



# Consumer Health Data Aggregator Challenge *Locket*

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**Prepared For:**

The Department of Health and Human  
Services Consumer Health Data Aggregator  
Challenge

**Prepared By:**

Neysa Spence  
*Contracts Manager*

MetroStar Systems, Inc.  
1856 Old Reston Avenue, Suite 100  
Reston, VA 20190-3330

Telephone: 703-481-9581  
[nspence@metrostarsystems.com](mailto:nspence@metrostarsystems.com)  
[contracts@metrostarsystems.com](mailto:contracts@metrostarsystems.com)

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## 1.0. Intro

MetroStar Systems, an award winning technology company in Northern Virginia, has developed many web and mobile applications for both private companies and government agencies. Recent highlights include [winning third place](#) in the NIST Reference Data Challenge, [developing a prototype](#) of a game that teaches displaced Syrian refugee children to read, and [developing health IT solutions](#) for several clients. Riding the wave of these recent successes, we are encouraged to apply for this challenge and to continue providing value to the healthcare domain.

MetroStar is well situated to address the concerns of the health consumer challenge by 1) providing a platform to transfer patient data from Electronic Health Records (EHRs) to patient mobile devices and 2) reducing the amount of redundant paperwork that consumers have to fill out at every location. The consumer app will have a way for patients to view and manage all of their own health data in one location. Furthermore, it will streamline both checking into appointments (via a QR code scanner) and managing multiple family members' medical information. When the consumer checks into a new health clinic, he or she may allow the clinic to access and upload all of his or her existing data. In addition to streamlining the transfer of information and providing a repository for a family's health information, the application provides a suite of tools that helps to make medical compliance easier through a medication subscription manager and reminders to follow recommendations from healthcare providers.

This proposed platform is called **Locket**. **Locket** will comprise of three main components – **Locket** is the application that lives on consumers' mobile devices and will organize their health information. **Locket Cloud** is the backend service which will be the bridge from the provider's Electronic Health Record Systems (EHRs) to the mobile app, providing functionality such as push notifications, data syncing, messaging, and others. The third component is the **Locket for Providers** application. This application will be the portal to **Locket** from the providers' point of view and will allow doctors and physicians to look up and provide consumers with their medical data. MetroStar Systems is also submitting **Locket for Providers** for the HHS Provider User-Experience Challenge.

## 2.0. Mockups and Wireframes

Using our User Centered Design (UCD) methodology which comprises of interviewing potential users, identifying user personas, defining information architecture based on the “business needs” of the solution, and following our mobile app design best practices, we have created the following mockups and wireframes of key screens and functionality within **Locket**

### 2.1. Mockups

The following mockups of **Locket** depict the look and feel of the mobile applications.

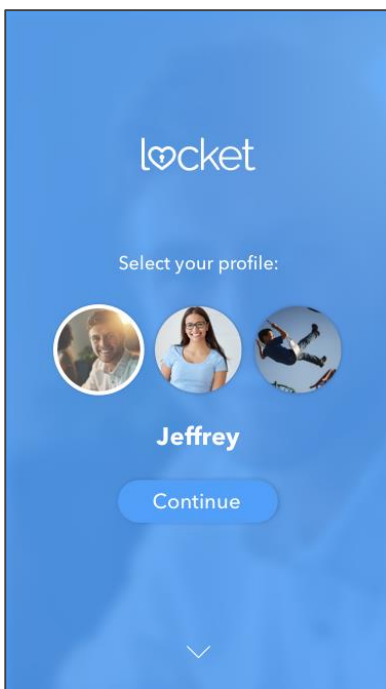


Figure 1: The user can create multiple profiles to store his/her health data, along with the family's, all under the same app.



Figure 2: The user can add, remove, edit, or logout from their account from the settings panel.

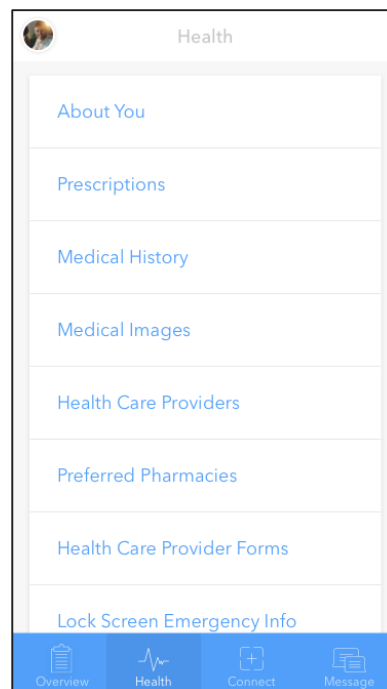


Figure 3: The user health main menu contains all available features related to the user's personal health data.

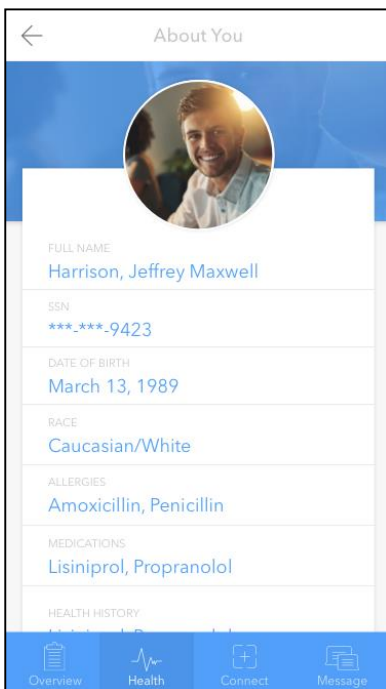


Figure 4: The user can edit their About page, which is private between the user and his/her physicians.



Figure 5: The user can overlay emergency medical information on the device's lock screen image.



Figure 6: The user can view stored x-rays and medical images.

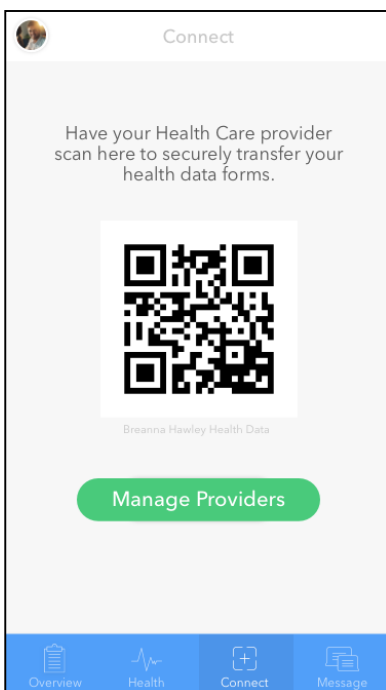


Figure 7: The user has a unique QR code that facilitates quick data transfers to health providers.

