

ZFyre Inc., Boulder, CO

"As an entrepreneur, I found that my product implementation with Rhoynar was the easiest part of my startup. I just had to explain my vision – and Rhoynar team would come up with mockups and prototypes and ask all relevant questions that I could have never thought about. This allowed me to focus my time on growing my startup business."

- Scott Hoot, CEO, ZFyre Inc., Boulder, CO

Business Challenges:

ZFyre Inc., is a Boulder, CO based startup providing Secure cloud based data storage, management and sharing platform for small businesses. ZFyre wanted to create its MVP product DataVault - which involved ZStd compression and custom enhanced AES Encryption algorithms allowing customers ease of use and a high degree of security.

Main challenges was to implement patent-pending Encryption and Compression algorithm by using ZStd open-source protocol for encryption and a 1024 bit AES encryption with a custom key management algorithm. Angular and Web2Py was used for web-framework development, whereas REST APIs were developed in NodeJS. Another aspect of the project involved integrating with RackSpace REST APIs for storage of compressed and encrypted file blocks.

Results:

Rhoynar was engaged in a 4 month project with ZFyre Inc., to develop all aspects of this MVP. We developed majority of the web-framework in Angular and Web2Py, the compression and encryption algorithms in Python and C. We also developed NodeJS based REST APIs and integrated with RackSpace storage block APIs.

After project completion, DataVault included multi-user authentication; encryption, storage and retrieval for files; role based management and setup portals for Organizations and end-users as well as training documents. One patent was filed for the efficient Key management and encryption algorithm including RSA and AES. Compliance testing was performed to ensure security meets the standards for Tier III Facility, HIPAA Compliance, PCI DSS Compliance, AICPA SOC Compliance and FINRA Compliance.

Project Details:

We started the ZFyre Project with few talks with the client to understand the requirements and come up with a plan of action. We understood that Security was a paramount concern for the client and we wanted to implement few new security algorithms for key management and compression/encryption. We studied the problem with our security team and came up with a implementation plan for this feature.

We also needed to implement several other pieces for this puzzle: web-framework portals for clients and organizations to log-in, API server to control access to information, RackSpace storage API integration etc. We divided the problem into each modules, came up with architecture for each module and milestones for each Sprint of different Epics.

- **Key Management and secure compression and encryption:** We used Python and C language to implement Secure Key Management and Compression/Encryption algorithms. We used Open-Source C-based ZStd compression code-base and invoked C calls from Python code using CTypes.
- **Web Portals for Customers and Organizations:** We developed web portals for Customers and Organizations that allowed role-based authentication. The portals themselves were dashboards where Organizations could share and manage files and folders and their employees could access them. Accessing files and folders was prototyped in a Similar fashion to Google Drive. Feedback responsive file-upload behavior, Mobile Responsive web-layout were few other highlights of this web application.
- **RackSpace Storage APIs integration:** The actual encrypted data blocks were stored and maintained on RackSpace block storage servers. To perform this, we integrated with RackSpace's storage APIs to store and retrieve file blocks.
- **Project Integration:** Integrate the web-framework with back-end algorithms for compression/ encryption.

Before:

- Product Idea

After:

- Compression and Encryption Algorithm Implementation in C and Python.
- Web Framework for File and Folder management (Role based)
- Backend RackSpace Server integration.

Technologies Used:



Our Guarantee:

At Rhoynar, we believe in providing honest and exemplary customer service to our clients. We understand that the client may have hesitations in employing any consulting company for any internal project. *Will the solution meet all our needs? Do they really have the expertise and experience in delivering this solution? What if it is not extensible and requires constant upkeep? Will adequate training be provided to our staff after the project is over? What if the technologies they use become obsolete? Will they consultant have enough expertise in the said domains?*

We are confident that you would be absolutely delighted by our experienced team: they will use the latest technologies and come up with a robust and extendible solution in record time. They will perform a graceful handover of the project with ample continuous training sessions, documents and specifications and training videos. Our team will respond immediately if there are any questions, issues or bugs found during and after the project.

Call us now for a free discussion on how we can assist you with your automation needs.

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