

# Comcast Research Readout

## Field Service Reimagined (research, design, build support)

2015-2018+



E L I M I N A T I N G   T H E   F R U S T R A T I O N





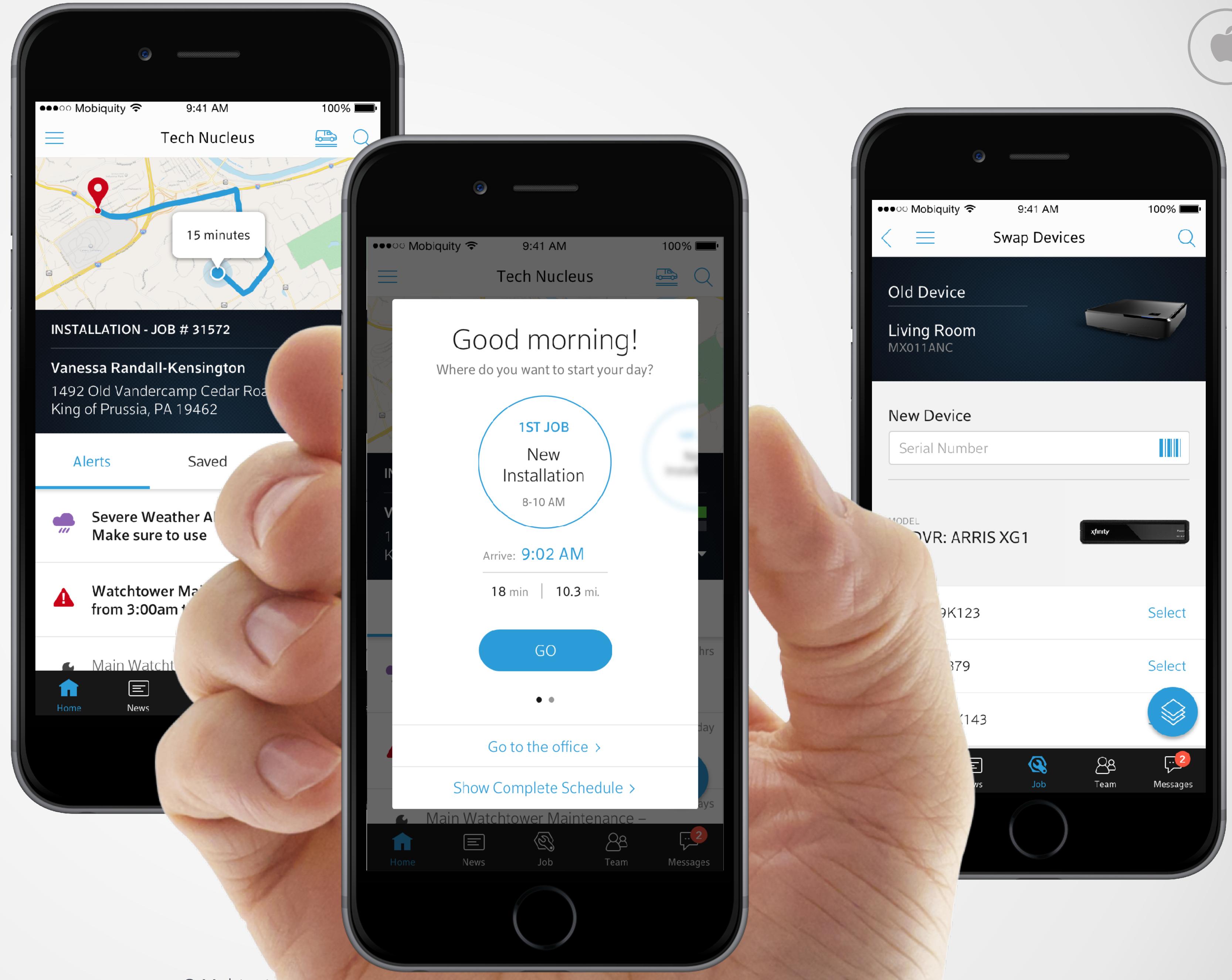
# The Driver

## *Field Technician Experience*

- ▶ Eliminate distractions
- ▶ Provide freedom to focus on customer issues
- ▶ Identify process changes

## *Solution Offerings Used*

- ▶ Box 0
- ▶ Design & Build
- ▶ DBI
- ▶ Support
- ▶ Delta iQ

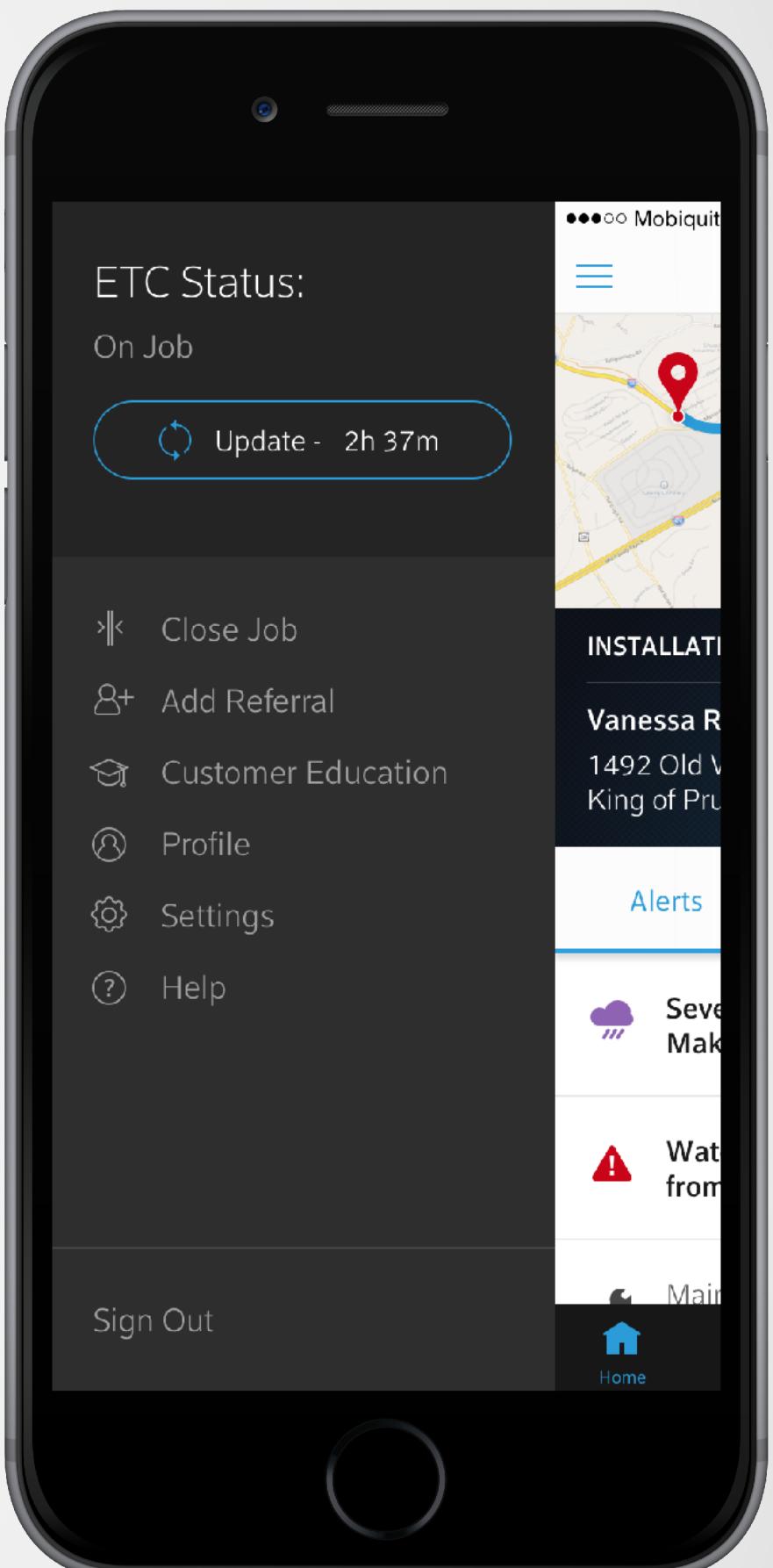
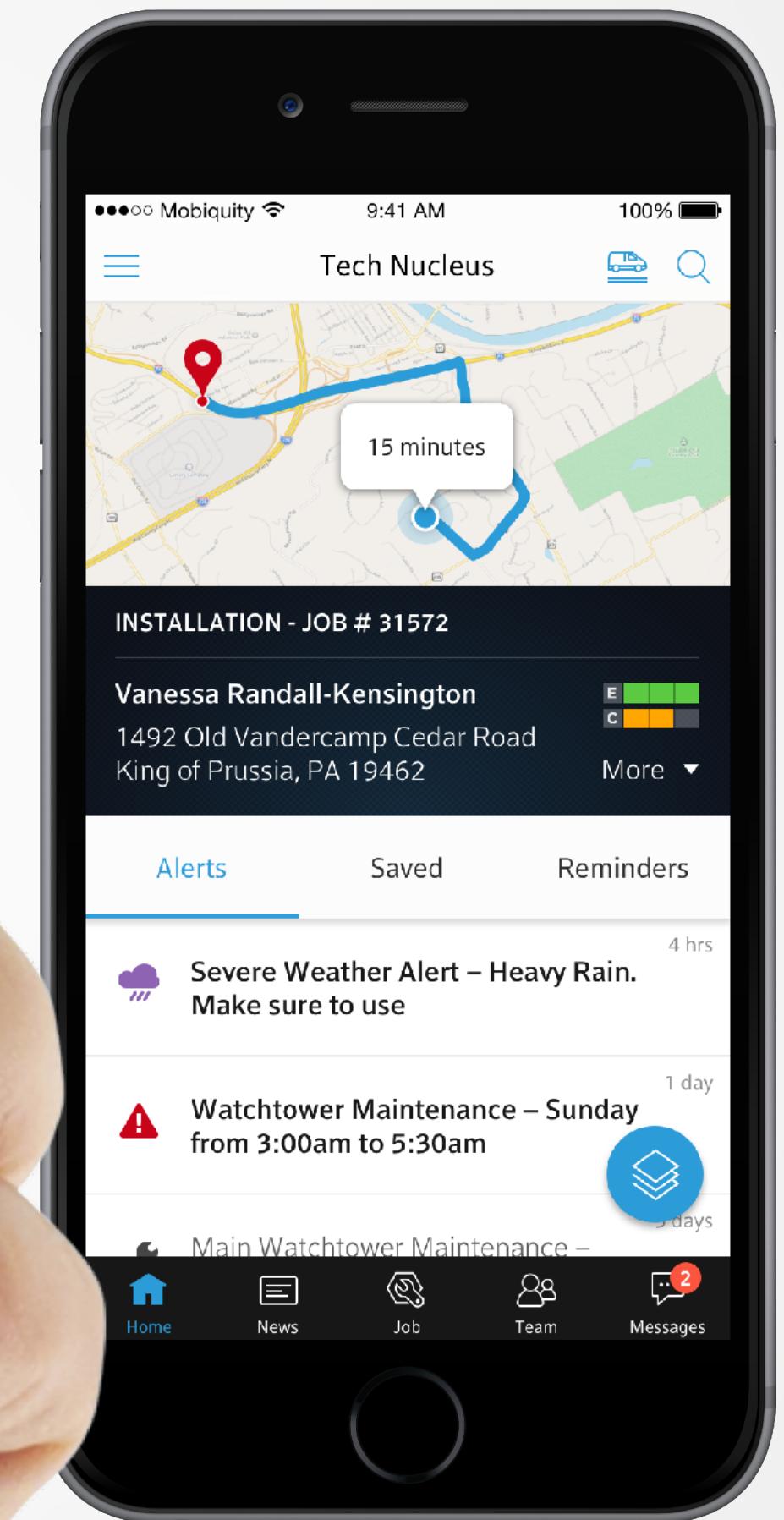
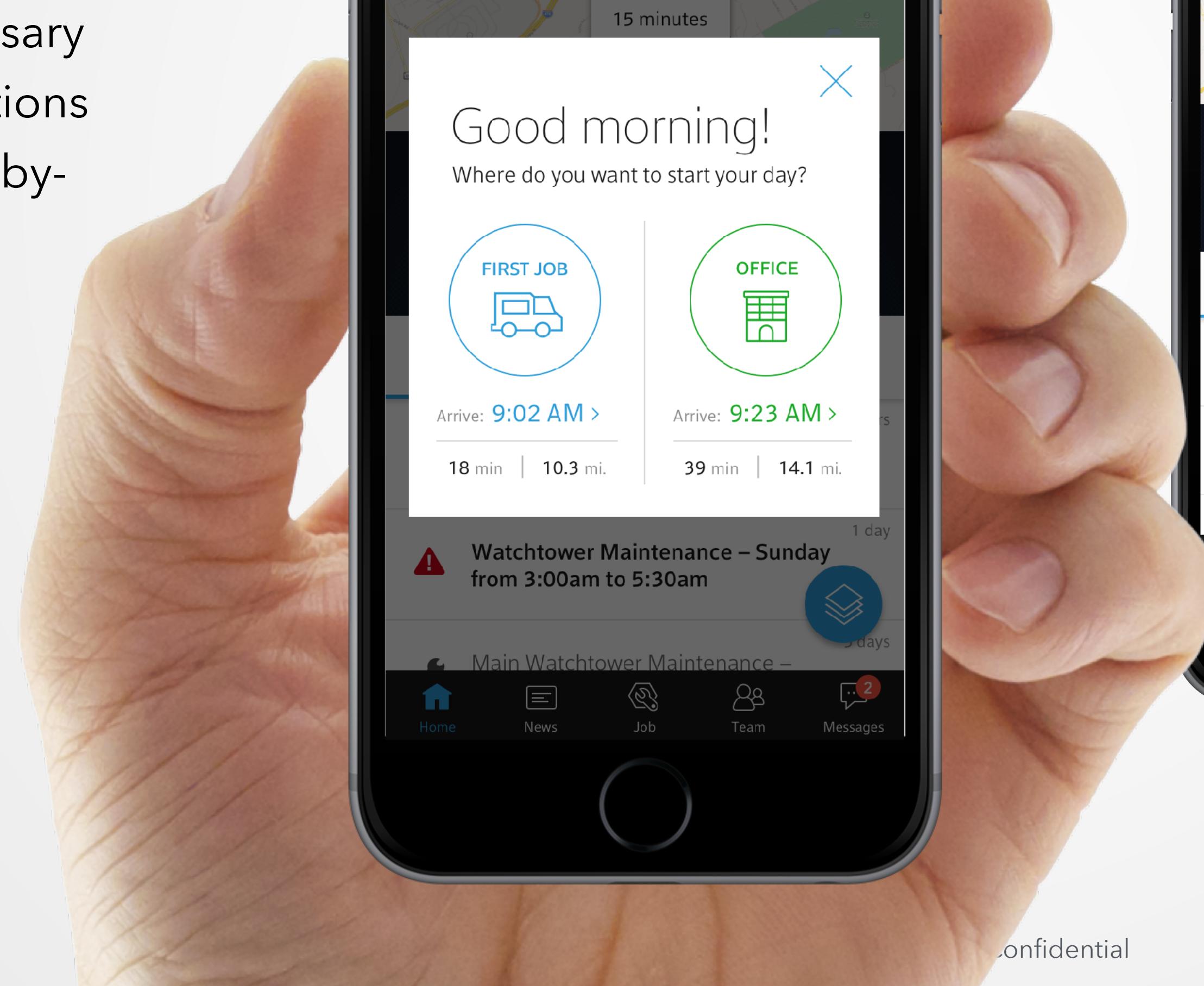




