



A SaaS APPLICATION ON TEXT MESSAGING SOLUTIONS – A ColdFusion Case Study

Executive Summary:

A 100% open rate, 98% read rate and 90% response rate is an enviable figure where digital communication is considered. If you haven't guessed it already the above statistics are for text messages. The proliferation of mobile phones all over the world (it is already 100% in the USA) has led to many brands opting to include text messaging into their digital marketing strategy. Yet another statistics states that 43% of mobile advertisements prompted brand recall. These statistics confirm the fact that messages delivered via mobile text advertising are more personal and timelier than any other advertising medium. The reach of mobile text advertising is even more owing to the ubiquity of mobile phones as a constant companion in our lives.

And this is precisely our client's business plan. Developing a SaaS application on text messaging solutions that would help various advertisers effectively reach their target audience with personal messages in a timely manner was the top most priority for them. Additionally this would also help build a consumer database which could be analyzed further and contacted accordingly. As a software services provider they wanted to leverage on the software technologies readily available to communicate better with the target market.



Apparently when the client contacted Mindfire, they had already been through a negative experience with the previous software vendor. However, the partnership with Mindfire proved to be a fruitful one and now we are the primary software services provider for the client. They have also expressed interest in Mindfire's services when they would want to customize the platform, white label the product and aggressively market it to other domains.

About the Client:

Client: Mobile Messaging Services Provider

Industry: Marketing and Advertising

Location: USA

Technologies Used:

ColdFusion10, SQL Server 2008, Bootstrap, ChartJS, BaseCamp, jUnit



Business Situation:

Our client wanted to stay competitive in the Text Messaging Services Industry that has a significant share in the Marketing and Advertising campaigns in USA and elsewhere in the world. However, when they approached Mindfire Solutions their Code was not in the best condition and they had to restart the servers on a daily basis and there were times when the messaging broadcast would fail randomly.

In this scenario, Mindfire had its task cut and proceeded with a modular approach giving more weightage to the more pressing issues first.

The Mindfire Solution:

The primary customers of our client were Advertisers who can get distributed Shortcode or they can own a Shortcode. The Advertiser can set up campaigns for Restaurants, Comedy Clubs, College, Real Estate etc. They can also set Zip Code location processing for a scheduled Broadcast. The main purpose of the Campaigns was to give real time notifications to a user about an offer going on, Coupons & information about the Advertiser's shop location primarily through Broadcasts or through Response Messages. The Advertisers also get access to the subscribers' Name, DOB (date of birth), email, Zip etc. which helps them to provide the best services.

At Mindfire Solutions, we analyzed the code base which had flaws and did code optimization in every corner of the application. Our developers wrote approximately 75 stored procedures which had a capacity to give 5 to 7 resultsets. We used Bootstrap, ChartJS for Admin dashboard without dependencies on the Base CSS. Most of the queries were replaced by the stored procedures so that Database hit was managed. The performance of the application improved considerably without having the client to restart or suffer from a system hanging up while broadcasting.

We faced a challenge for new API integration without support from Service providers. Our developers worked on a new API for the client which in turn enabled the Advertiser to send test to N numbers, N different messages in one to one relation. This API was set up using CF Scheduled services and Caching query result. The Stats, Growth, Summary Reports, Messages Logs and Advertiser Dashboard were set up so Advertisers and Our Client have a clear picture on Application and Campaigns. Surprise Redemption Code campaign was set up with having 2 way communications with Advertiser's application, which went on for several months with success.

Fetching DOB data collection from Subscriber for giving special offers on birthdays was set up, by using a list of Regular Expressions to accept any format. The data was achieved with 80% success. A robust structure was established for setting up the campaigns so that the Advertiser can limit the number of outgoing messages, collect the data and send emails in real time. New Mail Chimp, Custom JSON API was set for sending real time data to Advertisers. Our developers also converted HTTP to SMPP protocol because the providers had a lot to change on their side. The application stopped after successful transfer of the Shortcodes. We also applied every New CTIA changes for sending of Messages to Subscribers.

The application had a unique pass-thru facility to the Advertisers which notifies them as soon as they get Subscriptions or any information for Campaigns. The various tracking reports were installed to get the Subscribers List, Growth of Subscribers, Stats given by subscriber and Summary Report for getting



response messages that went out from Application for Subscriber messages. The application also had few API Listeners open so that the Advertiser can send messages without logging in or can manage broadcast at their end. Base camp was used for Bug tracking and jUnit tool was used by client end for testing.

