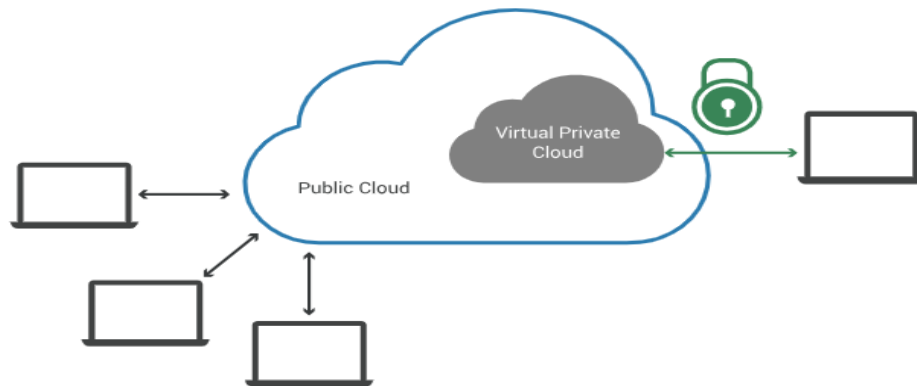


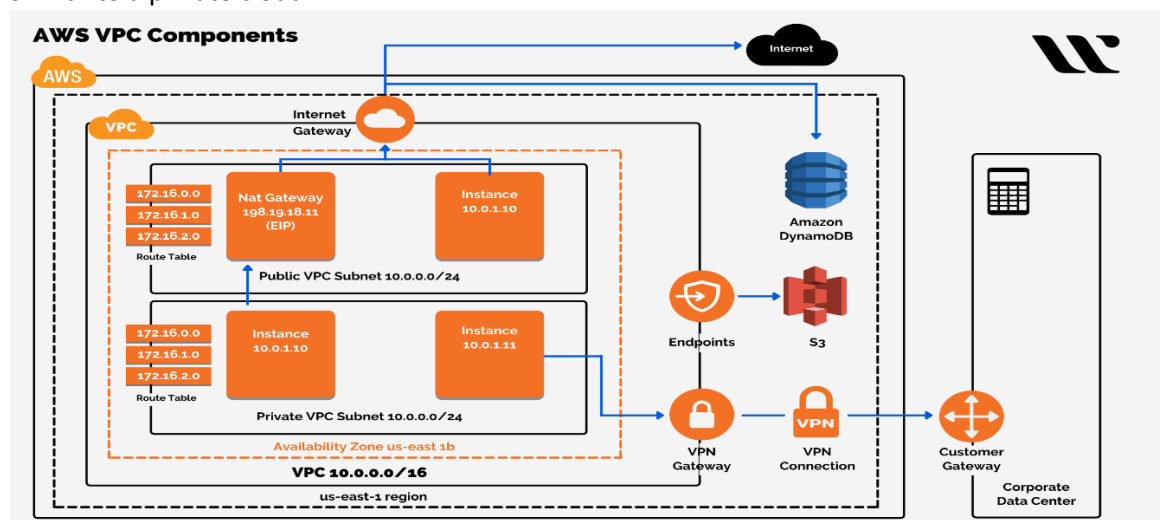
## 1. Virtual Private Cloud Description



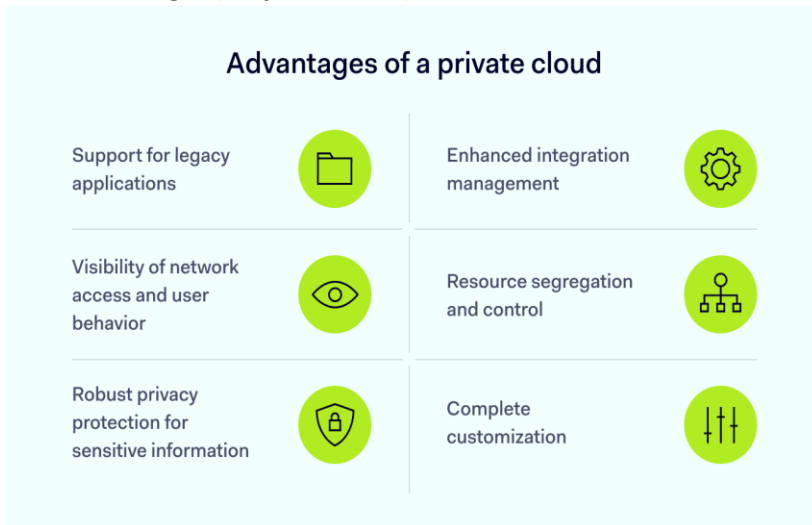
Is a secure, isolated private cloud hosted within a public cloud. VPC customers can run code, store data, host websites, and do anything else they could do in an ordinary private cloud, but the private cloud is hosted remotely by a public cloud provider.