# The Schedule

## *Optimized for Technicians*

- ▶ Eliminate unnecessary technician interactions
- ▶ Provide clear turn-by-turn directions
- ▶ Improved job completion estimates lead to more accurate scheduling

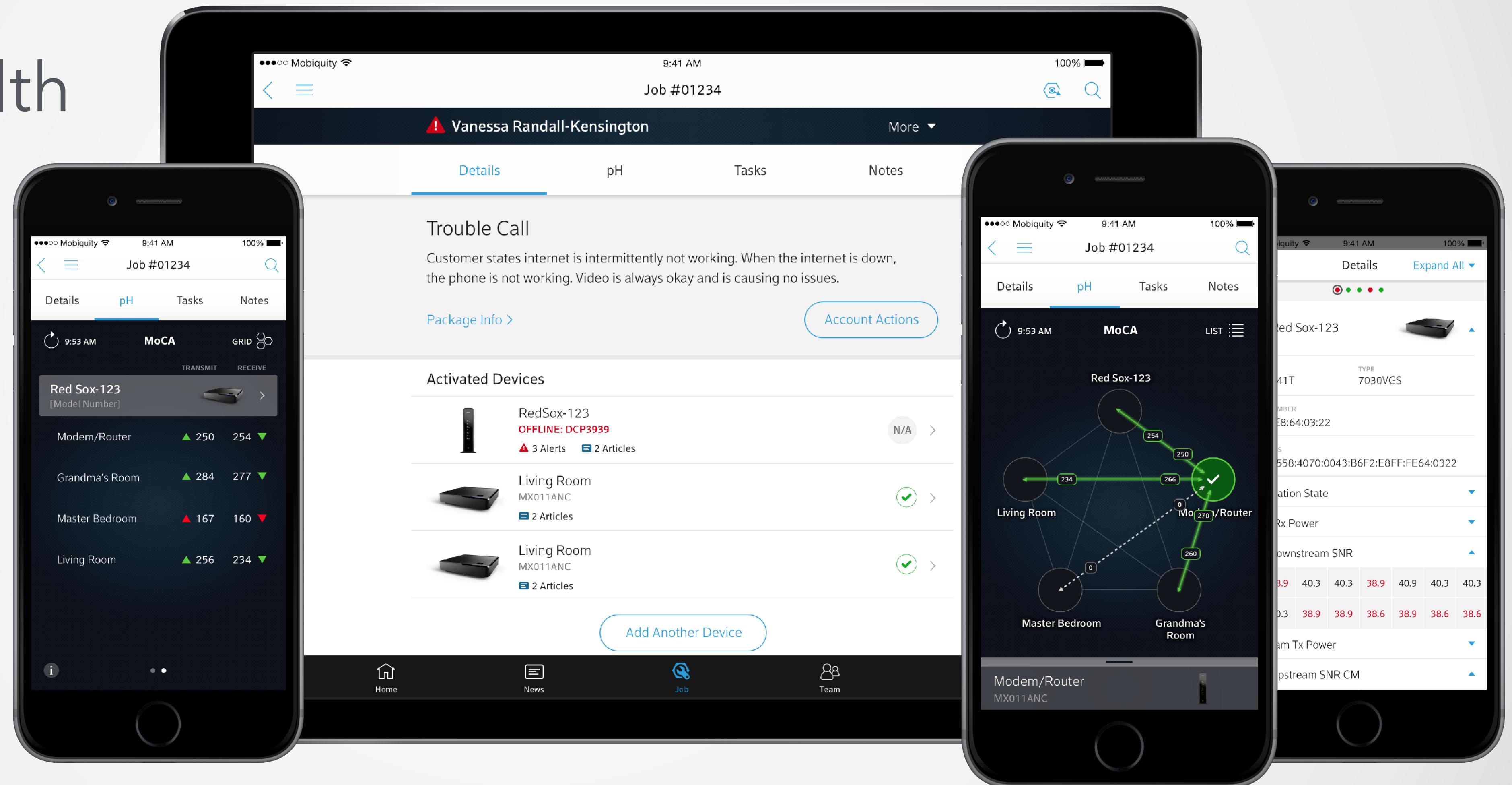




# Network Health

## Homes & Businesses

- ▶ High-level awareness
- ▶ Quickly tap to drill-down into details
- ▶ Integrated for device-level actions (restart, refresh, send hit, etc.)





COMCAST

# Tech Nucleus

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*Research and User Experience Design*

# TIMELINE



# THE WHAT: PRODUCT OVERVIEW

	WFA	Premise Health	Triage	Analytics & Content
MVP	<ul style="list-style-type: none"> <li>• Job Statuses</li> <li>• Customer Details</li> <li>• GeoFencing</li> <li>• Job Allotment</li> <li>• Task Messaging</li> <li>• EPC Product Mapping</li> <li>• Inventory Management</li> <li>• GPS Routing</li> <li>• ETA</li> </ul>	<ul style="list-style-type: none"> <li>• DOCSIS/ Rolling History</li> <li>• MoCA</li> <li>• Node/WatchTower</li> <li>• Alerts</li> <li>• Outages</li> <li>• Visualization</li> </ul>	<ul style="list-style-type: none"> <li>• Device Hits/Queues</li> <li>• Firmware Update – X1</li> <li>• Notes (read)</li> <li>• Customer History / Timeline</li> <li>• Task Tracking</li> <li>• Wrap-Up</li> <li>• Customer Ed/G'Bye</li> </ul>	<ul style="list-style-type: none"> <li>• Product Content Authoring</li> <li>• Alerts &amp; News</li> <li>• <b>Logging</b></li> <li>• Security/Identity</li> <li>• User Roles</li> <li>• NT Login mapping</li> <li>• Supervisor View</li> <li>• Production Support</li> </ul>
Future	<ul style="list-style-type: none"> <li>• Change Pending Order</li> <li>• Up-sell</li> <li>• Tech-to-Tech Inventory Swap</li> <li>• XH DocuSign</li> <li>• Activation (CHSI/CDV)</li> <li>• Activation - XH</li> <li>• Proactive Device Swap/EOL</li> </ul>	<ul style="list-style-type: none"> <li>• XH Device Diagnostics</li> <li>• Wifi Analyzer</li> <li>• COAM Device Wifi Health</li> <li>• X1 Known Issue</li> <li>• PowerCloud</li> <li>• Spectra</li> </ul>	<ul style="list-style-type: none"> <li>• LOB Repair</li> <li>• Business Services Repair</li> <li>• Drop Bury</li> <li>• RTM</li> <li>• Notes – Write</li> <li>• Audible Customer History</li> <li>• FTTP Support</li> </ul>	<ul style="list-style-type: none"> <li>• Time In Motion</li> <li>• XH License Access</li> <li>• Maintenance View</li> <li>• Tech Forum</li> </ul>