Architecture Diagram:

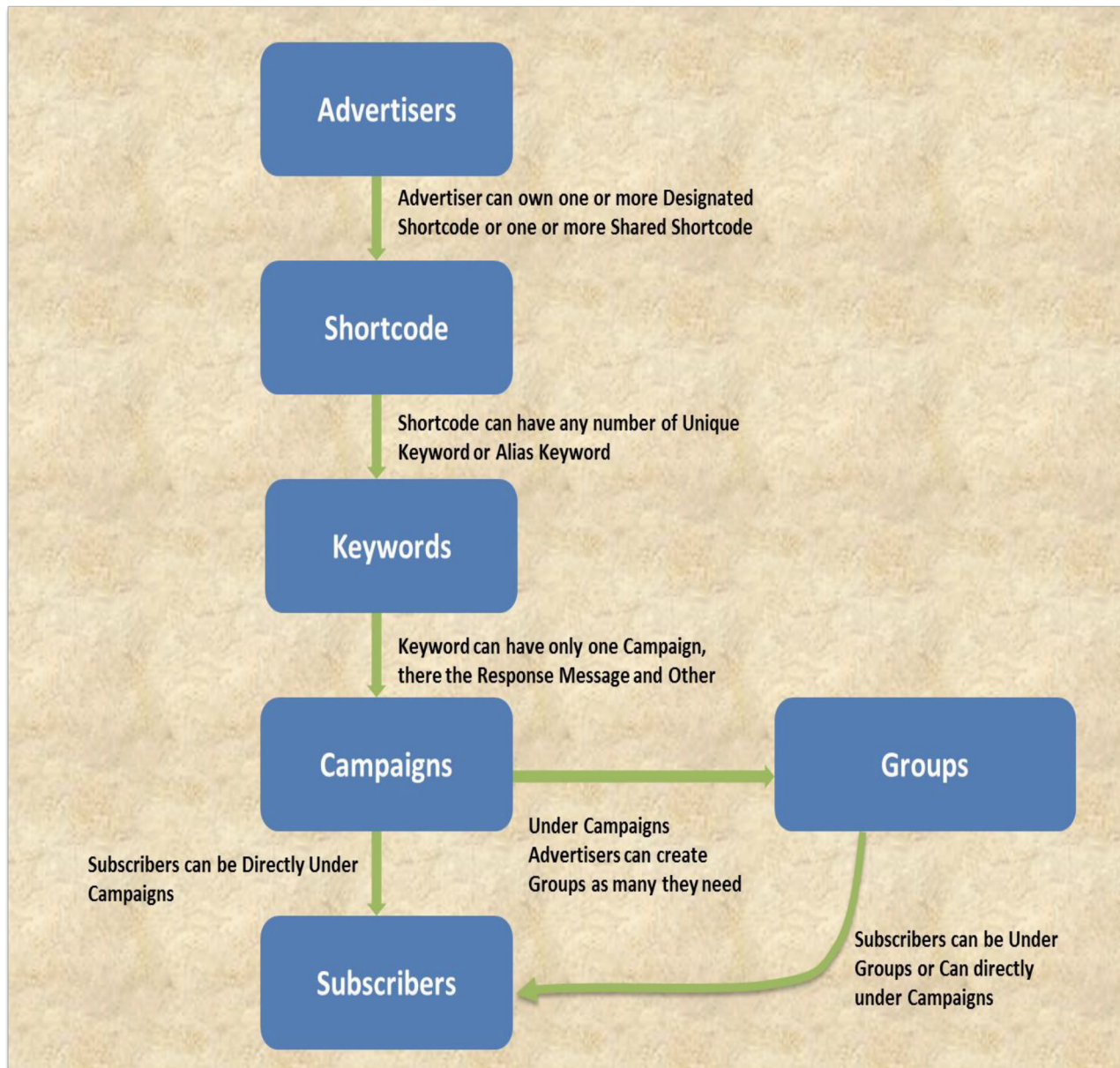


Fig 1: The above figure shows the architecture diagram of the Text Messaging Solution



How the System works?

