



AWS Foundation

App Services



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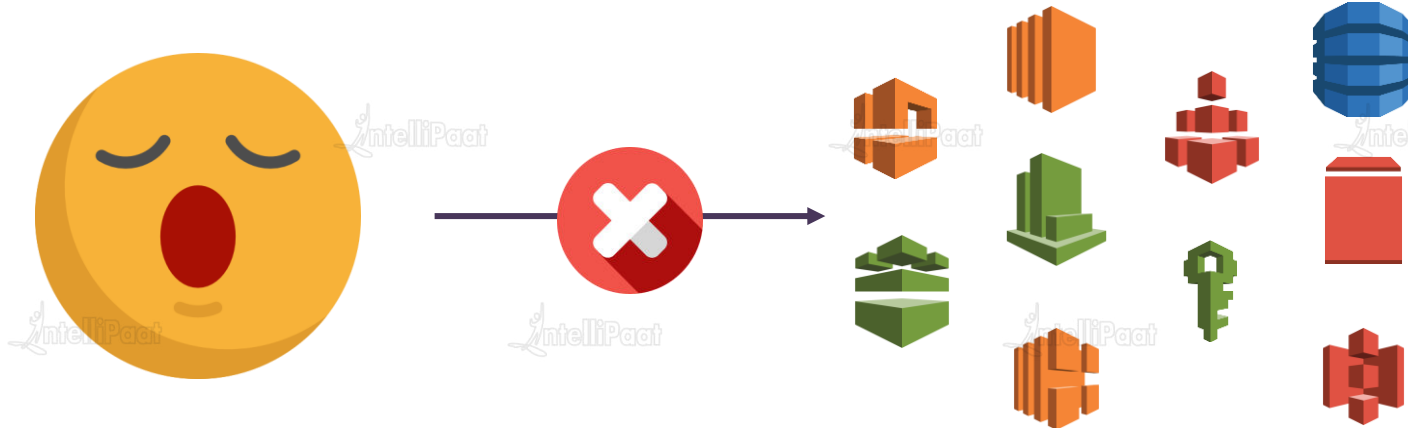
Quiz



Introduction to CloudFormation

Why CloudFormation?

Managing all the resources of a complex application on AWS becomes a problem when there are a lot resources to be maintained.

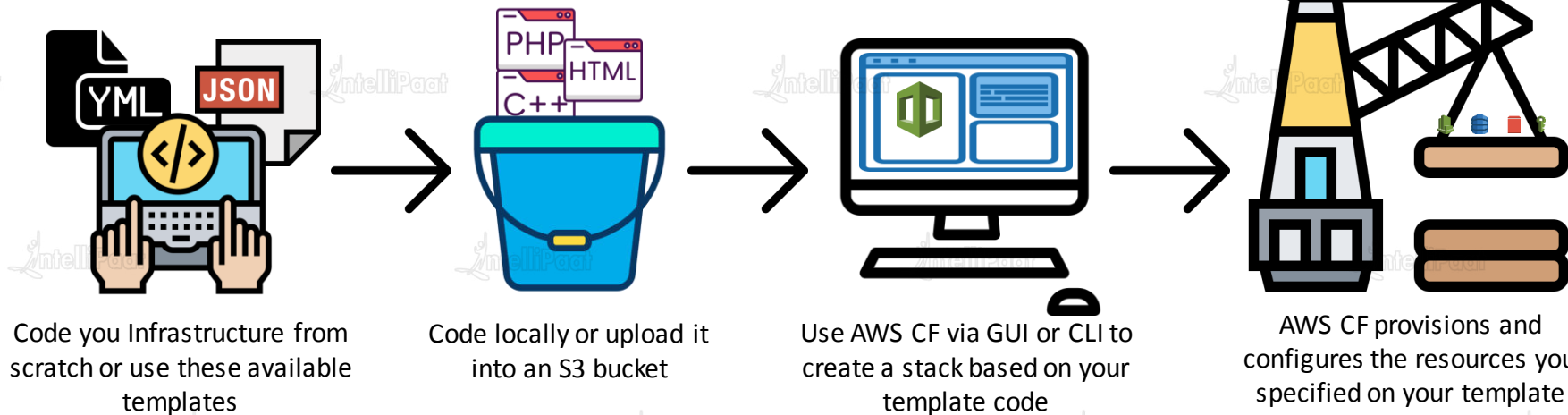


Why CloudFormation?

CloudFormation allows you to model your entire Infrastructure in a text File

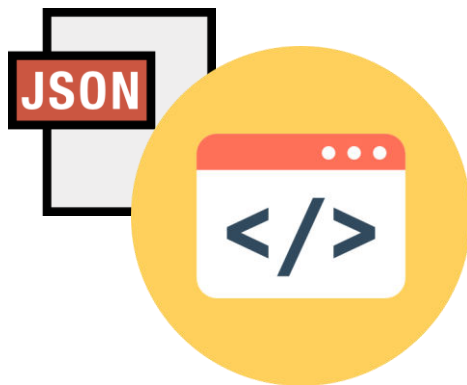


How AWS CF works?



