Amazon Web Service

Introduction

The following is the proposed Amazon Web Services system used to cater to a small start up that uses LAMP stack, being MySQL, Apache and PHP on the same PC. This system needs to be scalable to accommodate growth in demand and should be able to be fault-tolerant with the growth of the start up.

Assumptions

Given the information we know that the required software are LAMP stack, MySQL, Apache and PHP. This software should be able to accommodate for more users and heavier workflows due to growth meaning that the load should be able to adjust for that.

A1. Application should only use the software listed, LAMP stack
A2. They will require a system with auto scaling based on demand to accommodate for network output
A3. That they would not require more than 5GB of storage for their MySQL database
A4. They are running the latest version of PHP and Apache
A5. Email notifications will be sent to their account to keep them notified of any significant changes
A6. A load balancer is implemented
A7. All instances use the same security group

Constraints

These are the restrictions in place given in the task description which have to be considered in the development of the environment.

C1. The environment should be able to auto scale the instances given the load at hand between 2 and 8 instances.
C2. Costs should be kept at a minimum as the start up cannot have excess costs
C3. Inbound requests for both HTTP and SSH will be triggered by any ip address

AWS Services

Amazon Web Services (AWS) provides a reliable, inexpensive cloud computing that is scalable which is fitting for the client who is currently a small start up expecting growth in the company. We will be using multiple services such as AWS Beanstalk, Amazon EC2 and VPC.

AWS Beanstalk

AWS Beanstalk will be utilised to handle the scaling of web applications and services dealing with auto scaling etc allowing us to manage the services in one place. Beanstalk also allows us to manage to monitor the health and network of the application and environment. This is

essential for the project as it allows the team to deploy and manage the applications in one spot handling the autoscaling as required.

Amazon EC2/VPC
The EC2 allowed us to integrate the instances between beanstalk and is where the subnets and custom AMI was created. These instances have public subnets 10.0.1.0/24 and 10.0.2.0/24. This is where we can set the load with the minimum load balance of 2 instances getting to a maximum of 8. EC2 allows us to provide the on-demand scalable computing capacity over the cloud instead of requiring it with computer hardware. A minimum of 30% to max 60% of thresholds to trigger the scaling on the network output traffic.

AMI
The Amazon Machine Image is custom made based on the Linux Operating System to help run the system and since its compatible with all the applications. As stated before, inbound rules would be set for the application for SSH and HTTP connections which is triggered from any IP address.

Email Notifications
Email notifications are set up to allow the team at the start up to be notified to any changes in the environment whether that be about the status of the server and any changes or issues that occur.

Custom Key Pair
Is used to encrypt the sensitive information and is stored locally on the PC. Used for added security and allows the start up to keep their data confidential.

RDS
Used to handle the and manage the databases for the MySQL and automatically takes care of the availability zones of the system.

Architecture Diagram

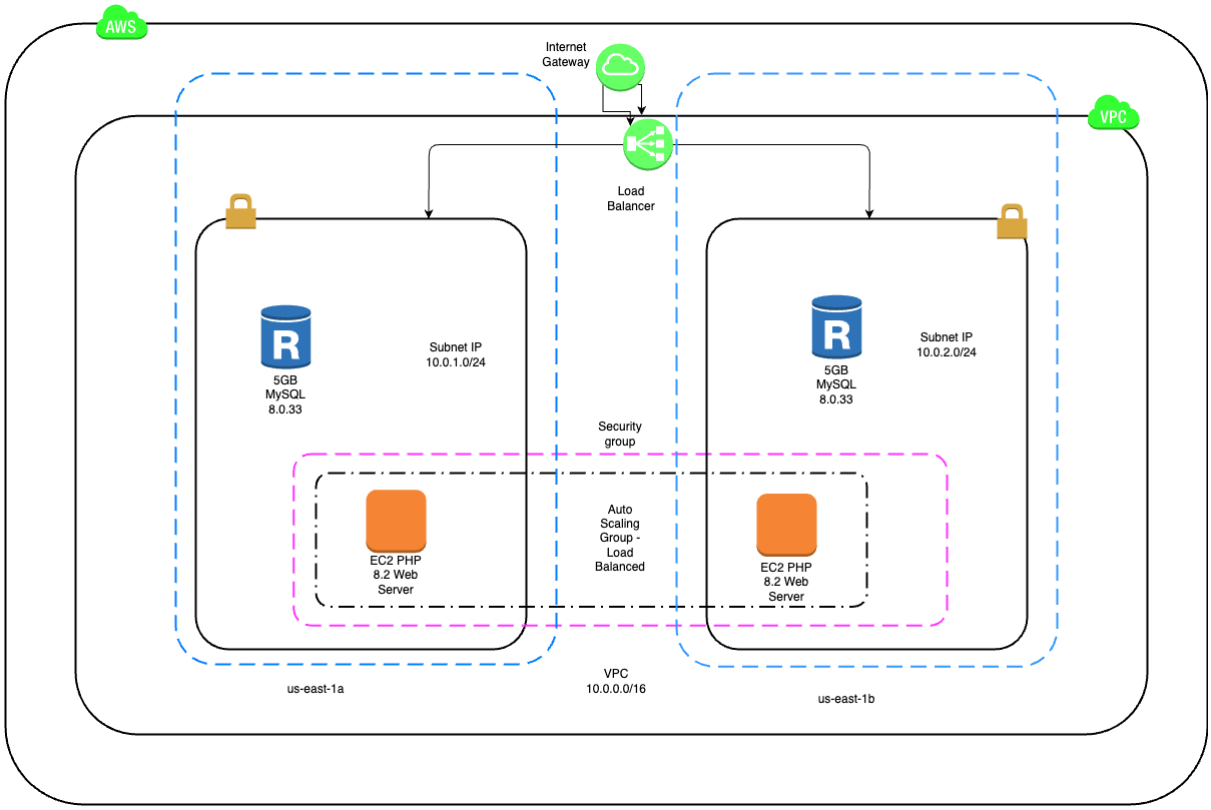

Figure 1 Architecture Diagram

The above is the diagram created to represent the proposed Application system showing the instances, MySQL database and structure of the environment. This shows the assigned VPC IP addresses, the subnet IPs and the above features mentioned.

Conclusion

The following proposal explains the design decisions made to accommodate to the needs of the specified start up taking into consideration business growth and increase in traffic. These features are crucial for the use of a LAMP stack and caters to the requirements, assumptions and constraints given by the start up team.