

# Architecture Proposal

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# Assumptions of the customer

SaaS for Gas station management

Just got Pre A round funding from a traditional Gas company

They are interesting in AWS Activate Plan

Low operation and maintenance capability. High Dev capacity.

Busy with JAVA Spring cloud microservices

Running LAMP stack on the IBM server within the machine room of their parent company

# Requirements & problems

## Security

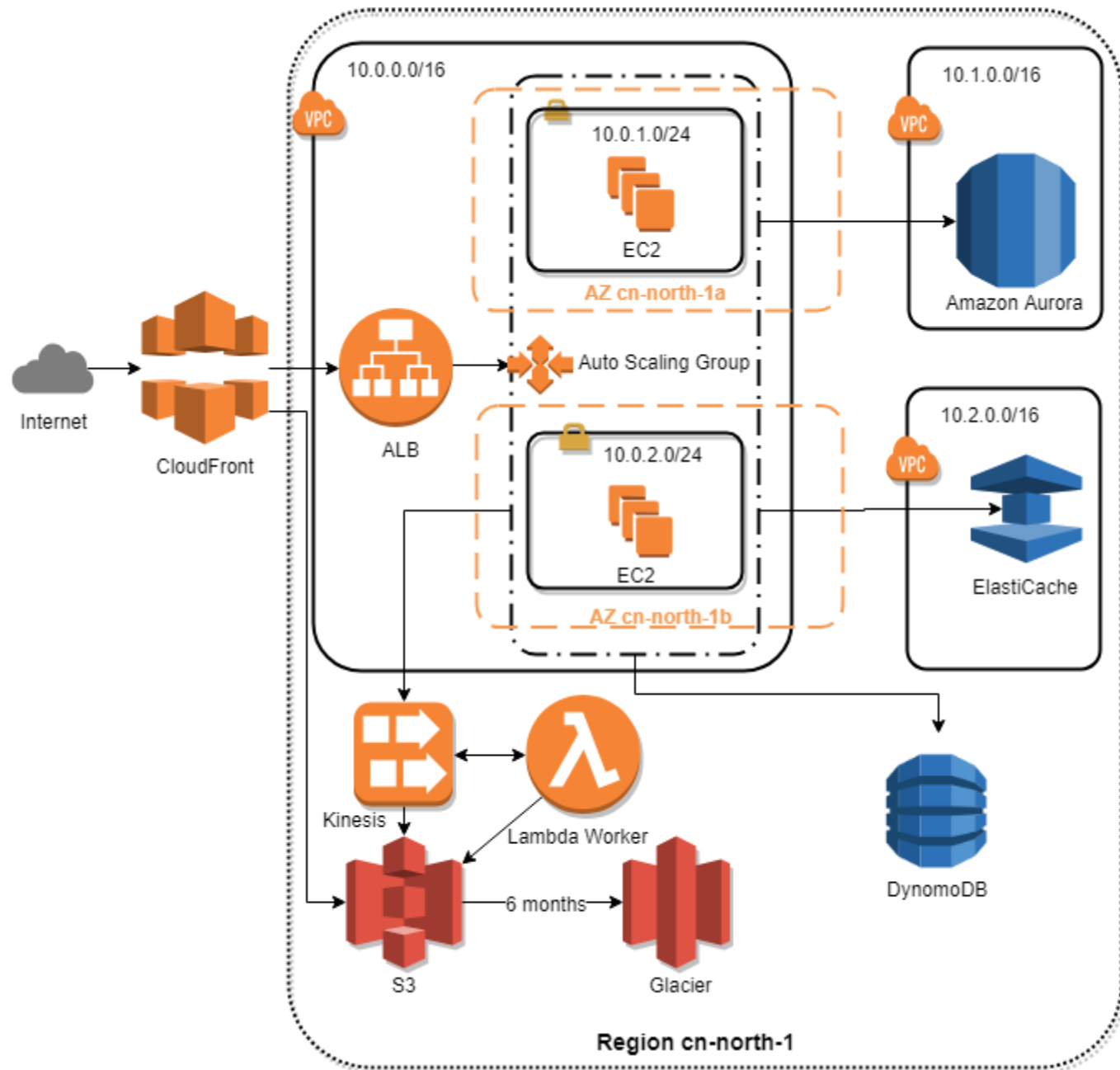
- Security of data at rest and in transit
- Self-healing infrastructure that recovers from failed service instances
- Securing access to the environment as the delivery team expands
- Disaster recovery

## Cost

- Cost efficiency
- Archival strategy for inactive objects greater than 6 months

## Performance

- Ability to configure database and data access layer for high performance and throughput
- Making the user experience in the browser very low latency even though a large portion of their user base will be from far away
- Effective distribution of load
- Ability to easily manage and replicate multiple environments based on their blueprint architecture



# Architecture Proposal



Raise Goldfish, not sweat BMW

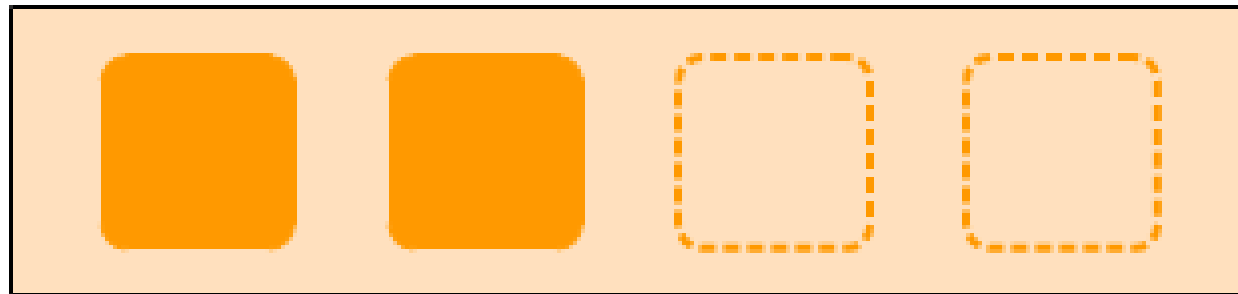
排行	云主机	配置	性能得分	单价（元/时）	性价比
1	AWS宁夏	1核1G	2035.4	0.0945	21538.3
2	AWS北京	1核1G	1890.8	0.1060	17838.1
3	AWS宁夏	2核4G	2991.2	0.3799	7873.7
4	阿里云	1核1G	1679.3	0.2340	7176.6
5	AWS北京	2核4G	2835.6	0.4260	6656.3
6	腾讯云	1核1G	1614.2	0.3200	5044.5
7	腾讯云	2核4G	2544.8	0.7200	3534.4
8	阿里云	2核4G	2501.5	0.9370	2669.7
9	AWS宁夏	4核16G	3457.9	1.6157	2140.2
10	腾讯云	4核16G	4155.0	2.0000	2077.5
11	阿里云	4核16G	3863.3	2.0580	1877.2
12	AWS北京	4核16G	3392.7	2.8150	1205.2

