

Responder: Notification Acknowledgement Android Phone Application

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KBRwyle/Global Precipitation Measurement (GPM)

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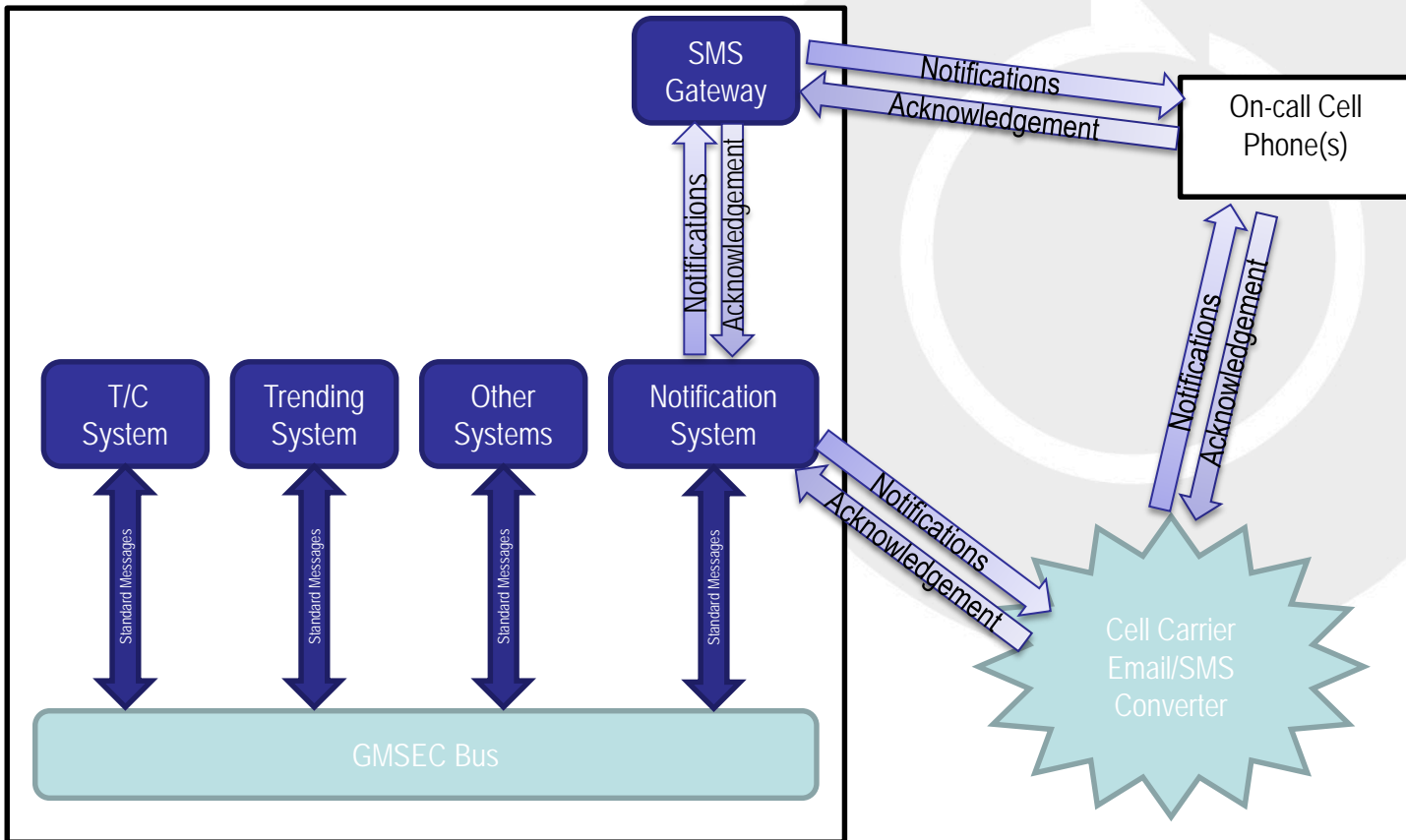
Marseille, France

Notification Acknowledgement Android Phone Application

- Background
 - GPM uses an email and text based notification system for sending messages and alerts about spacecraft and ground system health
 - Standard phone messaging applications provided a bad and difficult experience for viewing and responding to messages
 - A phone based application was wanted to give a better, simpler, and faster viewing and responding experience

