InApp

CUSTOMER SUCCESS STORY

Hyphen Solutions, Inc

HYPHEN
SOLUTIONS

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HYPHEN SOLUTIONS

Technology Infrastructure

CLIENT

Hyphen Solutions
Texas - USA

FRONT END

React JS, Material UI, JavaScript, ASP.NET, MVC, Angular, ColdFusion

CUSTOMER BUSINESS

Residential Construction Management Software and Tools

MOBILE TECHNOLOGIES

Flutter, Xamarin, Objective C, and Java

ENGAGEMENT SINCE

August 2018

BACK END

.Net API, C#, NodeJS, Java MVC

APPLICATION DOMAIN

Construction Management Software

DATABASE

RDBMS (MSSQL, Postgres, MySQL & Oracle RDS), NoSQL- Dynamodb

CLOUD TECHNOLOGIES / SERVICES

 Amazon AWS

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About Hyphen Solutions

Hyphen Solutions has been providing industry-leading construction management software to Home Builders, Suppliers, and Manufacturers since 1999. By leveraging technology, Builders and Suppliers can focus on what they do best: deliver quality, customer satisfaction, safety, and continuous process improvements.

Hyphen has developed an array of products to support different business needs from ERP to payment processing and more.

Our Journey with Hyphen Solutions

Hyphen Solutions was seeking a dedicated offshore development partner to assist in application development and enhancement roadmap of their products. The initial engagement with Hyphen Solutions in 2018 was to port an existing iPad application to iPhone and Android phones.

Since Hyphen has an array of products with a diverse range of technologies, they encountered significant challenges in recruiting, retaining, and managing the necessary resources. In response, InApp proposed to function as an extended team or long-term partner for Hyphen, capable of flexibly adjusting to the client's needs. The advantages that led Hyphen to select InApp included cost-effectiveness, track record access to proficient talent, efficient project management, and scalability.

The partnership started with working on one product (BuildPro) which was built on hybrid technology using an older version of Angular-JS, prompting InApp to propose rewriting the application in hybrid technology, specifically Cordova, incorporating Angular 4 or later technologies. The team composition consisted of two developers for three months.

Upon completion of the project, the client was impressed with our project delivery and the quality of the product. This led Hyphen to increase engagement across the technologies over the years. We ramped up to a 51-member team during 2021-22 to meet the requirements of the client.

Currently, InApp is actively engaged in 11 projects for Hyphen, providing development and testing support for a total of 8 products. Currently, we have a 39-member dedicated team, including architects, BAs, developers, AI developers, and QA.

InApp offers Engineering services for Construction Management software built to optimize the way Home Builders, Suppliers, Distributors, and Manufacturers work together. The client specializes in creating technology solutions for the residential construction industry. Their software platforms help streamline and automate various processes such as scheduling, procurement, communication, and document management.

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Below are the 8 products for which InApp provides design, development, and testing services.

1 Homefront Application & Brix (.Net, SQL, Classic ASP) [Two different products]

HomeFront is a fully integrated home builder ERP software allowing home builders to manage the build processes in one easy-to-use system. The application is developed in .NET by a company acquired by Hyphen. The inApp team has been entrusted with feature enhancements and bug fixes. Brix is a residential construction ERP software that allows home builders to access the most efficient solutions available for any size and volume. Used in many home builds across the U.S. each year, BRIX lets you control job costing, purchasing, production, accounting and reporting all in one streamlined, cloud-based back-office solution. The technology is classic ASP and the InApp team is responsible for adding new features and enhancements.

2 BuildPro
   (Xamarin, NodeJS)

The scope of work is to develop the messaging system using AWS lambda functions for the SupplyPro applications using NodeJS.

With BuildPro Mobile, users can access project schedules, track material deliveries, and view real-time inventory levels. The app also provides tools for managing change orders, processing invoices, and tracking project budgets. BuildPro Mobile is available for both iOS and Android devices and can be downloaded from the App Store or Google Play.

3 SupplyPro GM

(Obj C, Android Java, ReactNative)

SupplyPro Native Mobile apps were earlier developed by a third-party company. The work is being transitioned to the InApp team, to develop enhancements for future releases. A React Native app will also be developed which will replace the Native apps in the future. With SupplyPro Mobile, users can view and edit purchase orders, track shipments, receive notifications for important events, and communicate with their partners in real-time. The app also allows users to access real-time inventory levels, providing greater visibility into their supply chain and enabling them to make better-informed decisions.