注：评测数据由CloudBest提供

Reasonable  
price

<http://cloud.idcquan.com/yjs/134551.shtml>

## Auto Scaling group



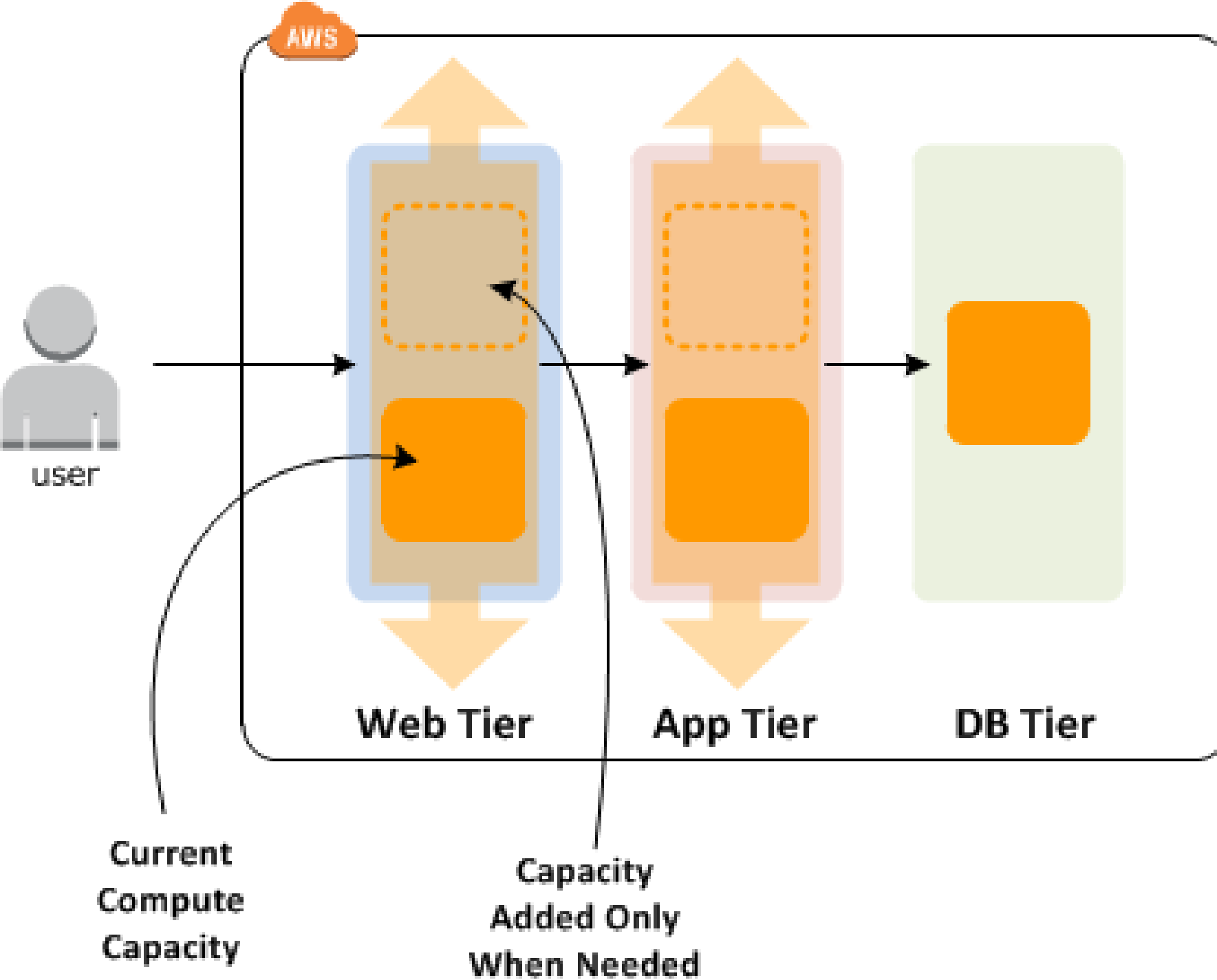
Minimum size

Scale out as needed

Desired capacity

