Eden Fresh Technology Approval Request: Web Hosting Service

Provided by Team Web Crawlers

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Submission Date: October 25, 2021

Approval Date: October 26, 2021

1. Web Hosting Service Options

A web host server is needed to run the code and software from which we will run our web app's back-end. Potential options for a web host provider include Google Cloud Platform's Free Tier, Amazon EC2's Free Tier, Microsoft Azure's Free Tier Windows Virtual Machine, Hostwinds' Base Tier Unmanaged Windows VPS, and OVHcloud's Value Tier Bare Metal Cloud VPS. Options were selected from non-shared hosting web hosts with support for pre-approved technologies (Internet Information Services 10+ and therefore Windows Server 2016/2019). Cloud providers' options were chosen from free offerings only.

2. Evaluation Procedures

Our web app's back-end depends on several qualities of the web server and the provider plan. Options will be evaluated on monthly operation price, CPU/RAM, disk storage space, dedicated database storage space (if provided), data transfer rates, and network bandwidth.

These qualities have been assigned coefficients according to their importance - the higher the coefficient, the more important the quality. We deem the CPU/RAM the most important as it will directly affect our web app's design and how we optimize the code. Both monetary factors are considered higher because of our aim to operate our web app on as little cost as possible. Disk storage is the next highest priority because many of our web app features (set up shop image upload, live chat image upload) depend on having file storage, so having enough file storage is necessary to ensure availability of these features. Dedicated database storage and network bandwidth are considered a luxury because our requirements for storage and bandwidth are directly dependent on our number of concurrent users, which will remain below the baseline during development and initial deployment. Furthermore, database storage

is already limited to 10GB by SQL Server Express - any further storage is unnecessary unless we decide later to upgrade our SQL Server license or change to a different DBMS.

For each metric, the options were assigned a decreasing integer rank, starting with the highest rank equal to the total number of options. For options with the exact same measurement for a metric, they are both assigned the higher rank of the two. The raw metrics for each option and their rank are shown in the tables below. Metrics for each plan were collected from publications on the respective provider's website. Storage space was calculated from generic file storage offered, excluding storage provisioned specifically for databases.

The score of each option in a certain metric is calculated as the product of the option's rank and the metric's coefficient. The total score for an option is the sum of their score for each metric.

3. Options Evaluation and Recommendation

Metric	Coefficient
CPU	1
RAM	0.9
Monthly Price of Operation	0.85
Egress Data Transfer Rate	0.8
Disk Storage	0.7
Dedicated Database Storage	0.4
Network Egress Bandwidth	0.25

Option Raw Metrics					
Metric (Unit)	Google Cloud	Amazon EC2	Microsoft Azure	Hostwinds VPS	OVHcloud VPS
CPU (vCPU)	2	1	1	1	1
RAM (GB)	1	1	1	1	2
Monthly Price ($)	0*	0*	0*	10.99	6
Egress Data Transfer Rate ($/GB)	0.085	0.081**	0.02***	0	0
Storage (GB)	30	30	128	30	40
Database Storage (GB)	0	20	250	0	0
Network Egress Bandwidth (Gb/s)	1	1	0.8****	1	0.25

*Cloud providers' free tiers provide enough free credit per month for continuous usage at a set baseline CPU usage and charge extra for usage above baseline (bursting). We assume that CPU bursting will not be used.
**We assume that during development and initial deployment, egress traffic will average to about 10 GB per month. Amazon charges $0 for the first GB of egress traffic, and $0.009 for each GB afterward up to 10TB.
***Microsoft Azure charges different amounts for egress traffic depending on the region of origin and destination. We assume that all traffic to our website will be within the United States because the US is the only country within our project's scope.
****Data was not gathered from the provider, but approximated from empirical testing from other customers. Information found via this link: https://github.com/MicrosoftDocs/azure-docs/issues/8765#issuecomment-403986361

Option Rankings per Metric					
Metric	Google Cloud	Amazon EC2	Microsoft Azure	Hostwinds VPS	OVHcloud VPS
CPU	5	4	4	4	4
RAM	4	4	4	4	5
Monthly Price	5	5	5	1	2
Egress Data Transfer Rate	1	2	3	5	5

Storage	3	3	5	3	4
Database Storage	3	4	5	3	3
Network Egress Bandwidth	5	5	2	5	1

Option Score per Metric					
Metric	Google Cloud	Amazon EC2	**Microsoft Azure**	Hostwinds VPS	OVHcloud VPS
CPU	5	4	**4**	4	4
RAM	3.6	3.6	**3.6**	3.6	4.5
Monthly Price	4.25	4.25	**4.25**	0.85	1.7
Egress Data Transfer Rate	0.8	1.6	**2.4**	4	4
Storage	2.1	2.1	**3.5**	2.1	2.8
Database Storage	1.2	1.6	**2**	1.2	1.2
Network Egress Bandwidth	1.25	1.25	**0.5**	1.25	0.25
Total Score	18.2	18.4	**20.25**	17	18.45

Microsoft Azure's Free Tier scores the highest on average across the evaluated statistics, setting itself apart from other options especially in egress data transfer rates. Therefore, we recommend Microsoft Azure as our web hosting service.