Maintenance Plan

Storage Plan

Introduction

The Workout Buddy website functions as a means for users to plan, track, and share their exercise routines with other users. In order to accomplish this, users will have to store their data in a database. As such, the product owners must choose appropriate server storage. This storage will need to increase in size, as the product gains popularity. While a dedicated server can accommodate these needs, it also requires a dedicated IT department. The servers also require maintenance to expand storage space and will result in server downtime. This directly affects customer satisfaction as users, who heavily rely on the website for their exercise planning and execution, will not be able to access the workout routines. A better solution is to implement the product in a new Cloud-based computing and storage service. This saves on over-head. As a result, there is no need to hire an onsite IT staff. The Cloud service chosen to host the website is on Google's Cloud Platform. They offer a 30% discount on sustained use of a database.

Cost

The cost for Cloud-based storage with Google is based on the following factors:

1. Cloud SQL
2. Storage Space and Backup Storage Space
3. Running Time
4. Network Egress

Cloud SQL

Google Cloud SQL is the database platform provided by Google. The product backend has tables written in MySQL. The cost associated with this service depends on the SQL Instance Type. The SQL Instance Type determines how much processer speed and how RAM is available to the product. Various instance types are available with varying numbers of processors and RAM. The initial instance chosen for the product has one virtual CPU and 3.75 GB of RAM. This should facilitate the initial number of users, resources for growth, and slack for extra users. The cost for using this hardware configuration is $0.038 per hour. One of the specifications include a large amount of RAM, which facilitates frequent users and peak traffic times during the day. The use of a Cloud-based service allows for changing of an instance type and increasing the amount of RAM very quickly. The price for changing the instance type is relatively low. The sustained-use discount is still applied if the changes occur at least a week before the end of the billing period. A Second-Gen SQL server is implemented after the EECS SQL server revokes access at the conclusion of this class. Additional costs include SQL software and customer service for about $15.

Storage Space and Backup Storage

The amount of storage space available determines how much data the users can store. As such, it is necessary to have ample storage space to accommodate new data coming from users. After analyzing the existing database with a limited number of inputs, it was decided that 8 GB of memory is an adequate starting point, with 2GB of backup for essential data. This storage allows instructional videos, created by a personal training consultant, as well as all user information, created for our exercise routines and activities. The cost for each gigabyte of storage is $0.17 per month and each gigabyte of backup storage is $0.08 per month.

Running Time

Running time refers to how long the server is online. The servers will always be online for the website at all times of the day throughout the year. The cost for the initial instance chosen is $0.038 per hour. This will cost $332.88 each year.

Network Egress

Network egress refers to how information leaves the database and is sent to the user. User-access behavior trends are undetermined at this point. As a result, it is unsure what the network egress will be for Workout Buddy. On the contrary, users access Facebook multiple times a day causing a high egress. The development team is unable to predict a cost estimation for data transfer without a proper network egress estimation. The following assumptions are made to calculate data transfer costs. Currently, the team is estimating a usage of approximately 1MB of data per client's workout for reading data, looking up workouts, and watching the instructional videos. Assuming the average user works out three times a week, and with 10,000 users, the product will have a network usage of 40GB of data transfer per month. Data transfer, using Google Cloud Interconnect, when partnered with an appropriate ISP, costs $0.05/GB, or $2.00/mo. while general data transfer costs $0.19/GB, which is $7.60.

