MGMT E-5420: Innovation, Entrepreneurship, and Business Transformation
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Final Paper

BUSINESS PLAN

Chief Officers

Adam Ghitelman	**Chief Executive Officer (CEO)**
Ari Plaut	**Chief Services/Support Officer (CSO)**
Dermot Duncan	**Chief Technology Officer (CTO)**
Danielle Schimp	**Chief Marketing Officer (CMO)**
Michael Danley	**Chief Operating Officer (COO)**

It's *"yur-tyme"* -- don't waste it!

Mission, Vision, and Positioning Statement

After he was diagnosed with pancreatic cancer, Steve Jobs gave a commencement address at Stanford University titled "How to Live before You Die."

In that address, Steve Jobs concluded, "Your time is limited, so don't waste it..."

While Steve was specifically referencing "working for someone else," this basic precept of not "wasting time" is salient.

We are all born with a finite number of heartbeats, and although it seems like a lot, as Steve Jobs pointed out, it's really not -- our time here on earth is precious and limited -- and it should not be wasted, and should be enjoyed doing the activities we sought after.

Yur-Tyme was formed during the Fall of 2014, when a class titled Innovation, Entrepreneurship, and Business Transformation at the Harvard Extension School asked its students to put together an idea and develop an initiative towards pursuing their goals. Our group was started when none of our members could find an idea proposal that strongly linked to our ideals, passions, and skillsets. When the "Open Source" proposal was put on the table, we found ourselves in a meeting room within days. We began our brainstorming process by collaborating and developing ideas until we came together on one that we all believed had a great chance of making an impactful impact on its desired market. During brainstorming sessions, our team concluded the greatest waste of time we encounter is waiting in line, so that became our problem to solve. We want to minimize the amount of time spent in waiting line "purgatory" to allow our users and members to increase the amount of time actually doing the things they set out to do!

Our mission is to use developing, state-of-the-art technology (smartphone inter-connectability, GPS, algorithmized big data, and the network effect), to create an application that combines historical and real-time information to provide accurate predictive data so a customer can minimize the time he/she spends waiting. Using the Waze application as our innovative inspiration, we believe we can develop our own use of social networking applications: to use real-time inputs from consumers and members to give fellow members information. The value of the "network effect" resonated in our

group and we believe the use of its information sharing could be very influential on our business plan.

Our first implementation will be predicting nightlife wait times, with the goal of optimizing the millennial's night on the town. At first, we will concentrate on Boston's North End, but then branch out to other nightlife areas frequented by millennials. Eventually, we hope to expand our reach across the domestic United States in high market cities.

The application in not only relevant to nightlife, but also every place people are standing in lines. Therefore, once we prove our concept across the nightlife spectrum, we plan to increase the application scope to include all line waiting (i.e. salons, banks/ATMS, bakeries, grocery stores, sports and concert venues, etc…). We believe that our niche will be found early in nightlife markets, but has the open potential to be explored in any 'line-waiting' industry.

We believe we have sailed into a blue ocean strategy with our product. As it stands, there are no products or applications that offer what a product can provide. The use of consumer input information is a new and innovative technological, social phenomenon that we believe will be the future of data collection. Furthermore, we intend to be in a position to immediately implement Apple's rumored crowd-sourcing, social-networking, and GPS-maps toolset project.

yur Team: **Team Members & Roles**

Adam Ghitelman -- Chief Executive Officer (CEO)

Adam is basically responsible for everything, including operations, marketing, strategy, financing, creation of company culture, human resources, hiring, firing, compliance with government regulations, sales, and PR.

Ari Plaut -- Chief Services/Support Officer (CSO)

Ari is responsible for providing support, resources, and leadership to the entire organization and serves as a lead member of the Services Team.

Dermot Duncan -- Chief Technology Officer (CTO)

Dermot is responsible for assuring the successful execution of the company's mission through development and deployment of the company's technical web and smartphone network presence. This primarily requires executing the company's app through directing the code writing and execution.

Danielle Schimp -- Chief Marketing Officer (CMO)

Danielle is responsible for guiding *yur-tyme's* marketing strategy, objectives, and budget. This includes ensuring that all externally-facing content is consistent with the company's brand and creative elements, and that advertising and promotional activities support the overall objectives and goals of the company. Danielle will work closely with Ari, the CSO.

Michael Danley -- Chief Operating Officer (COO)

Michael is responsible for running the nuts and bolts of the enterprise. In the beginning, Michael will work as the project manager ensuring the "yur tyme" app code is completed within 4-months. After the app is complete, Michael becomes responsible for running the "*yur-tyme*" app operation.

Problem Statement

The typical group of urban twenty-something friends hangs out drinking a few pints of beer before a night out on the town. When they decide that it's time to head out barhopping, they eventually come to the question of where they want to spend their evening. More often than not, the group decides on one of a short list of "popular" establishments. However, upon reaching their desired destination, they usually find that the line to get in is forty-five minutes long. To make matters worse, the bar closes in an hour. Their choices are to wait uncomfortably in the cold, wander aimlessly in hopes that nearby bars are less crowded, or give up on the night altogether. This choice, simply put, stinks. Time is valuable, and waiting in a nightclub line is not an efficient use of it.

Solution!

By using technology and social interaction similar to the Waze application, we will create an iPhone app that will allow users to minimize time spent waiting in lines by providing real-time data and historical averages of wait times at nearby establishments. Initially, we will collect data from users standing in line to determine current wait times. This process will create user interaction and social networking connections to display real time waits at business venues. In the long term, we hope to obtain enough users and collect enough information to be able to display historical predictive information. For example: "At Border café in Harvard Square, you can expect to wait 'x' minutes at 6:45pm on a Friday night."

We will first target nightlife wait times in specific geographic areas, then scale to a broader region (while maintaining focus on nightlife wait times). Eventually, we hope to expand the uses for our app beyond nightlife --- to airport lines, grocery stores, and more. Our ultimate goal is to put wasted time back into the hands of our users, so that they can spend their precious free time as efficiently as possible.

Target Customers

Our initial target audience is the "millennial" generation. We've developed a marketing persona around this ideal user: a fictional representation of our "perfect customer." We call him "Nightlife Nate," and here's a bit about him:

Nate is between 20 and 30 years old and went to a small liberal arts school. He has a group of close guy friends with whom he likes to bar hop on weekends. He's into the outdoors --- sailing and cycling. He has an iPhone, plays fantasy football, and watches Breaking Bad. Nate works as an entry-level (or second-tier) analyst at a Consulting or Financial Services organization. He has aspirations of getting an MBA in the next few years, and working in business after that.

Nate works incredibly hard during the week and wants to use his free time (and specifically his nights and weekends) as efficiently as possible. He doesn't want to wait in lines, pay extra fees, move slowly -- anything that would get in the way of his enjoying a night out with his friends. Nate prefers to use products that are fast, easy, free, to-the-point, and with obvious value. He doesn't want to dig much in order to find practical value. Overall, he just wants to find his friends, and wait in the cold for as little as possible.