# WHY WE'RE DOING THIS...



# Stakeholder Interviews

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# Stakeholder Interviews

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**10**

visits to Comcast  
corporate

**1**

visit to  
call center

**+19 HRS**

of audio and  
video

**8**

in-person  
interviews

**17**

phone  
interviews

**4**

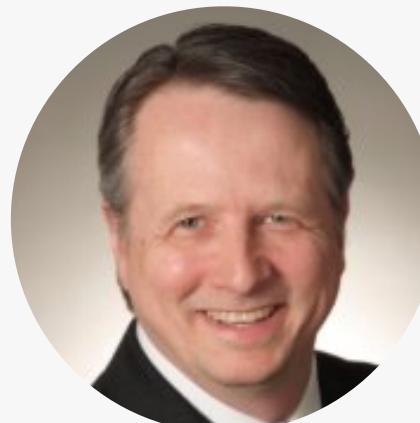
follow-up  
interviews

**6**

demos &  
showcases

**31**

**Events**



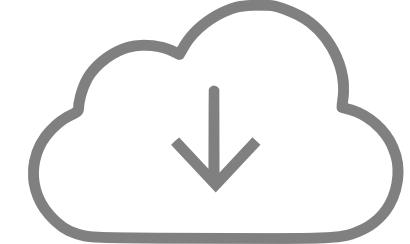
# Work Orders: Issues

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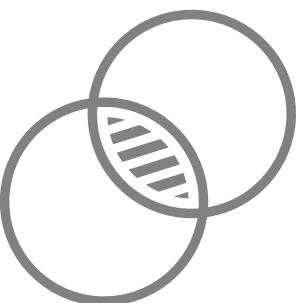
## Job Overview

Disorganized details  
Cryptic rate codes  
Inaccuracy



## Cloud Notes

Lack of context  
No historical perspective



## Biller Details

No transparency  
Lack of integration  
Uneducated customer



## Support Calls

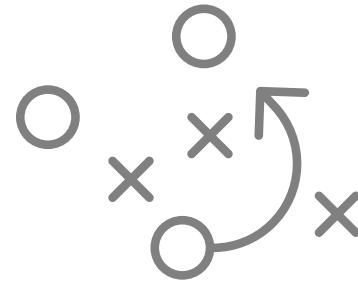
Frequent need to call for assistance  
Techs not empowered



***Chad Carloss***  
*on unified notes*

# Work Orders: Ideas

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Front Line  
Offense/Defense

First impressions

Confidence

Accurate inventory



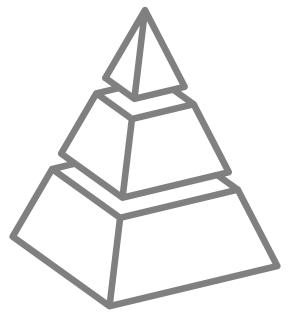
Measure

Better estimates

Improved ETAs

Optimized schedule

# Communications: Issues



## Lack of Structure

Communications lack categorization  
Information priority



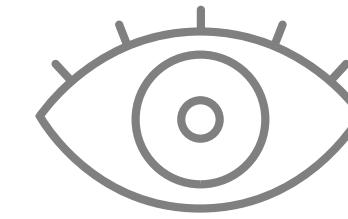
## Improper Cadence

Too frequent  
Too Many  
Irrelevant



## No Context

Article discoverability  
Un-targeted communications  
Unreliable results



## Consumption

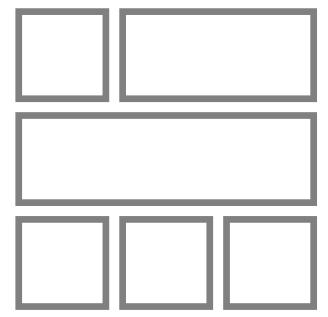
Medium doesn't match audience  
Lots of content / Little time  
No accountability



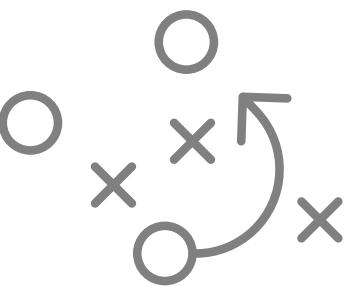
**Bruce Byorkman**  
on Tech Talk cadence

# Communications: Ideas

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Smart Content



Front Line  
Offense/Defense



Measure

Contextual

Less screen time

Auditing

Organization

Informed assessment

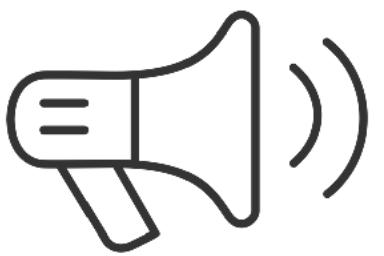
Compliance

Classification

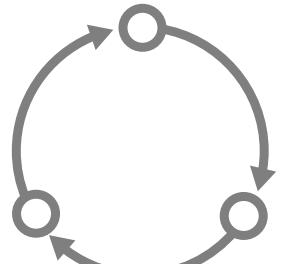
Crowd-sourcing

Media

# Transparency: Issues



Awareness



Continuity



Summary

Arrival

Techs near me

Job/tech status

Inventory availability

Job information

Problem-solving

Process

What was done

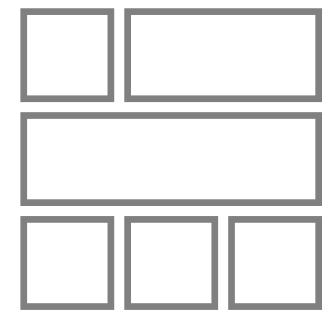
Sign off

Education



**Heather McLay**  
*on inventory issues*

# Transparency: Ideas



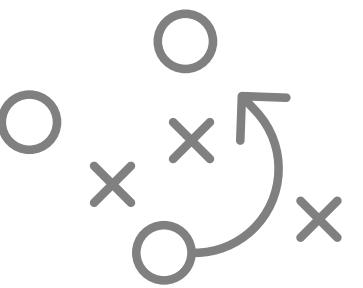
## Smart Content

Article ratings

Proximity-based  
inventory

Tech map

Smarter dispatch



## Front Line Offense/Defense

Complete Notes

Customer temp

Triggers

Leveraging sat. scores

Burnout mitigation



## Lift

Leaderboards

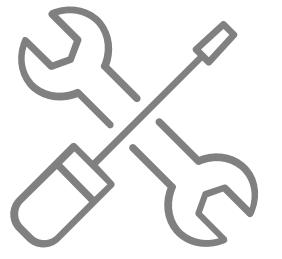
Yearly roll-ups

Badges

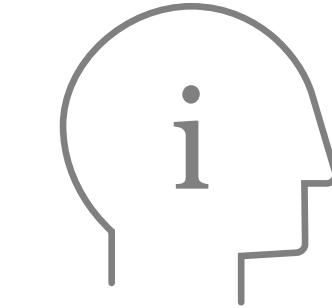
Awards

# Education: Issues

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Tech



Customer

Classroom training

Too generalized

Message cadence

Self-directed

Localized

Feature-set awareness

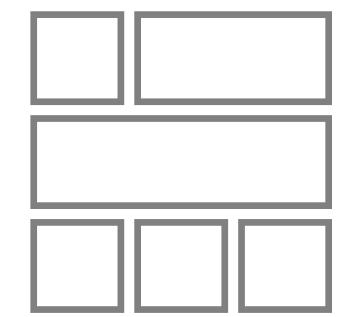
Organization/search



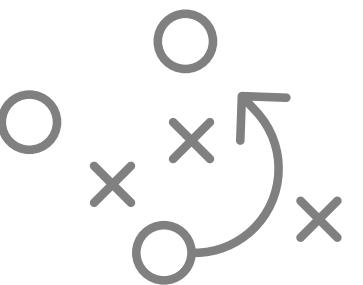
**Chad Carloss**  
*on customer education*

# Education: Ideas

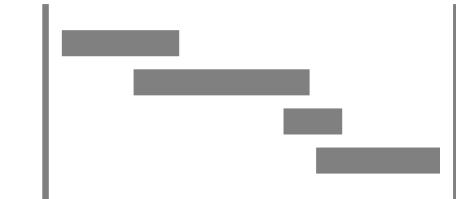
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Smart Content