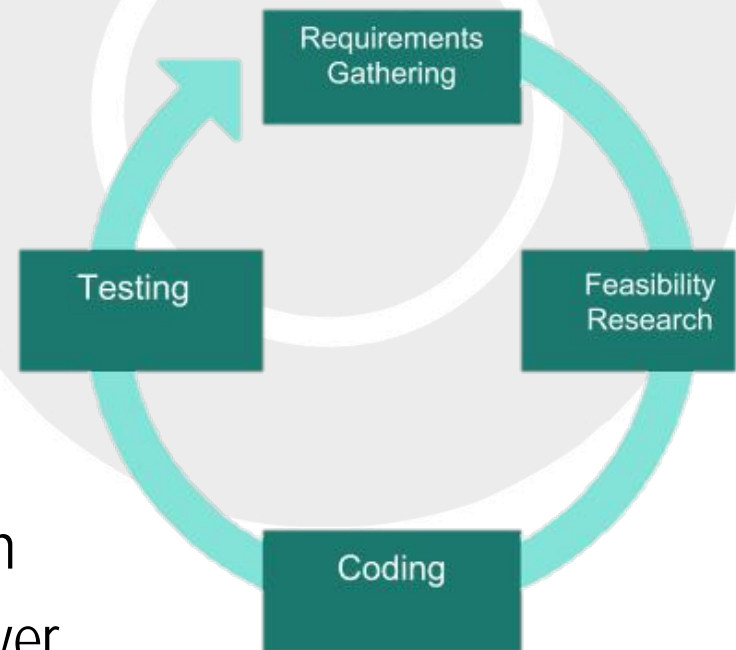
Notification Acknowledgement Android Phone Application

- Example of GPM's Notification System



Notification Acknowledgement Android Phone Application

- Design and Development Plan
 - Iterative and Cyclical Approach
 - Requirements Gathering
 - Feasibility Research
 - Coding
 - Testing
 - Agile Design methodology
 - Short development time
 - Informal planning and design
 - Focus on working product over documentation

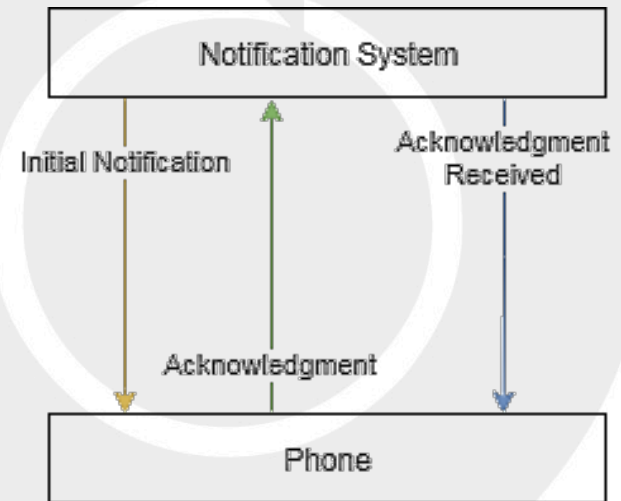


Notification Acknowledgement Android Phone Application

- Objectives
 - Create a simple way of responding to GPM's notification system
 - Show the status of a notification message in its lifecycle
 - Make the job for the on-call personnel easier

Notification Acknowledgement Android Phone Application

- Notification Lifecycle
 1. Message Generated
 2. Message Sent
 3. Acknowledged
 - Notifications escalate up a call tree if not acknowledged
 4. Acknowledged Received Sent
 - Notification ends once it has been acknowledged