So how many of these potential customers exist? According to the US Chamber Foundation, there are over 80 million "millennials" in the US. In Boston alone, where we'll begin the *yur-tyme* journey, about 600,000 of the 2,000,000 residents fit into our target demographic[1]. The 20-to-34-year-old population in Boston increased by 11% between 2010[2]. Overall, the millennial generation is the largest population cohort the United States has ever seen.

Not only is our potential customer base large but also it's incredibly tech-savvy and connected. According to the Pew Center, more than eight in ten millennials sleep with a cell phone glowing by the bed. 94% of millennials have a cell phone[3]. This generation is looking to technology to solve everyday problems, and we believe their nighttime activities are no different.

This is why we choose millennials as our initial customers.

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[1] Us Chamber Foundation (2014) *"The Millennial Generation Research Review"* http://www.uschamberfoundation.org/millennial-generation-research-review

[2] Cloutier, Catherine (01 Dec 2014) *"Boston's Young Adults Plentiful, Influential, and often Burdened."* The Boston Globe. https://www.bostonglobe.com/metro/massachusetts/2014/11/30/boston-young-adults-are-influential-and-often-burdened/kp2Oek4nIcMrTtehgDnl1M/story.html

[3] Pew Research Center (2009) *MILLENNIALS Confident. Connected. Open to Change*.http://pewresearch.org/pubs/1501/millennials-new-survey-generational-personality-upbeat-open-new-ideas-technology-bound

Business Model

Our first year expenses will be determined by the cost of producing the application, big data storage, marketing and advertising, employment, and annual rent. Our revenue model will become more set in stone over the first six months --- our initial focus is to exponentially grow our user base and to make our app indispensable to the barhopping millenial. We believe that, once the user base has been established and our target customer is satisfied with the product's reliability and utility, a sufficient revenue model will not be hard to come by.

We feel there are potential revenue sources in the following **areas**:

Premium App Fee: $0.99/Subscription

In our inception, we will be most engaged in creating and growing a user base. After we have accomplished this, we will look to create increased revenue by having a premium membership option, in which users can purchase in the Application Store. We will provide a multitude of premium capabilities. This will include a 'Speed-Pass,' giving the member the option to skip the line at a bar or club. Premium members would have access to subjective live-reviews from the inside of the bar. Menus & Pre-Ordering: give members access to the menu and drink list to fill the time they are waiting in line. Restaurant Queue: Premium members can place themselves in line at a restaurant. Connect to Others who are Geo-Located at Bars: With a prospective integration with a matching application, members who are currently geo-tagged in the same bar can match with each other.

Advertisements:

Through the use of big data, we will be able to help businesses determine the market in which they are being searched. We can provide businesses with their location on the GPS Map, very similar to what Dunkin Donuts has done with the Waze application.

Businesses: Bars & Restaurants

Sell memberships to businesses looking to increase and retain their consumer market. Bars and restaurants can pay to have their establishment broadcasted on our GPS, show up in search, be linked to certain areas. We will establish a rewards system where businesses can sell coupons and incentives to increase traffic. We hope to gain revenue through the value of the alternative: By keeping people in line at popular bars and vice versa, getting people in line at new, eager bars.

Consumer Information: Long & Short Run Data

Consumer Behavior: Information on consumer searches, location, and what is driving decision making on the social scene. We could offer businesses this information so that they can track their consumer behavior to develop a more efficient marketing model.

3rd-Party App Integrations

We will develop relationships with other social networking applications. Facebook, Twitter, Instagram, and LinkedIn are networking platforms that connect people, professionals, friends, and family. This will allow members to sign in through their social networks to be able to immediately connect with connections in their network. This will provide us with an increased access to consumer information, but also provide businesses with information on customer demographics. By Geo-tagging into certain establishments, friends can have an idea where their network is hanging out, and use that information, along with Wait-Times, to make an educated decision on where to go out. We will also look to partner with Yelp, by providing our wait times into their queue of information. Uber would be another beneficial partner, where we could provide our members with safe, sober rides to and from the bar. Tinder and other matching applications are intriguing. We believe that if we can geo-tag into establishments, we can create a social pool of people who can now search within the brick and mortar of where they are at to find people to connect with.

In-App Purchasing: Members can order drinks while waiting in line, which will be ready to drink by the time they enter the bar. Also, the app will eventually allow members to pay for the cover into the bar. We could create revenue by taking a percentage of the payment made to the establishment, based on partnership and business subscription guidelines.

Sell: Yur-Tyme would sell only if the price and buyer are in line with owner and investor parameters.

MARKETING STRATEGY

We feel that *Yur-Tyme's* success is extremely dependent on the network effect, so attaining a large customer base is crucial. Therefore, we are devoting a great portion of our corporate effort in the area of marketing.

Marketing Objective(s)

One of the major objectives of Yur-Tyme is to get as many people as possible to download the application. The core value of the application itself is in the network of people it is able to accrue (otherwise known as the "network effect"). Therefore, Yur-Tyme*'s* marketing goals and objectives are tightly aligned to gaining this network as quickly as possible using the initial launch as the catalyst for much of the advertising and promotional efforts. *Yur-Tyme's* marketing objectives are as follows:

1) Achieve 1,000 downloads within the first week of launch to be ranked within the top 50 paid apps in iTunes[4].
2) Capture $1,000 in revenue within one week of the launch.
3) Earn 3 press articles with 30,000 impressions within one week of the initial launch (which yields a conversion rate of ~3.3%).

In order to achieve these goals, yur-tyme will follow a marketing strategy that employs the following elements: branding & creative, segmentation-targeting-and-positioning (STP), traditional marketing mix, and advertising and promotion. Each of these elements is outlined further below.

Branding & Creative

It is important for any company (whether it be a small start-up or a large corporation) to have a consistent "look & feel" across all of its externally-facing content. This ensures that customers have a consistent experience when engaging the company, thus building the company's brand equity. Building brand equity is critical for customer attraction and retention, as well as contributing to the company's reputation overall[5].

We have chose to have a creative "look and feel" that is bright and "lights up" when application users engage Yur-Tyme at night. Company colors follow a "fire" theme, with red (red: 255[6]), orange (red: 255, green: 192), white (red: 255, green: 255, blue: 255),

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[4] Sarah Perez, Techcrunch, "How Do You Break Into iPhone App Store Top 50?," June 27, 2013. http://techcrunch.com/2013/06/27/how-do-you-break-into-iphone-app-store-top-50-try-23k-free-daily-downloads-950-paid-or-12k-in-daily-revenue/

[5] Keller, Kevin, and Philip Kotler. Marketing Management. 14th ed. N.p.: Prentice Hall, 2011. Online Print.

[6] This refers to the traditional RGB (red, green blue) color model.

and black (red: 0, green: 0, blue: 0) fonts. The colors are also found within the company logo, which features the words "*yur-tyme*" in orange, a clock in red and white, and flames in orange.

The logo is meant to signify the company's core value proposition: time should not be wasted; it is fast and fleeting. The logo is critical to Yur-Tyme's marketing efforts because it's the first thing people will see when they download the application.