Front Line  
Offense/Defense



Measure

Contextual scripts

Relevant articles

Intra-day training

Push, not pull

Multi-channel

Personalized

Triggers

Auditing

Compliance

# Truck Rolls

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# By the Numbers

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84  
Truck Rolls

3  
Divisions

70+  
Hours of Video

8  
Researchers

8  
Regions

1000's  
of Notes

20  
Man Days

9  
Locations

100's  
of Photos

# Context Matters

En Route



Outside



Watchtower



Processing

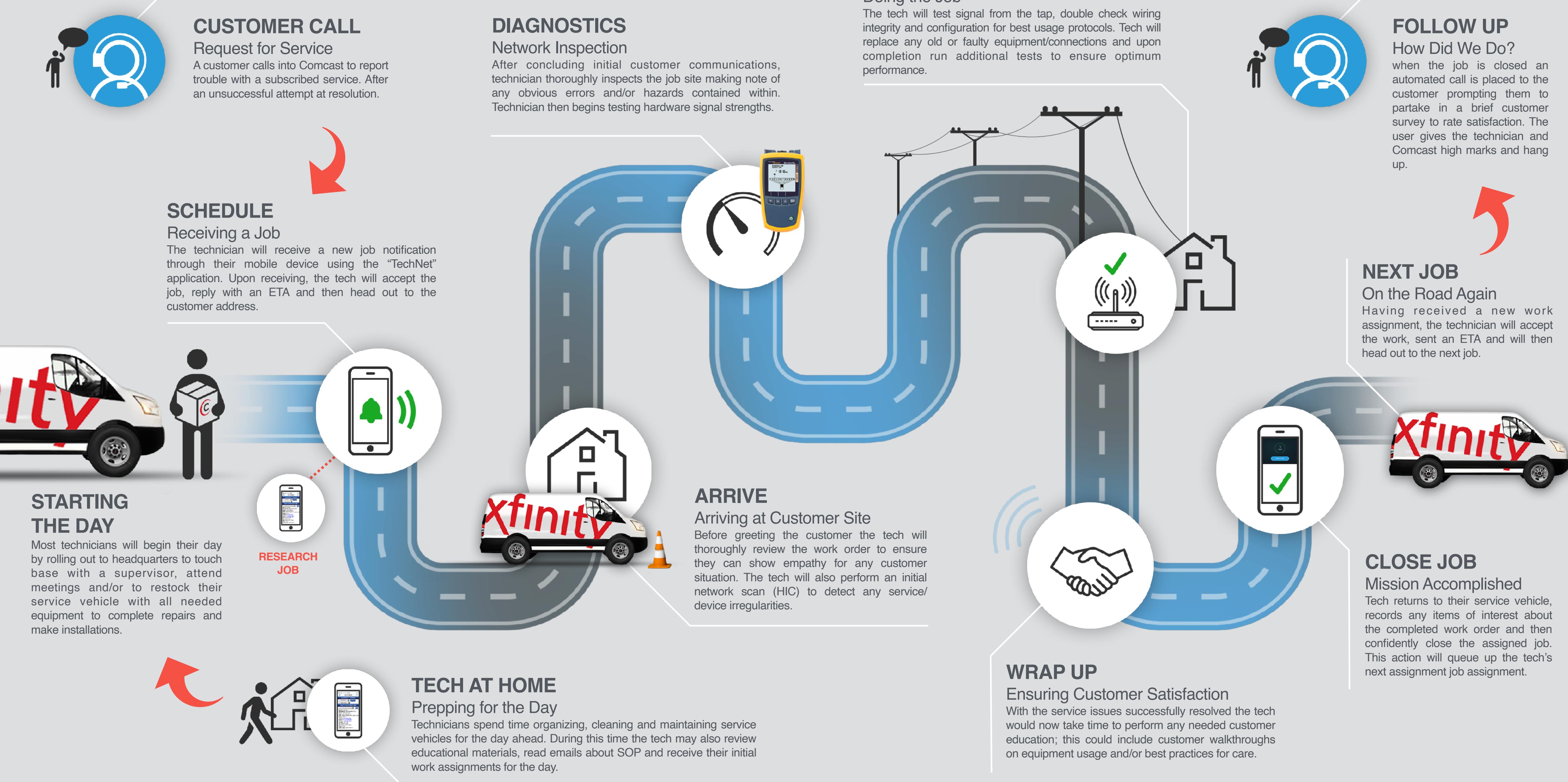


Checklists



Wrap Up





# Observations & Pain Points

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- ★ There is uncertainty in a tech's schedule (install/trouble, un/assign)
- ★ Tech requests changes via DOJ (no shows, unprepared, timing)
- ★ Schedule visibility varies by region (little as 30 mins prior)
- ★ Pressure pool, unaccounted for jobs, create anxiety
- ★ Location-based assignment of jobs is inconsistent by dispatch
- ★ Skill-based assignment of jobs is inconsistent by dispatch
- ★ Proximity to first job does not account for morning routine
- ★ Ripple effects of poor ETA guesses affects all schedules
- ★ Responsiveness inconsistent in ETA interface (observed elsewhere)

# Managing Stress

SCHEDULE

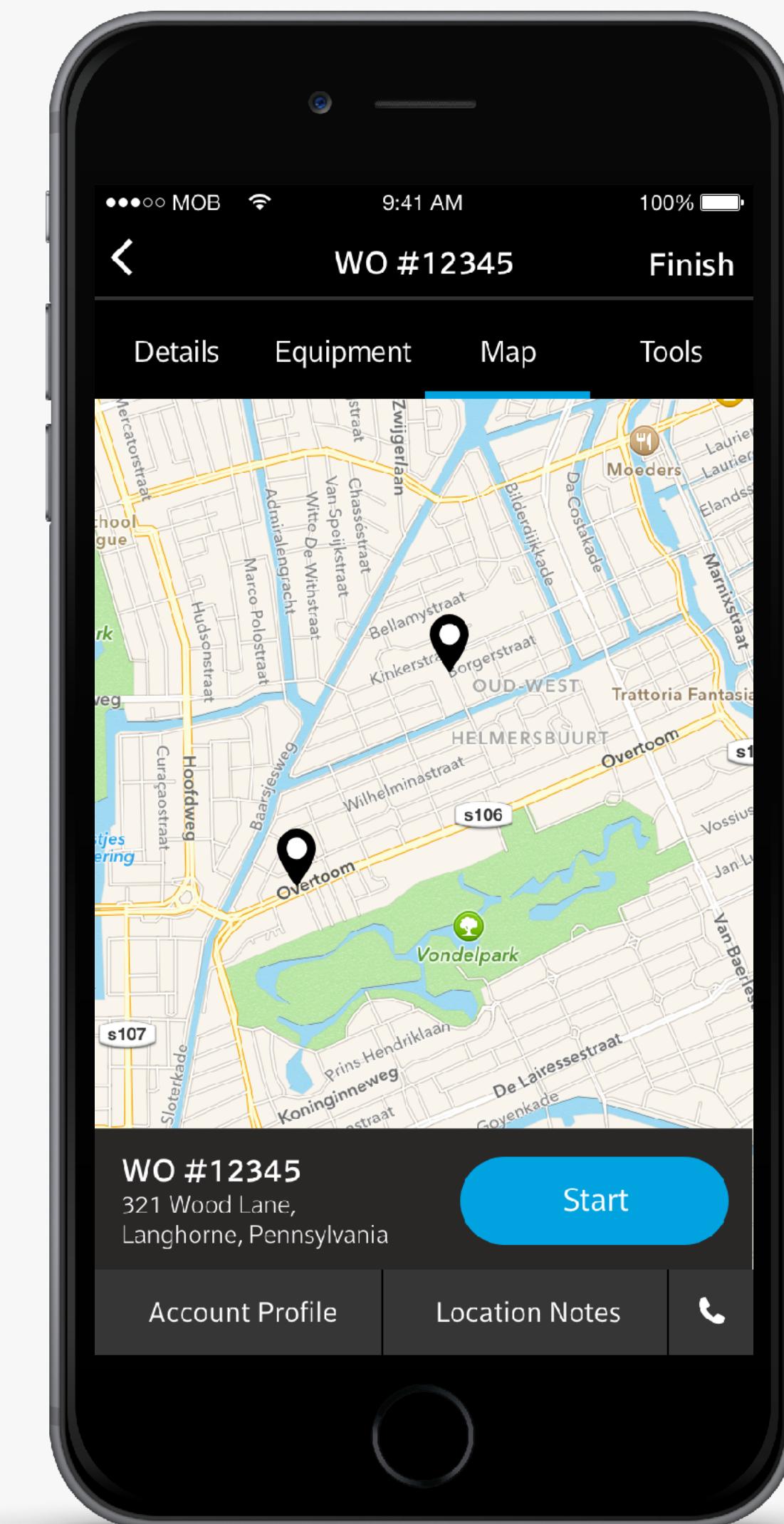
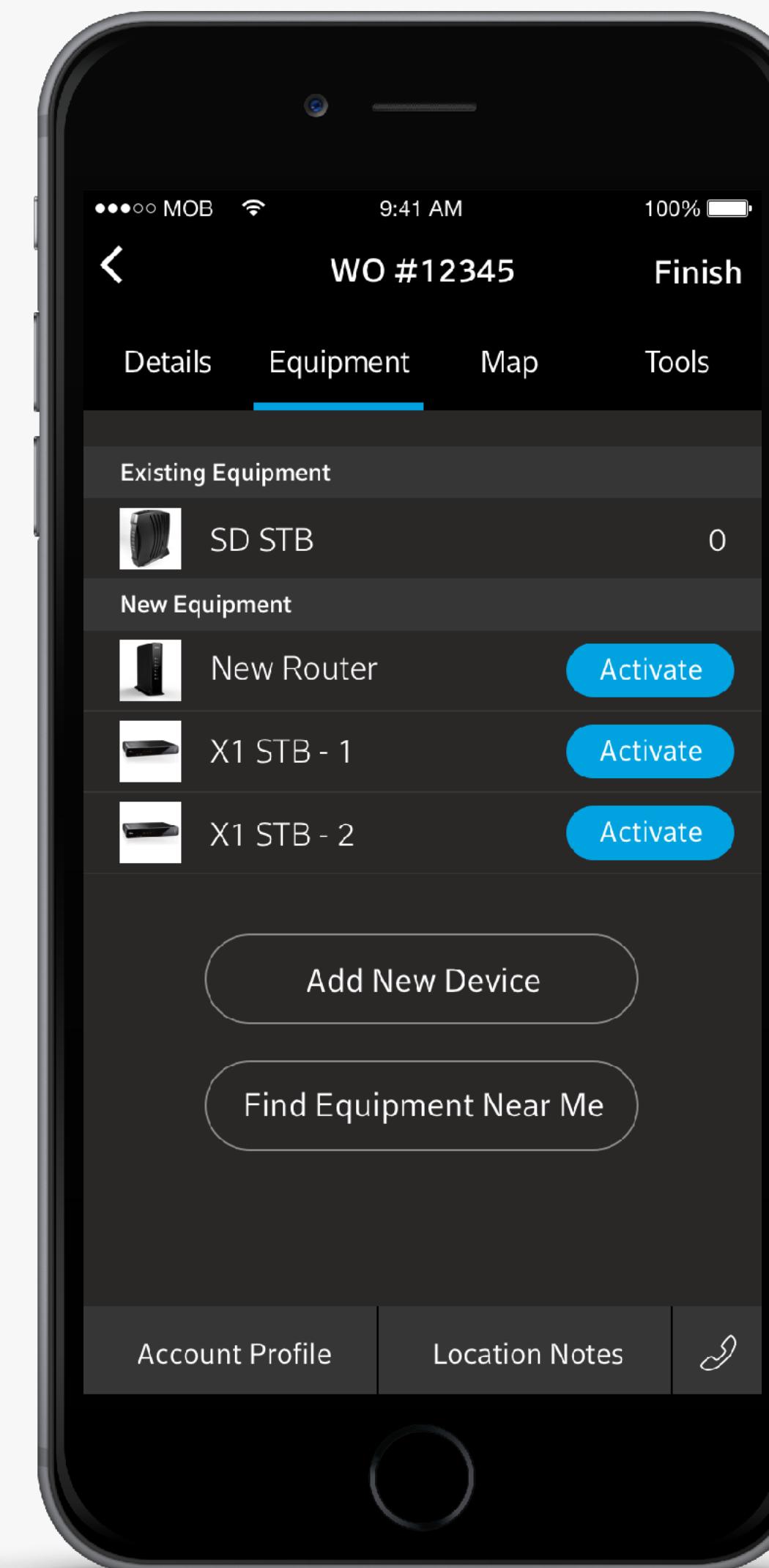
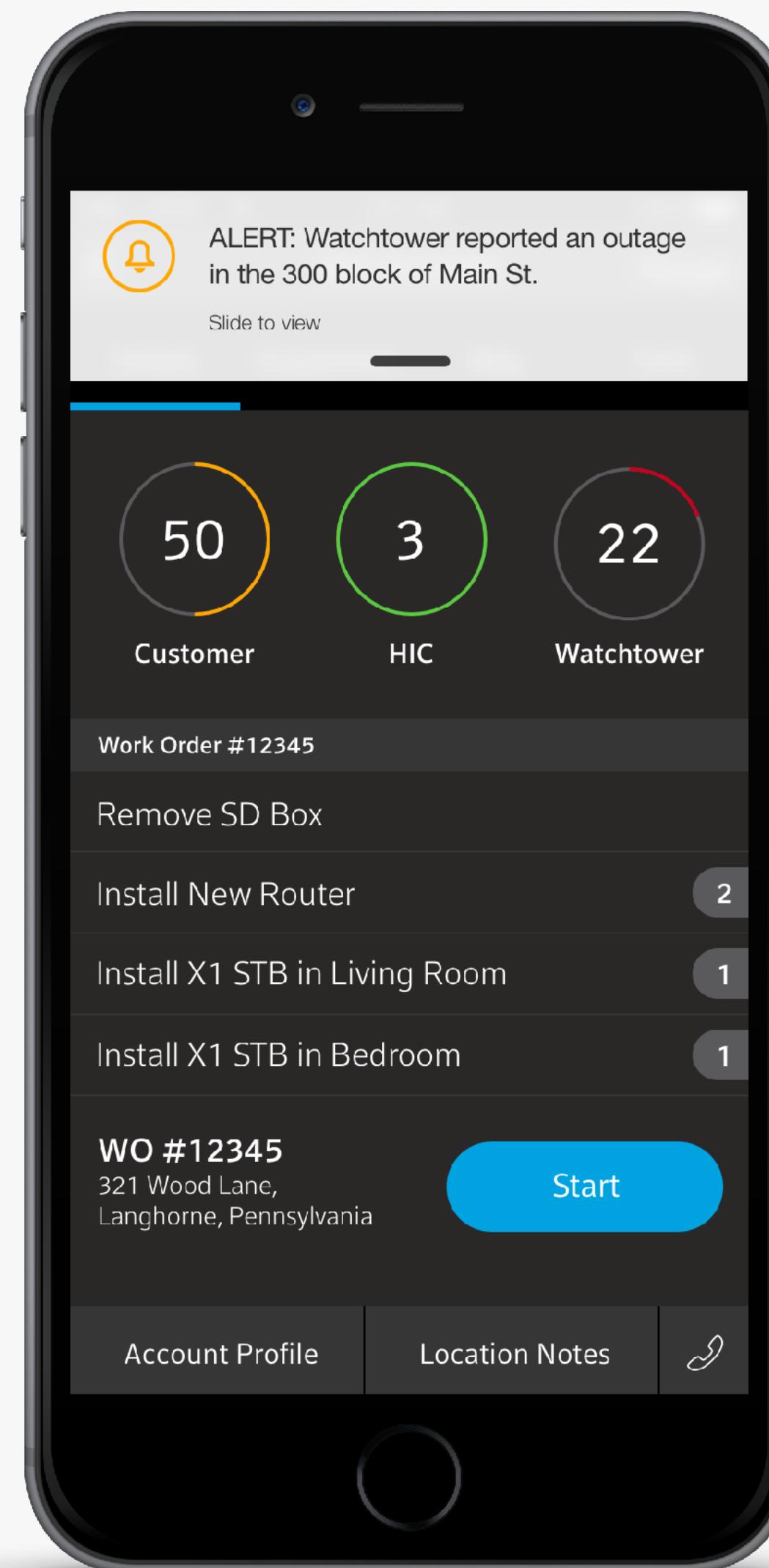
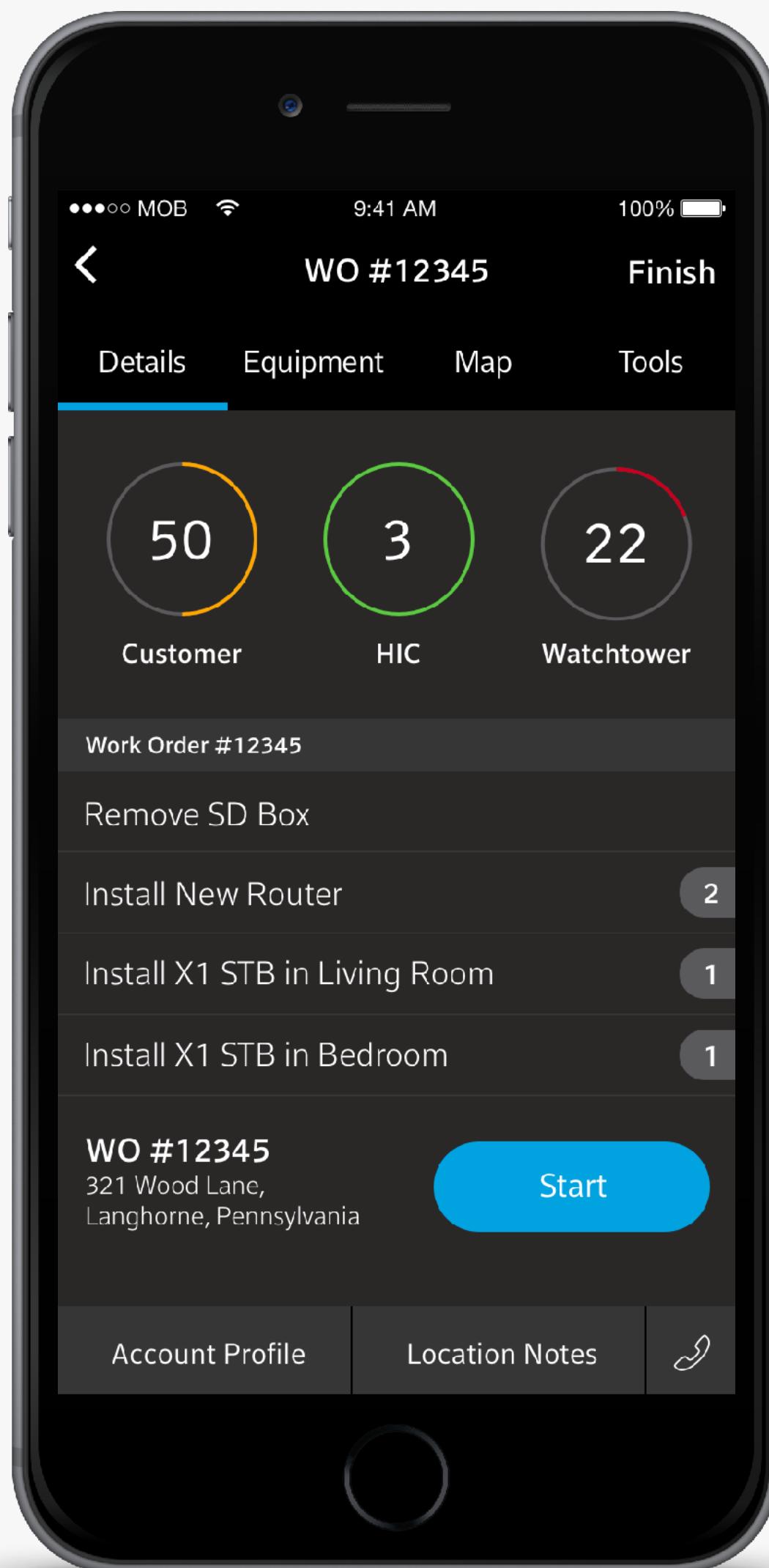