## Architecture

A Virtual Private Cloud (VPC) architecture logically isolates a private network within a public cloud, allowing organizations to use public cloud resources with enhanced control and security, similar to a private cloud.



### Advantages (why is it used?)

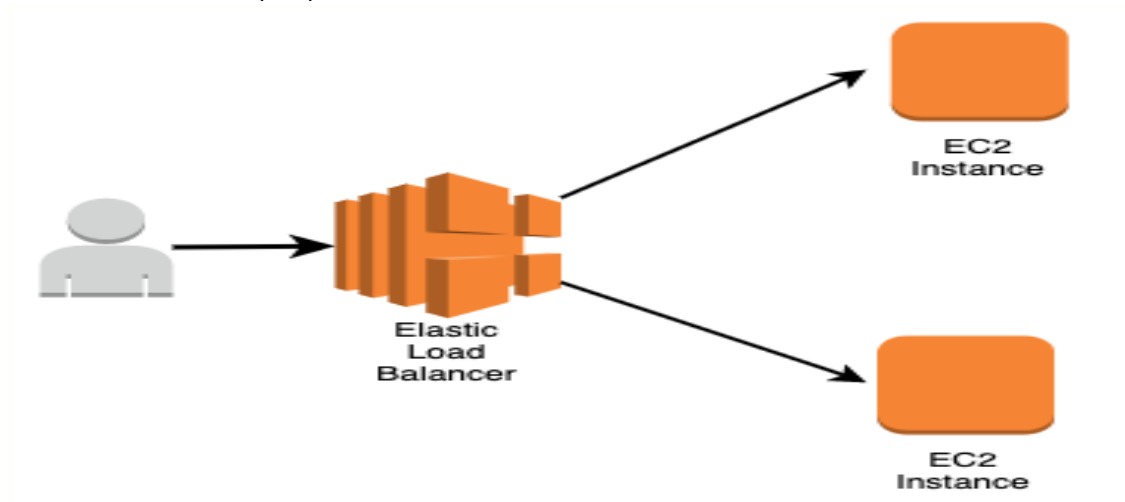


Having a private cloud model allows enterprises to tap into the benefits of private clouds. For example, companies can gain more granular access to network control. Organisations can also take advantage of public cloud resources and scale up or down easily. A VPC allows users to keep an area isolated for private workloads whilst simultaneously being able to take advantage of public cloud resources.

### Application (where it is used?)

It's used in industries requiring high security and compliance, such as healthcare and finance, and supports DevOps, backup, disaster recovery, and large-scale enterprise solutions.