The company logo can be presented in three ways: first, with just the clock and fire; second, with both the clock and the words, "*Yur-Tyme*"; and third, with the company slogan: "It's your time. Don't waste it," in "Bauhaus 93" font. All headlines should feature this same font, while body text should follow the "Maiandra GD" font (since it is easier to read).

Segmentation, Targeting & Positioning

Yur-Tyme's marketing strategy is closely aligned with our target customer, which contributes to the segmentation, targeting, and positioning marketing strategy (STP). The segmentation and targeting are covered in the above "Target Customer" section; below is more detail on *yur-tyme's* marketing positioning.

Yur-Tyme strives to have the most concise messaging and positioning possible. This is especially critical in how the application is presented on the App Store. This messaging must convince people to a) download the application, and b) explain what the application actually does (which also lends itself to point "a"). This positioning must be as simple and actionable as possible and must stay aligned to Yur-Tyme's mission statement and overall branding.

Marketing Mix

The cornerstone to any marketing strategy is what's known as the "marketing mix," also called "the four P's": Product, Price, Place, and Promotions. This contributes to the holistic marketing strategy and is centered on the target customer. Yur-Tyme's marketing mix is below:

Product: Yur-Tyme's product is a mobile application that is aimed at saving people time by using data analytics to predict wait-times at bars and restaurants.

Price: Yur-Tyme's pricing strategy is an interesting one. It is important to build a large user network, but in order to do this, people must first be aware of the application itself. It is difficult to build awareness through the App Store for free applications (free

applications require 25X more downloads than paid applications[7].) Paid applications only require 950 downloads to be in the top 50 apps within the App Store. Therefore, to achieve this goal we must charge for our application -- but to build our network, we are keeping that price as low as possible at $0.99. This will also generate some revenue within the first few weeks of launch which can then be recycled into more advertising and awareness-building tactics.

Place (aka Distribution): Yur-Tyme's distribution strategy is through the Apple App Store within the "Lifestyle" primary category. It will be optimized for Apple iPhone first, with expansion plans to Android devices in the future.

Promotion: Advertising and promotions are critical to Yur-Tyme's success in building its network. The full advertising and promotional strategy for Yur-Tyme is below.

Advertising & Promotions

The primary objective of Yur-Tyme's advertising and promotions strategy is to build a network of users by generating awareness for the application. In order to accomplish this goal, Yur-Tyme will have a paid, owned, and earned media strategy.

Paid Strategy

How many people are on their smartphones or mobile devices while they are waiting in line? Whether it be at a supermarket, bus stop, subway station, or restaurant line -- people are undoubtedly passing the time by going on their phones. Yur-Tyme will take advantage of this key sociological observation by focusing the majority of our advertising (paid) budget on outdoor advertising.

According to Touchpoints USA, 70% of people who have viewed an outdoor advertisement are either "very likely" or "somewhat likely" to be influenced to make a purchase. And, when outdoor advertising is added to a media plan, it also has the potential to increase the reach of mobile applications by 316% (according to Touchpoints USA, 2012)[8]. Therefore, Yur-Tyme's strategy to place advertisements in buses, trains, and subway stations is strategically aligned to increasing awareness and

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[7] Sarah Perez, Techcrunch, "How Do You Break Into iPhone App Store Top 50?," June 27, 2013. http://techcrunch.com/2013/06/27/how-do-you-break-into-iphone-app-store-top-50-try-23k-free-daily-downloads-950-paid-or-12k-in-daily-revenue/

[8] "New York Outdoor Advertising." Markets: New York, NY. Outfront Media Inc., n.d. Web. 7 Dec. 2014. <http://www.outfrontmedia.com/whereweare/markets/pages/new-york-city.aspx>.

generating demand at the actual point-of-purchase (POP). More details about Yur-Tyme's outdoor advertising is provided in the marketing budget section below.

Complementary to outdoor advertising, Yur-Tyme will also place paid advertisements through Facebook Mobile using a cost-per-click (CPC) and cost-per-installment (CPI) payment model[9]. Again, as people are already on their phones, Yur-Tyme will employ the point-of-purchase strategy. It is important to note that the majority of Yur-Tyme's paid advertising and promotions will be done prior to and during the initial launch, and will taper off over time as the application's network grows.

Owned Strategy

As a twenty-first century business, Yur-Tyme will have a state-of-the art website to help promote the primary application. The website will be located at http://yur-tyme.com, and will be hosted through HubSpot's Content Optimization System and propagated globally via Akamai's Content Delivery Network.

In today's smartphone-dominated society, the majority of consumers are of the opinion that mobile-optimized sites run faster than non-mobile-optimized sites. 27% of consumers will leave a site if it is not mobile optimized. For these reason, our website will be fully optimized for performance on mobile devices.

The current website can be found on a staging domain, at http://ariplaut.hs-sites.com. A screenshot of the website's homepage is shown below:

[9] Ad4Kids. http://ad4kids.com/how-much-does-mobile-advertising-cost-and-how-can-we-get-results/.

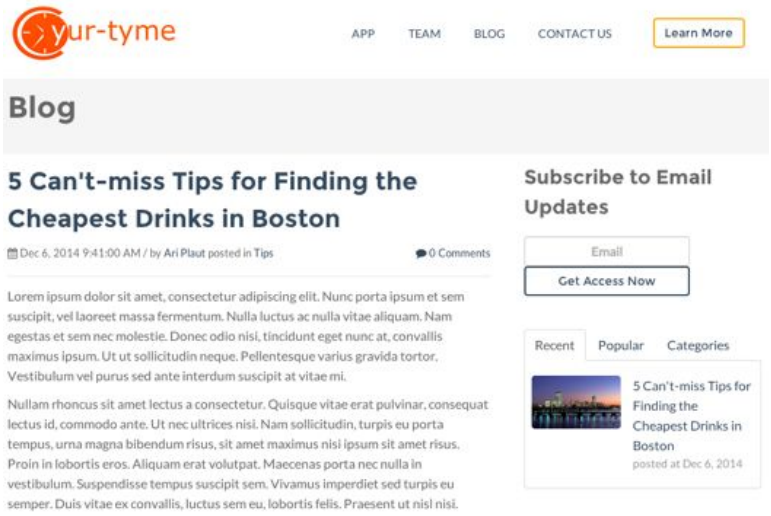
BLOG

In addition to the website, we plan to keep an active blog. It's been shown that marketers who prioritize blogging are thirteen times more likely to enjoy positive return on investment. We'll post weekly updates to the blog, with nightlife tips for the local millennial, profiles of local establishments, videos, infographics, and company news.

The blog will serve several purposes, namely:

1. Increase the footprint of our website in the eyes of search engines -- each additional post is an indexable page for Google. This will allow us to increase Organic traffic to the website.
2. Drive blog subscriptions, in order to grow our email database
3. Drive brand buzz -- promote user engagement through social sharing and blog comments
4. Provide company updates to interested parties.