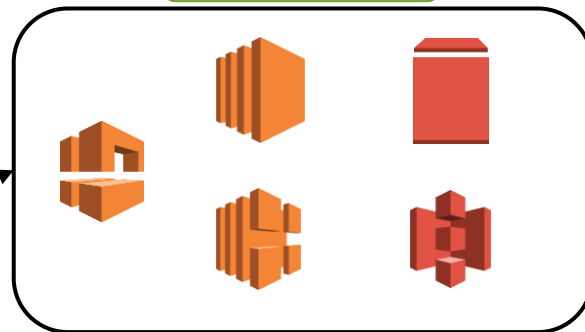
Infrastructure-as-a-Code

IaaS Concept



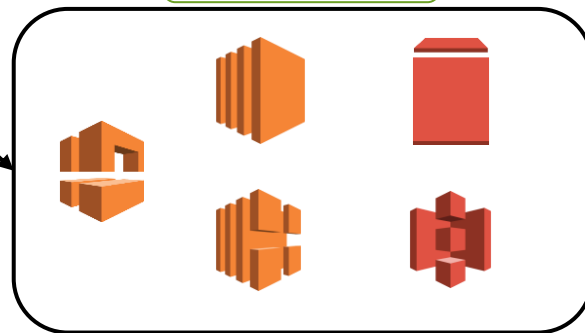
Instead of creating multiple Instances, Databases and other resources manually, you can create a single piece of code which you could use to create multiple infrastructures

Infrastructure 1



Region 1

Infrastructure 2



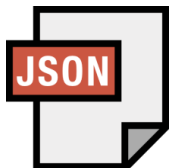
Region 2



CloudFormation Components

Components

Template



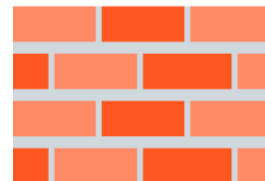
- ★ JSON formatted files.
- ★ Contains information about what AWS resources to be launched.

CloudFormation



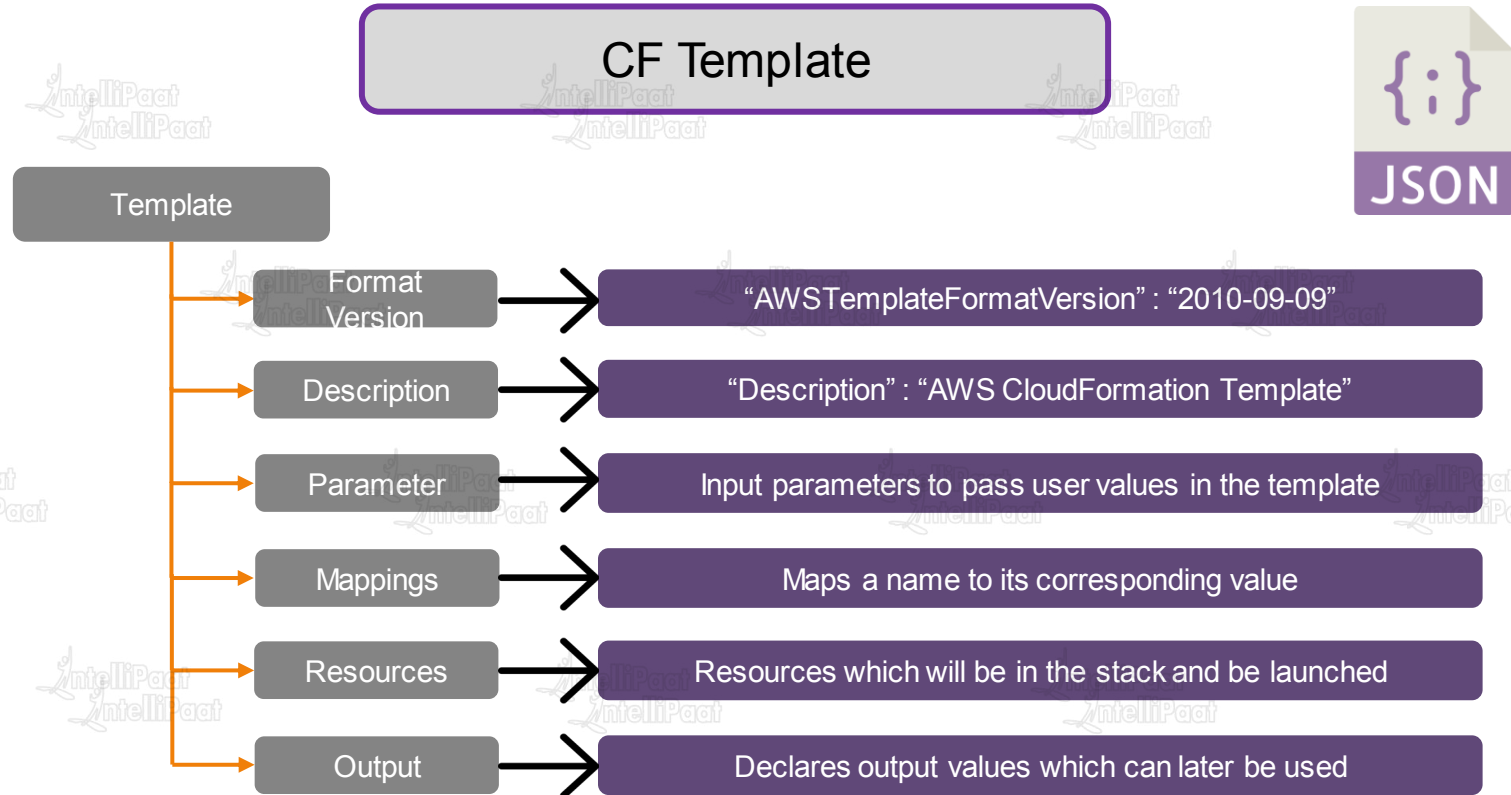
- ★ IAC Framework.
- ★ Stack Creation, updating stacks
- ★ Error detection and rollback