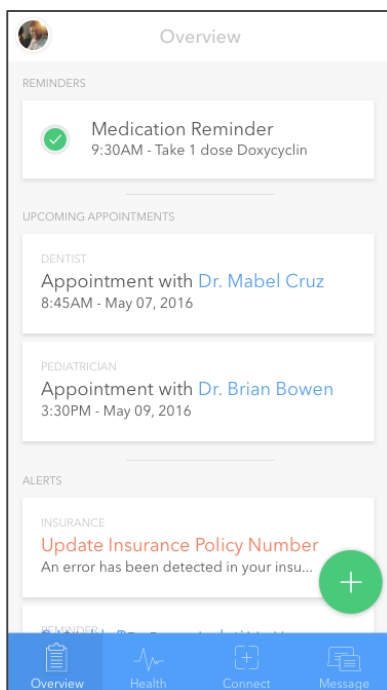


Figure 8: The Home/Overview screen shows users medication reminders, upcoming appointments, and alerts.

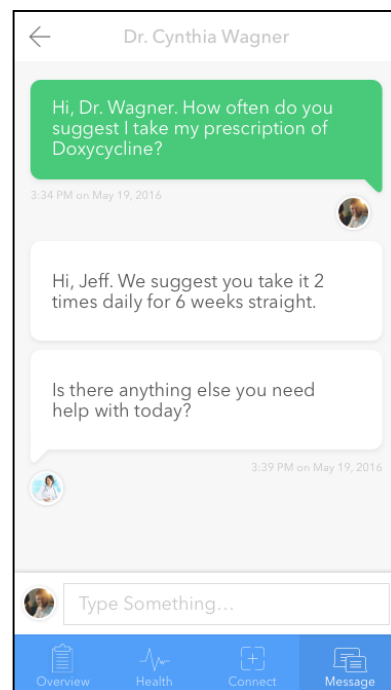


Figure 9: The user can get in touch with his/her physicians through the messaging feature.

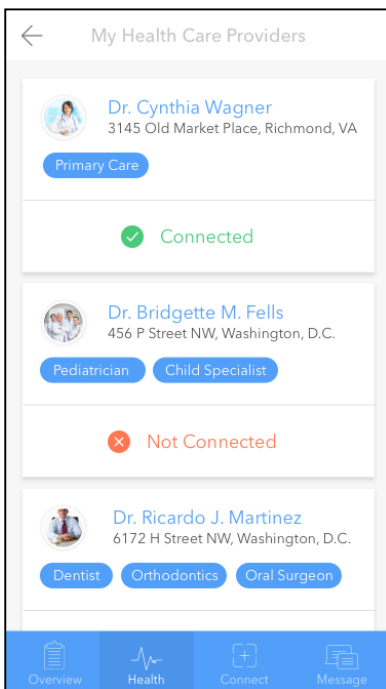


Figure 10: The user has access to all of his/her providers in one location. The user can connect all their health data between his/her various providers.

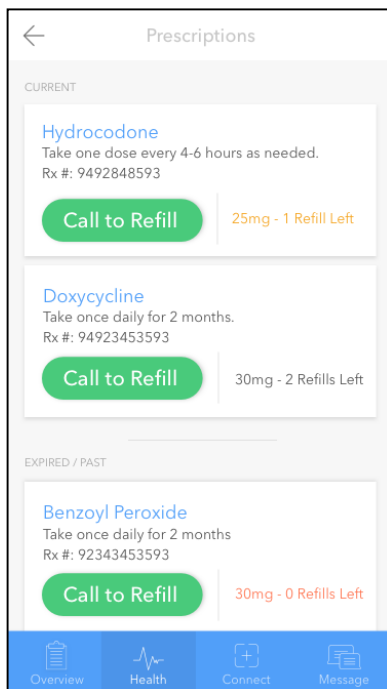


Figure 11: The user can see what prescriptions are active, expired, or when they are running out of prescription refills.

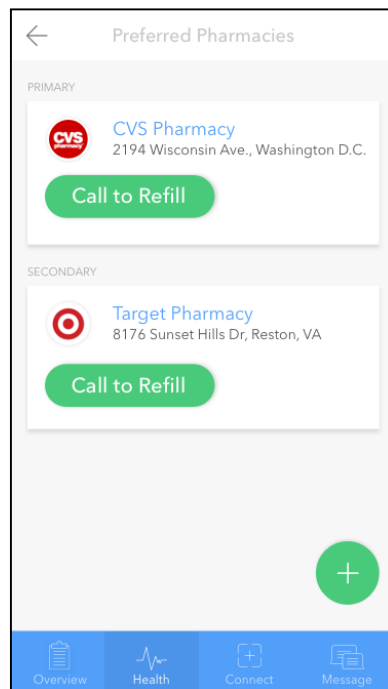


Figure 12: The user can access and edit their preferred pharmacy locations to get in touch with pharmacists or request a refills.

## 2.2. Wireframes

Wireframes depict the layout of UI components and determine the user-experience of the app.



Figure 13: Onboarding screen 1.



Figure 14: Onboarding screen 2.



Figure 15: Onboarding screen 3



Figure 16: Onboarding screen 4.

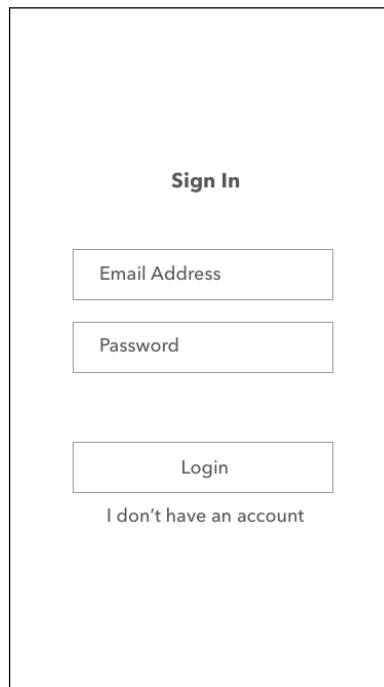


Figure 17: Sign in screen.