A staging version of the blog can be found at http://ariplaut.hs-sites.com/blog. A screenshot is shown below:



In addition to a strong and consistent blog, we'll also use Social Media in order to grow brand awareness, and engage with our target audience. We'll create a Facebook business page and a Twitter profile, and post daily updates with cocktail recipes from local bars, local drink deals, tips for making the most of nights out, interactive polls for potential users to help bars choose new drinks. Over 75% of millennials have at least

one social media profile, according to the US Chamber Foundation. The average millennial spends almost two hours of an 8-hour workday on a social media website. The website, blog, and social profiles will allow us to grow our brand and increase our user base. In order to retain our users once acquired (consider that 80-90% of all apps are opened once after download, then deleted), we'll use the following tools:

- A user feedback mechanism in-app (using Apptentive or Hipmob), to ensure that we're actively responding to all aspects of the user experience.
- A loyalty program, which rewards users for increased usage --- for example, free appetizer coupons or "cut-the-line" certificates for every ten check-ins.
- In-app Easter Eggs --- secret giveaways that can be unlocked with a set of specific user actions.

Finally, in order to promote the "network effect," viral sharing among communities, we plan to create a referral program, similar to those implemented by apps like Uber and Lyft. For example, when a user refers another user, the referrer and referee are both rewarded for the action with a giveaway.

Earned Strategy

Since Yur-Tyme is a start-up company with very little marketing and advertising budget, one of the best ways to gain awareness is through "earned" media, or published articles (this is also known as PR). Yur-Tyme will distribute a press kit prior to the initial launch including things like screenshots of the application, draft press releases, biographies of the founders, the company logo and branding, as well as ideas for story pitches.

Aligned with Yur-Tyme's marketing goals and objectives is achieving at least 3 press/media articles prior to launch, and 30,000 media impressions (giving a conversion rate of 3.3% in order to achieve the prior goal of 1,000 downloads). The second part of this goal should be fairly achievable: consider the *Boston Globe*'s readership of 429,900 in its North Zone alone (with 99,500 of those readers within Yur-Tyme's target market between the ages of 18-29)[10].

[10] BostonGlobeMedia: http://services.bostonglobe.com/advertiser/newspapers/audience/default.aspx?id=12754.

Marketing Budget

Yur-Tyme's marketing budget is squarely focused on achieving its marketing goals and objectives. It is a modest budget, but it is also an *efficient* and *effective* one -- which all start-ups should have. Much of the marketing budget is centered around the initial launch, since the most important goal of yur-tyme is to build the network of users through awareness.

Within the first year, Yur-Tyme is budgeting for one marketing headcount--the CMO--at $80,000/year. This is where the majority of marketing budget will go, with consideration for further headcount after the first year's business evaluation and assessment.

Almost half of the advertising and promotional budget is planned for the initial launch ($2,500). This will include $500 for outdoor subway advertising (5 ads for 4 weeks[11]), $1,000 for outdoor bus advertising (3 routes for 1 quarter[12]), and $1,000 for Facebook Mobile advertising (CPC and CPI model).

Following the initial launch, the remaining yearly advertising budget will be $3,000. Paid promotional efforts will be lowered after the initial launch with more focus on earned and owned media strategies. Also, this amount is non-inclusive of any potential revenue which might be recycled back into the marketing budget.

Yur-Tyme's total marketing budget for the first year of operation will be $85,500.

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[11] BlueLineMedia, "Subway Advertising in 25 Cities," http://www.bluelinemedia.com/subway-advertising.
[12] Massachusetts Bay Transportation Authority, "Schedule Advertising, Bus Schedules," http://www.mbta.com/business_center/advertising/?id=8626

Operational Strategy

We will create the following teams: Product Team, Services Team, Sales Team, and Marketing Team.

Technology needed/already-developed: see "**APPENDIX A**" for an in-depth explanation

Operational Timeline

We will write the app in 4 months, using both in-house for proprietary code and (U.S. Based) contract developers for all other code. We will launch the app over a 2 month period using our previously mentioned marketing strategy. We will grow the app to 10,000 users within 3 months of launch and 100,000 users within 6 months and over 10,000,000 within 1-year. We will secure limited office space at the Cambridge Innovation Center and have 3 initial full time employees, CEO ($80,000/year), CMO ($80,000/year), and CTO ($80,000/year). When the app is launched, we will start hiring workers (to include on ground guerilla marketers per our marketing strategy) and expand office space.

Financial Projections

YEAR 1

YEAR 1						
Revenue						
	Advertising		Price	Total Users	Total Revenue	
	Ad Space		$ 500.00	25.00	$ 12,500.00	
	Business Advertising		$ 100.00	150.00	$ 15,000.00	
	Premium Memberships		$ 0.99	50000.00	$ 49,500.00	
	In-App Purchases		% of Purchase	Total Purchases ($)		
			$ 0.05	$ 50,000.00	$ 2,500.00	
	Business Memberships		$ 499.00	50.00	$ 24,950.00	
	Total Revenue				$ 104,450.00	
Expenses						
	App Development					
		Social Login			$ 10,838.00	
		Activity Feed			$ 21,675.00	
		Geolocation			$ 21,675.00	
		User Profiles			$ 21,675.00	
		Maps			$ 16,257.00	
		Social Sharing			$ 10,838.00	
		3rd Party API Intergration			$ 54,188.00	
		Calendar Integration			$ 16,257.00	
		Camera / Photos			$ 21,675.00	
		Accept Payments			$ 21,675.00	
		E-mail Login			$ 5,419.00	
		SMS Integration			$ 21,675.00	
		User Privacy Settings			$ 16,257.00	
		Messaging			$ 16,257.00	
		Search			$ 21,675.00	
	Total App Development					$ 298,036.00
	Cloud Setup					$ 80,000.00
	API Development					$ 50,000.00
	AWS Services				$ 1,170.55	$ 14,046.60
	Adhoc				$ 500.00	$ 6,000.00
	Payroll		: Annual Salary			
		CEO			$ 80,000.00	
		CFO			$ 80,000.00	
		CMO	Marketing Budget	$ 80,000.00		
		CTO			$ 80,000.00	
	Total Payroll					$ 240,000.00
	Worker's Comp				$ 0.15	$ 36,000.00
	Payroll Related				$ 0.15	$ 36,000.00
	Rent				$ 1,000.00	$ 12,000.00
Marketing						$ 85,500.00
	Promotional Budget: Initial Launch Phase					
		Outdoor Subway Advertising			$ 500.00	
		Outdoor Bus Advertising			$ 1,000.00	
		Facebook Mobile			$ 1,000.00	
		Online Ad Sales				
	Total Promotional Budget					$ 2,500.00
	Yearly Advertising Budget					$ 3,000.00
	CMO Salary				$ 80,000.00	
						$ 5,500.00
	Total Expenses					$ 857,582.60
PROFIT						
Total Expenses	857,582.60					
Total Revenue	104,450.00					
Total Profit/Loss	753,132.60					