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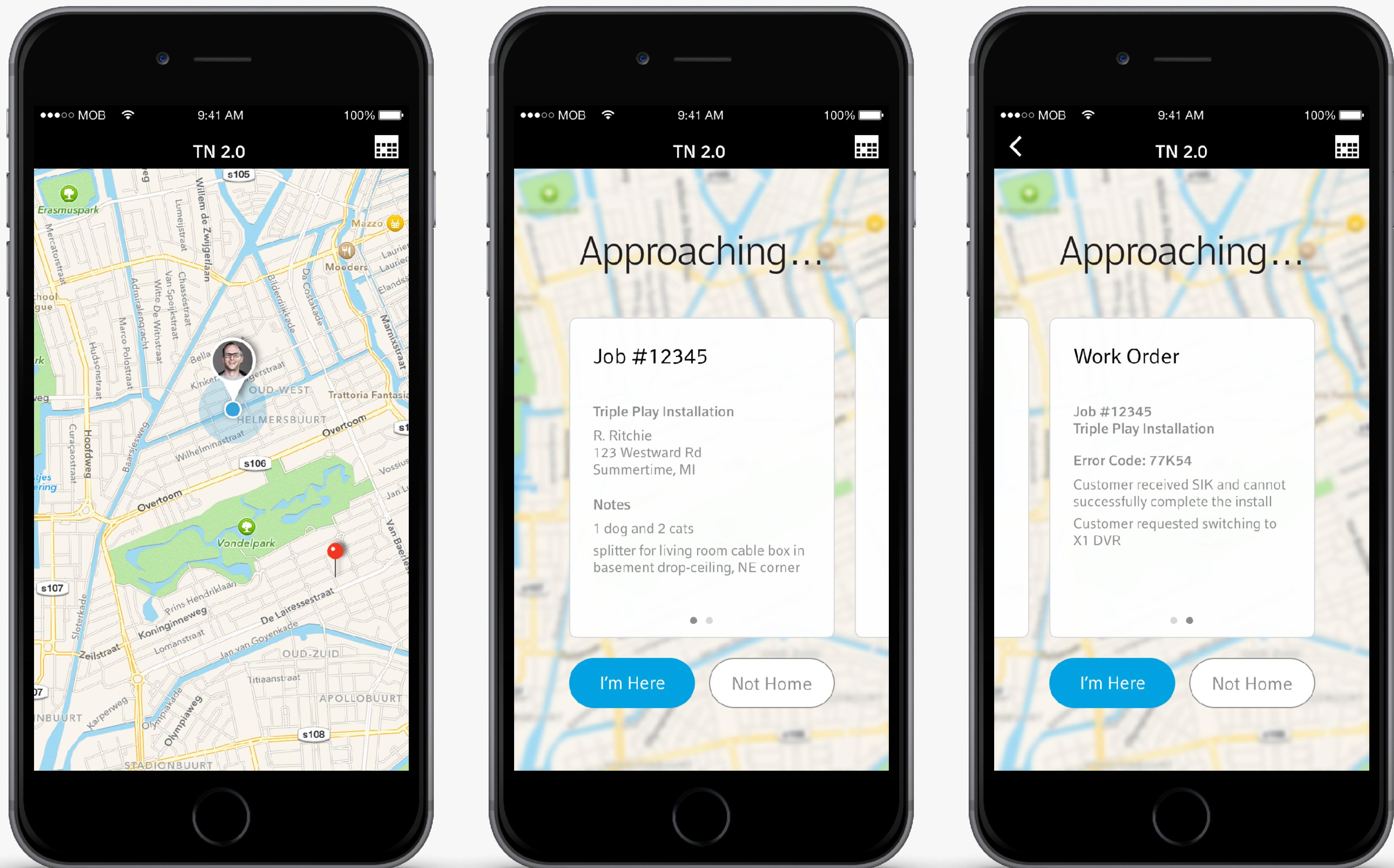
# Concepts