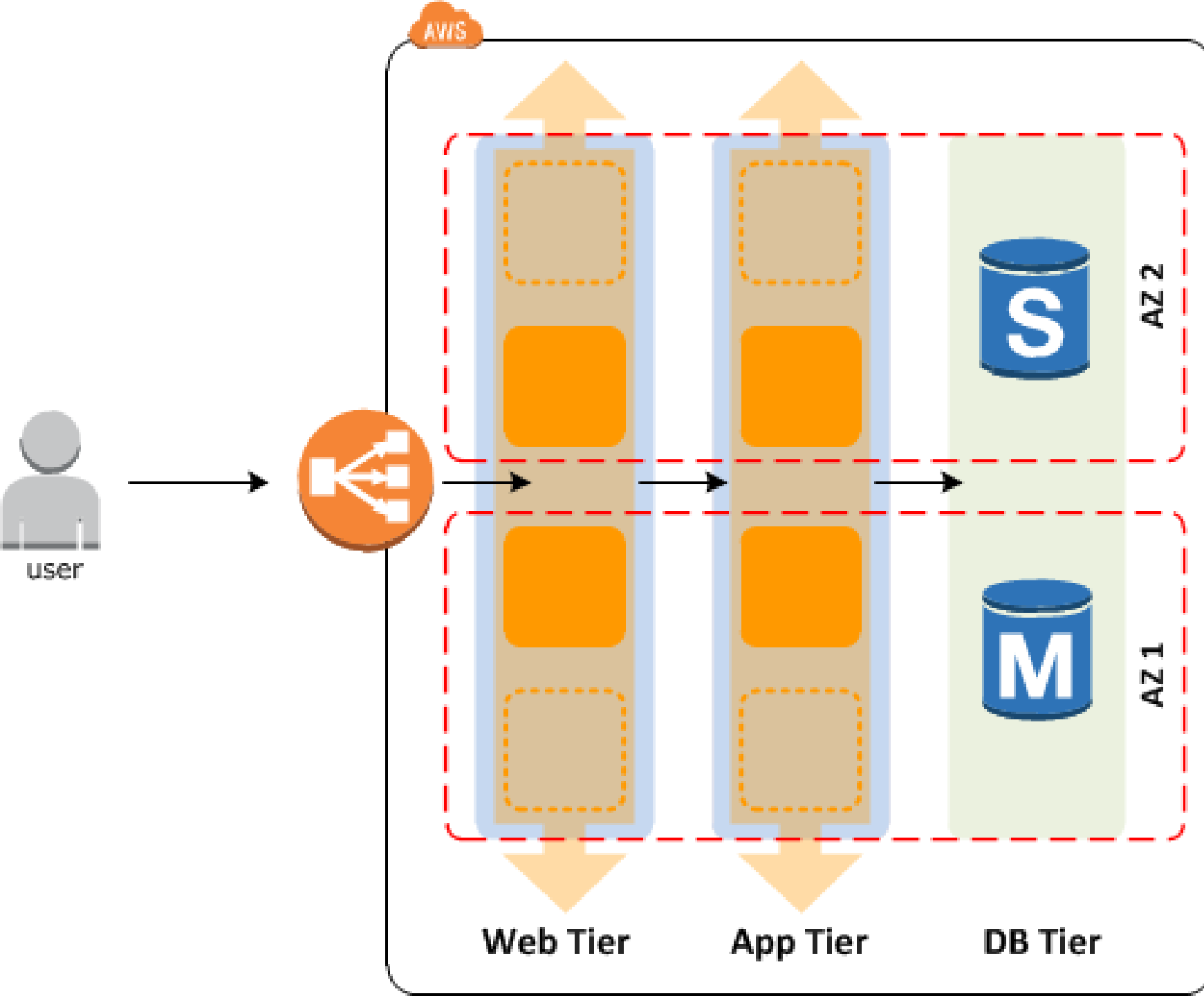
Maximum size

Save money in  
the long run by  
Auto Scaling



Save money in the long run at different tier



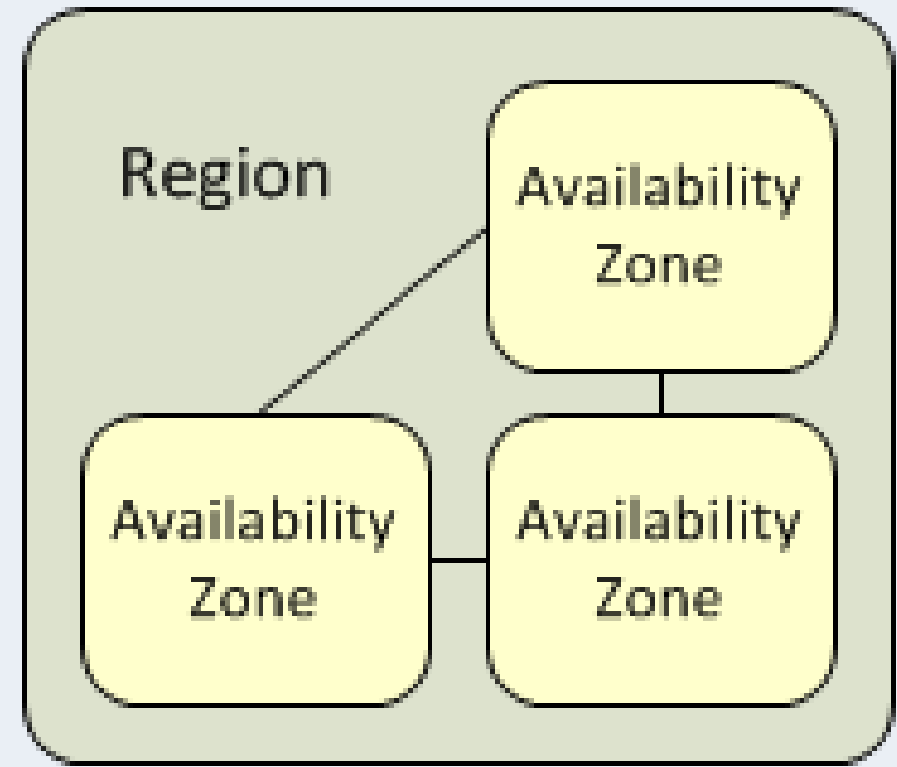
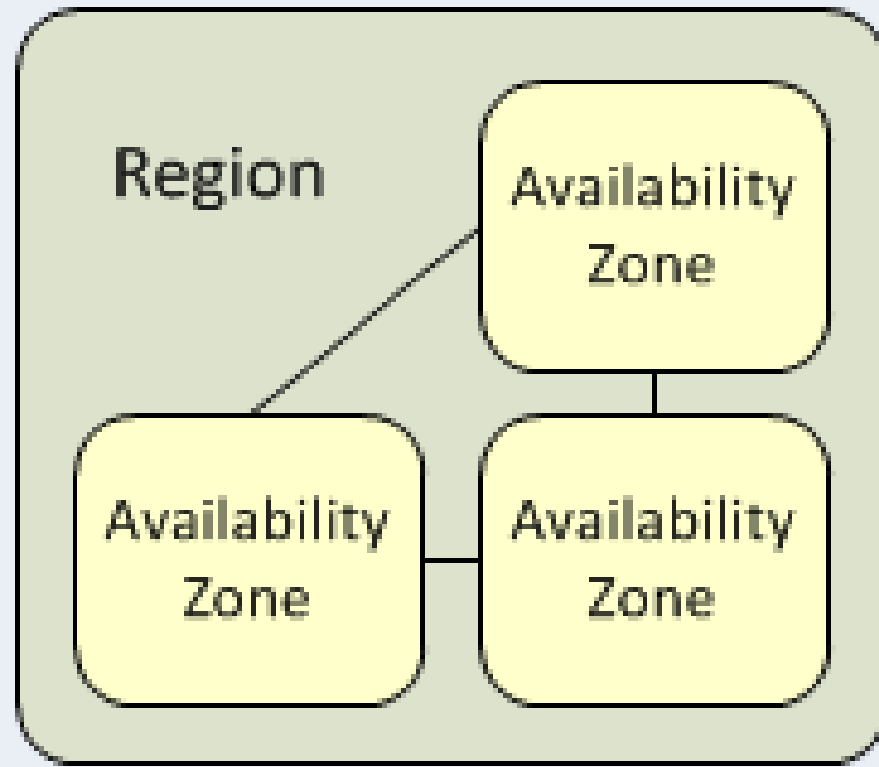