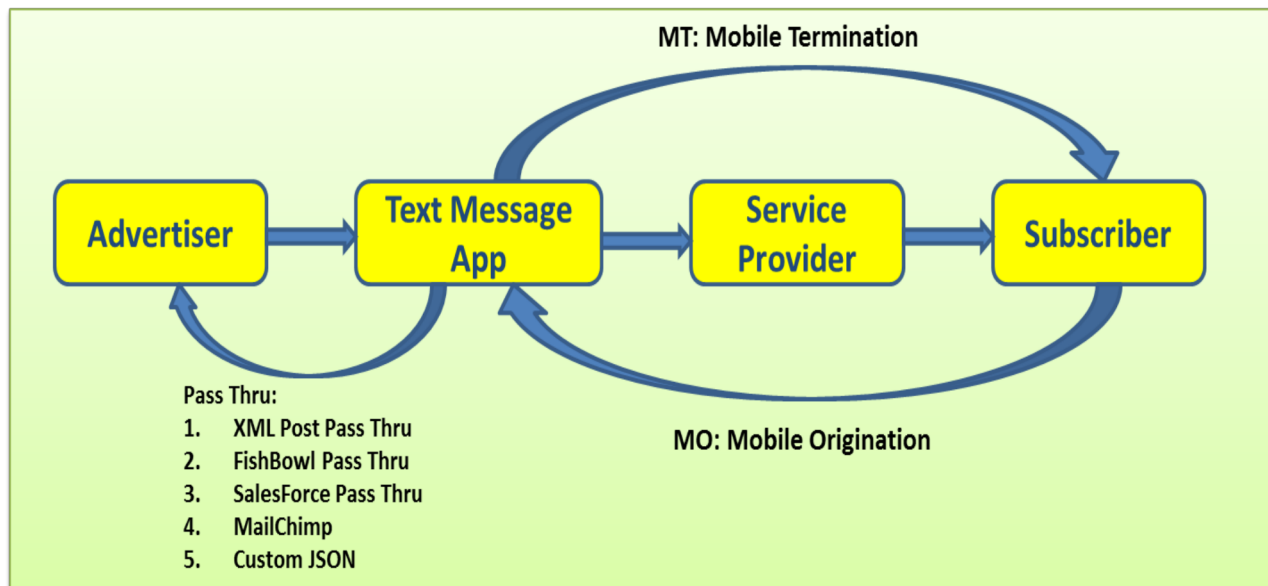


Fig 2: The above figure shows the WorkFlow image of the Text Messaging Solution

There were 3 processes which worked behind the application:

1. **MO(Mobile Origination):** Here the Messages is received by Subscribers. The message is processed and marked valid or invalid
2. **MT(Mobile Termination):** Here the Message Response from Application to Subscribers and Broadcast set by Advertisers were handled.
3. **Pass Thru:** There were many kinds of Pass Thru in the Application. These are used to indicate the Advertisers in Real time about data received.

Screenshots:

Following are some of the screenshots of various sections of the application:

Screenshot 1: User Dashboard
signifying the various metrics of the subscriber base





Active Short Codes Database: Edit Code

[Return to List](#)

Code: 10936

Site: [dropdown]

Owner: [dropdown]

☐ Make this short code searchable by website users.

Gateway: [dropdown]

Max Message Length: 160

Account Name (M365 only): [text]

Password (M365 only): [text]

Login Base 64 (M365 only): [text]

☐ Enable pass-thru processing for non-keyword traffic on this short code.

Pass-Thru URL: [text]

Username: [text]

Password: [text]

☐ Enable pass-thru acknowledgements

☐ Enable numeric blob processing

System Messages

Opt-In: [text]

Variable Quick-reference

[campaignDesc]: U will rcv [services] [frequency] 134 / 160*

[campaignDesc]: U will rcv [services]. [frequency] 134 / 160*

[frequency]: NoPurchaseRqd.

End: txt STOP. Help: txt HELP.

Msg&DataRatesMayApply

Screenshot 2: Short code database for a particular Advertiser

Screenshot 3: Message Log for the outbound messages and their corresponding status.

Message Log

Group: [dropdown] Short Code: [dropdown] Source: [dropdown] Status: [dropdown]

Start Date: [dropdown] / [dropdown] / [dropdown] End Date: [dropdown] / [dropdown] / [dropdown]

Start Time: [dropdown] : [dropdown] : [dropdown] (am/pm) End Time: [dropdown] : [dropdown] : [dropdown] (am/pm)

[Click here to clear the message log.](#)