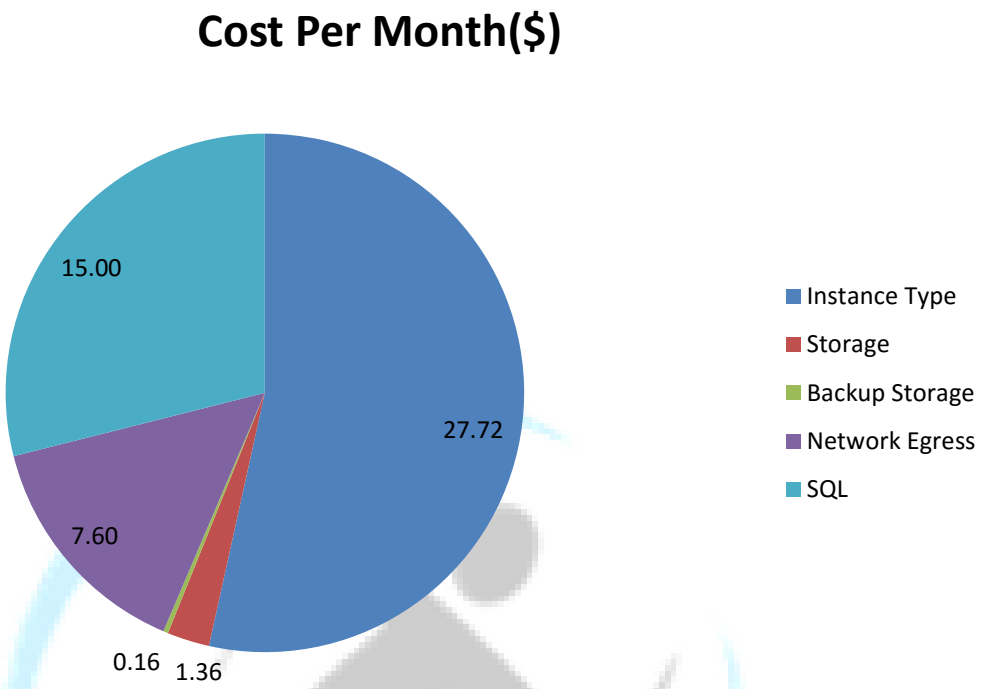
Starting Hardware Specification Summary

Component	Specification
Number of CPU's	1
RAM	3.75 GB
Hard Drive Storage	8GB
Backup Storage	2GB

Storage Totals

Taking all these factors into consideration, the team believes this to be the cost per month to maintain the product. These calculations were crosschecked with Google's cost estimation calculator ($50.83/month), for using their Cloud Services, and it is relatively similar to the cost estimation ($51.84).

Figure 1: Cost Breakdown per Month



This results in a cost of $52 for the first month. However, as the number of users grow, and as current users continue to use the product more, there is more network traffic being generated. This leads to an increase in network egress. With an estimated 3% increase in network egress each month, the yearly costs will grow and become approximately $652 for Cloud-based server hosting.

Domain Name

In order for users to find the Workout Buddy app, they need to access a domain name, which leads to the website. Domain names such as workoutbuddy.com and workout-buddy.com are already owned by other companies, which specialize in selling domain names. As a result, a domain name needs to be chosen that is close to the expression “workout buddy” but not exactly the same as the previously related domain names. Most variations on the name are already taken and cost between $2400 and $2700. However, a slight modification to the website name to make it workoutbuddyapp.com, gives the product an unused domain name with an estimated purchase and registration value of $11.99 dollars.

Hires

Introduction

Workout Buddy not only requires programmers and individuals in the tech industry but also require individuals with knowledge of exercise science. At this point in time, the product exists solely as a website. Some of the individuals we wish to hire include a fitness consultant who will design and demonstrate workouts, a freelance developer to create a companion app for the product, a data analyst, who will collect and analyze people’s exercise patterns, and a development team that will develop the website.

Fitness Consultant

A fitness consultant is a necessity for Workout Buddy since the product revolves around fitness. The consultant will be responsible for creating workout routines that an average consumer can easily perform. The consultant will also create 20-second instructional videos, which aim to educate a user on how to perform the exercise. The average pay for a fitness consultant is $8.33/ hour at various gyms in major cities. The consultant will be paid $2,500 a month to create new and exciting routines, which allow for greater user satisfaction. We believe that the relatively high salary will serve as enough incentive for the consultant to provide high quality and exciting routines.