Stack



- ★ Configure AWS resources
- ★ Editable and Customizable
- ★ Service support for the resources

CF Components



Parameters

{:}

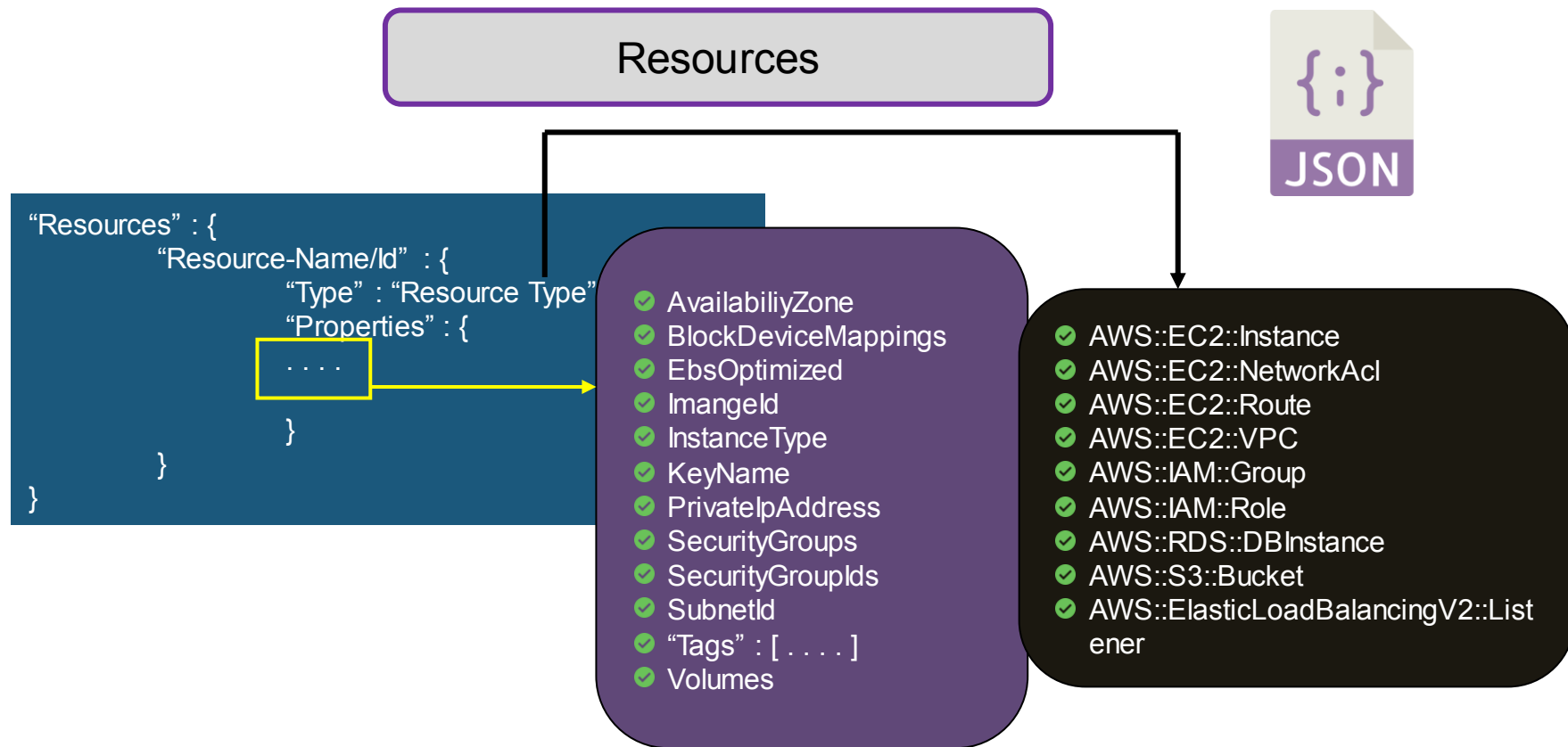
JSON

```
"Parameters" : {  
  "Parameter-Name/Id" : {  
    "Type" : "Parameter-data-type",  
    "Properties" : {  
      "Type" : "Property-data-type",  
      "AllowedValues" : "____",  
      "Default" : "____",  
      "MaxLength" : "____",  
      "MinLength" : "____",  
      "MaxValue" : "____",  
      "MinValue" : "____",  
      "NoEcho" : "true/false",  
      "Description" : "____"  
    }  
  }  
}
```