## Disaster recovery by Availability zones

Availability zones — Two are used. If one availability zone (AZ) suffers from an outage, we still have EC2 instances running in the other AZ.

EC2 instances — We have multi-redundancy for EC2 instances. We have multiple instances in one subnet (AZ), and we have instances in two subnets (AZs).

# Amazon Web Services



Don't put eggs in one basket – Region & Availability Zone

# Global Infrastructure



Amazon  
Aurora



ORACLE®



AWS RDS



轻松管理



高度可扩展



可用且持久



快速



安全



便宜

# Amazon Aurora DB Cluster

Availability Zone a



Primary Instance

Reads

Writes

Writes



Data Copies

Availability Zone b



Aurora Replica

Reads

Writes



Data Copies

Availability Zone c



Aurora Replicas

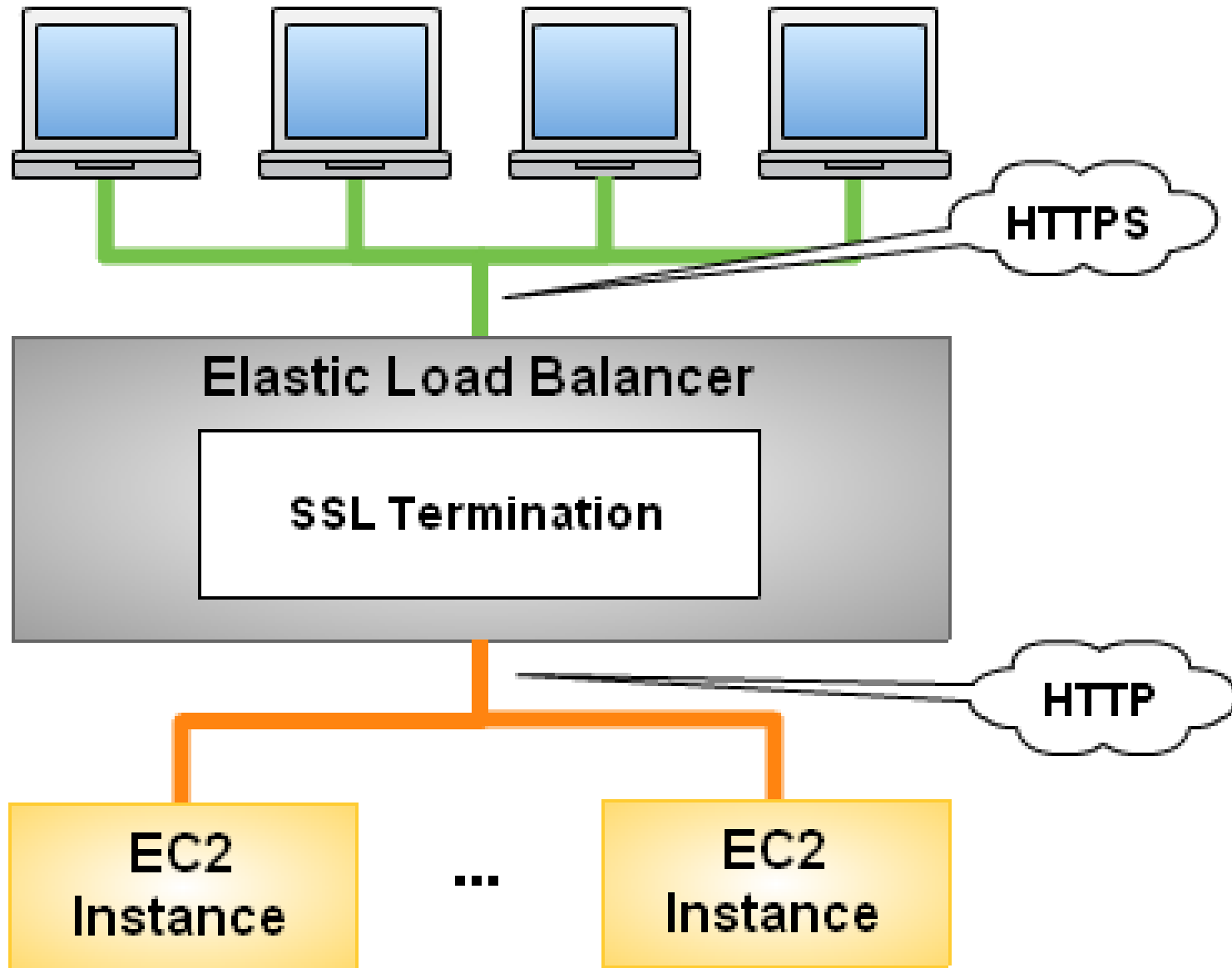
Reads

Reads



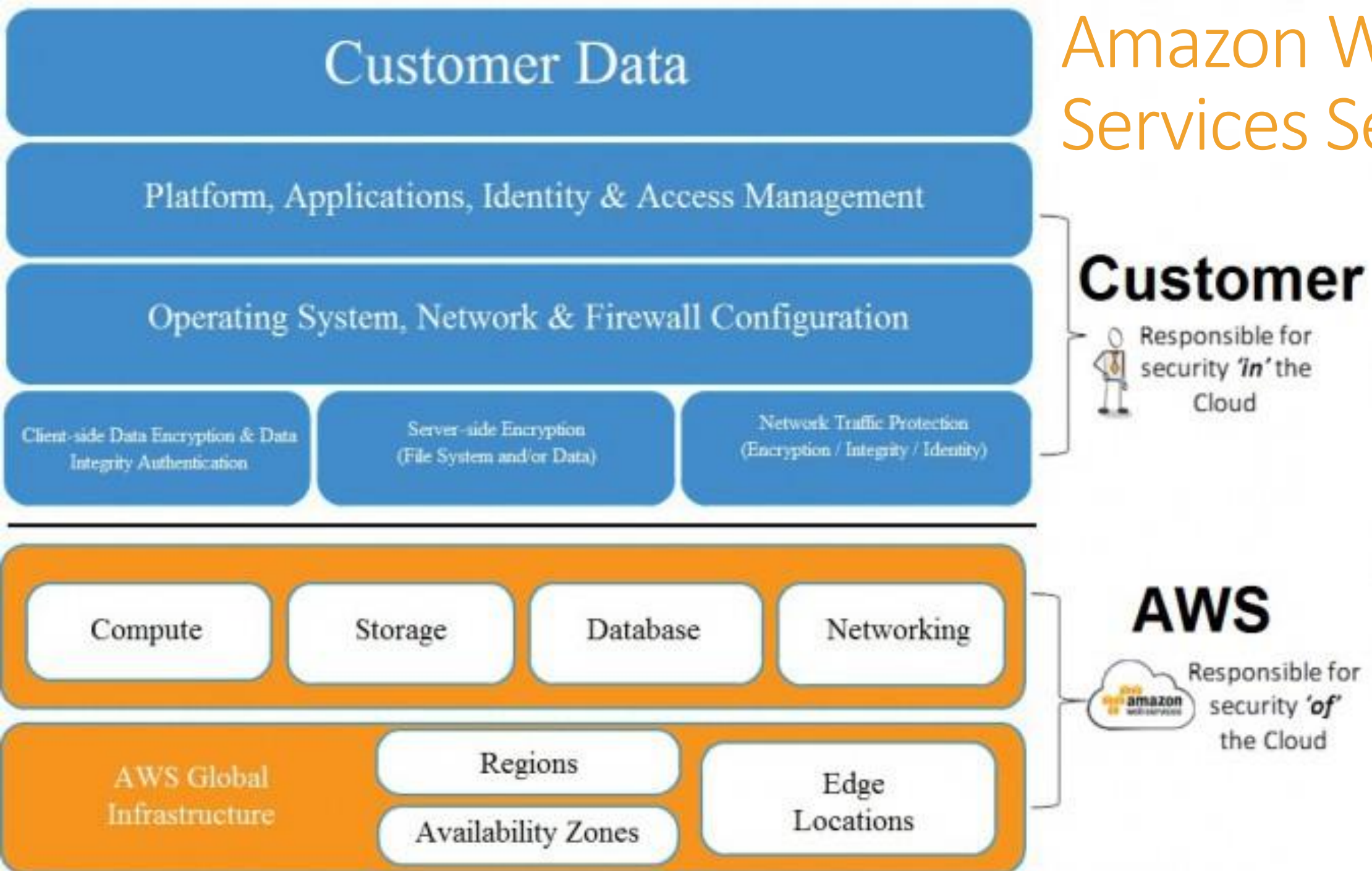
Data Copies

Cluster Volume

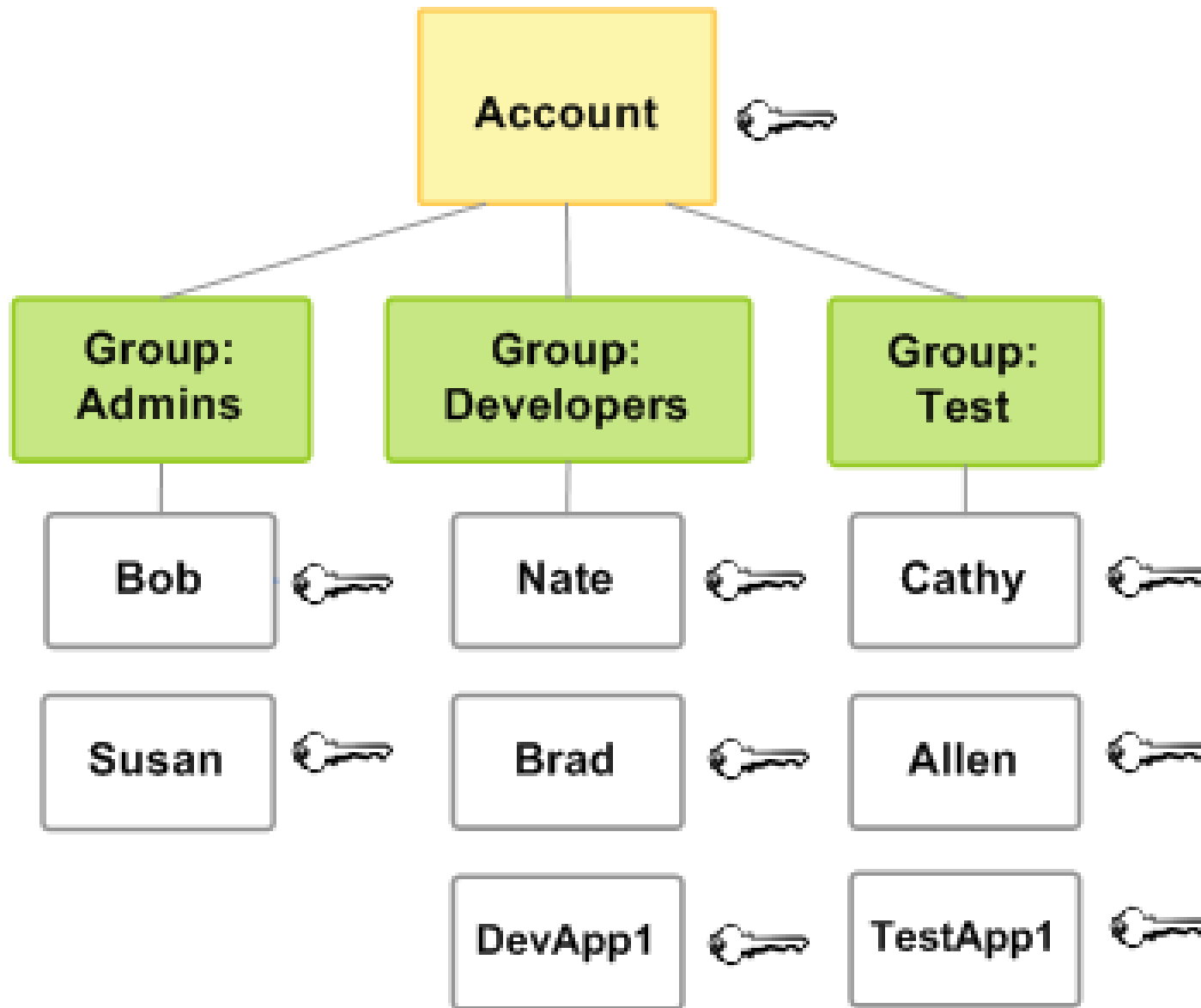


Security of data  
in transit using  
HTTPS

# Amazon Web Services Security

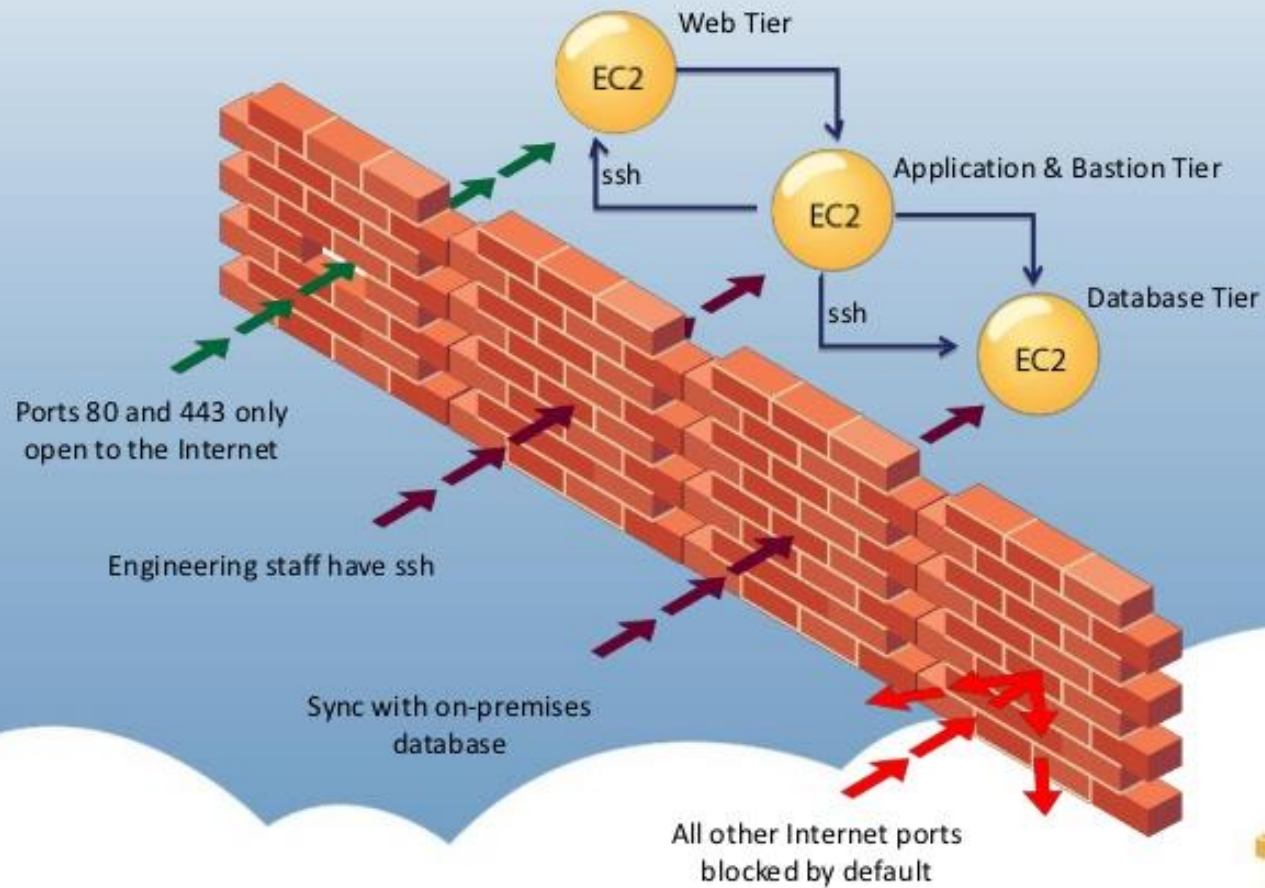


# AWS Identity and Access Management (IAM)



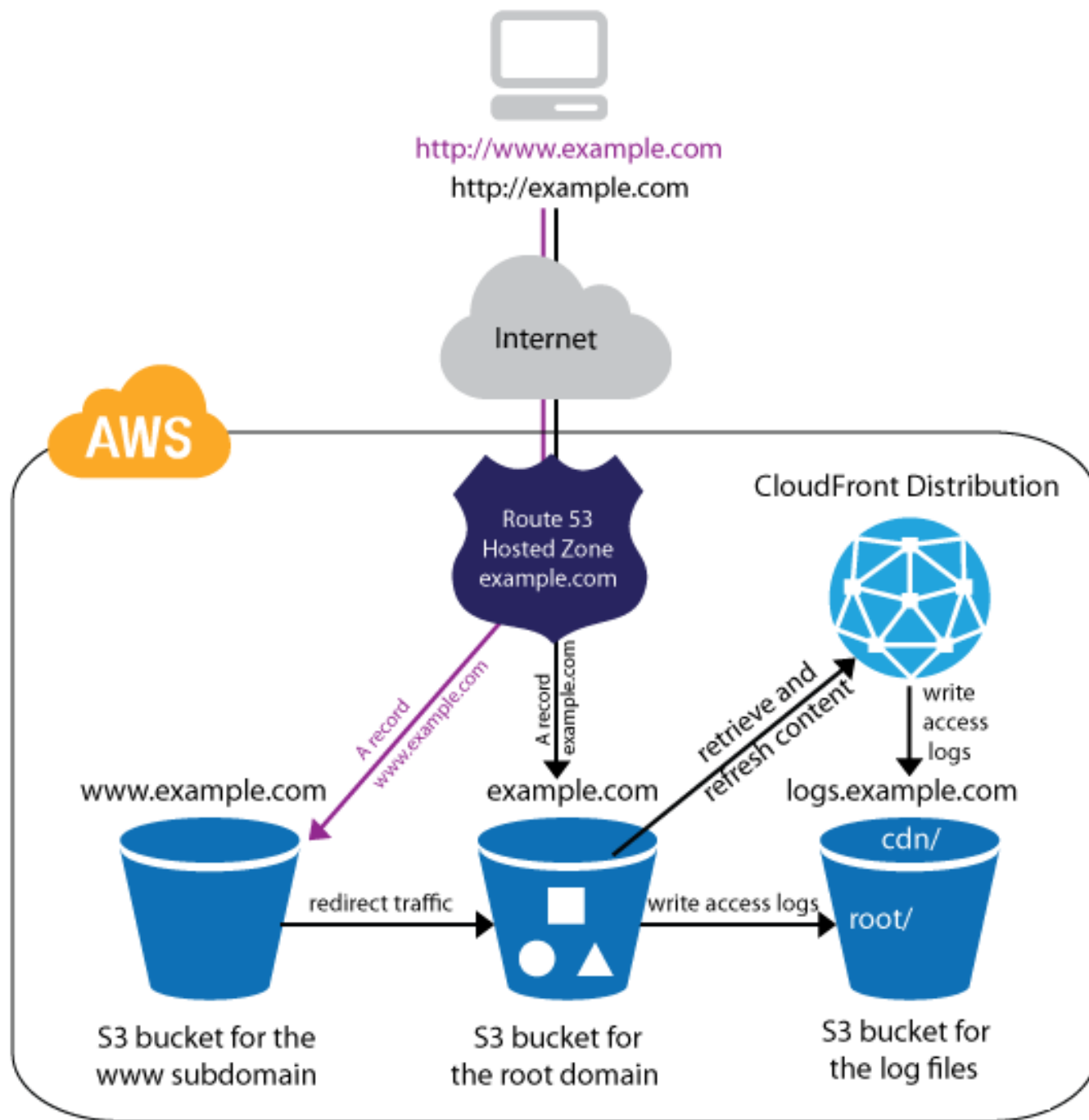


## Public EC2 Multi-tier Security Group Approach



Protect your network with security groups