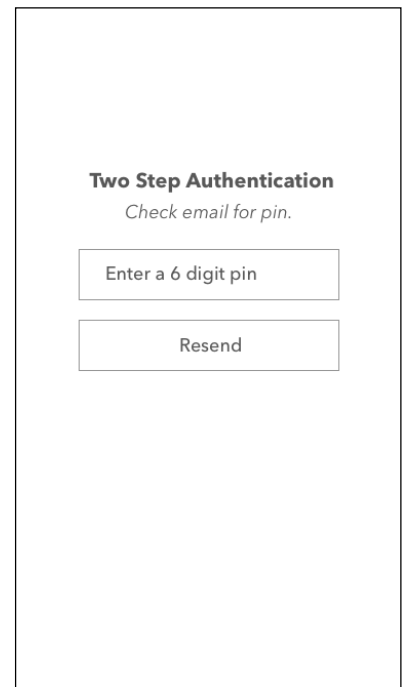


Figure 18: Email verification screen.

Connect			
<p><b>Dr. Wagner would like to access and update your health information. Is that okay?</b></p> <p>Grant Access</p> <p>Deny Access</p>			
Overview	Health	<b>Connect</b>	Message

Figure 19: Provider authorization popup.

Message			
<p><b>Dr. Cynthia Wagner</b> Hey Dr. Wagner! I wanted to...</p> <p><b>Dr. James Monroe</b> Thanks. See you then.</p> <p><b>Dr. Beth G. Harrison</b> Your bill is past due.</p>			
Overview	<b>Health</b>	Connect	Message

Figure 20: Messaging screen.

Medical History			
<p><b>Date</b> 00-00-0000</p> <p><b>Description</b> Lorem Ipsum dolor sit amet.</p> <p><b>Health Care Provider</b> Lorem Ipsum dolor sit amet.</p>			
<p><b>Date</b> 00-00-0000</p> <p><b>Description</b> Lorem Ipsum dolor sit amet.</p> <p><b>Health Care Provider</b> Lorem Ipsum dolor sit amet.</p>			
Overview	<b>Health</b>	Connect	Message

Figure 21: Medical history screen.


Dr. Cynthia Wagner			
<p></p> <p><b>Name</b> Cynthia Wagner</p> <p><b>Credentials</b> Lorem Ipsum dolor sit amet.</p> <p><b>Position</b> Lorem Ipsum dolor sit amet.</p> <p><b>Affiliations</b> Cynthia Wagner</p> <p><b>License #</b> Lorem Ipsum dolor sit amet.</p> <p><b>Phone</b> Lorem Ipsum dolor sit amet.</p> <p><b>Website</b> www.websitename.com</p> <p><b>Partners</b> Partner Name, Partner Name</p>			
Overview	<b>Health</b>	Connect	Message

Figure 22: Provider profile screen.

Medical Images			
<p><b>Date</b> 00-00-0000</p> <p><b>Description</b> Broken Foot</p> <p><b>6 Images Attached</b></p>			
<p><b>Date</b> 00-00-0000</p> <p><b>Description</b> Cat Scan</p> <p><b>3 Images Attached</b></p>			
Overview	<b>Health</b>	Connect	Message

Figure 23: Medical image "folders" screen.







Broken Foot			
<p> </p> <p> </p> <p> </p> <p>Share Images</p>			
Overview	<b>Health</b>	Connect	Message

Figure 24: Medical images screen.





Figure 25: Medical image "details" screen.

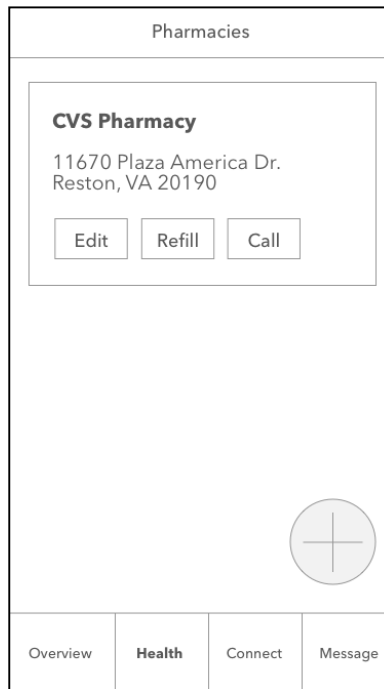


Figure 26: Pharmacy screen.

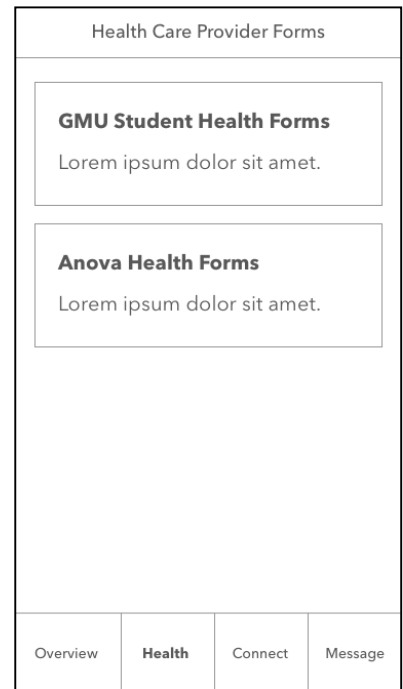


Figure 27: Health care provider forms screen.

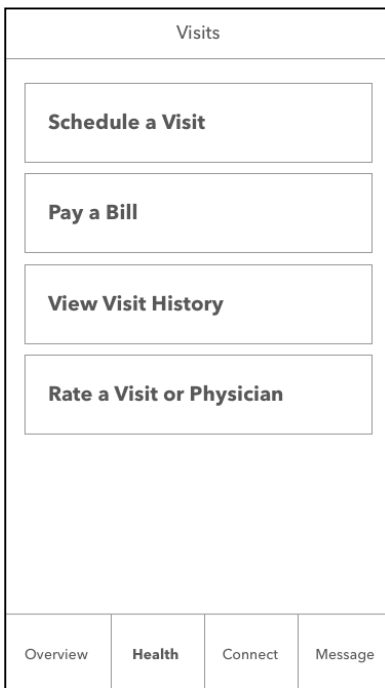


Figure 28: Visits overview screen.