Android App

The Android app is vital to the success of Workout Buddy. It gives the users access to the product without the need of a browser and allows for the storage of data locally on the device. This allows the user to still access the data without the need for internet connection. However, all the members of the group have little to no Android experience. As such, a freelance consultant can be hired to create our app. Similar Android apps of this scale with database functionality required approximately 150-200 hours of coding. After scouring freelance Android developer website, the team has determined that developers charge approximately $45/hour for projects of this scope and estimate that this app will cost approximately $10,000. App maintenance and updates to functionality can also be outsourced to the same freelancer that wrote the original code. We estimate that these updates will require approximately 100 hours a year and will cost a maximum of $5000.

Data Analyst

When the app gains enough users, large amounts of data will become available for analysis. A data analyst will be hired to sieve through data and report trends present in the overall user community and individual users. The average cost to hire a data analyst in the Kansas City area is approximately $62,000/year. It also provides a source of revenue as it allows for the attraction for other businesses who could profit from using our product. For example, the product can advertise certain protein products to users looking for muscle gain.

Developer Cost

The developers working on the product also need to be paid. Currently, there are five developers writing code for this product. All the developers are currently students working on the product for a class project and are doing it for a class grade. However, when the product is launched for users in the future, the developers will require payment to continue working on the project. The average pay for a KU undergraduate entering the workforce is a minimum of $57,000 as reported by the KU Engineering Career Center. This amount needs to be provided for five developers resulting in approximately $300,000 dollars in salary payments.

Security

Introduction

All websites with signup functionality, passwords or user-sensitive data require strong security measures to resist cyber-attacks. Hackers can run scripts to create new accounts on the website. This results in increased traffic to the server, which can fail under stress. Hackers using fraudulent user names can compromise user-sensitive data. As software developers, it is the product's social responsibility to ensure security measures are in place to ensure the privacy and safety of our users.

Security on the Google Cloud Platform

The Google Cloud platform being used for this product contains built-in security. This means that data on the Google Cloud server will be well-protected. The Product Owner can assign levels of data privileges to their employees. As a result, when the app is being managed, the product owner cannot see individual user data. The use of the Cloud Security Scanner can help the team identify existing security risks inherently present in the code. Another feature that can be utilized is Google's Cloud Logging and Cloud Monitoring data tools to check who is accessing the data present in the server database. This can be used to identify whether someone is accessing data that they do not have permission to access. The Cloud platform also has a Network Firewall Rule that doesn't allow the user to establish database connection without permission. This enables the team to only allow connections from chosen locations. If the product were to switch database providers, the hard drives that were being used to store customer data will be wiped by an authorized Google employee at their server farm and rechecked by another employee. This protocol ensures that the disk has been successfully wiped. All these procedures and protocols allow the optimization to protect user privacy.

Total Maintenance Cost

	Cost	Recurring
Data Storage	$652	Yes
Domain Name	$12	Yes
Fitness Consultant	$36,000	Yes
Android App	$10,000	No
Android App Maintenance	$5,000	Yes
Data Analyst	$62,000	Yes
Developers	$285,000	Yes
Total Setup Cost	$10,664	No
Total Recurring Cost	$388,000	Yes
Total First Year Cost	$398,644	No

Sources

Google Cloud Platform

https://cloud.google.com/compute/docs/instances/changing-machine-type-of-stopped-instance

https://cloud.google.com/products/calculator/#id=7805e1fd-6809-4119-8d50-29682426620d

http://stackoverflow.com/questions/18618128/google-cloud-sql-is-slow

Domain

http://userexp.io/workoutbuddyapp.com.html

Hires

https://www.glassdoor.com/Hourly-Pay/Gold-s-Gym-Fitness-Consultant-Hourly-Pay-E9619_D_KO11,29.htm

https://www.upwork.com/ppc/landing/?hl=Top%20Rated%20APP%20Consultants&ct=Consultants&query=APP&vt_cmp=365165465&vt_adg=25709152745&vt_src=google&vt_kw=%2Bapp%20%2Bconsultant&vt_device=c&gclid=CJ_y1fe9l8wCFYIBaQod-3IBrQ

https://engr.ku.edu/options-major