Network administrators are no longer needed



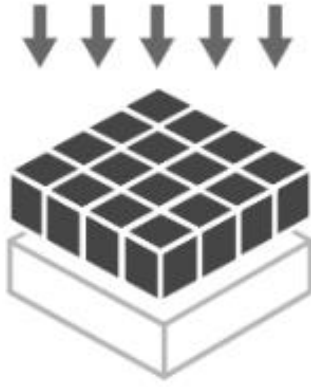
Use S3 & CloudFront to deliver the static web content

Support any application



AWS OpsWorks Stacks supports a wide variety of architectures, from simple web applications to highly complex custom applications running on Linux or Windows.

Configuration as code



AWS OpsWorks Stacks lets you define and maintain configurations for your entire environment in code and lets you provision your instances with Chef.

Automation to run at scale



AWS OpsWorks Stacks enables you to efficiently manage your applications over their lifetime, including support for automatic instance scaling and auto healing.

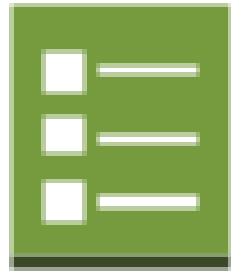
Resource organization



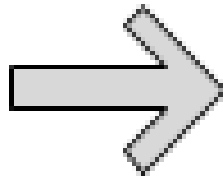
AWS OpsWorks Stacks lets you model and visualize your application using concepts such as stacks, layers, and apps. You can also manage your users and resource access on all your instances using AWS IAM.

## OpsWorks Stacks

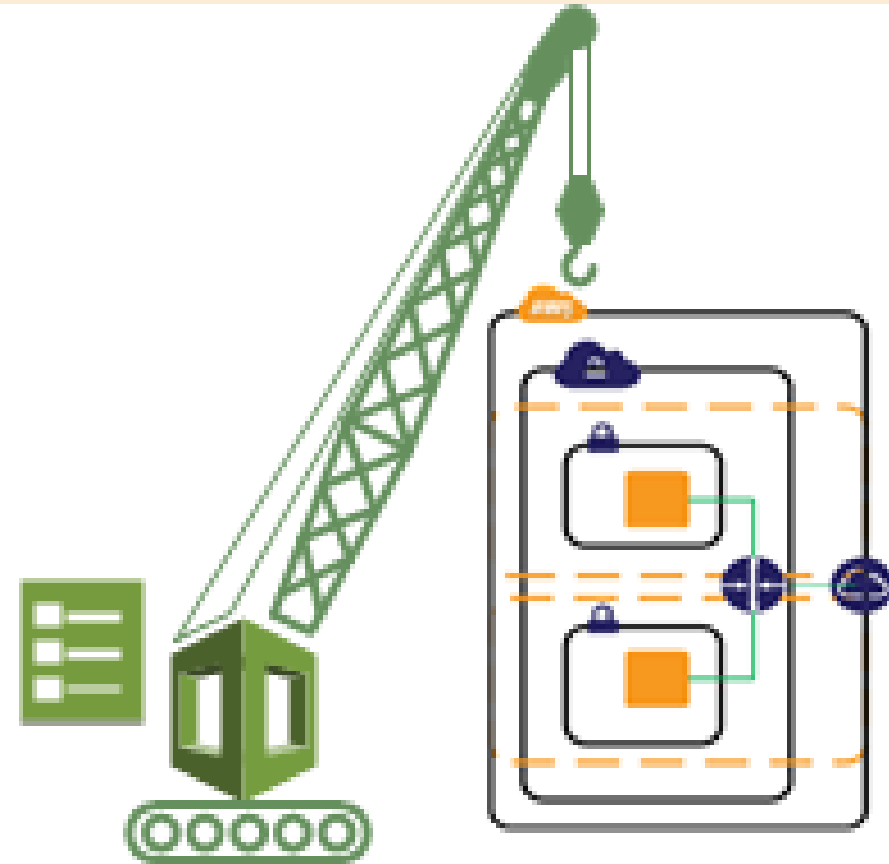
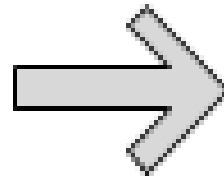
Easily manage and replicate multiple environments based on your blueprint architecture