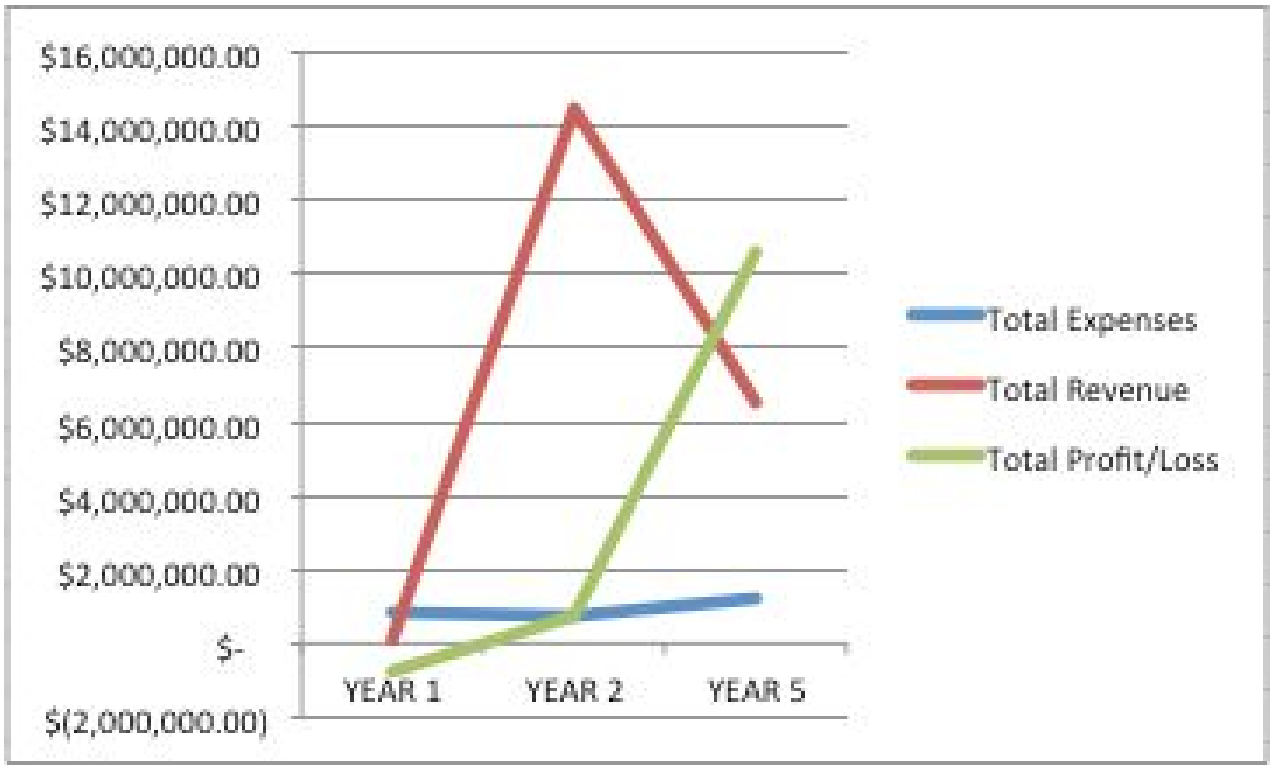
YEAR 2

YEAR 2					
Revenue					
	Advertising		Price	Total Users	Total Revenue
	Ad Space		$ 500.00	500.00	$ 250,000.00
	Business Advertising		$ 100.00	1500.00	$ 150,000.00
	Premium Memberships		$ 0.99	500000.00	$ 495,000.00
	In-App Purchases		% of Purchase	Total Purchases ($)	
			$ 0.05	$ 1,000,000.00	$ 50,000.00
	Business Memberships		$ 499.00	1000.00	$ 499,000.00
Total Revenue					$ 1,444,000.00
Expenses					
	App Development				
	Version 2.0				$ 20,000.00
	Server/Cloud Upgrades				$ 80,000.00
	API Development				$ 50,000.00
	AWS Services		$ 1,170.55		$ 14,046.60
	Adhoc		$ 500.00		$ 6,000.00
	Payroll				
		CEO	$ 80,000.00		
		CFO	$ 80,000.00		
		CMO	$ 80,000.00		
		CTO	$ 80,000.00		
	Total Payroll				$ 320,000.00
	Worker's Comp		$ 0.15		$ 48,000.00
	Payroll Related		$ 0.15		$ 48,000.00
	Increased Rent		$ 2,500.00		$ 30,000.00
	Marketing				$ 85,500.00
	Total Promotional Budget				$ 50,000.00
	Increased M & A Budget				$ 50,000.00
	Yearly Advertising Budget				$ 10,000.00
					$ 110,000.00
Total Expenses					$ 726,046.60
PROFIT					
Total Expenses	726,046.60				
Total Revenue	1,444,000.00				
Total Profit/Loss	(717,953.40)				

YEAR 5

Yur-Tyme					
YEAR 5					
Revenue					
	Advertising		**Price**	**Total Users**	**Total Revenue**
	Ad Space		$ 500.00	2000.00	$ 250,000.00
	Business Advertising		$ 100.00	5000.00	$ 150,000.00
	Premium Memberships		$ 0.99	2000000.00	$ 495,000.00
	In-App Purchases		**% of Purchase**	**Total Purchases ($)**	
			$ 0.05	$10,000,000.00	$ 50,000.00
	Business Memberships		$ 499.00	5000.00	$ 499,000.00
	3rd Party Application Integration				
	Yelp				$5,000,000.00
	Uber		**% per Ride**	**Rides**	
			$ 0.50	200000.00	$ 100,000.00
	Total				$5,100,000.00
Total Revenue					**$6,544,000.00**
Expenses					
	App Development				
	Version 4.0				$ 100,000.00
	Server/Cloud Upgrades				$ 150,000.00
	API Development				$ 50,000.00
	AWS Services		$ 1,170.55		$ 14,046.60
	Adhoc		$ 500.00		$ 6,000.00
	Payroll				
		CEO	$ 80,000.00		
		CFO	$ 80,000.00		
		CMO	$ 80,000.00		
		CTO	$ 80,000.00		
		5 Employees	$ 200,000.00		
	Total Payroll				$ 520,000.00
	Worker's Comp		$ 0.15		$ 48,000.00
	Payroll Related		$ 0.15		$ 48,000.00
	Increased Rent		$ 4,000.00		$ 30,000.00
	Marketing				
	Total Promotional Budget				$ 100,000.00
	Increased M & A Budget				$ 50,000.00
	Yearly Advertising Budget				$ 150,000.00
Total Expenses					**$1,266,046.60**
PROFIT					
Total Expenses	**1,266,046.60**				
Total Revenue	**6,544,000.00**				
Total Profit/Loss	**(5,277,953.40)**				

PROFIT/LOSS PROJECTIONS



PROFIT			
	YEAR 1	**YEAR 2**	**YEAR 5**
Total Expenses	$857,582.60	$ 726,046.60	$ 1,266,046.60
Total Revenue	$104,450.00	$ 14,444,000.00	$ 6,544,000.00
Total Profit/Loss	$ (753,132.60)	$ 717,953.40	$ 10,577,953.40

Appendix A

Architecture Design and Development Specifications (*yur-tyme*)

Prepared by: Dermot Duncan

Introduction

This document presents a system architecture design to support a mobile application that will allow users to save time when going to bars by finding which bars have smaller queues.