The SupplyPro GM - has the web version which is a cloud-based solution designed for residential subcontractors and suppliers, adding scheduling, inventory, billing, and a field app to elevate your current SupplyPro experience. Our clients also enjoy features like material fulfillment, equipment tracking by serial number, job tasks with custom forms and punch lists, and support for warranty and preventative maintenance jobs. Feature-rich and built for mobility, with real-time connection to your builders, SupplyPro GM sets the stage for increased productivity, profits, and client satisfaction.

4 BuilderGM

Home Builder products, is a cloud-based, all-in-one residential construction project management software and mobile app, with automated workflow functionality, from estimating and bidding through scheduling, to project closeout. The existing BuilderGM is developed in ColdFusion and InApp is revamping the whole application as a cloud application using NodeJS and React JS.

The mobile version uses NodeJS as the back-end and Flutter as the front end. With BuilderGM Mobile, users can access project schedules, track construction progress, manage change orders, and approve purchase orders and invoices. The app also allows users to communicate with subcontractors and suppliers and view real-time inventory levels.

5 **Hyphen CRM: Streamlining Sales and Marketing for Home Builders**

Hyphen CRM, Builders have never been more connected to Homebuyers and real estate agents. Automatically pull customer contact information from the website, create notes, send emails, log calls, and manage tasks in one place. Able to easily view and visualize the sales process and adapt it for new prospects, generate and manage marketing drip campaigns, and create specific personalized newsletters targeted at real estate agents and homebuyers.

This application is completely developed by InApp using NodeJS as the back end and reactJS as the front end.

6 **Hyphen Wallet: Payment Processing (Builders and Suppliers)**

Hyphen Wallet provides an advanced invoice and payment solution for Home Builders to pay their Suppliers, Trades, and Vendors. Hyphen Wallet automates accounts payables for Builders with its innovative payment solution.

Hyphen Wallet provides quick and easy electronic payments to Suppliers, Contractors, and Trades from their Builder customers. Suppliers now have a choice of how and when they get paid, and as a result, increase their cash flow visibility, and minimize their back-office support staff and manual reconciliation.

InApp is responsible for developing the UI/UX for this product in addition to the back-end changes -Node JS and front-end -ReactMaterial UI.

7 Hyphen Homesight

Chameleon Power is a subsidiary of Hyphen Solutions Ltd. They create/produce visualization technology that offers an interactive virtual experience that sells efficiently, effectively, and quickly to buyers to the point of purchase. Using Chameleon's industry-leading virtual design software, their customers now have the power to design their dream home using options and selections with ease, expediting the home-buying process. Customers will be able to see their selections come to life in real-time, creating excitement and eliminating some of the stress during the process. InApp was responsible for helping customize and develop frontend presentation and visualization of the Chameleon product demo pages for various customers using HTML/CSS and JavaScript.

In addition, InApp is also helping the R&D department of Chameleon to create perspective clues for different images using AI services which will enhance the visualization effect to the end user.

The biggest advantage of all the products is that Hyphen uses SaaS Plus ERP.

Builders, contractors, and suppliers often use several programs to run their businesses: estimating, document management, scheduling, accounting, human resources, CAD/BIM, materials tracking, etc. Even if each piece of software is cloud-based, they don't always integrate or communicate with each other. Because of this, coordinating the various pieces of information in each takes some troublesome juggling.

Hyphen Solutions delivers another type of software. It uses a common platform to integrate all the systems. Its goal is to provide full concept-to-completion functionality and allow access to all team members through a single platform or single solution. Hyphen's solutions for the home building industry combine the benefits of SaaS and ERP.

InApp's collaboration with Hyphen to become a product and domain expert

Below is the process that helped me gain expertise
in the Hyphen product.

Knowledge Transition:

- Initial Onsite Assessment: Our Business Analyst (BA) and CDH conducted an initial on-site visit to comprehensively grasp the Hyphen product, its services, and the industry domain. A detailed document was meticulously prepared to outline key features, functionalities, and technologies across all Hyphen products. Additionally, specific challenges and requirements were identified during this assessment.

- System Requirement Specification: Following discussions with Subject Matter Experts (SMEs) and product owners, a system requirement specification was meticulously crafted for each production.

- Code Walkthrough: Detailed functional breakdowns were conducted, leveraging our study of products, and comprehensive code analyses were performed to understand the workflow. Code walkthroughs were specifically requested for critical and complex areas.

- Documentation: Drawing from the insights gained in the initial assessment and subsequent steps, thorough documentation was compiled and consistently maintained as a living document.

Reverse Knowledge Transition:

- Showcase of Understanding: Utilizing the documentation and walkthroughs, we present our comprehension of both the product and domain knowledge to the Hyphen team. This approach allows us to address any assumptions or gaps effectively during meetings, ensuring clarity and alignment.