- ✓ AWS::EC2::AvailabilityZone::Name
- ✓ AWS::EC2::Instance::Id
- ✓ AWS::EC2::KeyPair::KeyName
- ✓ AWS::EC2::VPC::Id
- ✓ AWS::S3::Bucket

- ✓ String
- ✓ Number
- ✓ List<number>
- ✓ CommaDelimitedList

CF Concepts





IntelliPaat



Demo 1



IntelliPaat

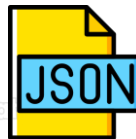


Demo 1



Launch an EC2 instance in region “us-east-1” and AZ “us-east-1a” with instance type “t2.micro” with a key-pair.

Mappings



```
“Mappings” : {  
    “mapping-name” : {  
        “key-1” : {  
            “Name” : “value-1”  
        },  
        “key-2” : {  
            “Name” : “value-2”  
        },  
        “key-3” : {  
            “Name” : “value-3”  
        }  
    }  
}
```

```
{ “Fn:FindInMap” : [ “mapping-name” , “key-1” , “Name” ] }
```

Mappings

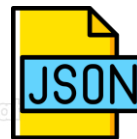


```
"Mappings" : {  
  "RegionMap" : {  
    "us-east-1" : {  
      "32" : "ami-6411e20d", "64" : "ami-7a11e213"  
    },  
    "us-west-1" : {  
      "32" : "ami-c9c7978c", "64" : "ami-cfc7978a"  
    },  
    "eu-west-1" : {  
      "32" : "ami-37c2f643", "64" : "ami-31c2f645"  
    },  
    "ap-southeast-1" : {  
      "32" : "ami-66f28c34", "64" : "ami-60f28c32"  
    },  
  },  
}
```

```
{ "Fn::FindInMap" : [ "mapping-name", "key-1", "Name" ] }
```


Functions and Pseudo Parameters

Functions & Pseudo Parameters



Functions

"Fn::FindInMap"

```
{ "Fn::FindInMap" : [ "MapName", "TopLevelKey", "SecondLevelKey" ] }
```

"Fn::GetAZs"

```
{ "Fn::GetAZs" : "region" }
```

"Fn::GetAtt"

```
{ "Fn::Join" : [ "delimiter", [ comma-delimited list of values ] ] }
```

"Fn::Join"

```
{ "Fn::GetAtt" : [ "LogicalNameOfResource", "attributeName" ] }
```

Functions & Pseudo Parameters



Parameters

AWS::Region

Returns a string representing the AWS Region in which the encompassing resource is being created

AWS::AccountId

Returns the AWS account ID of the account in which the stack is being created

AWS::StackName

Returns the name of the stack as specified with the aws CloudFormation create-stack command