Yur-tyme is to be offered as a mobile application built on top of a big data engine hosted on AWS. The system described in this document is a phase 1 **BETA** system which will be piloted to a small subset of customers to begin collecting data used for predicting queue times in bars. As such it will have minimal viable functionality to test the concept, feasibility, financial viability and in order to gauge feedback from the marketplace.

There are multiple components to the yurtyme system including an API, mobile application and big data engine in AWS.

Software Architecture

Services Architecture

A full definition of the *yur-tyme* API design can be found in the API documentation.

http://docs.yurtyme.apiary.io/

Mobile Application Design

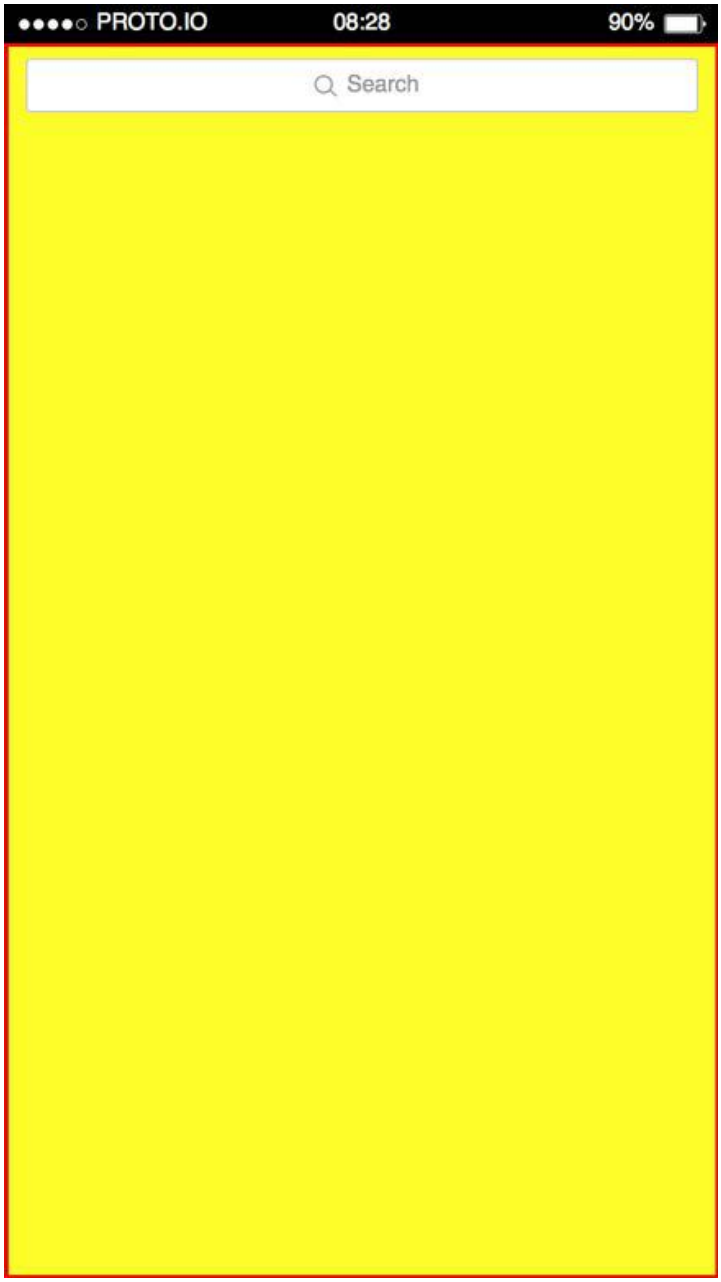


Figure 1 Search Screen

The search screen uses the google places API to find bars. Users can search for specific bars by name or search for multiple results by location.

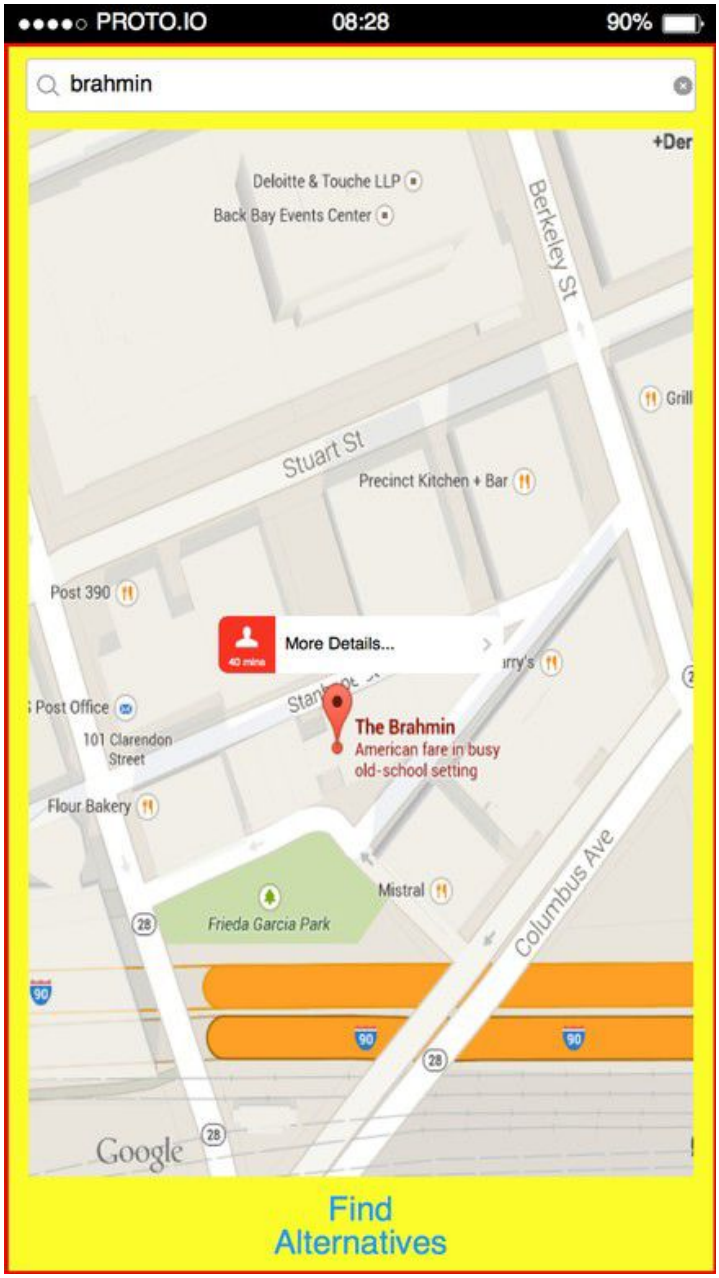


Figure 2 Search Results Screen

Any search results are displayed on a map with the ability to get directions from an alternate location. Also shown is the current wait time and a configurable color code system. Default is set to

- longer than 30 mins equals red
- longer than 15 mins equals yellow
- less than 15 mins equals green

There's also a button to find alternative bars within a configurable distance set to 1 mile by default in the event that the users first choice has too long a queue.