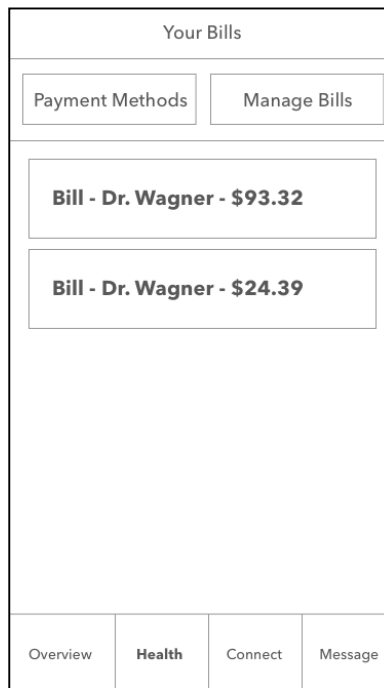


Figure 29: Bills overview screen.  
(future enhancement)

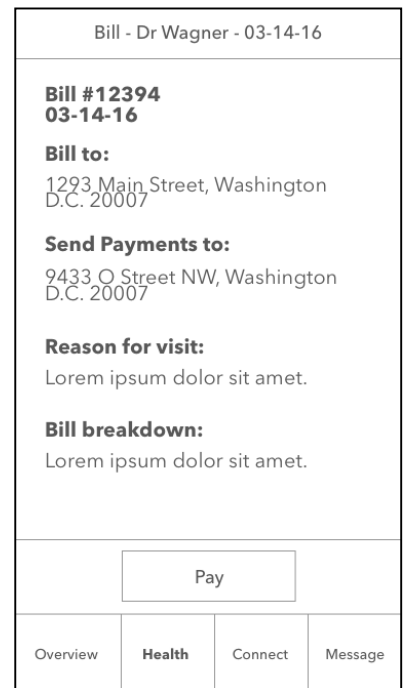


Figure 30: Bill details screen. (future enhancement)

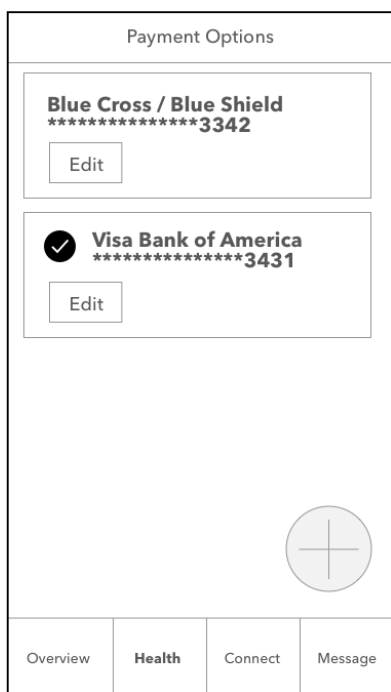


Figure 31: Payment options screen. (future enhancement)

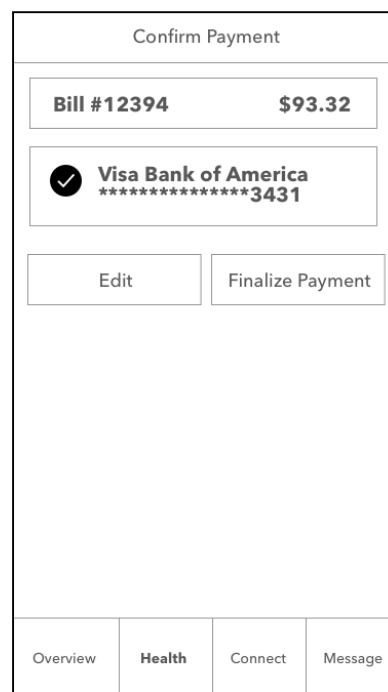


Figure 32: Payment confirmation screen. (future enhancement)