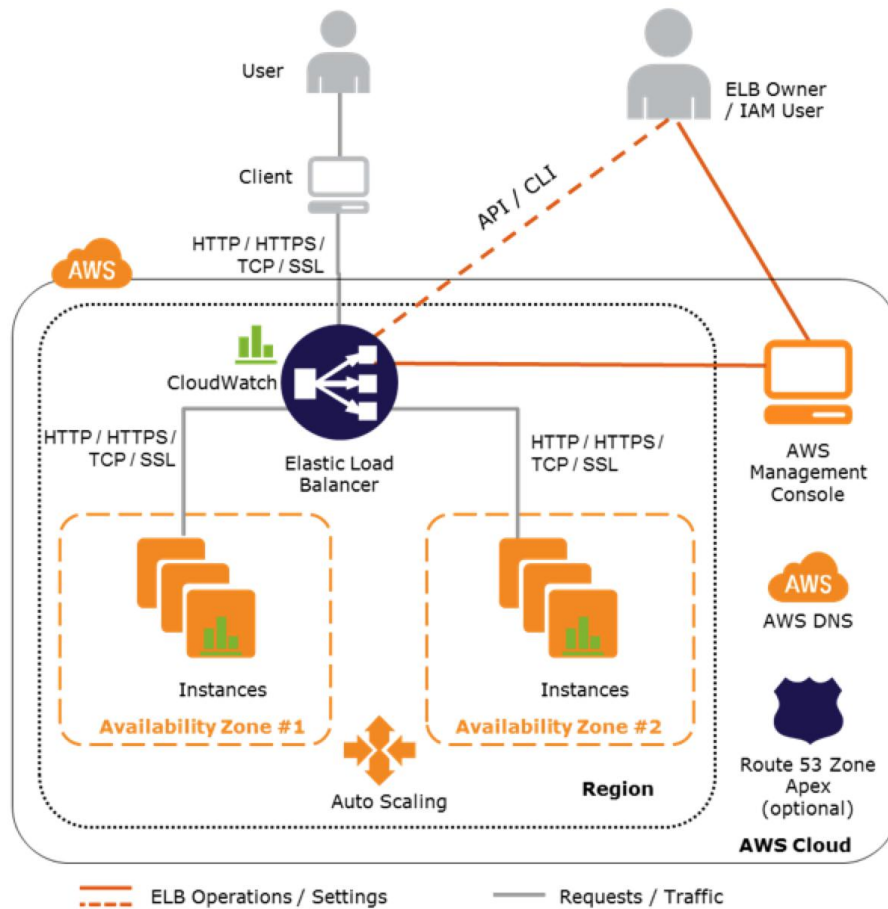
## 2. Elastic Load Balance (ELB)



### Description

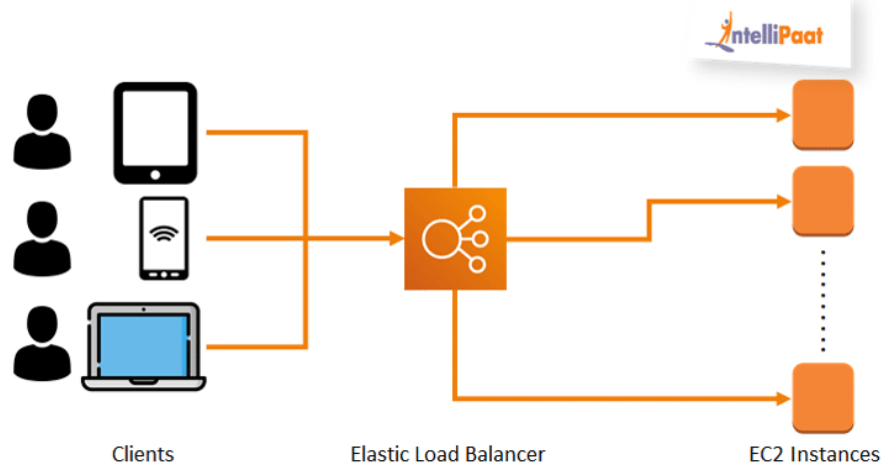
Elastic Load Balancing automatically distributes your incoming traffic across multiple targets, such as EC2 instances, containers, and IP addresses, in one or more availability zones. It monitors the health of its registered targets, and routes traffic only to the healthy targets. Elastic Load Balancing scales your load balancer capacity automatically in response to changes in incoming traffic.