Figure 3 Alternative Results Screen

All alternative bars are also displayed on a map with the same features as the regular search results. Links to the maps API to get directions and highlighting the current wait times in the bar. Clicking on the map buttons brings the user to the details screen.

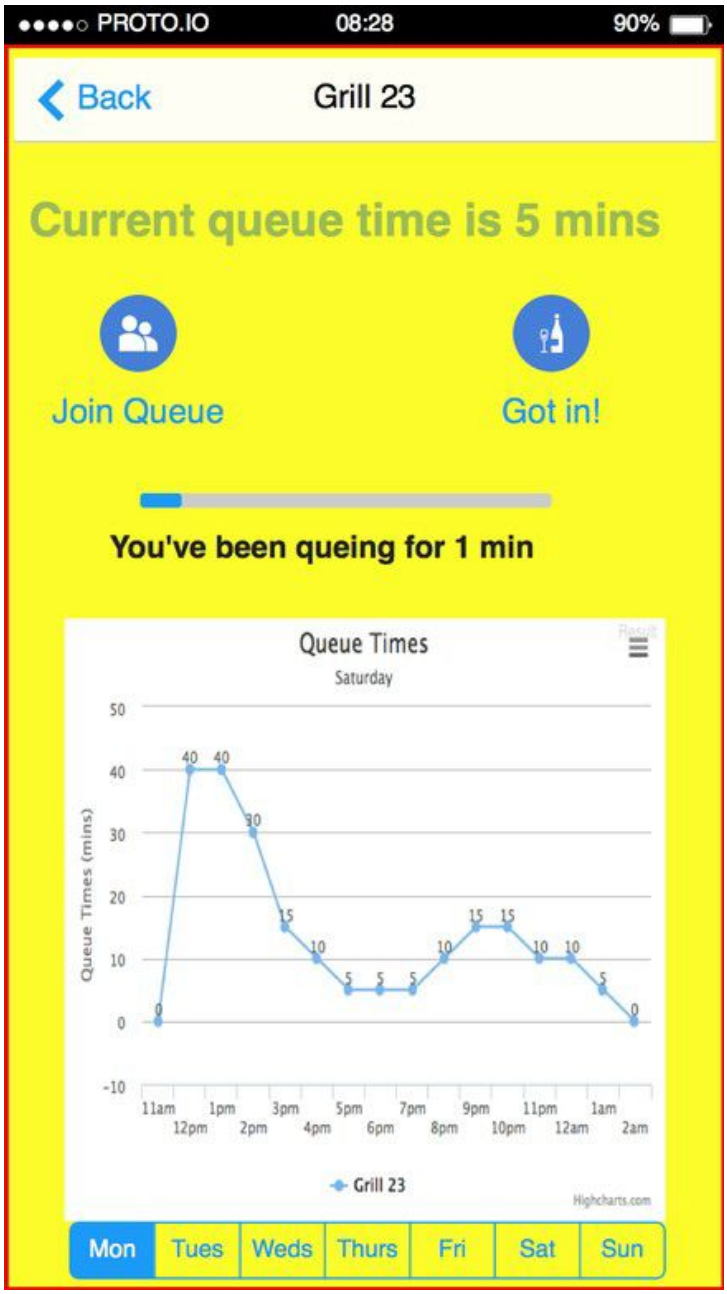


Figure 4 Details Screen

The details screen shows the current wait time but also uses big data analytics to show historic and predictive wait times by day and time of day. This allows the user to see what the likely wait times will be throughout the night so they can plan their night accordingly. It also allows the user to check into a queue and view how long they've been queuing up for.

Infrastructure Architecture

Physical Architecture

Below is a detailed component diagram of the yurtyme architecture

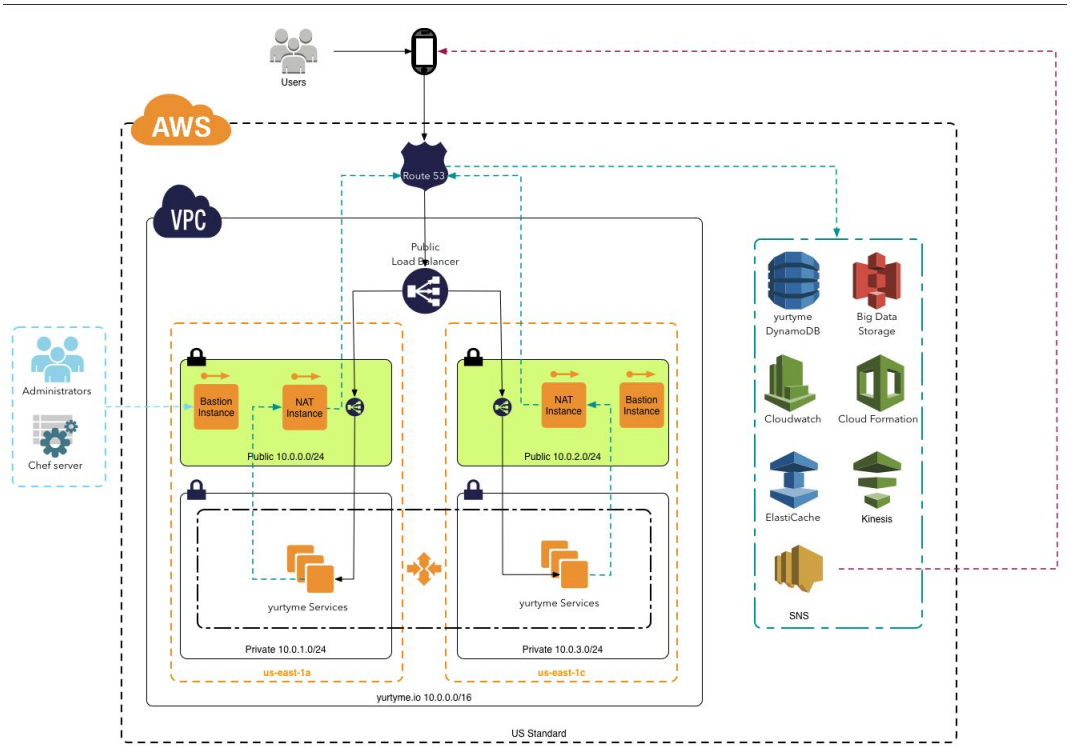


Figure 5 Forms VPC Component Diagram

Note Route53 acts as both DNS resolution and the internet gateway in the VPC.

Subnets

Each region contains 2 identical sets of subnets in different availability zones to both distribute load and also in the unlikely event a particular availability zone goes down.

Public Subnet

The public subnet contains 3 components

- Bastion Server

This is designed to be the only admin access point into the VPC and acts as a proxy to all EC2 instances. SSH connections (TCP/22) are only allowed from a particular CIDR block to lock down access.