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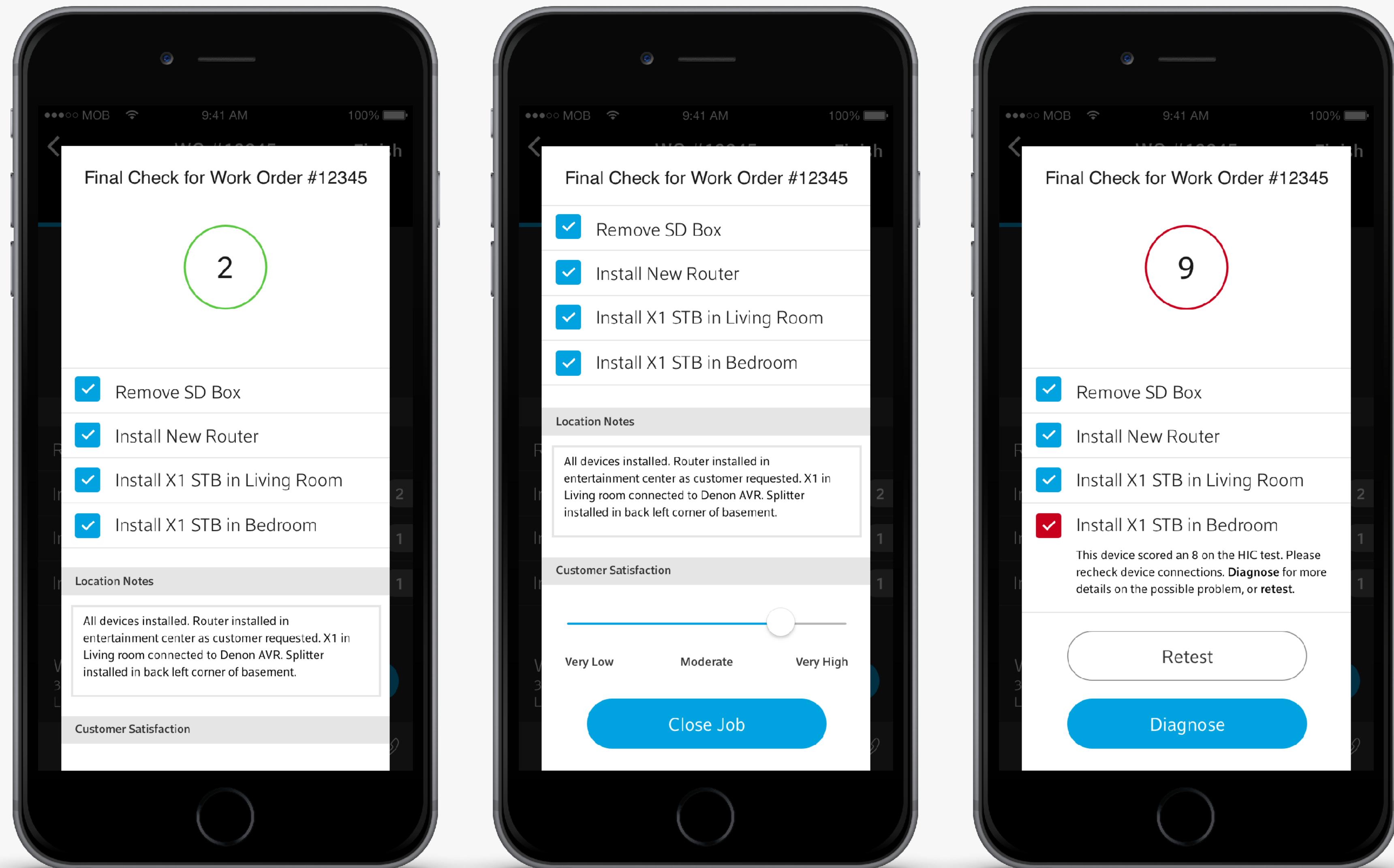
# Early Comps: Work Orders