AWS::StackId

Returns the ID of the stack specified



Demo 2: Functions and Pseudo Parameters

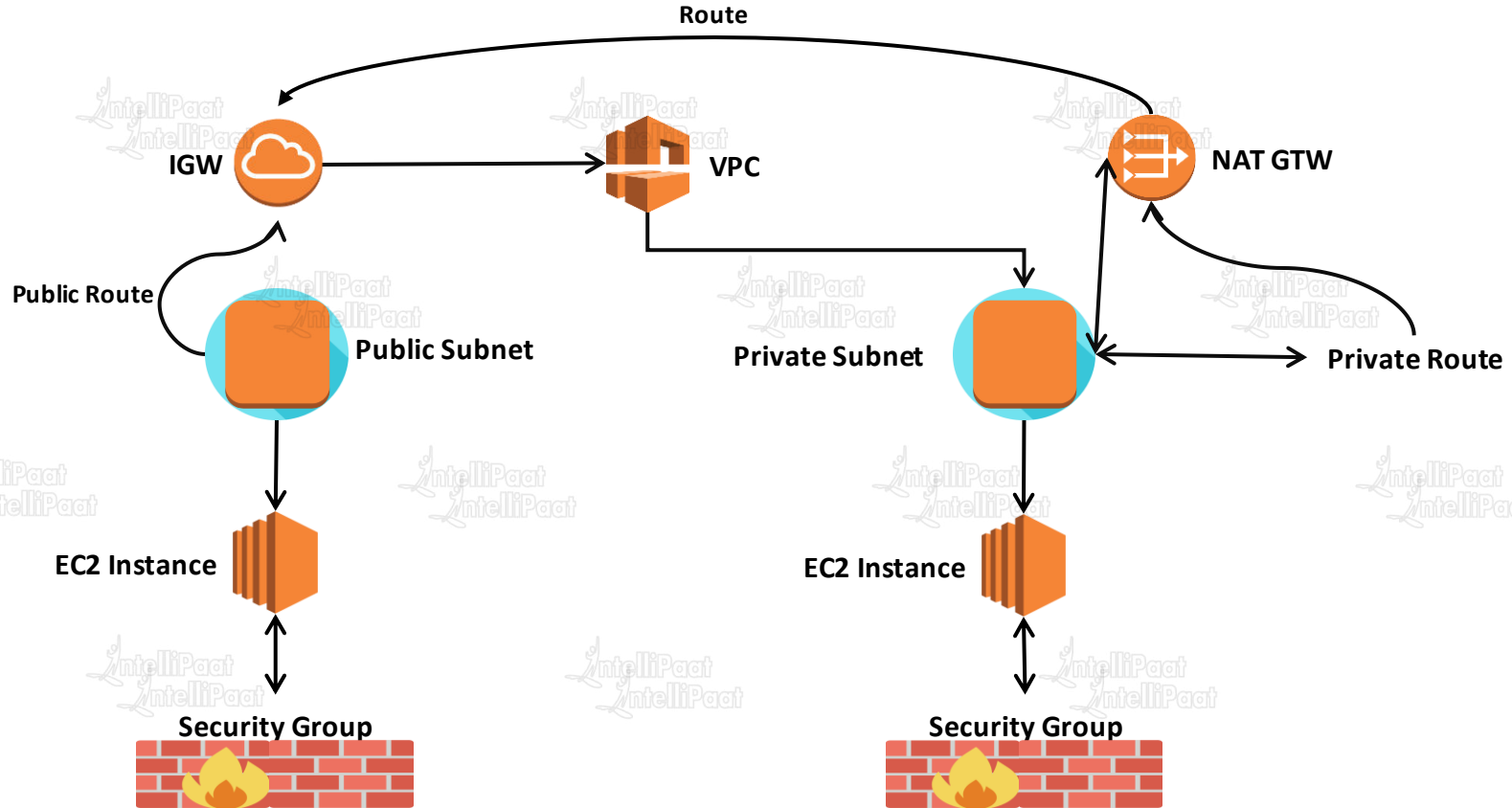


Functions & Pseudo Parameters



- Create a VPC with 2 subnets, private and public.
- Launch 1 instance in public subnet (inst1) and another in private subnet (inst2).
- We should be able to ssh into inst1 from anywhere.
- Inst2 should allow ssh only from inst1.
- Get the following input from user
- VPC CIDR block.
- CIDR block for public and private subnet.
- EC2 instance type.
- Use CloudFormation to automate the deployment.