By default, Linux instances in EC2 use SSH key files for authentication but we do not want to store private keys in the cloud. To get around this we are using SSH agent forwarding to allow an administrator to connect from the bastion to another instance without storing the private key on the bastion. Sample security group is shown below

Inbound			
Source	**Protocol**	**Port Range**	**Comments**
192.223.128.0/17	TCP	22	Allow inbound SSH access to the bastion host from locked CIDR range only
Outbound			
Destination	**Protocol**	**Port Range**	**Comments**
10.0.1.0/24	TCP	22	Allow outbound SSH access to the private subnet

- NAT instance

The calls to ESG along with some AWS services we are using in our code running in the private subnet such as S3, DynamoDB and CloudWatch require access to the internet. The private subnets have no access to the internet so to accommodate this traffic is routed through a NAT instance in the public subnet. By default NAT instances are not highly available. This means that if a NAT instance goes down than the corresponding private subnet will have no internet access. To accommodate this NAT instances were created as self monitoring. If an issue arises, the NAT instance in the other availability zone takes over the routes while concurrently attempting to stop and restart the failed instance. More information can be found in the below AWS article.

https://aws.amazon.com/articles/2781451301784570

SSH traffic into the NAT instance is locked down to the bastion host described above. Sample security group is shown below

Inbound			
Source	**Protocol**	**Port Range**	**Comments**
10.0.1.0/24	TCP	80	Allow inbound HTTP traffic from servers in the private subnet
10.0.1.0/24	TCP	443	Allow inbound HTTPS traffic from servers in the private subnet
IP address of Bastion Host	TCP	22	Allow inbound SSH access to the NAT instance from the bastion host.
Outbound			
Destination	**Protocol**	**Port Range**	**Comments**
0.0.0.0/0	TCP	80	Allow outbound HTTP access to the Internet
0.0.0.0/0	TCP	443	Allow outbound HTTPS access to the Internet

- Load Balancer

All http traffic coming into the VPC from the internet comes through the load balancer in the public subnet, with security group ingress configuration for the private subnets gating access. This balances traffic amongst the application instances running in the private subnet. Sample security group is shown below

Inbound			
Source	**Protocol**	**Port Range**	**Comments**
0.0.0.0/0	TCP	80	Allow inbound HTTP traffic from the internet
0.0.0.0/0	TCP	443	Allow inbound HTTPS traffic from the internet

Private Subnet

The private subnet just contains an auto-scaling group of application servers. These are linux instances running java 7 and tomcat 7. Sample security group used to launch these instances is shown below.

Inbound			
Source	**Protocol**	**Port Range**	**Comments**
Load_balancer security group	TCP	9000	Allow inbound traffic from the load balancer
IP address of Bastion Host	TCP	22	Allow inbound SSH access from the bastion host.

App Server

The App server is based around the latest AWS linux AMI. It currently just runs java 7 and TC server 7. The We are looking to create chef scripts to harden the server based on the CIS Benchmarks and are also looking at what standards are available internally that can be applied and re-used.

IAM Roles

VPC Architect/Admin

This user is the AWS architect/admin in charge of the design and continued enhancement of the *yur-tyme* VPC.

```
{     "Version": "2012-10-17",
       "Statement":[{
       "Effect":"Allow",
       "Action":[    "ec2:*Vpc*",
                     "ec2:*Subnet*",
                            "ec2:*Gateway*",
                            "ec2:*Vpn*",
                            "ec2:*Route*",
                            "ec2:*Address*",
                            "ec2:*SecurityGroup*",
                     "ec2:*NetworkAcl*",
                            "ec2:*DhcpOptions*",
                            "ec2:RunInstances",
                            "ec2:StopInstances",
                     "ec2:StartInstances",
                     "ec2:TerminateInstances",
                     "ec2:Describe*"],
       "Resource":"*"
       }
]
}
```

VPC Ops

Note there will be multiple roles for VPC ops to lock down different VPC environments.

- vpc_ops_prod
- vpc_ops_non_prod

Each VPC will fall into one of the above categories. When a VPC is first created it'll be given one of the above roles. This locks down who has access to prod vs non_prod. This may be tightened further in the future to create separate dev and qa roles depending on adoption.
To lock down VPCs to a particular ops set we specify the VPC name in the permissions. Note this permission set is currently a work in progress so may change slightly in the BETA phase depending on lessons learned.

```
{   "Version": "2012-10-17",
       "Statement":[{
       "Effect":"Allow",
       "Action":["ec2:RunInstances",
              "ec2:StopInstances",
              "ec2:StartInstances",
                "ec2:TerminateInstances",
              "ec2:Describe*"],
       "Resource": "arn:aws:ec2:region:account:subnet/*",
       "Condition": {
              "StringEquals": {
                  "ec2:Vpc": "arn:aws:ec2:region:account:vpc/vpc-1a2b3c4d"
                  }
              }
       },
       {
       "Effect":"Deny",
              "NotAction":["ec2:RunInstances",
                            "ec2:StopInstances",
                          "ec2:StartInstances",
                            "ec2:TerminateInstances",
                            "ec2:Describe*"],
              "Resource":"*"
       }
]
}
```

Yurtyme Services EC2 Instance

```
{   "Version": "2012-10-17",
       "Statement":[{
              "Effect":"Allow",
              "Action":["s3:Get*",
                     "s3:List*"],
              "Resource": "arn:aws:s3:forms-non-prod-war/*",
       }
       "Statement": [{
              "Effect": "Allow",
              "Action": [
                           "dynamodb:GetItem",
                           "dynamodb:PutItem",
                           "dynamodb:UpdateItem",
                           "dynamodb:DeleteItem"],
       "Resource": "arn:aws:dynamodb:us-west-2:123456789012:table/Forms"
       }
]
}
```

Deployment

Yur-tyme API

Continuous Deployment will be setup with the use of codeship.io. When code is checked into the private repo on github, it is built and tested and if successful a war gets deployed to an S3 bucket. The application instances are automated to pull the war from this bucket on creation. Note there are separate buckets for dev, integration and prod environments and which bucket the war is retrieved from is specified in the VPC creation script.

Operations and Support

Operating and supporting the services and infrastructure behind the yurtyme system involves three main system level components:

- The *yur-tyme* API
- The *yur-tyme* mobile apps
- The *yur-tyme* VPC

All monitoring of the system and recording of metrics will be done through AWS Cloudwatch.

The structure of the VPC will be defined in an AWS CloudFormation template. The contents of the VPC then will be controlled using chef scripts.

Development & Operational Costs

Application Development

A breakdown of the app development costs with support for apple, android and windows devices is below.
www.otreva.com/calculator/?saveId=9XLXdLWdpgFy5nbBlV0cVSImrGTGTBCO-q4Md4btl9

Cloud Architecture & Big Data Engine

This system is described in greater detail in the preceding section but will be following newer architectures such as the Netflix model. The entire system will be automated meaning that as the user base and usage grows, our operational costs remain static. Rather than spending money on fixing systems or manually troubleshooting and upgrading systems, this money can be spent on been continually innovative and releasing new functionality to customers. A breakdown of the monthly cloud costs can be seen below

http://calculator.s3.amazonaws.com/index.html#key=calc-LargeWebApp-140323

API Development

A full description of the API can be found at

http://docs.yurtyme.apiary.io/