### 3.0. Technical Specifications

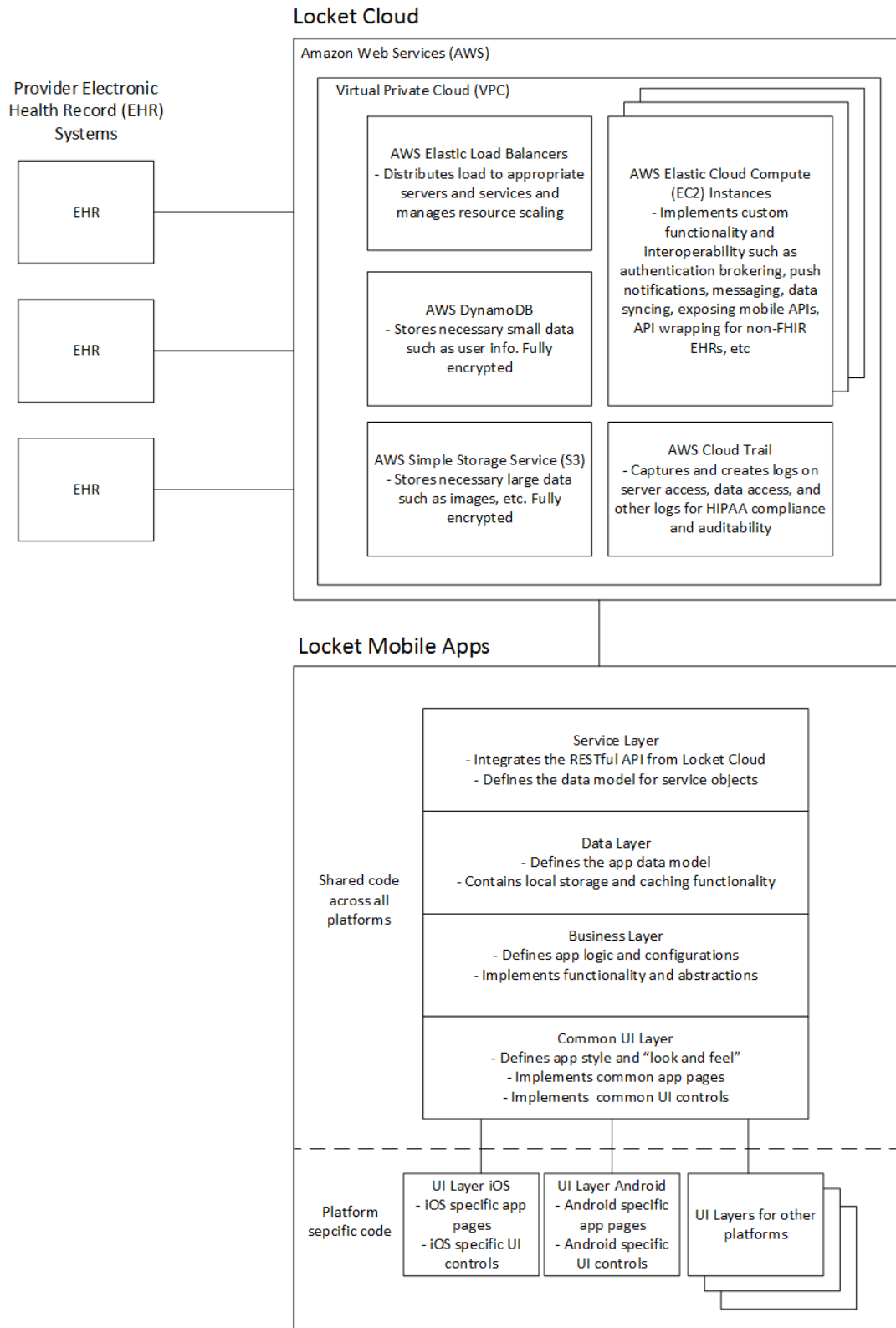
#### 3.1. Data Sources

MetroStar plans to integrate **Locket** with several of the top ten EHR systems, as measured by Meaningful Use attestation per HealthIT.gov, including EHRs from:

- Epic Systems
- Cerner
- NextGen Healthcare
- Allscripts
- McKesson
- Athena Health

Of these EHR Systems, Epic Systems, NextGen Healthcare, Cerner, and McKesson, are part of the [Health Level 7 \(HL7\) Argonaut Project](#). The purpose of the [Argonaut Project](#) is to rapidly develop a first-generation FHIR-based API and Core Data Services specification to enable expanded information sharing for electronic health records and other health information technology based on Internet standards and architectural patterns and styles. [Epic Systems](#), [Cerner](#) and [NextGen Healthcare](#) are verified to have support for Fast Healthcare Interoperability Resources Draft Standard for Technical Use 2 (FHIR DSTU2). They will therefore be prioritized for implementation into **Locket** with minimal friction. [Allscripts](#) and [Athena Health](#) do not implement a FHIR API but do implement their own APIs with varying degrees of functionality.

### 3.2. System Architecture



**Figure 33: Locket Cloud and Mobile System Architecture**

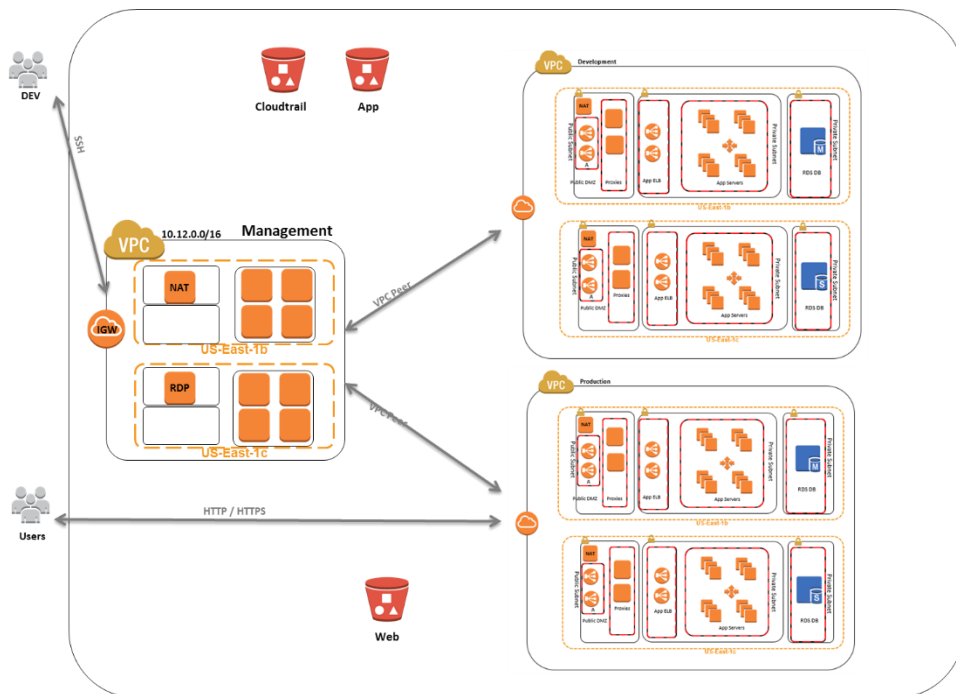


Figure 34: Standard 3-Tier Web Architecture for NIST on AWS with Optional Development and Management VPCs