CF Concepts



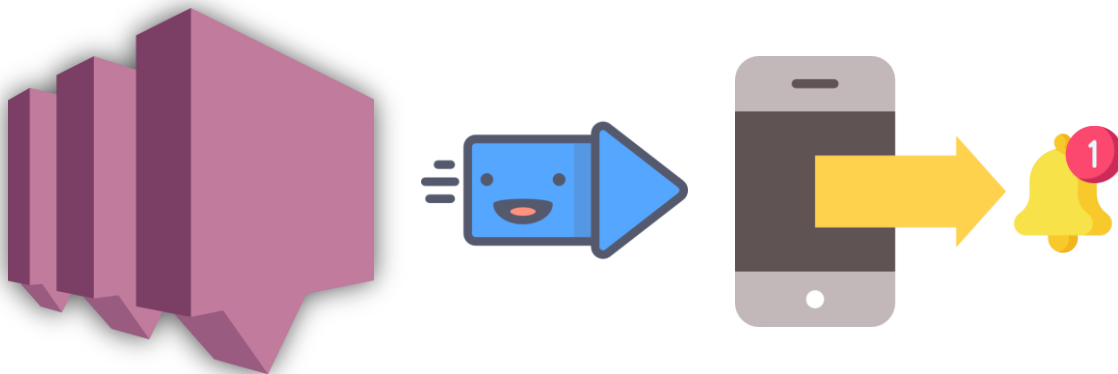


Simple Notification Service



Simple Notification Service

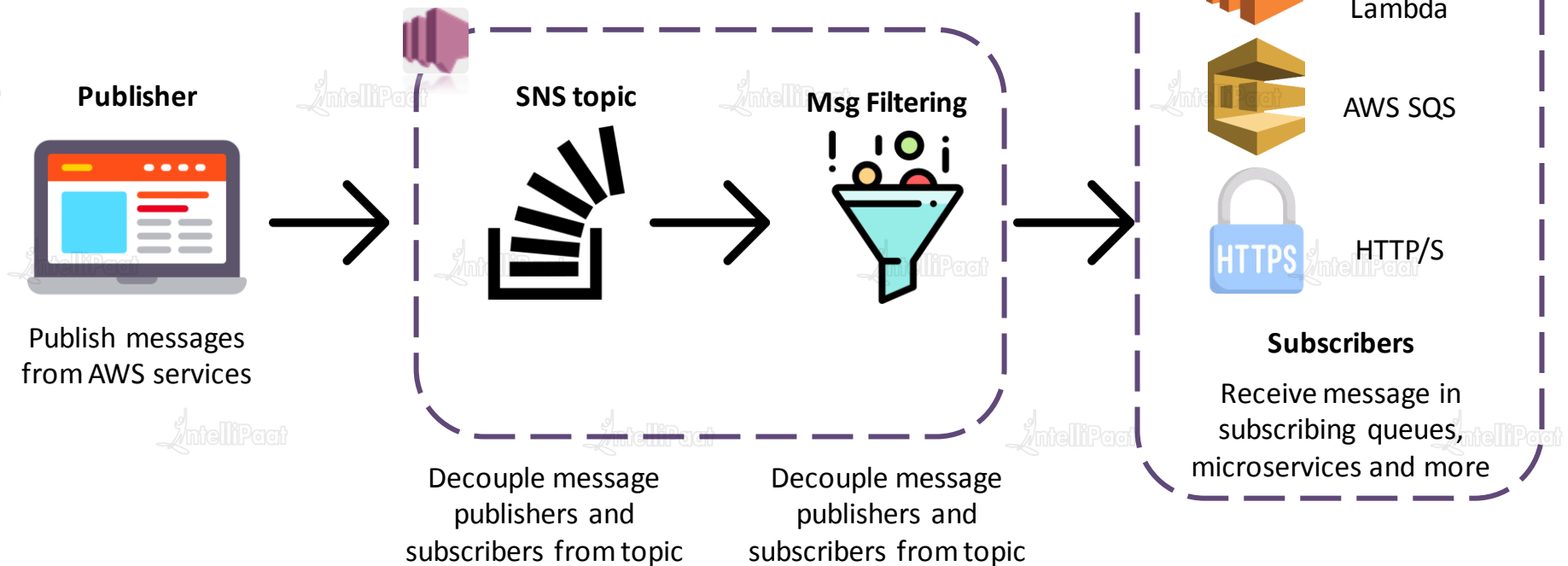
Amazon Simple Notification Service (SNS) is a Cloud based Notification service. Amazon SNS provides push-based and many-to-many messaging. It is easy to set up, operate, and send notifications from the cloud.



Simple Notification Service



How does SNS work?



Simple Notification Service

Benefits

Reliability



**Filtering
Messages**



**Automatic
Scalability**



Secure





Simple Email Service

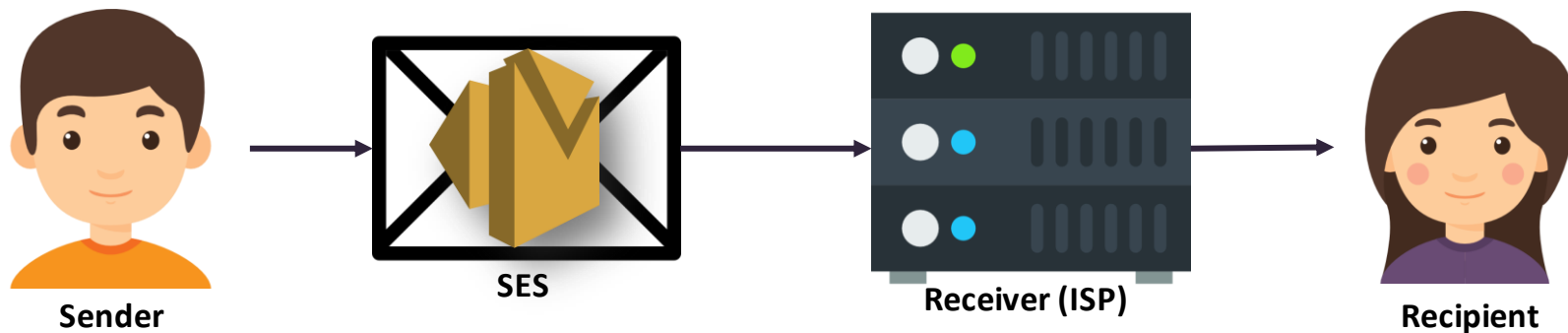


Simple Email Service

Amazon Simple Email Service (SES) is a Cloud based Email sending service which is designed to help out digital marketers and developers to send Appropriate emails. It is Reliable and Cost-effective.