### Architecture



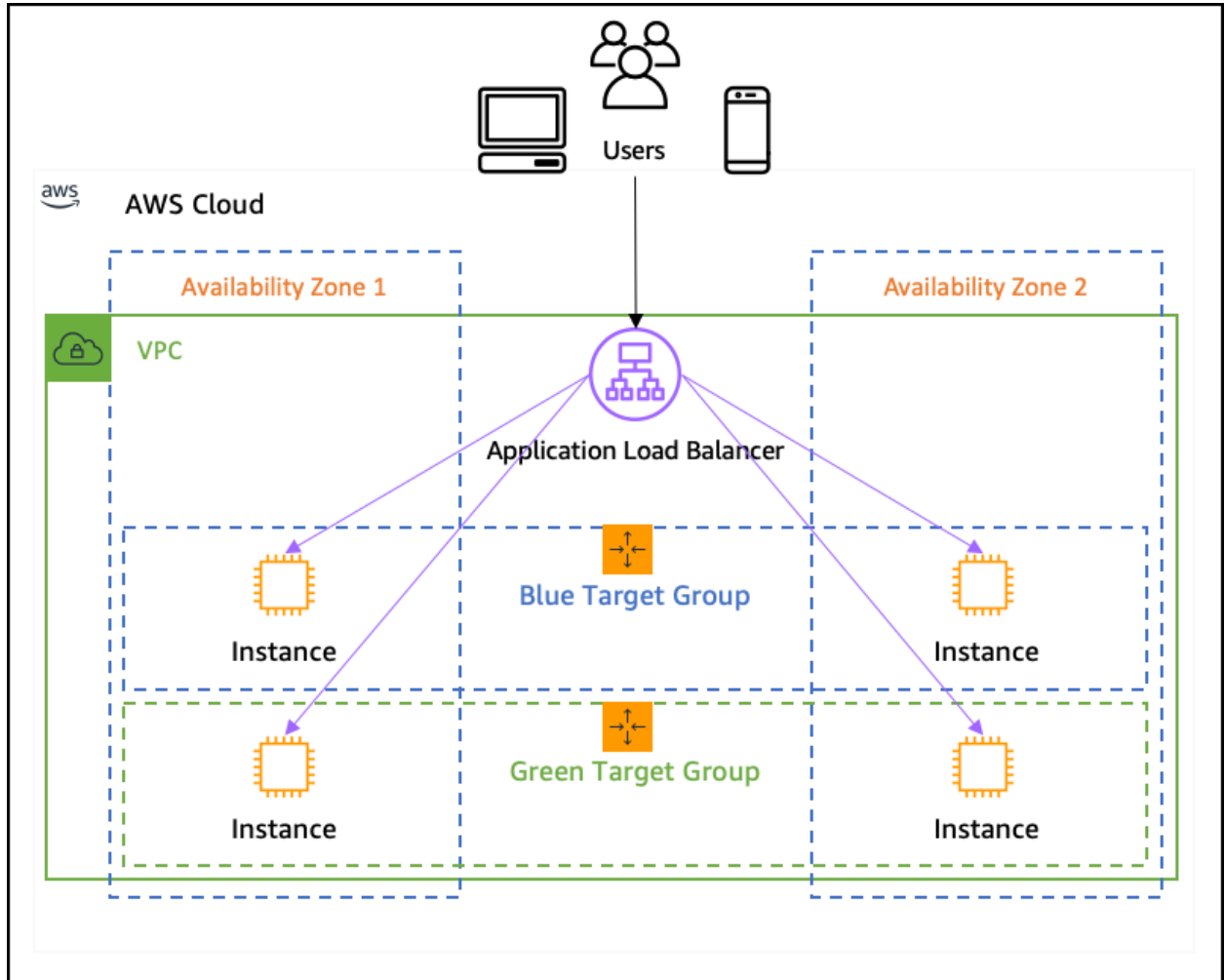
### Advantages (why it is used?)

It offers several advantages, including high availability by automatically distributing traffic across multiple targets such as EC2 instances, containers, or IPs across multiple availability zones, and rerouting traffic to healthy targets when it detects unhealthy ones to minimize downtime.



## Applications

Elastic Load Balancing distributes traffic to a variety of applications, including web applications, containerized services, and serverless applications. It is used to improve application availability and fault tolerance by automatically routing traffic away from unhealthy targets and scaling its capacity to handle fluctuating demand.



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