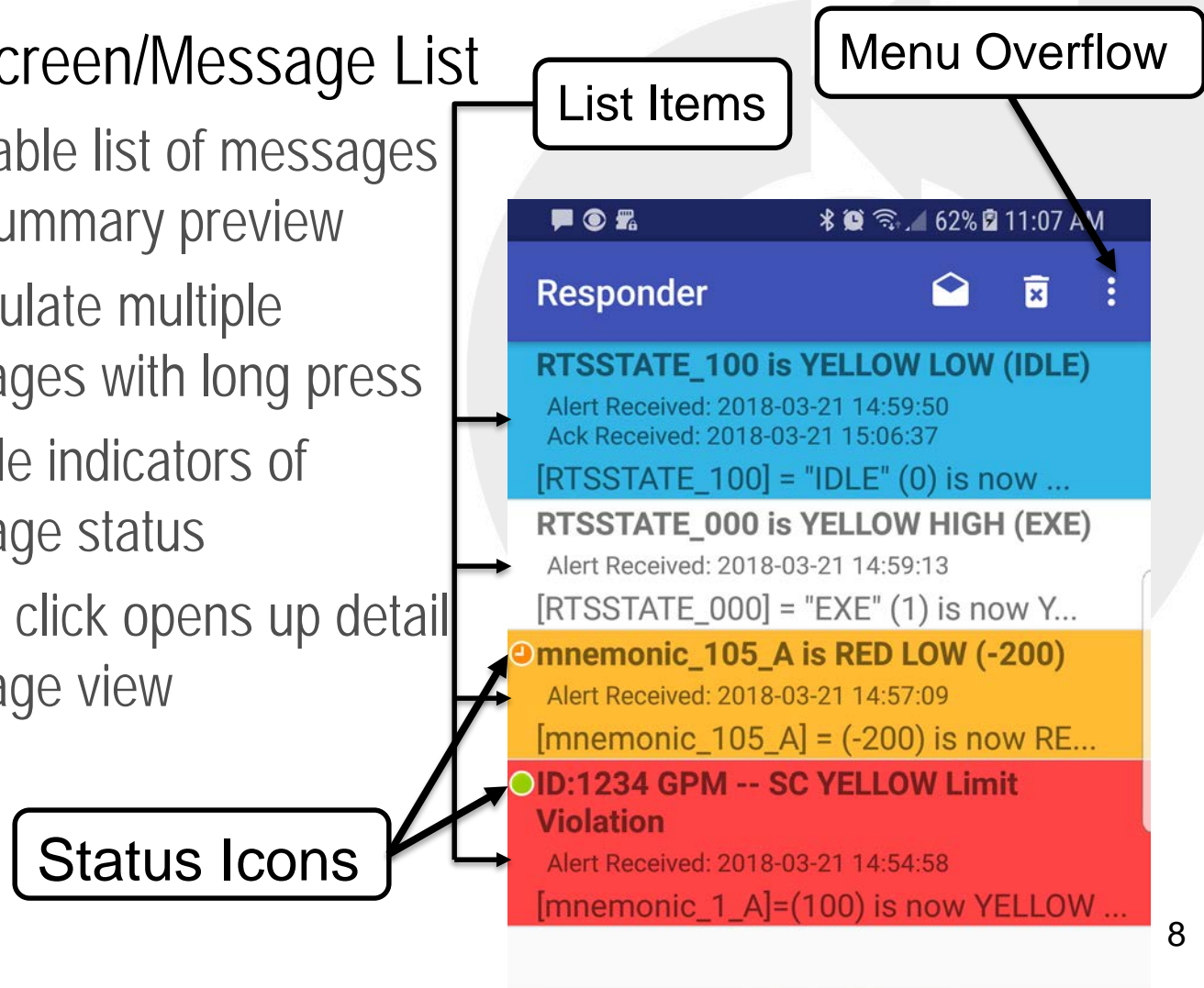
Notification Acknowledgement Android Phone Application

- Simple Intuitive User Interface
 - Navigation and interactive response similar to standard email/messaging applications
 - Easy manipulation of multiple messages at once
 - Quick and simple acknowledgments
 - Effectively displays different information about multiple messages

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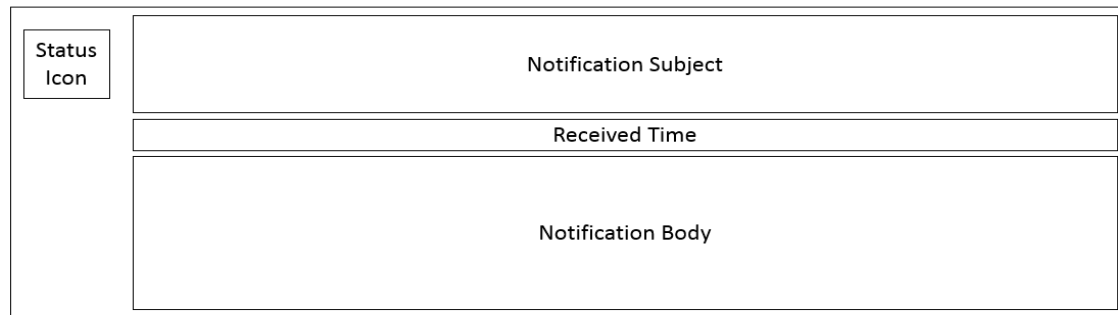
- Home Screen/Message List

- Scrollable list of messages with summary preview
- Manipulate multiple messages with long press
- Multiple indicators of message status
- Single click opens up detail message view