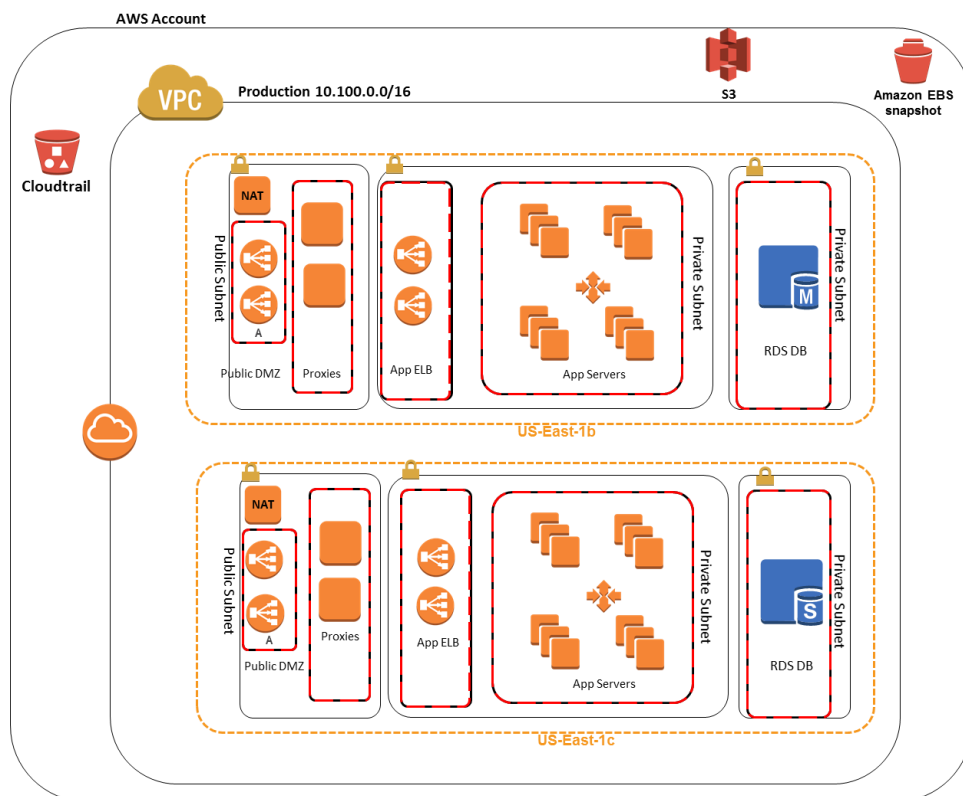


Figure 35: VPC Detailed Design for NIST on AWS

**Locket Cloud** will be hosted on an Amazon Web Services Virtual Private Cloud (AWS VPC). The backend will consist of AWS's Elastic Compute Cloud (EC2) service for custom functionality with Linux based applications, AWS DynamoDB Database for data storage up to 400KB, and AWS Simple Storage Service (S3) for files up to 5TB. The backend service will also utilize AWS Elastic Load Balancing (ELB) for managing scalability and performance. One of the biggest advantages of using the AWS cloud is that the **Locket** backend will be able to scale available resources up as needed to ensure high performance, and also down when necessary to maintain a low cost of operation. The **Locket** backend system will act as a middleware or intermediary between the EHRs and mobile apps. It will connect to the EHRs using secure VPN tunneling and to the **Locket** mobile application by exposing a Representational State Transfer (RESTful) Application Programming Interface (API) in a hybrid configuration. **Figure 33** shows the cloud and mobile system architecture while **Figure 34** and **Figure 35** show the server topology and configuration for the cloud service.

### 3.3. Mobile Architecture

The **Locket** mobile apps for iOS and Android will be built using the Xamarin cross-platform mobile development platform. This will allow us to maximize code reuse between all mobile platforms. Previous projects have shown up to 90% code reuse using Xamarin tools and reduced development time by more than half for subsequent platform releases. In addition to that, utilizing Xamarin will also allow us to release **Locket** for other major platforms including the Universal Windows Platform (UWP) which covers desktops, laptops, tablets, Windows Phones, and Xbox One, and also the Apple Mac family of devices which includes MacBooks, iMacs, Mac Pros, and Mac Minis. The mobile applications will be built with a layered architecture implementing the Model View ViewModel (MVVM) pattern for code decoupling and reuse.

### 3.4. Data Integration

We propose two different methods for authentication with existing EHRs. The goal of multiple authentication methods is to allow as many users as possible to use the app, and also ensure efficiency of the synchronization process.

1. For existing EHR platforms that allow customer access, customers will sign in through the mobile app into existing EHR platforms using OAuth, Security Assertion Markup Language (SAML), or Single Sign On (SSO). The backend cloud service will broker this authentication to ensure that the user's data can be synchronized and updated.
2. For EHR platforms that don't allow access to customers, the **Locket** consumer app will work in tandem with the **Locket for Providers** app. **Locket for Providers** is an application that will allow the healthcare provider to retrieve a patient's data and provide it to him or her through the **Locket Cloud**.

When the user has gained access to the EHR through the **Locket Cloud**, he or she will be able to access and download all their medical information covered in the [Common Clinical Data Set](#) if the EHR they are connecting to supports the FHIR DSTU2 standard.

For EHRs that expose partial or custom APIs, the **Locket Cloud** will wrap the API so that the transition from EHR to mobile application is seamless. However, if some of the data is inaccessible due to the different API model, the **Locket Cloud** will notify the app of the inaccessible data.

The **Locket Cloud** will expose a REST API with JSON to the mobile apps which will integrate the

APIs using HTTP calls to the API. The apps will then deserialize the JSON to the relevant app data model objects.

Once users have their data on their **Locket** app, they can then connect to other health providers they may visit and sync their data to those providers' EHRs using the **Locket Cloud** sync functionality.

### 3.5. HIPAA Compliance

To ensure compliance with HIPAA regulations and maintaining the privacy and security of all data and electronic Personal Health Information (ePHI) within the system, the cloud service will:

- Be hosted on an AWS VPC (Virtual Private Cloud) and only use HIPAA compliant AWS services such as EC2, S3, DynamoDB, CloudTrail, and more. AWS aligns their HIPAA risk management program with FedRAMP and the NIST 800-53 security standard.
- Encrypt all data in rest and in transit using industry standard encryption.
- Log all data and service access using AWS CloudTrail for auditability and threat management.
- Access EHRs through secure Virtual Private Networks (VPNs) configured behind firewalls within the **Locket Cloud**.

**Locket** and **Locket for Providers**, on all platforms, will:

- Encrypt all data in rest and in transit using industry standard encryption algorithms
- Require authorization when the user accesses the app
- Provide alternative authentication methods and privacy safeguards such as pin numbers and biometric scanning per device hardware availability

## 4.0. Business Plan

### 4.1. Issue Analysis

Unfortunately, few health systems are prepared to easily export patient data. Americans have the right to access their medical records according to the Health Insurance Portability and Accountability Act (HIPAA). Patients have to know to ask for their medical records, fill out a request for their records, and wait to either pick up a printed copy of their records or for the records to arrive by mail. This process has to be repeated for every medical provider a patient sees and it does not guarantee that the patient has complete records or that the records are the most up to date versions.

The antiquated systems for requesting records hinder efficiency. Patients do not routinely carry their medical records with them. Even if they do, they can only carry static information in large, unruly stacks of paper. The lack of availability is most harmful to patients when they are being transferred from one hospital to another. Hospitals print out whatever records that they have to give to the patient to carry over to the receiving hospital.

