-10-17",
  "Statement": [
    {
      "Effect": "Allow",
      "Action": "ec2:Describe*",
      "Resource": "*"
    },
    {
      "Effect": "Allow",
      "Action": "elasticloadbalancing:Describe*",
      "Resource": "*"
    },
    {
      "Effect": "Allow",
      "Action": [
        "cloudwatch:ListMetrics",
        "cloudwatch:GetMetricStatistics",
        "cloudwatch:Describe*"
      ],
      "Resource": "*"
    }
  ]
}
```

Ways to access AWS Services

- AWS Management console - protected by credentail + MFA
- CLI (Command Line Interface) - protected by access key
- SDK (Software development kit) - for code: protected by access key
- How to get AWS access keys - User manage there own access keys.
- **NOTE**: *These keys behave like username and password.*


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CloudShell

- Available is limited regions
- By default runs all the commands in your current region
- Have the same permission as the user
- Demo


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IAM Roles for Services

- Some AWS services might need permission on your behalf. Examplel: Ec2, Lambda etc.
- We can use Roles to assign permission on those AWS services.
- Roles are to be used by AWS services and not user/group.
- Common roles:
  - EC2 instance role
  - Lambda role
  - Role for cloudformation


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Security and SecurityTools

- Make sure MFA is enabled for your root account.
- You can change the password settings for IAM users.
- Enabled MFA for IAM user
- **Credential Report** - report listing all your AWS users and status for there credentials
- **Access Advisor (User-Level)** - shows service permission granted to a user when services were last accessed. It can use used to revise policy


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Use cases

- Permission Boundaries
- Policies
- AWS Access Key and Secret
- Role
- User group


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MCQ

What is a proper definition of an IAM Role?

A. IAM Users in multiple User Groups
B. An IAM entity that defines a password policy for lAM Users
C. An IAM entity that defines a set of permissions for making requests to AWS services, and will be used by an AWS service
D. Permissions assigned to lAM Users to perform actions


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MCQ

Which answer is INCORRECT regarding IAM Users?

A. IAM Users can belong to multiple User Groups
B. IAM Users don't have to belong to a User Group
C. IAM Policies can be attached directly to IAM Users
D. IAM Users access AWS services using root account credentials


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MCQ

IAM User Groups can contain IAM Users and other User Groups.

A. False
B. True


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MCQ

An IAM policy consists of one or more statements. A statement in an IAM Policy consists of the following, “EXCEPT”:

A. Effect
B. Pricipal
C. Version
D. Action

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