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- Message List Item Design
 - State of the message is shown via icons and background colors



a) Message List Item

Status Icon	Description
	New message
	Acknowledgement sent

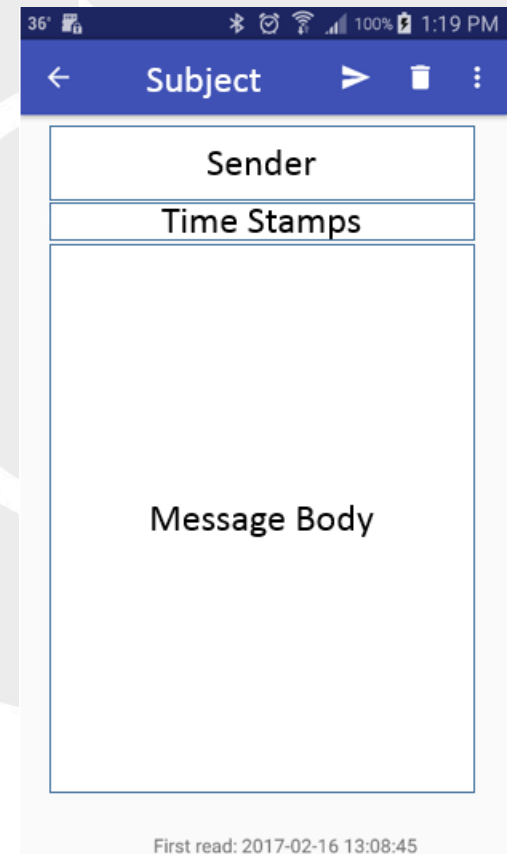
b) Status Icon Key

Background	Description
	First message received
	Second message received
	Third message received
	Acknowledgement received

c) Background Color Key

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- Detail Message View
 - Navigate here by single press on list item
 - Shows the full message as it was received
 - Shows where the message came from
 - Shows when the message was received