CSC	Source	Destination	Message	Rcv Time	Snd Time	Status
68247	[text]	[text]	[text]	09/13/2015 9:25:01 PM	09/13/2015 9:25:01 PM	Texted Invalid
68247	[text]	[text]	[text]	09/13/2015 9:24:46 PM	09/13/2015 9:24:46 PM	Texted Invalid
68247	[text]	[text]	[text]	09/13/2015 9:24:43 PM	09/13/2015 9:24:43 PM	Texted Invalid
68247	[text]	[text]	[text]	09/13/2015 9:24:14 PM	09/13/2015 9:24:14 PM	Texted Invalid
68247	[text]	[text]	[text]	09/13/2015 9:18:02 PM	09/13/2015 9:18:03 PM	Texted Invalid
68247	[text]	[text]	[text]	09/13/2015 9:17:22 PM	09/13/2015 9:17:22 PM	Texted Invalid
68247	[text]	[text]	[text]	09/13/2015 9:06:48 PM	09/13/2015 9:06:49 PM	Texted Invalid
68247	[text]	[text]	[text]	09/13/2015 9:06:48 PM	09/13/2015 9:06:49 PM	Texted Invalid

Keywords Database: Edit a Keyword

[Back to List](#)

Basic Setup

Keyword: 1

Aliases: [text]

Subscriber: [dropdown]

Campaign Description: [text]

Service Description: shipment confirmation

Short Code: [dropdown]

Service Type: Basic TXTPak

Purchase Date: 8 / 15 / 2015

Expiration Date: 12 / 31 / 2015

Send Text Messages Via: Standard Text Message

Support Contact: [text]

Support Email: [text]

Support URL: [text]

Support Phone: [text]

Custom HELP Message: [text]

☐ For Marketing

☐ Send emails on remote broadcasts

☐ Use hyphenated tokenization

☒ Suppress CTIA PI

☐ Enable zip location lookup

☒ Exclude from texted system menus

☐ Exclude HELP and STOP messages from Sending Out

☐ Response Override for API Subscriptions

Screenshot 4: Keywords Database to increase effectiveness of the text messaging campaigns.



Future Relationship:

This has been one of our long running projects and each year the client was satisfied with the work done at Mindfire Solutions. They have also referred the services of Mindfire Solutions to their peers and that has been a rewarding experience. Not only have we added more clients but we also get to work on various platforms to meet the needs of the client and their customers.

We are also the primary software services provider to the client who is planning to white label the product as sell it to other organizations across industries.

Developer Speak:

"It was an awesome opportunity to work on this application. Needless to say, the learning curve never diminished. The challenges were a learning experience as huge real time issues were solved with CF and SQL."

- Ramakrishna Panni



Founded in 1999, Mindfire Solutions is an award-winning provider of software development and testing services to the global market with 650+ talented software engineers at 3 centers in India. For its people and its work, Mindfire has won coveted international awards such as Deloitte Technology Fast50 India Award 2013 and 2014, Dun & Bradstreet Fastest Growing SME 2013 Award, Red Herring Top 100 Asia Award and Zinnov GSPR 2014. Mindfire has been recognized with ISO 9001:2008 and ISO 27001:2005 certification, is a continuous member of NASSCOM, and has established a strong track record of 2000+ projects successfully delivered for 500+ technology clients.

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Need help to create a text messaging solution? Reach out to us here:

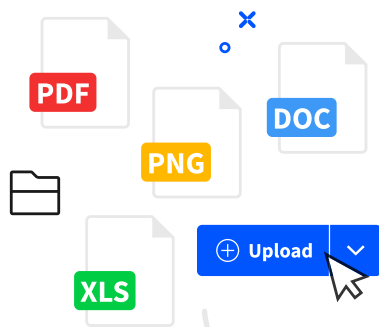
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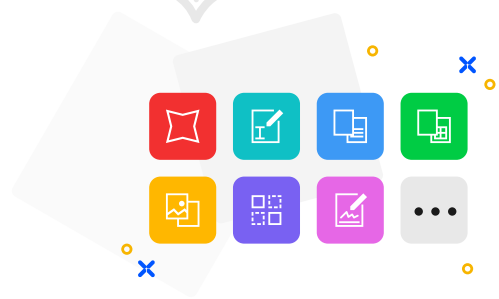
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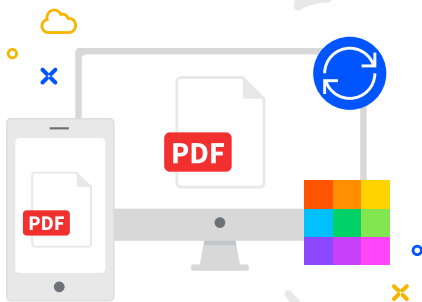
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