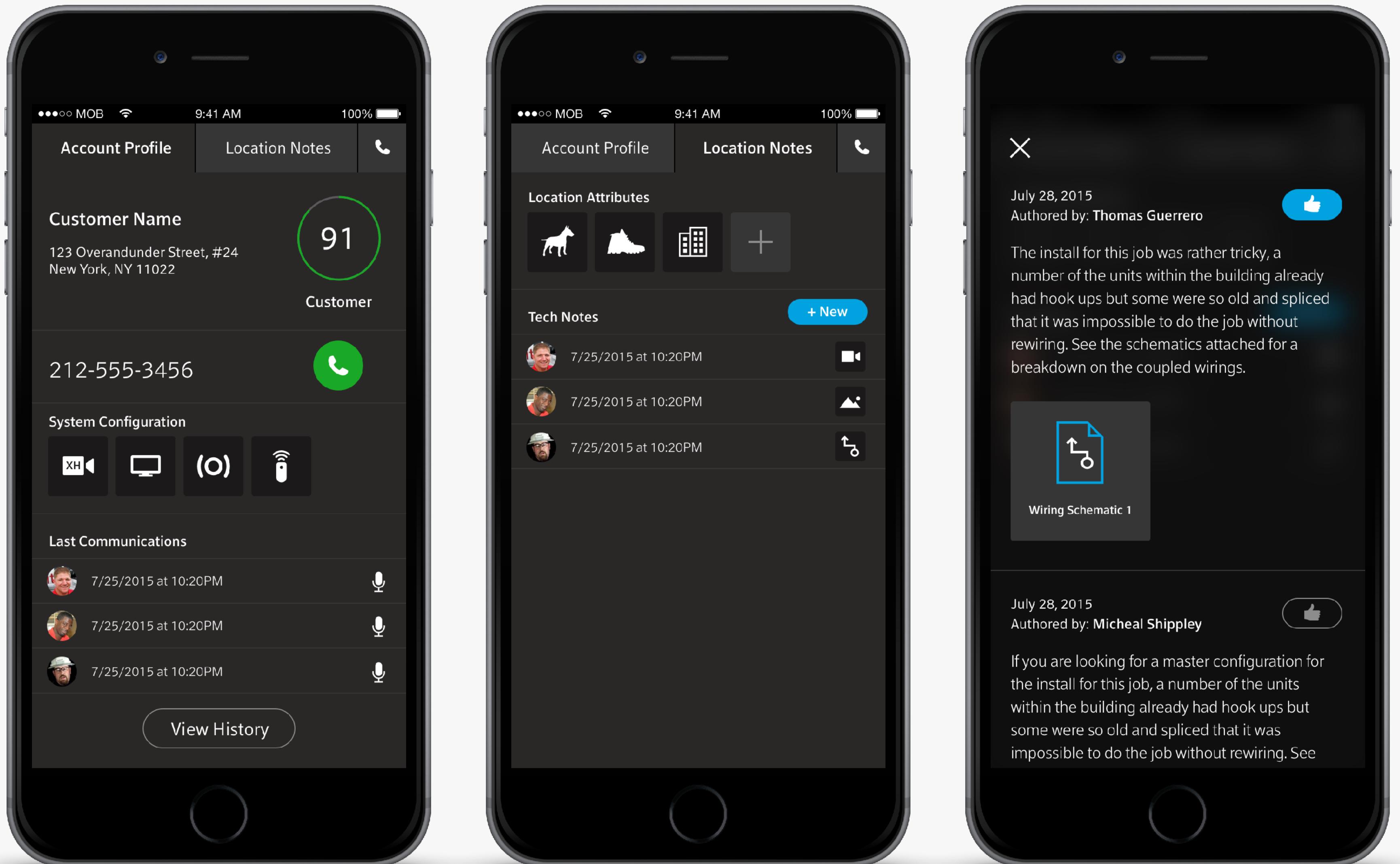
# Early Comps: Arrival



# Early Comps: Wrap-up



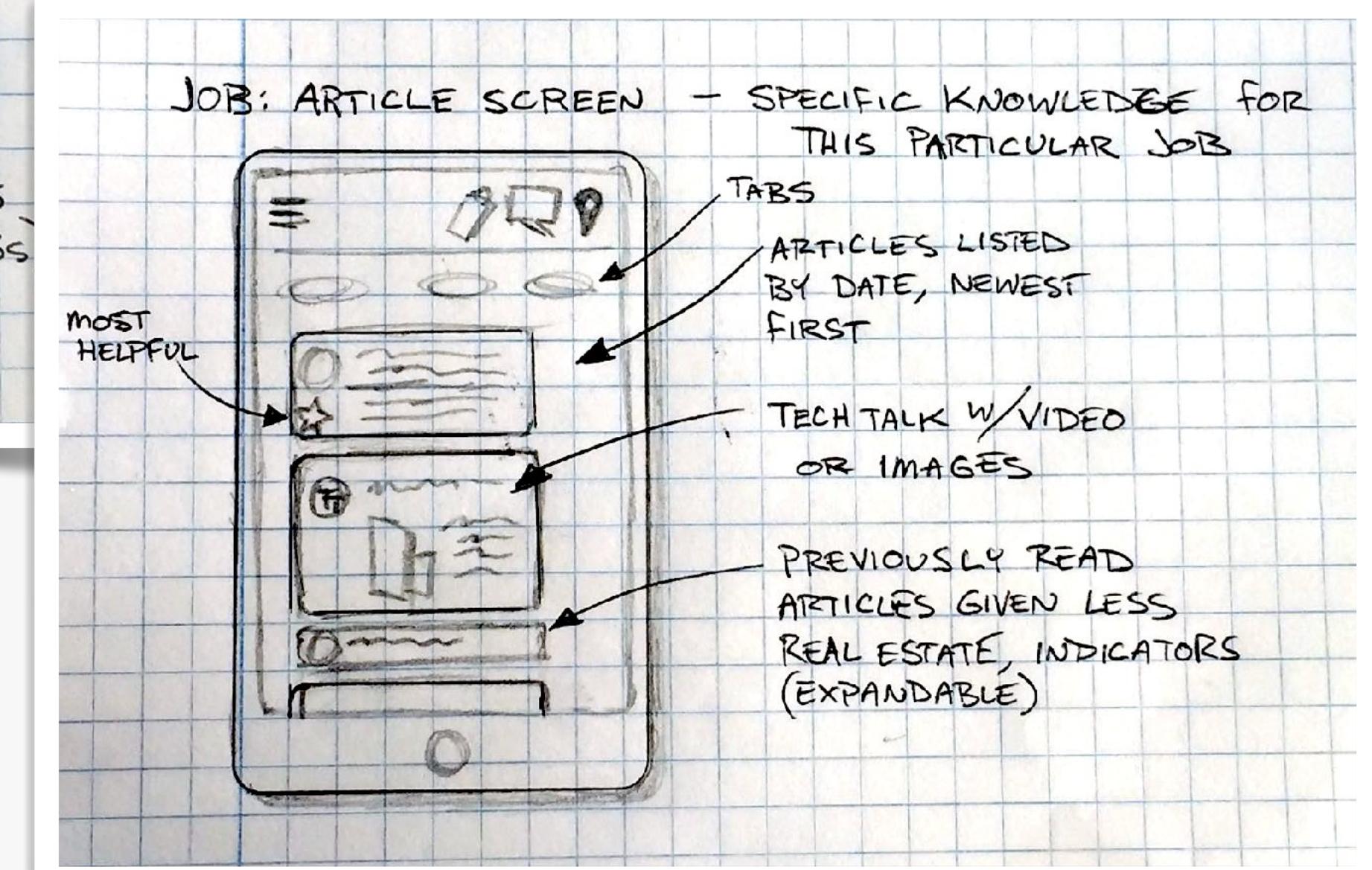
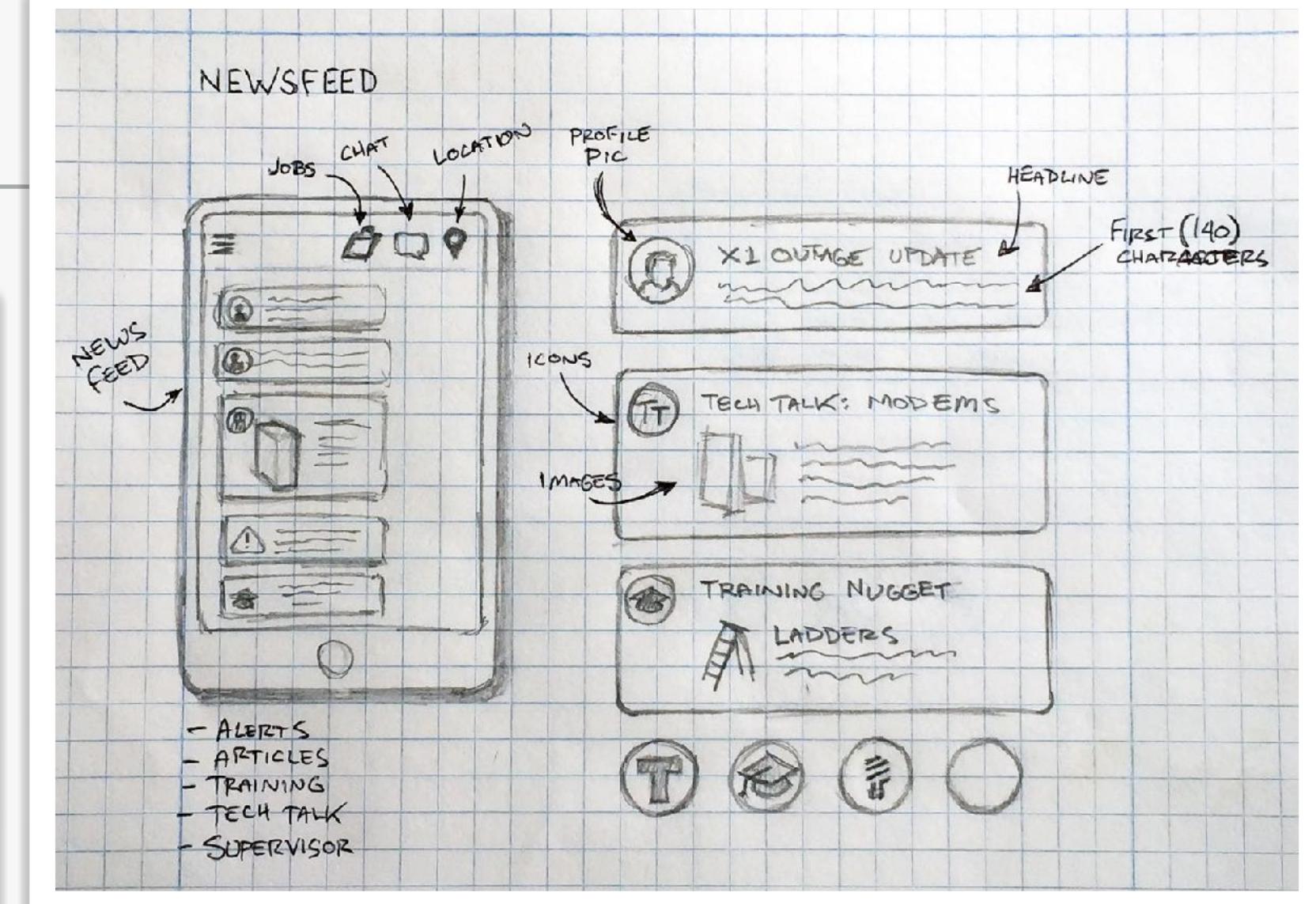
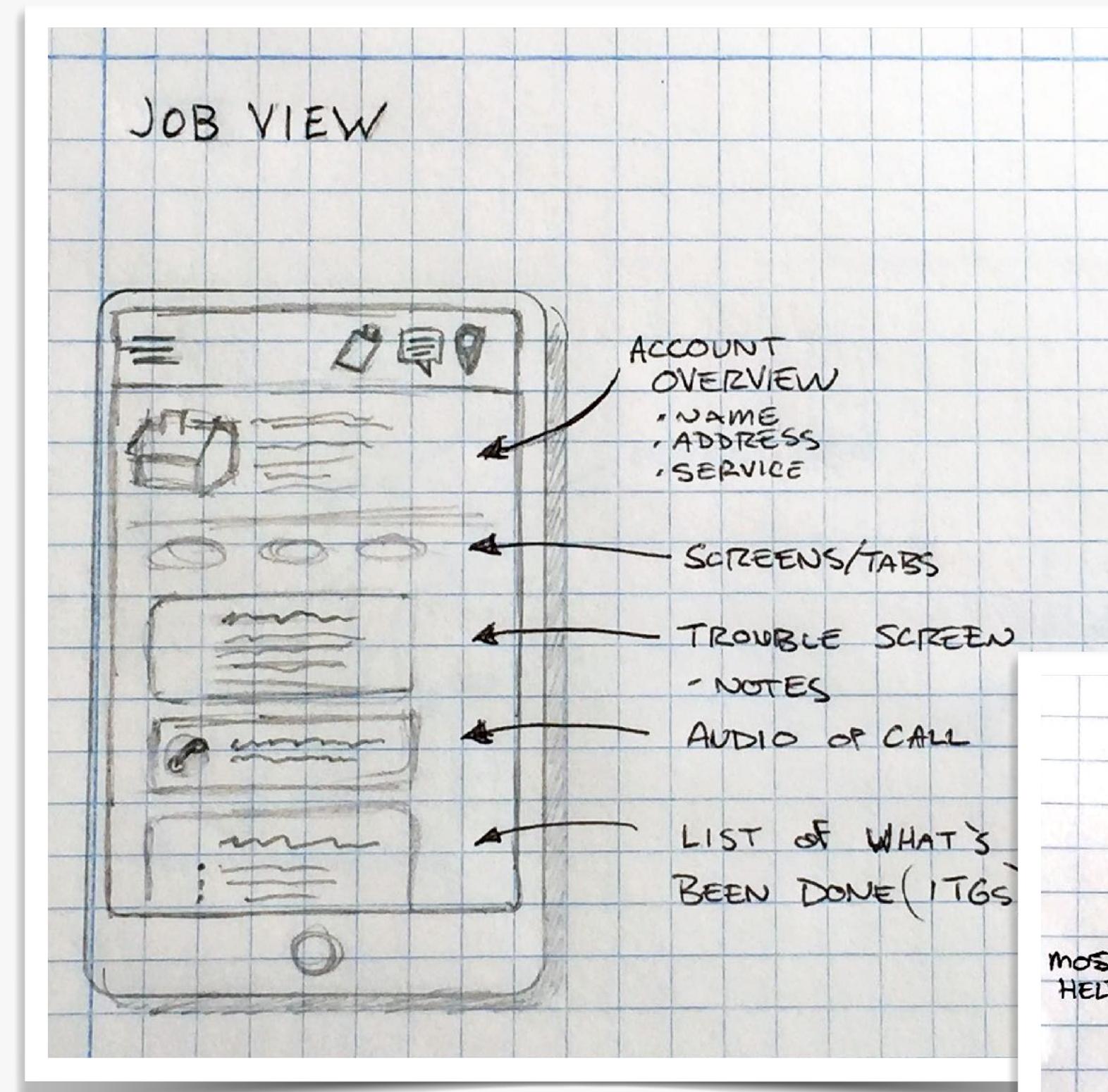
# Early Comps: Notes