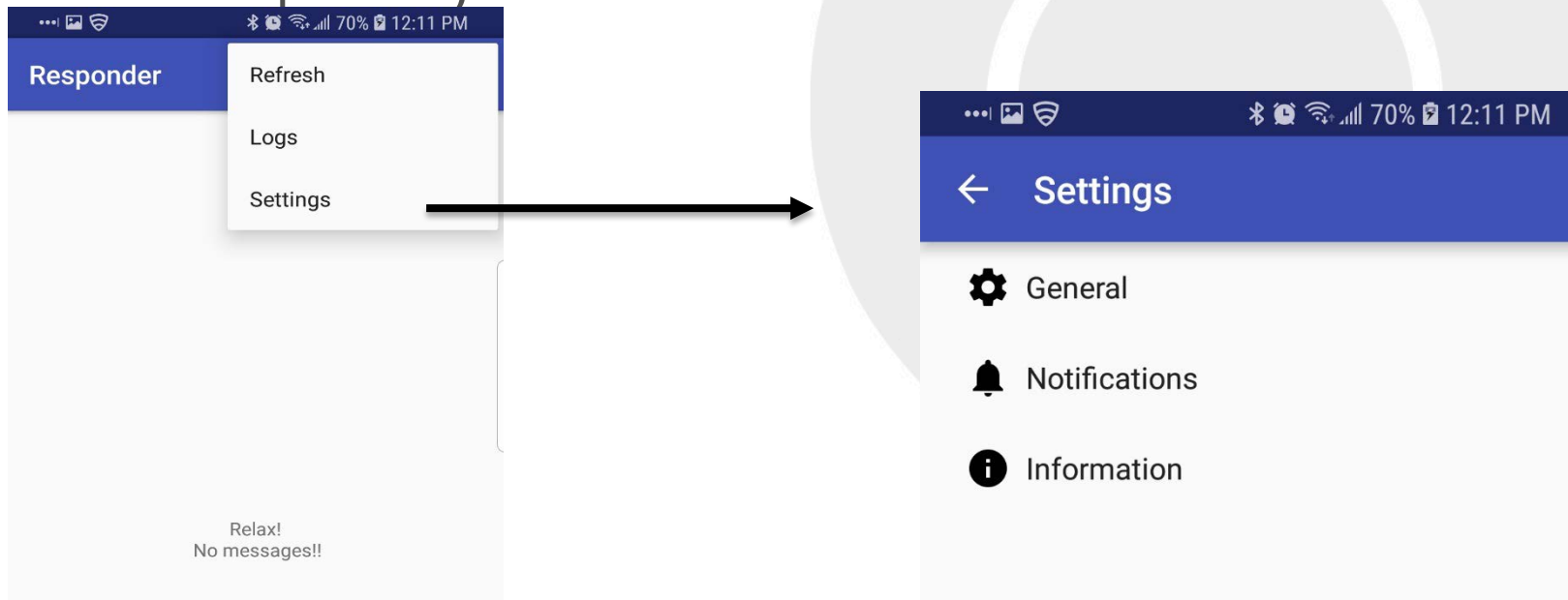


Notification Acknowledgement Android Phone Application

- Configurable and Flexible
 - Client side configuration makes it easy to change notification architecture
 - Receive and process messages from different senders
 - Receive messages from different notification groups
 - Change phone notification settings based on type of message and/or state of the message

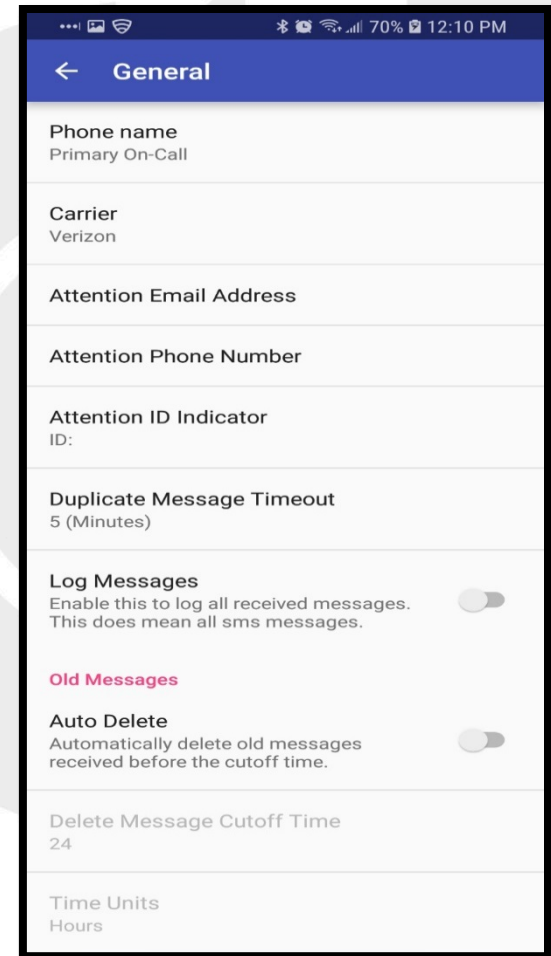
Notification Acknowledgement Android Phone Application

- Configuration
 - User based settings allow for flexibility and adaptability to different notification architectures



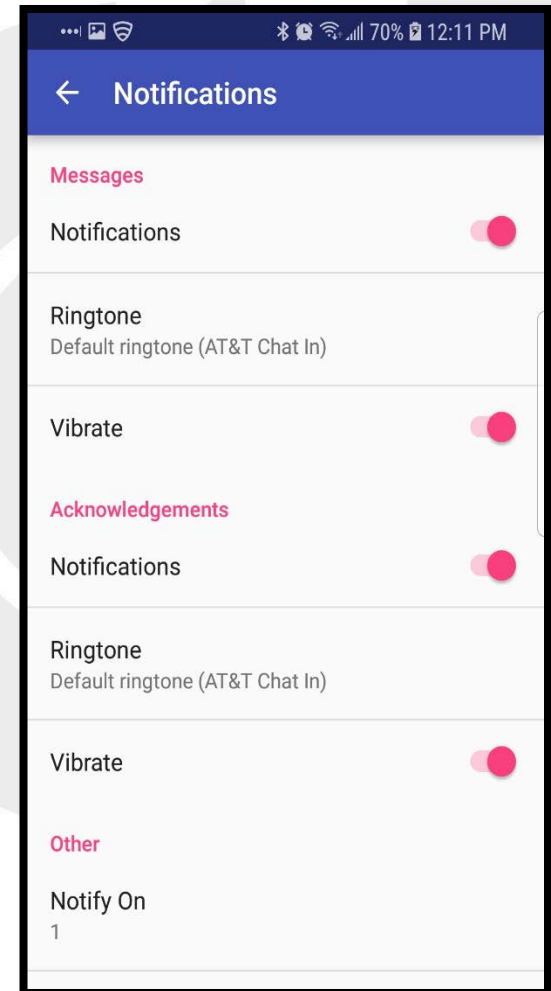
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- General Settings
 - Configure message filter for different phone numbers or email addresses
 - Configure for different ID indicators
 - Configure Auto Delete function
 - Turn logging on or off