**1** Create or use an existing template



**2** Save locally or in S3 bucket



**3** Use AWS CloudFormation to create a stack based on your template. It constructs and configures your stack resources.

Easily manage and replicate multiple environments based on your blueprint architecture by CloudFormation

AWS::Template::FormatVersion: 2010-09-09

Description: AWS CloudFormation template to create a new ECS First Run stack

Parameters:

EcsAmiId:

Type: String

Description: ECS AMI Id

EcsInstanceType:

Type: String

Description: ECS EC2 instance type

Default: t2.micro

ConstraintDescription: must be a valid EC2 instance type.

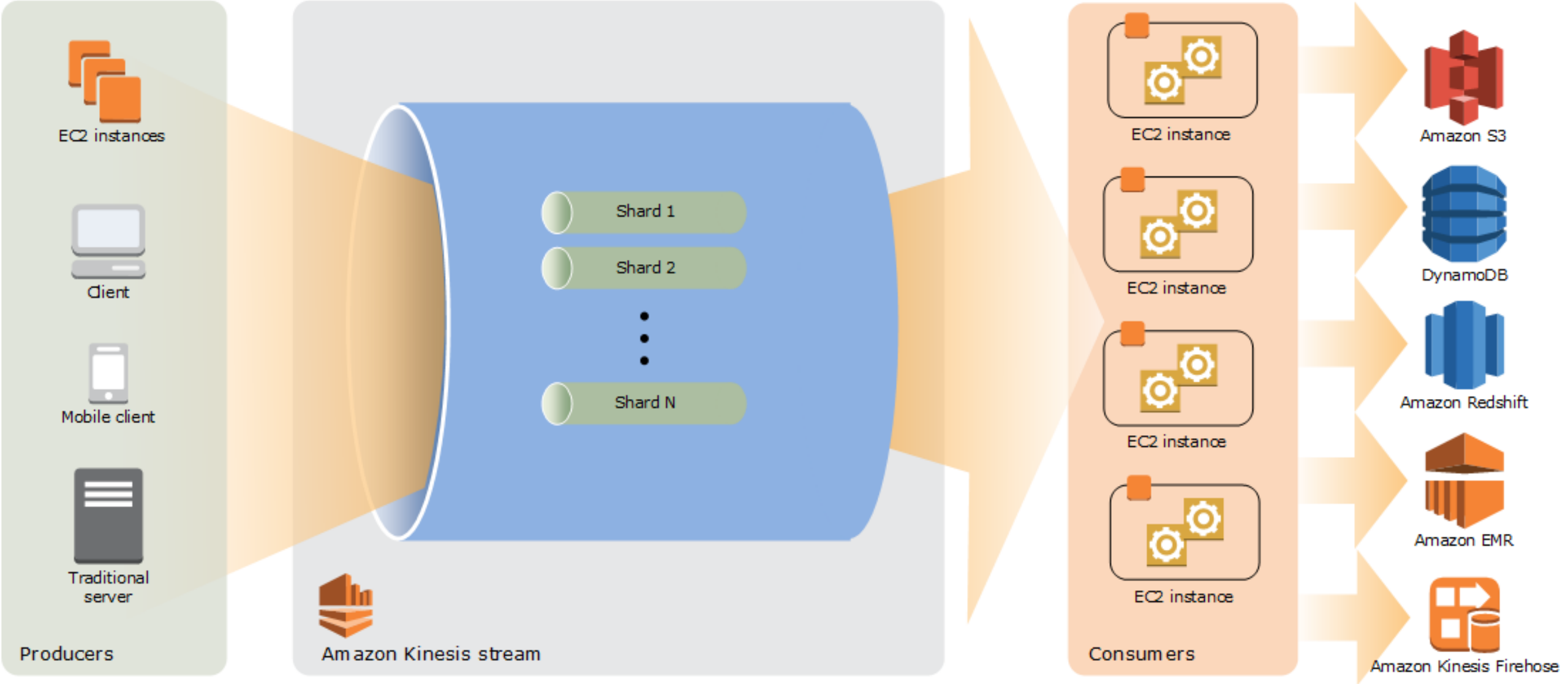
KeyName:

Type: String

Description: >-

Optional - Name of an existing EC2 KeyPair to enable SSH access to the instances

Easily manage and replicate multiple environments based on your blueprint architecture by CloudFormation



Effective distribution of load asynchronously by Kinesis



Archive after  
30 days



Delete after  
7 years



My S3 bucket

Amazon Glacier

Data stored in S3  
can be configured  
by a lifecycle rule  
to move objects to  
Glacier  
automatically



# Serverless by lambda

```
1 exports.handler = (event, context, callback) => {  
2     // 字符串“Hello world!”已成功。  
3     callback(null, 'Hello world!');  
4 };
```





ElastiCache & DynamoDB

Just remember that AWS Help you

Save money in the long run

Easier to perform better

Your strong support