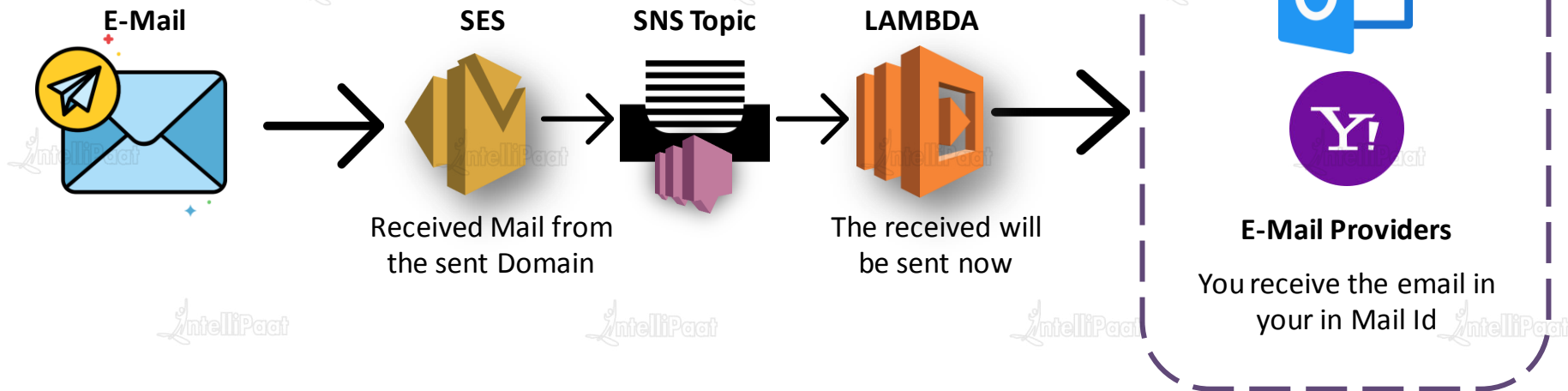
Simple Email Service



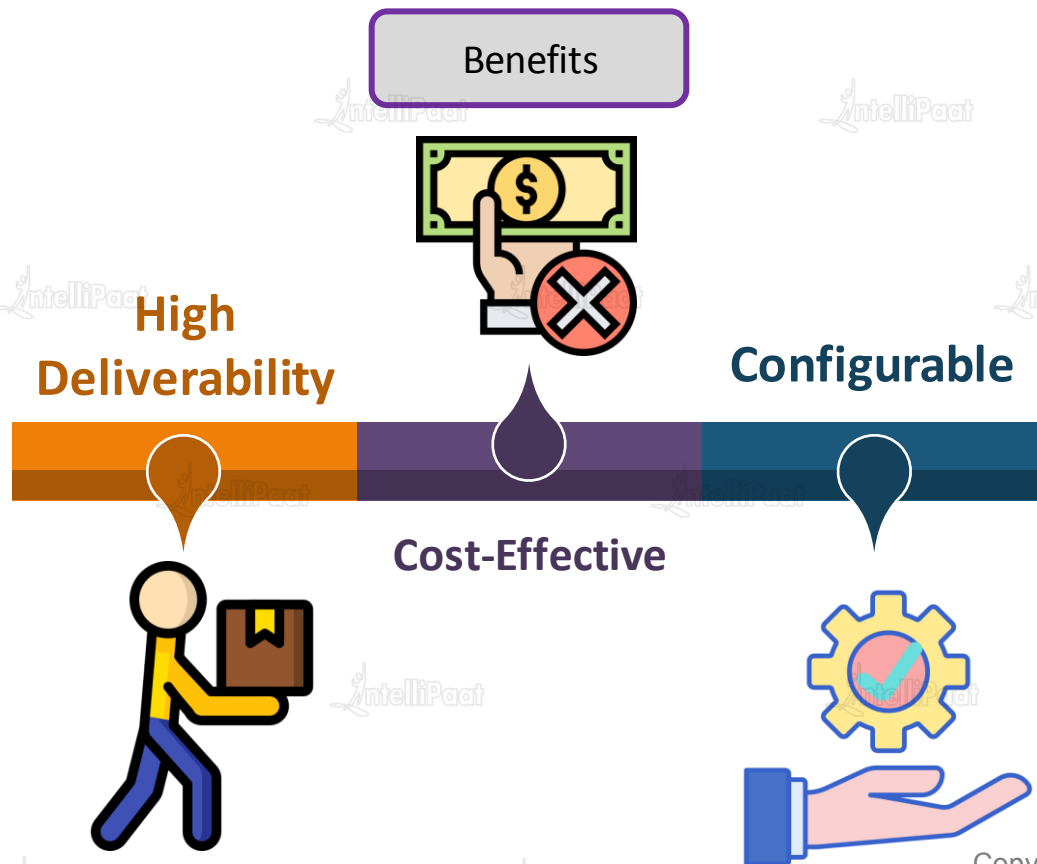
In simple terms, a sender sends a mail which the SES collects and pushes into the receiver (say ISP) and the receiver finally sends it to the Recipient

Simple Email Service

How does SES work?