Notification Acknowledgement Android Phone Application

- Notification Settings
 - Turn on or off phone notifications
 - Set different sounds for Notification messages vs Acknowledgement Received messages
 - Choose which level of the call tree triggers a phone notification



Notification Acknowledgement Android Phone Application

- Notification Architectures (Client Side)
 - Responder settings allow for configuration to occur on the User/Client not just the Server side
 - Multiple clients can have different configurations to assure the correct person is being notified

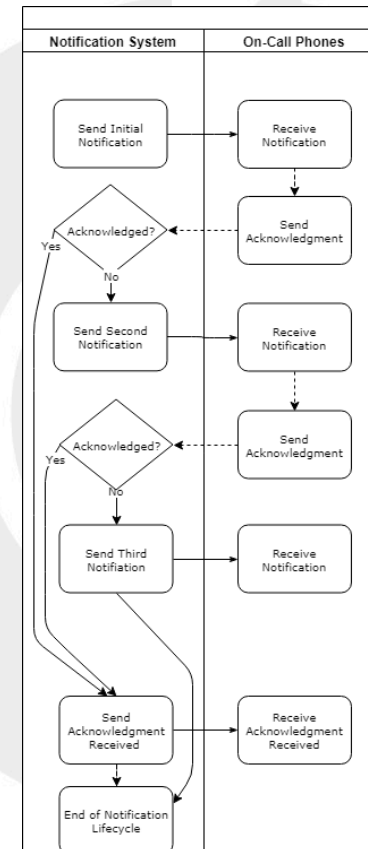
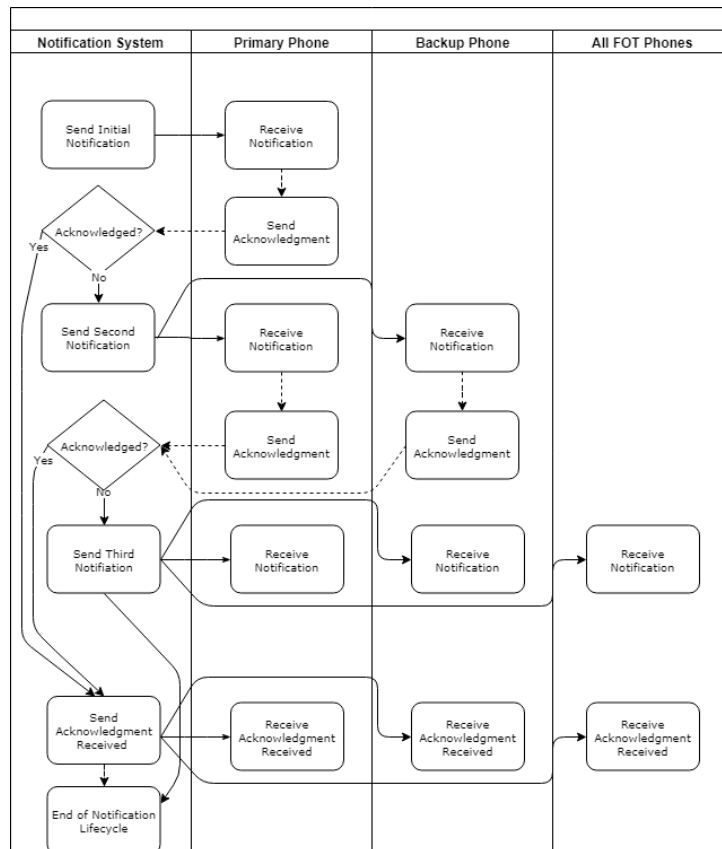
Multi-client Configuration			
Client	Alerts	Ack Received	Notify After
Primary	On	On	1
Backup	On	Off	2
Everyone Else	On	Off	3

Notification Acknowledgement Android Phone Application

- Notification Architecture (Server Side)
 - Simplified call tree configuration with Responder
 - Less need to make changes to server side rules for changes in notification architecture
 - Can send all notifications and all acknowledgement received to all phones and let user decide when and how to get notified.

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Complex Server Configuration



Simple Server Configuration

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- Future work
 - Ability to upload configuration file to quicken setup after install or update
 - Add a Library section for viewing and searching fault or error codes



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