

Deployment Plan: Lunar Alpha

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Lunar Alpha is a web-based conversion/calculation tool for Chemical Engineering students. The current iteration software used at KU heavily favors Windows OS, leaving Mac users stranded with complicated work arounds to get course-critical software running. Lunar Alpha currently fills a void in this niche area; Mac users can now use the iterative process on their local machines without running source code through an IDE or using some VM workaround. Building an app that runs in-browser opens the door for cross platform compatibility while keeping platform versioning to a minimum. As popularity expands, increased server resources, features, and mobile development will be added to better the user experience.

Initially, only basic hosting capabilities are needed. Renting a domain on shared resources will be more than enough to handle the traffic as the app takes off. Both bandwidth and cpu speed aren't a high concern: most of the computation is done on the client side - the server is just there to host the pages. After careful consideration of multiple shared hosting plans, we decided Dreamhost was the best option. Not only was the price great (\$6.95/month), Dreamhost also allows for a free domain name, free SSL certificate, and unlimited traffic across all of the sites you host. Many other hosts (like A2 Hosting and inMotion) also offered unlimited monthly bandwidth allowed to your site, but had a monthly premium that ranged from \$9.99-\$10.99/month per year, respectively. While many hosting sites offered similar services, Dreamhost had the lowest price for the most features. With the domain taken care of and a low monthly

hosting cost, the rest of the effort can be placed in growing exposure for the web-app itself.

	Dreamhost	A2 Hosting	inMotion	Bluehost
\$/month	6.95	9.99	9.99	10.99
Pros	-Unlimited Traffic -Free SSL cert. -Free domain -Unlimited storage/free backups	-Unlimited Traffic -Free SSL cert. -Free Domain	-Unlimited Traffic -Unlimited Storage -Free Domain	-Unlimited Traffic -Unlimited databases/sites -Free SSL
Cons	-Extra online dashboard features cost extra	-auto-adjust resources during peak costs extra	-Limited # of sites/databases per account	-High price for a similar service

With the app “new to market” so to speak, exposure would most likely be limited to the current group of ChemE’s we tested our app with, relying on word of mouth to pass along info. Our initial focus would be on the current Chemical students at KU, starting with the junior and senior class (where the current formulas are most useful), expanding outward as more formulas are added. The unit converter portion of the web app expands the versatility toward the underclassmen who are beginning to work with converting units. Once a strong user base has been established at KU, we can begin working with Chemical Engineering organizations and professors at KU, pitching the app to chemical departments at other universities around the country. Communications initially would be, for the most part, free of charge (emails, video calls, live-demos) where the “material costs” are measured in the amount of time used by each person to host these sessions. Traveling to universities to give in-person demos is also an option, and can range in price from a tank of gas to a couple hundred dollars for airfare and hotel costs. Additionally, once we begin expanding the staff, we can hire someone as a product representative to help manage our image and increase our user base.

As the popularity of Lunar Alpha continues to rise, so will the traffic to our web domain and necessary upgrades to the web app. One of the main focuses after the initial roll out is migration of the heavy computations from browser loaded JavaScript to the server-side environment. These calculations on a mass scale will take exponentially more computing power than what is available through Dreamhost on our initial shared host; migrating to a new, dedicated host with upgraded internals is a must. Three of the most attractive options are Siteground, InMotion, and Dreamhost. Siteground offers an upgraded Xeon 4 Core processor with 16GB RAM and half a TB of SSD storage for \$269 a month(10TB bandwidth limit per month). InMotion offers, for \$240/month, a slightly faster XEON 4 Core processor with 32 GB of RAM and 500GB of SSD raid storage, but has a monthly transfer rate of 10TB similar to Siteground. Dreamhost offers a 12-core Xeon processor with 16 GB of RAM with a 240 GB SSD (or 2TB HDD) for \$279 per month with no bandwidth limit.

	Siteground	InMotion	Dreamhost
\$/month	269	240	279
Pros	-SSD storage 500 GB -4 core Xeon CPU	-4 core Xeon CPU -32 GB RAM -SSD RAID storage 500GB	-12 core Xeon CPU -SSD RAID storage -Unlimited bandwidth
Cons	-Limited monthly bandwidth	-Limited monthly bandwidth	-SSD limited to 240 GB

After weighing the dedicated server options, the decision would most likely depend on a couple factors. First, the amount of network traffic we are experiencing. If we are getting close to/predicting an increase of over 10TB per month, more expensive

plans need to be explored at most companies - Dreamhost has the advantage here. Second, are we satisfied with the current Dreamhost experience for our shared hosting plan or is a move to a different company been warranted. If the experience with Dreamhost was positive, our computation requirements are extremely high, or if our bandwidth needs are approaching 10TB per month, Dreamhost is the most cost-effective option in terms of ease of migration(simple transfer within the company), reliability of service, and sheer computing power. On the other hand, if we are well under the bandwidth cap and are looking to cut costs, In-Motion offers the cheapest rate and more powerful CPU/double RAM over Siteground. Eventually, we will hire a software developer to help build out new features and manage our interactions with our hosting service.

By expanding our application into the Apple App Store and Google Play Store, we can increase the number of users that we have accessing our product.

<i>Item/summary</i>	<i>Cost</i>	<i>Duration</i>	<i>Total</i>
Google Developer Account	\$25 flat fee	—	\$25
Apple Developer Program Membership	\$99 per year	x 1	\$99
		1st Year Total	\$124
		Subsequent Year Totals	\$99

To help cover these costs we can integrate Google's AdSense and Google's AdMob. AdSense allows us to earn income based on placing ad widgets into our product. AdSense works cross platform in the web-browser and AdMob can be integrated into both Android and IOS products. Of course you could always have your

own account, after we purchase server space, and premium users don't have ads. Daily user interactions can fluctuate a lot, however at the point that we have around 250 daily premium users we would most likely have at least 5000 free users each day. AdMob would not bring in very much, but this is acceptable since the mobile application costs substantially less to manage on it's own.

Advertisement Based Income

<i>Item</i>	<i>Average Income per 1000 Daily Users</i>	<i>Duration (Days)</i>	<i>Total (Annual)</i>
Google's AdSense	\$50	365	\$18, 250
Google's AdMob	\$0.2 ~ \$5	365	Avg. \$949
Premium Accounts	\$3,000	365	\$1, 095, 000

With dedicated servers in place to host the web app, we have now entered the arena with the capability to handle widespread traffic from many devices at once. To capitalize on the increased traffic, incorporating ads and a premium account model will boost profit and increase our margins. Launching the mobile app on both IOS and Android will create a better user experience on mobile, simplify the design structure of the app, and keep Lunar Alpha up-to-date with the current trend to "go mobile". By initially focusing the growth strategy locally in Chemical department at KU, we can continually phase in new features and back-end changes without a massive impact on user experience, all while keeping advertising costs to a minimum. Once a solid base is established, the focus can shift toward neighboring institutions with a goal of widespread use around the country.

<https://www.dreamhost.com/hosting/shared/>

<https://www.a2hosting.com/web-hosting/compare>

<https://www.bluehost.com/hosting/shared>

<https://www.inmotionhosting.com/business-hosting?clickid=xuS2dfTygQlO0gJzkRTWrUiZUkn3thTBrTp2Qo0&irgwc=1&affiliates=125605>

<https://www.quora.com/How-much-can-I-earn-with-AdMob-with-100-daily-app-users>

<https://www.rankxl.com/100-day-traffic/>