Provider	A2	DigitalOcean	Heroku	Google Cloud	$\begin{array}{c} \textbf{Amazon Web Services} \\ \textbf{(AWS)}^1 \end{array}$
Recommended Service	Managed VPS Hosting <sup>2</sup> (Essentially PaaS, Infrastructure managed by provider)	AppPlatform <sup>3</sup> (Platform as a Service - PaaS)	Default Service (Platform as a Service -PaaS)	Google App Engine <sup>4</sup> (Platform as a Service - PaaS)	AWS Elastic Beanstalk <sup>5</sup> (Platform as a Service - PaaS)
Cheapest plan prices	49.99\$ / month (if monthly) 35.99\$ / month (if yearlong contract) 29.99 / month (if 3-yearlong contract) <sup>6</sup> 4GB RAM 150GB RAID-10 SSD Storage  Database included in the price, since it is a Virtual Private Server, and can be installed. Data and database must not exceed 150GB provided for the same price.	Cheapest option (per month):  12\$ Container - 1GB  RAM  15\$ Managed Database -  1GB RAM, 10GB  Disk Storage  (38GB - 60\$, 115GB  - 120\$)  5\$ Spaces Object Storage  - 250GB (+0.02\$ per GB)	Cheapest option (per month): 25\$ Container - 512MB RAM 50\$ Managed Database - 4GB RAM, 64GB Storage (about 13K photos can be stored)	Has a free tier (28 hours per day): <sup>7</sup> F1 (default) 256 MB 600 MHz <sup>8</sup> however 36.53\$ if F1 is exceeded – this next cheapest option is F2 512 MB, 1.2 GHz <sup>9</sup> Cloud SQL for PostgreSQL <sup>10</sup> 64GB 22.25\$ (about 13K photos can be stored) Google Cloud Storage 250GB 6.37\$	EC2 <sup>11</sup> (hourly rates): t3.micro: \$0.0886 per hour (on demand) 512MB RAM, 2 vCPU About 3\$ with 100% usage (month = 672-744 hours) <sup>12</sup> SimpleDB Structured Data Storage <sup>13</sup> : \$0.275 per GB-month, 64GB = 17.6\$  S3 Standard Cloud Object Storage <sup>14</sup> : \$0.024 per GB per month, 250GB = 6\$ per month
Total	$49.99~\$~/~35.99~\$~/\ 29.99\$^{15}$	32 \$\frac{16}{10}\$ (10GB db - circa 2K photos) 77 \$ (38GB db - circa 7K photos)	75 \$ <sup>17</sup> (64GB db – circa 13K photos)	$28.62\$$ free tier, otherwise $65.15\$^{18}$	28\$ (t3.nano) – 64.678\$ (t3.micro)
Pros	Database price included in the plan. Predictable pricing: less chance of discovering hidden costs than for Google and	Good container option/price. Predictable pricing: less chance of discovering hidden costs than for	Predictable pricing: less chance of discovering hidden costs than for Google and Amazon (since less services are offered)	Cheaper database, free tier available, pay-per- use: flexible database and data storage prices and size	Many options for choosing the EC2 instance. Pay-per- use: flexible database and data storage prices and size

Pros	Amazon (since less services are offered)	Google and Amazon (since less services are offered)	Have free version for demo/testing/development		
(continued)	services are offered)	Can have 5\$/month for demo/testing/development	demo/testing/development		
Cons	To get a discount, need to sign up for 1 or 3 years, fixed rates.  Both database and data must not exceed 150GB for the same price	Database prices increase rapidly per GB	Scaling up is expensive both for containers and databases	Sudden increase in cost when the web application outgrows the free tier. Keeping track of accumulatedd costs might be slightly complicated with so many plans and prices offered	To get a discount, need to sign up for 1 or 3 years <sup>19</sup> (and discounts vary a lot, it it is only 3% for t3.micro)  Might be slightly complicated with so many plans and prices offered, need to be careful to monitor the accumultated costs, since t3 insances are "burstable"—at extra costs, they can boost performance

<sup>&</sup>lt;sup>1</sup> https://aws.amazon.com/elasticbeanstalk/pricing/

<sup>&</sup>lt;sup>2</sup> https://www.a2hosting.com/vps-hosting?aid=318dd9f8&data1=2rzgux2ih1gnzce2 2:VT13100196532986:fromChat

<sup>&</sup>lt;sup>3</sup> https://docs.digitalocean.com/products/app-platform/

<sup>4</sup> https://cloud.google.com/appengine

<sup>&</sup>lt;sup>5</sup> https://aws.amazon.com/elasticbeanstalk/

<sup>&</sup>lt;sup>6</sup> https://www.a2hosting.co.uk/vps-hosting/managed

<sup>&</sup>lt;sup>7</sup> https://cloud.google.com/appengine/quotas#Instances

<sup>&</sup>lt;sup>8</sup> https://cloud.google.com/appengine/docs/standard#second-gen-runtimes

<sup>&</sup>lt;sup>9</sup> https://cloud.google.com/products/calculator#id=4c674dbf-869c-415b-a602-f32e7e0255d5

<sup>&</sup>lt;sup>10</sup> https://cloud.google.com/products/calculator#id=c84de475-92b3-47c4-828c-4b23e3e0089a

<sup>11</sup> https://aws.amazon.com/ec2/pricing/on-demand/or https://aws.amazon.com/savingsplans/compute-pricing/

<sup>12</sup> https://calculator.s3.amazonaws.com/index.html

<sup>13</sup> https://aws.amazon.com/simpledb/pricing/

<sup>&</sup>lt;sup>14</sup> https://aws.amazon.com/s3/pricing/

<sup>15</sup> https://www.a2hosting.com/vps-hosting/managed/compare

<sup>16</sup> https://www.digitalocean.com/pricing

<sup>&</sup>lt;sup>17</sup> https://www.heroku.com/pricing

<sup>18</sup> https://cloud.google.com/products/calculator#id=c84de475-92b3-47c4-828c-4b23e3e0089a

<sup>19</sup> https://aws.amazon.com/savingsplans/compute-pricing/

Category	VPS*	Cloud Service, PaaS	Cloud Service, PaaS	Cloud Service, hourly, PaaS	Cloud Service, hourly, PaaS
Comments	*Each VPS is installed on a physical machine, operated by the cloud or hosting provider, that runs multiple VPSs.				Cheaper EC2 instance, but will probably work best only with less than 100 users: t4g.nano \$0.0042 per hour (on demand) \$0.003 per hour (savings plan) 512MB RAM, 2 vCPU About 3\$ with 100% usage (month = 672-744 hours) <sup>20</sup>

<sup>20</sup> https://calculator.s3.amazonaws.com/index.html