

## Cloud based Document Management System

### The Client

A cloud based document management system that provides B2B and B2C secure paperless storage solutions and other value added services. Founded in 2011, our client provides cloud based secure document management and collaborative solutions for businesses and private clients. The existing offering allowed digital storage by uploading documents from a device, inbox or digitizing paper documents.

### Objective

Poised to scale up business operations and attain high performance goals besides incorporating key and major enhancements to functionality, Congruent was given the opportunity to analyse the new requirements, redesign and develop a new solution from the ground up and deliver the Go Live product in line with client's strategy. Major enhancements included Encryption of uploaded documents, Digital Signature, Configurable Role based security, easy and secure document sharing, load requirements of at least 250,000 users and an average response time of less than 2 seconds.

### The challenges

The solution had to be scalable enough to handle large volumes in terms of users, documents and data and also in terms of high usage. It was necessary to build an application whose availability was high, had ease of scaling up and well as scaling out and with a high-performance quotient.

One of the other key criteria for success was an aggressive Go-Live deadline; Congruent was responsible for Visualizing a MVP from the overall requirements and meet a go live date within 7 months of kick off. We also needed to Migrate old clients of the legacy system to the new platform.

## The Solution

For performance and availability goals, Congruent proposed and helped implement a deployment architecture that would lend itself to high performance and availability, augmented by high performance servers which would meet the requirements for application speed. Technologies used include PHP Yii 2.0, Mongo DB with GridFS, Couchbase, Angular JS and HTML5 for Development, JMeter for Performance Testing and OWASP for Security Testing. To address the challenge of scheduling, Congruent identified the Minimum Viable version of the product with which the product could go Live on the new platform. This would have all the available functionalities of the legacy platform re-built on a scalable and more sustainable architectural foundation. This made sure that the new system was available to new clients and perfectly in line for migrating users of the legacy system at Go-Live.

Congruent adopted the iterative waterfall model to develop the application, and developed the front end and back end modules of the system. With a team of 8 members Congruent delivered the solution within the agreed schedule and met the performance and load requirements of the client with room to spare.

## Benefits

High Performance: at a peak crunch of 100 concurrent users, a static load of 700,000 documents and 250,000 accounts, the system delivered an average response time of less than 0.5 seconds. The average page load time between the legacy and new system was improved by approximately 67%.

- The new product has more configurable features in the Admin module,
- reducing support dependency on technical team(s)
- Enterprise grade security of documents and data
- Increased efficiency of system operation
- System runs on a load balancer which ensures that system performance does
- not get affected by increased concurrent usage
- Audit trail to track user activity

## Technology Used

Open source technologies have been used in developing the product. The tech stack is:

- User Interface: HTML5, CSS3, jQuery, AngularJS, etc.
- Coding Language: PHP
- Framework: Yii Version 2.0
- Database:
  - RDBMS: MySQL
  - NoSQL: Couchbase
- Document Store: MongoDB, GridFS
- Web & Application Server: Nginx
- Web Services: REST Web Services (APIs)
- Data transmission format: JSON
- Encryption algorithm: AES 256, Bcrypt
- Encoding algorithm: Base64
- Other integrations: DocuSign, Roundcube Mail, MS Office