Hospitals and medical providers rely on patients providing medical history upon entrance to a facility. Self-reported patient history is not dependable. Patients may forget to list all medications or may not remember important details such as dosages. Patient forgetfulness impacts a provider's ability to prevent dangerous interactions brought about by taking multiple medications.

Self-reported history is sometimes impossible. Sometimes patients come to emergency rooms

unconscious or have family members feel out forms for them if they are not able. The gaps in medical information may lead to less effective treatment.

In addition to difficulties in maintaining a lifetime of medical history, patients also need to navigate multiple medical scheduling and billing platforms that often do not have the easy to use interfaces. **Locket** can make bill payment easier by notifying healthcare consumers when their bills are available or due. Some providers allow patients to schedule appointments online, but many require patients to call. Only a few services provide online appointment scheduling by mobile devices. Easier scheduling may make patients more willing to make needed trips to health clinics and hospitals.

In summary, there are currently a few apps available to help patients manage their medical records, but none have established a comprehensive platform. Perhaps this is due to technical reasons; it is expensive to develop a cross-functional tool. Or perhaps the underlying cause may be business-related. Companies who support EHRs and consumer access to health records want to capitalize on their market share, which discourages building an application that works well with others. This, more than any other aspect of the problem, has created the environment of data “silos” of EHRs that **Locket** aims to resolve.

#### 4.2. Solution Description

MetroStar proposes the creation of a mobile app, called **Locket**, to address issues associated with transferring medical information and managing payment and scheduling logistics with healthcare staff. **Locket** will be a cross-platform application (Android and iOS) that facilitates portability of health information. The app will hand data over from the EHR to patients, thereby allowing them to carry their medical records wherever they go. The concept is that every healthcare system that has the app installed will not need to perform a custom data extraction for each patient who wants his or her data. Since all of the data can be handed over to patients through the app, the patients can directly transfer data from one health system to another. Additionally, data will update automatically for patients after they connect to healthcare systems. This means that every time a doctor updates a medical record, the information will push out to the patient’s file and all other doctors who share that patient will be able to see the latest information.

MetroStar has experience creating apps that work across platforms that exceed client expectations. Additionally, MetroStar can navigate the issues of market share by competing with its agile task structure. The combination of being able to meet government standards and work with various institutions will increase the probability of a successful business model for MetroStar.

Not only does **Locket** store patient data, but it also allows easy appointment check in and data sharing by scanning a QR code on the screen of the app. If a patient is new to a health clinic or hospital, the patient may scan a QR code to check-in and agree to give data to the health facility. This feature allows the healthcare providers to have up to date medical records in the EHRs without having the patients spend fifteen to twenty minutes filling out medical forms. If hospitals or health clinics need patients to answer custom, nonstandard questions, healthcare staff can add these questions to **Locket**’s check-in process at their facility.

The app will also allow patients to update symptoms and add questions to their medical profiles, allowing doctors to see all of the symptoms and questions they may be forgotten when a patient is in the examination room. Creating a virtual platform for patients to ask about symptoms that may be embarrassing or easy to forget may help to increase communication between healthcare



providers and consumers.

**Locket** allows for patients to carry medical records in an app may cut down on the amount of time that they have to wait for diagnosing diseases. Rather than having to contact a pharmacy for a list of medication that the patient takes, the provider can simply see information on the patient's app or have the data synced to the institution's EHR. Even if a patient is unconscious, **Locket** provides functionality to overlay critical health information, such as allergies and emergency contact information, on the lock screen. Getting information quicker may help to cut down on the time that healthcare providers need to make decisions about treatments.

An added benefit of **Locket** is that it will allow users to host multiple files on their accounts. This will be very helpful for individuals with dependents and for individuals who assist parents or spouses, perhaps because the relative is infirm or has a language barrier. Once consumers are authorized to host a patient's file, the consumers will be able to carry their own medical records and their approved dependents' medical records with them - without having to carry physical copies or recall all of their medical history.

For planned visits to the health clinic, **Locket** will cut through the unstandardized medical appointment scheduling process. The app will provide the ability to schedule appointments with any hospital or provider who supports it. By scheduling through the app, patients will likely have an easier time at scheduling an appointment, have more flexibility in rescheduling, and an automatic reminder of the appointment that might decrease the probability of missing an appointment.

**Locket's** reminders will also work for medications and healthcare provider recommendations. A healthcare provider can input a medication and regimen to the app and the app will then remind the patient to take the medication at the prescribed frequency. It will inform the patient if they need a refill of the medication and, if the patient chooses, the app will notify the patient's pharmacy that a refill is requested. This cuts down on time that the patient has to spend calling and asking for a refill and increases the likelihood that the patient will take the medication as prescribed.

As possible future enhancements which will increase value to its users, **Locket** will integrate:

- Bill payment. This will increase the number of medical bills paid, and medical bills paid on time. The platform will accept all of the common forms of payment and allow healthcare systems to bill through the app. The patient can then pay at his or her convenience.
- Wearable and smart device integration. In order to further streamline user health information, wearables are valuable tools that can autonomously keep track of user vitals and health conditions through API integrations. Wearables and smart devices would include fitness trackers, smart watches, and smart medical devices in the future such as smart pacemakers and prosthetics.
- Apple HealthKit integration on iOS devices. HealthKit is a toolkit that allows iOS devices to centralize a user's health and fitness data.
- Apple ResearchKit integration on iOS devices. ResearchKit allows organizations to conduct authorized research for accelerating innovation and improvements in the medical field.



### 4.3. Financial Estimates

The development of this application will have a lower startup and maintenance cost due to the experienced developers at MetroStar Systems. The cost range for the development of the application is \$200,000+, which is less than half of the market average price for an app of this caliber. Looking ahead, MetroStar also recommends a budget to evolve and enhance the native mobile app and its backend services by releasing new features and/or enhancements to the backend platform every three months over the course of one year.

#### 4.3.1. Initial development cost

The initial development is estimated to take twenty weeks or ten two-week sprints using MetroStar's agile development methodology. This will include the **Locket** app and **Locket Cloud** design, development, testing and deployment efforts. **Locket for Providers** development is discussed in the submission or the HHS Provider User-Experience Challenge. MetroStar is fully equipped for the full lifecycle of development and deployment of cross platform mobile apps. Therefore, there will be no additional hardware or software costs involved.