Simple Email Service

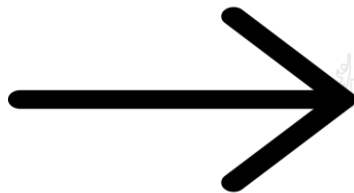
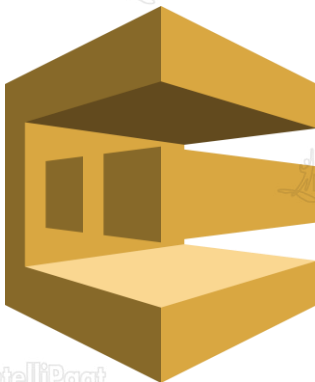




Simple Queue Service

Simple Queue Service

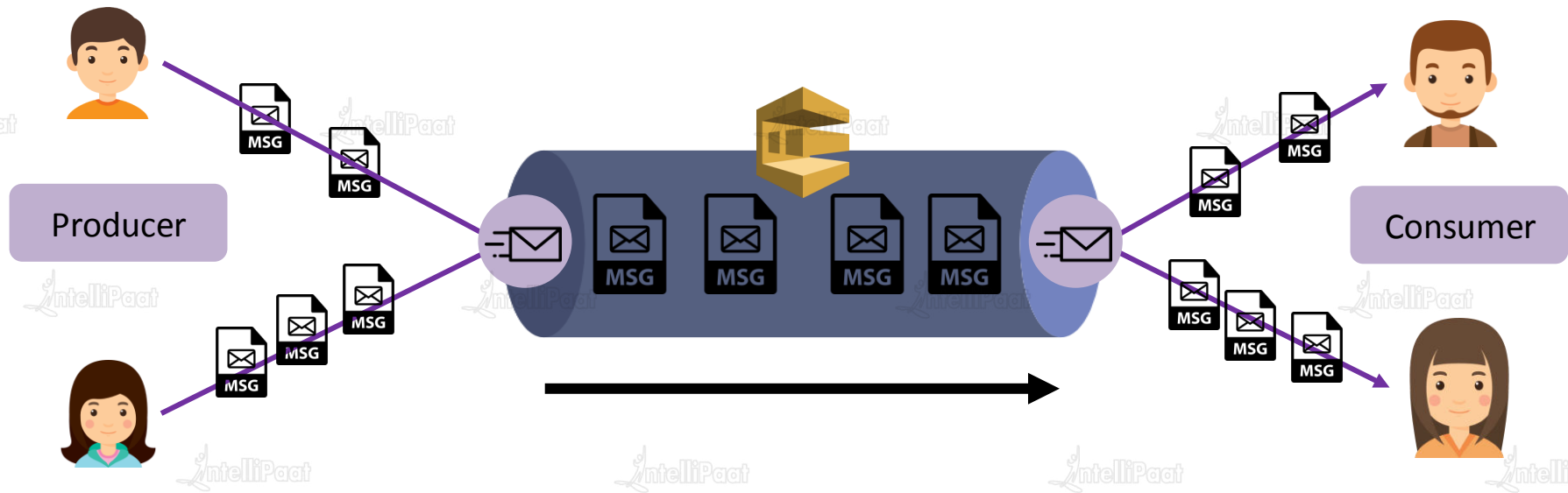
Amazon Simple Queue Service (SQS) is a Cloud based message queuing service. Amazon SQS enables you to decouple and scale microservices, distributed systems and, serverless applications.



Simple Notification Service



How does SQS work?



Simple Notification Service



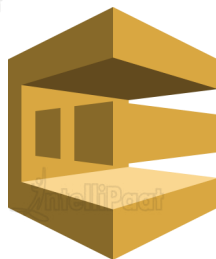
Benefits



No Overhead
Required
(Installing)



Reliable



Secure data



Scale Elastically



IntelliPaat



Quiz



IntelliPaat



1. Lambda provides maximum execution per request?

A. 300 sec

B. 600 sec

C. 1 min

D. 10 mins

2. What is SQS message retention period?

A. 14 days

B. 24 hours

C. 10 days

D. 5 mins

3. Can we invoke Lambda functions with AWS SNS notifications?

A. Yes

B. No



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