Values provide by InApp to Hyphen beyond Development and Testing services

InApp's focus extended beyond merely developing the requested features for Hyphen, as we aimed to enhance the overall business value. Here are the key highlights:

- InApp was selected as the partner to conceive and develop new products from inception, including Hyphen CRM, Wallet, and BuildPro mobile applications.

- InApp developers collaborate closely with Hyphen product owners, subject matter experts (SMEs), developers, and architects to foster synergy and become chosen partners for the last 6 years.

- The collaboration between InApp and Hyphen has not only improved the overall efficiency of Hyphen products but also provided businesses with reliable, secure, and scalable solutions.

- InApp's contributions have strengthened Hyphen's position as the top residential construction management software in the US.

- As the technology partner, InApp's Chief Technology Officer (CTO) is involved in vetting any significant technological changes.

- Presently, InApp serves as an extended team for Hyphen, comprising developers, testers, UI/UX experts, and architects.

- All construction products undergo meticulous design processes, adhere to coding standards, and undergo thorough reviews to ensure user-friendliness, cross-platform compatibility, and high-quality standards for end-users.

- We implemented a mandatory process requiring the creation of Swagger documents for all APIs.

- Deployment for all applications/products is carried out through Continuous Integration/-Continuous Deployment (CI/CD) pipelines, ensuring automatic deployment processes.

Challenges and Mitigation

Challenges	Mitigation
Main revenue-generating products run on legacy technology and databases.	• Conducting a technology assessment to identify the impact of older technology on business objectives, is done with the help of InApp's Technology Management Team (TMO) • Develop a phased plan for modernization or migration to newer technology stacks and cloud-based solutions.
No single point of truth due to multiple products and integration of these products for builders, and suppliers were challenging	• Implement Microservices architecture for seamless integration, this is being done by creating a backbone API structure called SP connect. • Ensure standardized APIs and protocols for communication between different systems. • InApp builds a data analytics team to analyze data and derive actionable insights.
Lack of cost optimization / Review of existing architecture	• Conduct regular architecture reviews to identify opportunities for optimization and cost reduction.

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InApp internal Process that helped to improve code quality and meeting scheduled

Mandatory Project delivery process that is maintained in all 11 projects	
Communications	• Sprint Planning & Module Kick-off call, a planning meeting is done during the start of every sprint, and estimation is done. We use the Hyphen Azure DevOps to capture all documents, user stories, tasks, and sub-tasks. • Weekly /Daily Project Status calls • The weekly status report is sent to Hyphen product owners and the risks & support required are highlighted • Retrospective Meeting & Monthly Sprint Report • Feedback calls for continuous improvement before the release. • Periodic Management Review Meetings with the head of builder, suppliers, and payment verticals.
Quality	• Design reviews are done by the InApp technology management office (TMO) in case of any major technology change. • Automated & Manual code review • Functional & Non-Functional Testing
Knowledge Sharing	• Requirement - Business workflows, activity diagrams, mockups, use cases. • Design -Technical design & Integration plan • Code - Coding standards, well-commented code • Release - Walkthrough of the Sprint features.

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Project artifacts maintained	• SRS (System requirement specification)
	• Design Document
	• Test Plan, Test Cases, Test Reports & Release Note
	• User Manual / Help Document

The internal support group periodically audits and reviews whether the project deliverables meet the quality. Below are the support groups in InApp's delivery process.

- Software Engineering Process Group (SEPG)-Assess the organizational capability and develop plans to implement needed improvements.

- Technology Management Office (TMO)-Help in reviewing the design selection process, reviewing design & code, and conducting technology training

- Project Management Office (PMO)- Support project managers/leads and conduct training

- Software Quality Assurance (SQA)- Conduct process audits, analyze project metrics, and conduct process-oriented training.

These teams help internally to maintain high standards for the below project indicators.

Project Indicator	Measure	Review process
On Effort, On Time, Low Defects	Successful delivery of milestones/project on time, within cost and no defects	• Project leads/managers closely review the process/ release to maintain high quality and release • Project overview & project review biweekly by CDH of account • SQA review of projects done monthly • Bi weekly review with COO
Excellence in Architecture and Design	Right Design, incorporating Performance and Scalability	• Monthly audit of code to ensure best practices are followed • Design review/audit by TMO
High Code Quality	Technical Debt Ratio within the benchmark	• Technical Debt is done for every release(Automated code review) • TMO code review • RCA of bugs
Managed Risks	Handling unknowns that may impact the success of the project	• Periodic review by CDH and COO

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