Role	Hours	Cost per hour	Total
Project Manager / Business Analyst	400	\$82.95	\$33,180
Mobile Developer	800	\$106.80	\$85,440
Backend Developer – Cloud	800	\$100.59	\$80,472
User Experience Expert	500	\$60.00	\$30,000
Graphic Designer	500	\$62.29	\$31,145
Software Tester	500	\$51.85	\$25,925
<b>Total</b>			<b>\$286,162</b>

#### 4.3.2. Ongoing quarterly maintenance and development cost

We estimate quarterly maintenance and development to be carried out in two two-week sprints each for a total of \$57,232.40. Resources can also be appropriated for different tasks such as marketing and additional EHR integration based on the evolution of **Locket**.

#### 4.3.3. Locket Cloud operation cost

Based on previous high availability cloud services that MetroStar Systems has built, using an initial estimate of one thousand users and the proposed cloud architecture, the AWS environment will require two proxy servers, one web application server, and one database server. Using generous estimates in the [AWS Calculator](#), the monthly cost of operation is \$644.42. Therefore, the monthly cost per user is estimated to be \$0.65.

#### 4.3.4. Revenue

The consumer app will be free to download and use but will offer premium functionality as part of a subscription model. The free version will include non-intrusive ad banners along the top or bottom of the screen and have the following restrictions:

- No cloud syncing for saving their data in the cloud. They will still be able to upload and sync their data to a new medical provider
- One user profile only
- Connect to only two providers at a time. Users can still connect to new providers but can only have two active connections at a time.

For a low monthly subscription fee, the users will receive the following additional functionality:

- Cloud syncing for saving their data in the cloud in case they have multiple devices or transfer phones. Free users will still be able to upload and sync their data to a new provider.
- Multiple profiles (for keeping track of children and family)
- No ads
- Connect to unlimited providers simultaneously

From the free version, the rough industry estimates for mobile ad revenue is around \$0.09 per user based on ad impression and conversions assuming a 10% conversion rate. From the established figures of expenses and revenue, we propose a competitive price of \$7.99 as the initial subscription fee for **Locket** per month. Using an estimate of 20% user sign up conversion, for 1000 users, the monthly operation expense is \$650 and revenue is \$1,598 from the paid subscriptions + \$72 from free users = \$1670. This amounts to  $\$1670 - \$650 = \$1020$  in profit per month per thousand users. Based on the market of **Locket** being healthcare consumers in the United States, we will target 30,000 downloads per year across both iOS and Android platforms. Using a static growth model of 2,500 users per month for simplicity, **Locket** will break-even for initial development costs in 15 months and be profitable in 24 months.

#### 4.4. Engagement Plan

Our first marketing strategy is to create a great product, **Locket**, which is helpful and easy to use, with a great user-experience. MetroStar has a mature team for all stages of mobile development—user experience, graphic design, and cross-platform. To successfully reach critical mass, MetroStar plans to gain acceptance within several healthcare systems within a shared geographical range before scaling at a national level.

MetroStar's ability to launch financially successful technology products can be seen through the success of its subsidiary, [Zoomph](#). Zoomph was initially launched as a project within MetroStar to help the White House moderate a twitter question and answer session. The platform was successful enough to launch as its own company. Not only has the creation of the Zoomph product and company shown that MetroStar can create a valued product, MetroStar also has a marketing collaborator since Zoomph specializes in promoting products on social media. Although the initial investment was large, Zoomph is now both profitable and rapidly growing, two concepts that rarely come together in the hyper-competitive technology industry.

Before deployment, MetroStar will have targeted pilot tests. MetroStar's user experience philosophy is to test early and to test iteratively. The initial user tests will inform the design of the interface, the interactions, and the marketing strategies. Once **Locket** is developed internally and ready for deployment, it will continue to receive updates based upon the needs of healthcare consumers and health care staff. After introducing pilot groups to **Locket** and encouraging their use of the app, the pilot groups will expand via marketing campaigns at hospitals and medical providers who host the application.

The primary benefit that MetroStar can pitch to consumers and health systems is the time savings and control that comes with using the application. If a health system implements the app, patients do not need to fill out forms on paper and they can easily manage their appointments. MetroStar staff will contact healthcare institutions directly to arrange support of the application. The goal is to use the early adopters of the system to give feedback on the usability of the apps and to make them as easy to use as possible. After the early adoption phase, MetroStar will begin charging new health institutions to implement the software that allows for easy transfer of information to and from EHRs and the office management features like appointment scheduling, paper free check-in, and mobile bill pay. The base app will remain free to consumers to incentivize adoption while additional functionality will require a monthly fee for added value and sustainability.

MetroStar team has the talent and resources from a marketing and technical perspective to create a well-liked health product. Once the app overcomes “acceptance inertia”, MetroStar will be able to turn *Locket* into another project like Zoomph.

## **5.0. Provider Partnerships**

### **5.1. Sport and Spine Rehab**

Sport and Spine Rehab provides state of the art comprehensive care by combining chiropractic, physical therapy, rehabilitation and patient education to eliminate symptoms, restore full function and promote a healthy lifestyle. Their highly qualified doctors provide care to a wide range of patients for a variety of musculoskeletal conditions. They operate seven facilities in Virginia and Maryland.

Sport and Spine Rehab has provided a letter of intent to partner and collaborate with MetroStar to develop, design, test and integrate *Locket* and *Locket for Providers*.



Sport and Spine Rehab,  
10805 Hickory Ridge Rd,  
Suite 103,  
Columbia, MD 21044,

May 25<sup>th</sup>, 2016

MetroStar Systems,  
1856 Old Reston Avenue,  
Suite 100,  
Reston, VA 20194

Sport and Spine Rehab intends to partner with MetroStar Systems in the development of two mobile applications: one for healthcare consumers and another for healthcare providers. The partnership includes allowing MetroStar to request development and design feedback for both mobile applications and also to discuss the potential of integrating and testing the applications with Sport and Spine Rehab's electronic health record systems.

Sincerely,

Dr. Jay Greenstein

Digitally signed by Dr. Jay Greenstein  
DN: cn=Dr. Jay Greenstein, o=Sport and  
Spine Companies, ou=CEO,  
email=drjay@ssrehab.com, c=US  
Date: 2016.05.25 11:46:15 -0400

Jay Greenstein

CEO

drjay@ssrehab.com