# Smart Communications

## COMMUNICATION IN CONTEXT

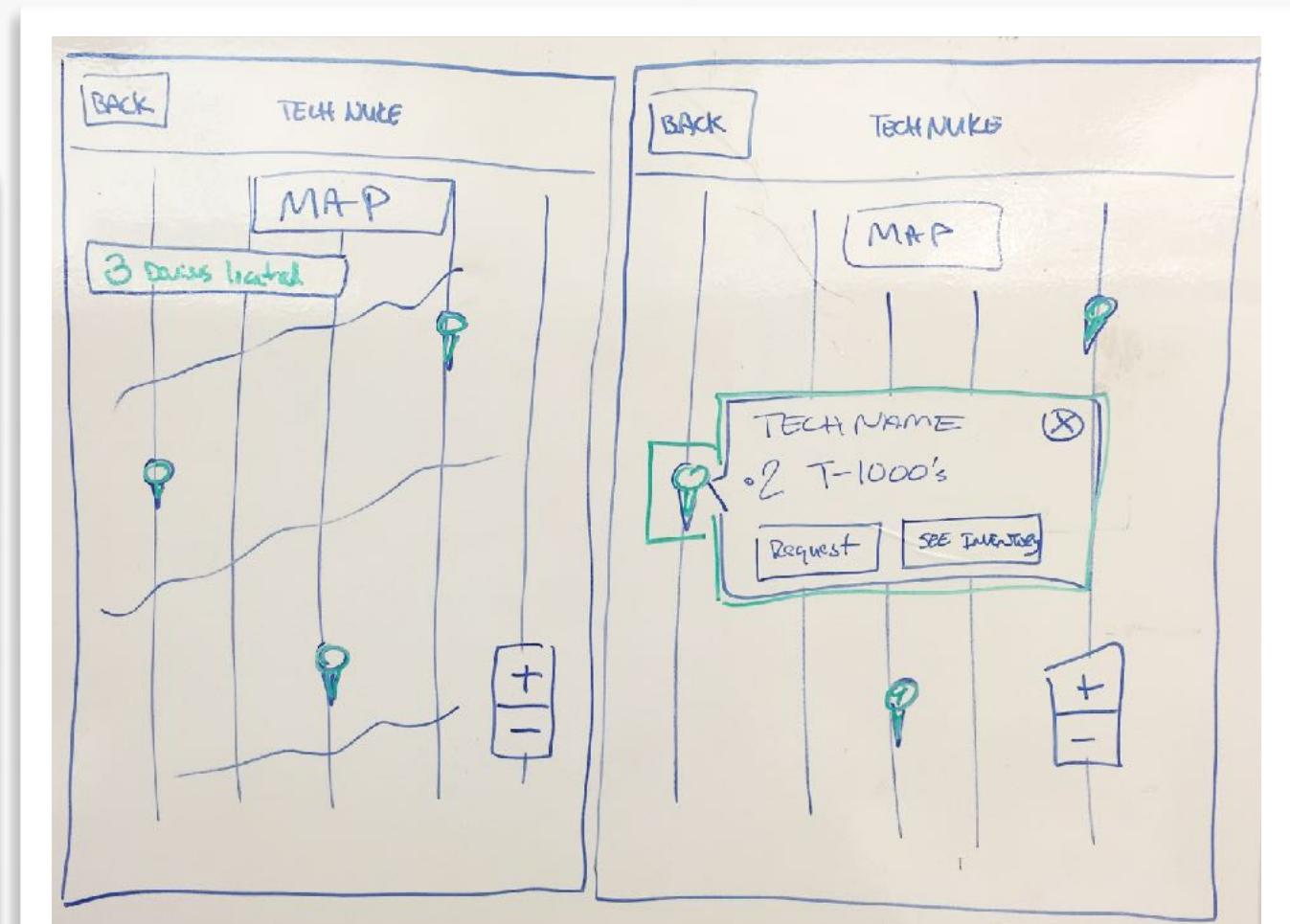
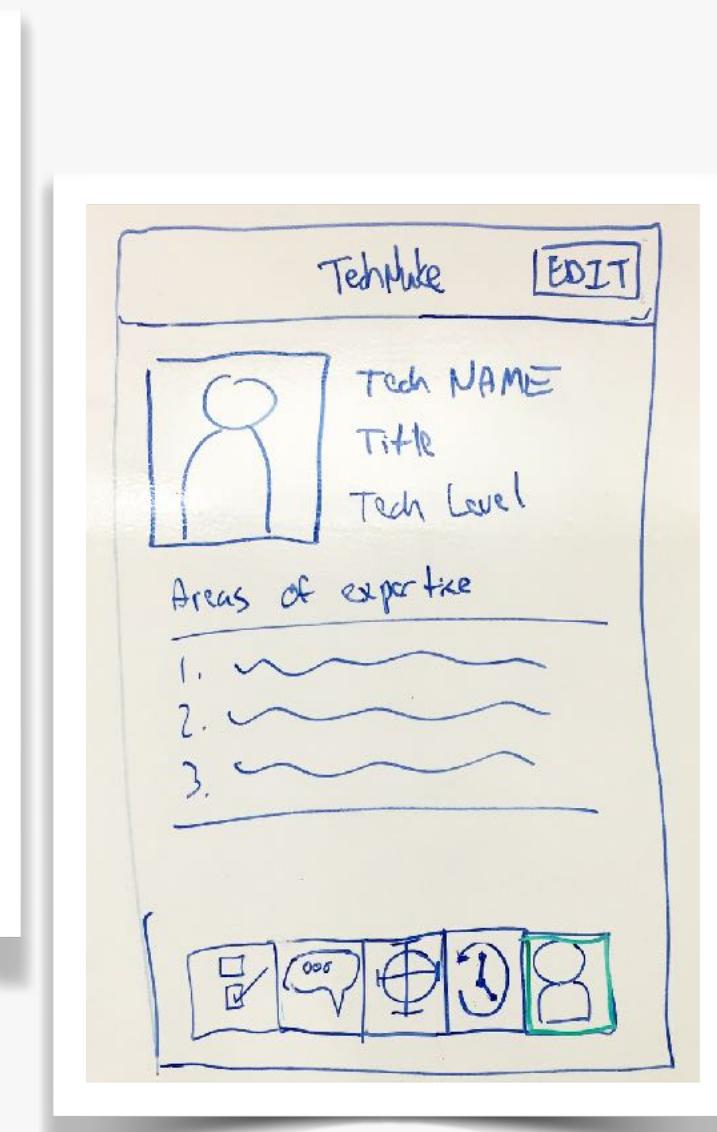
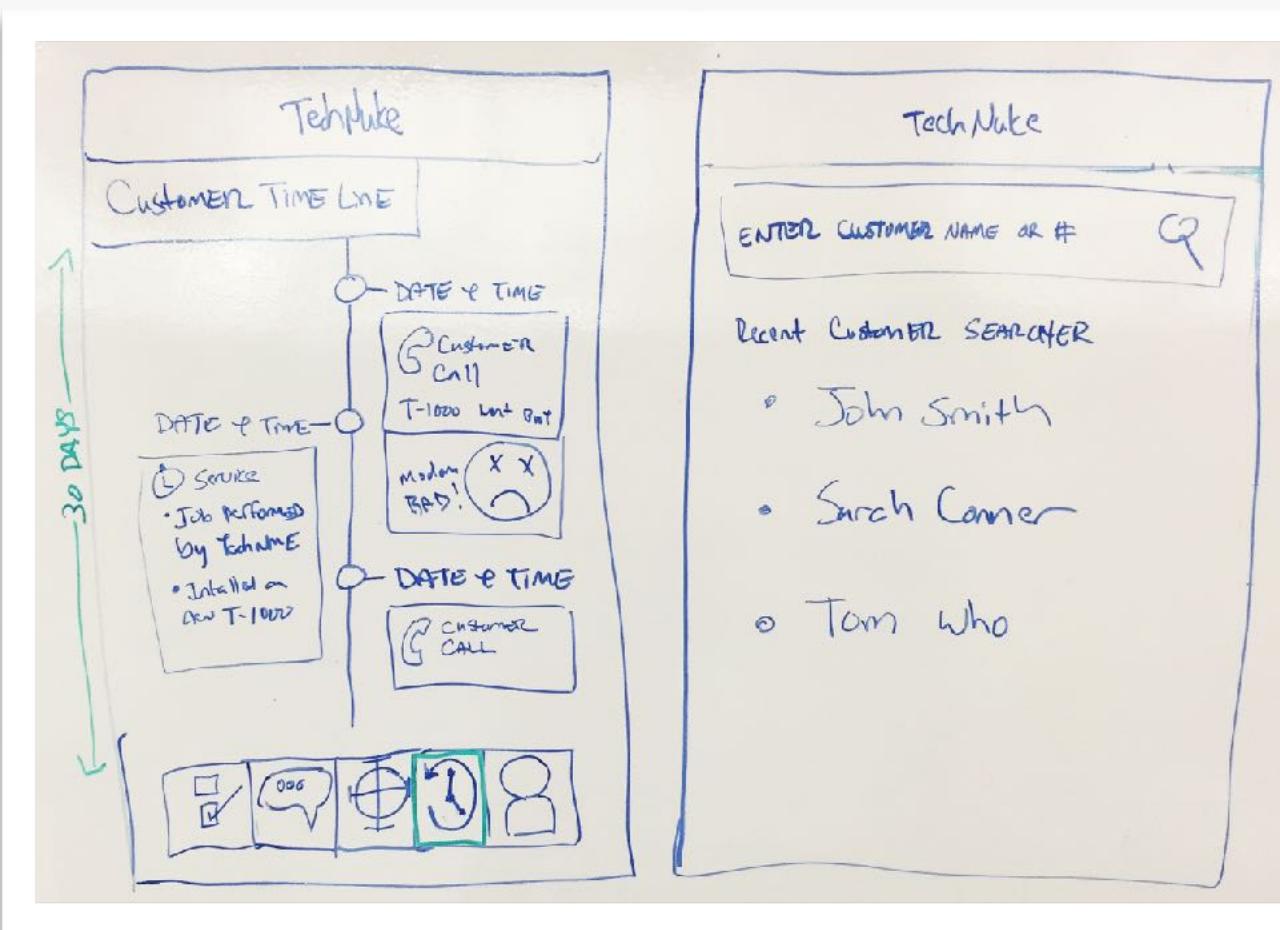
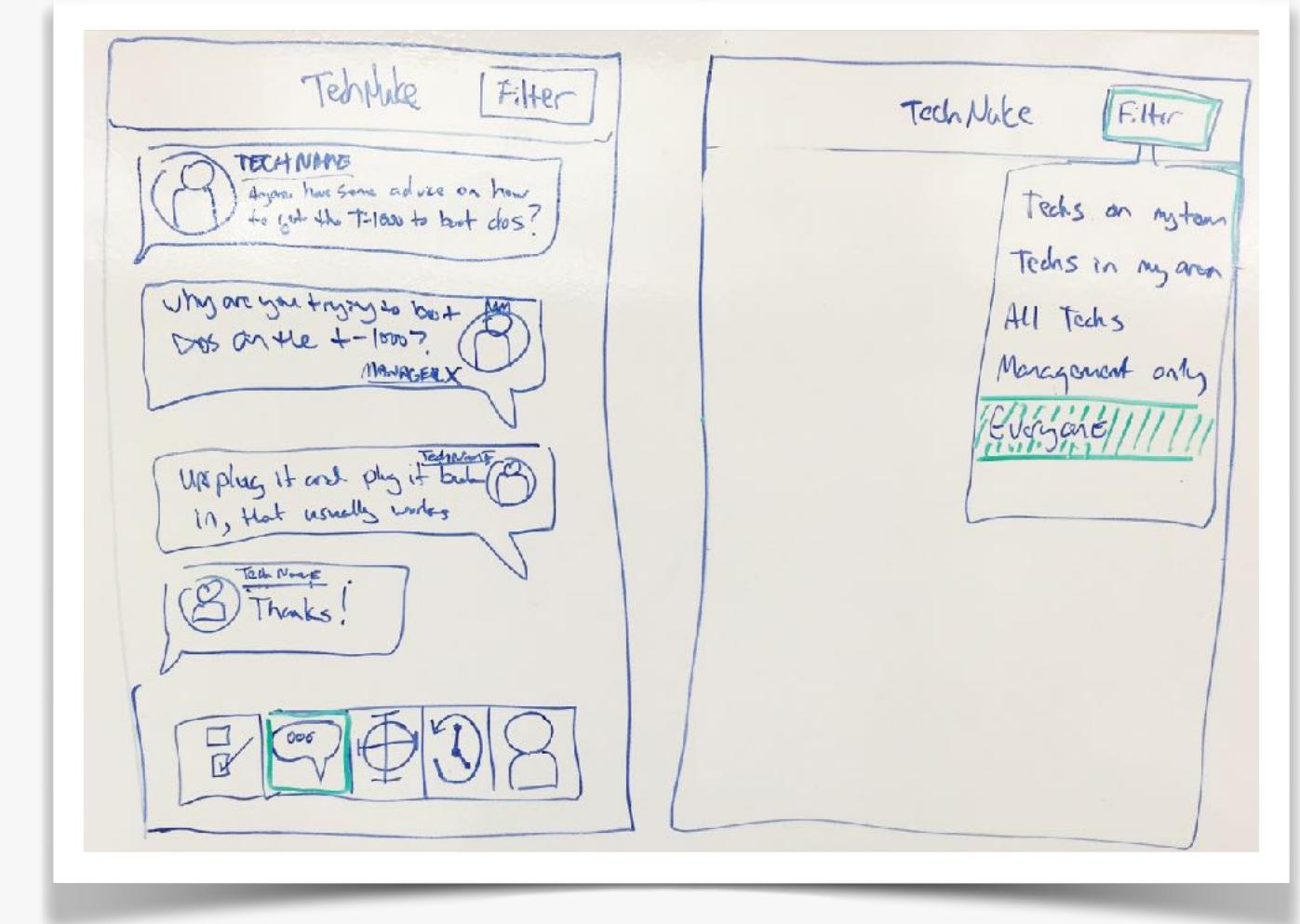
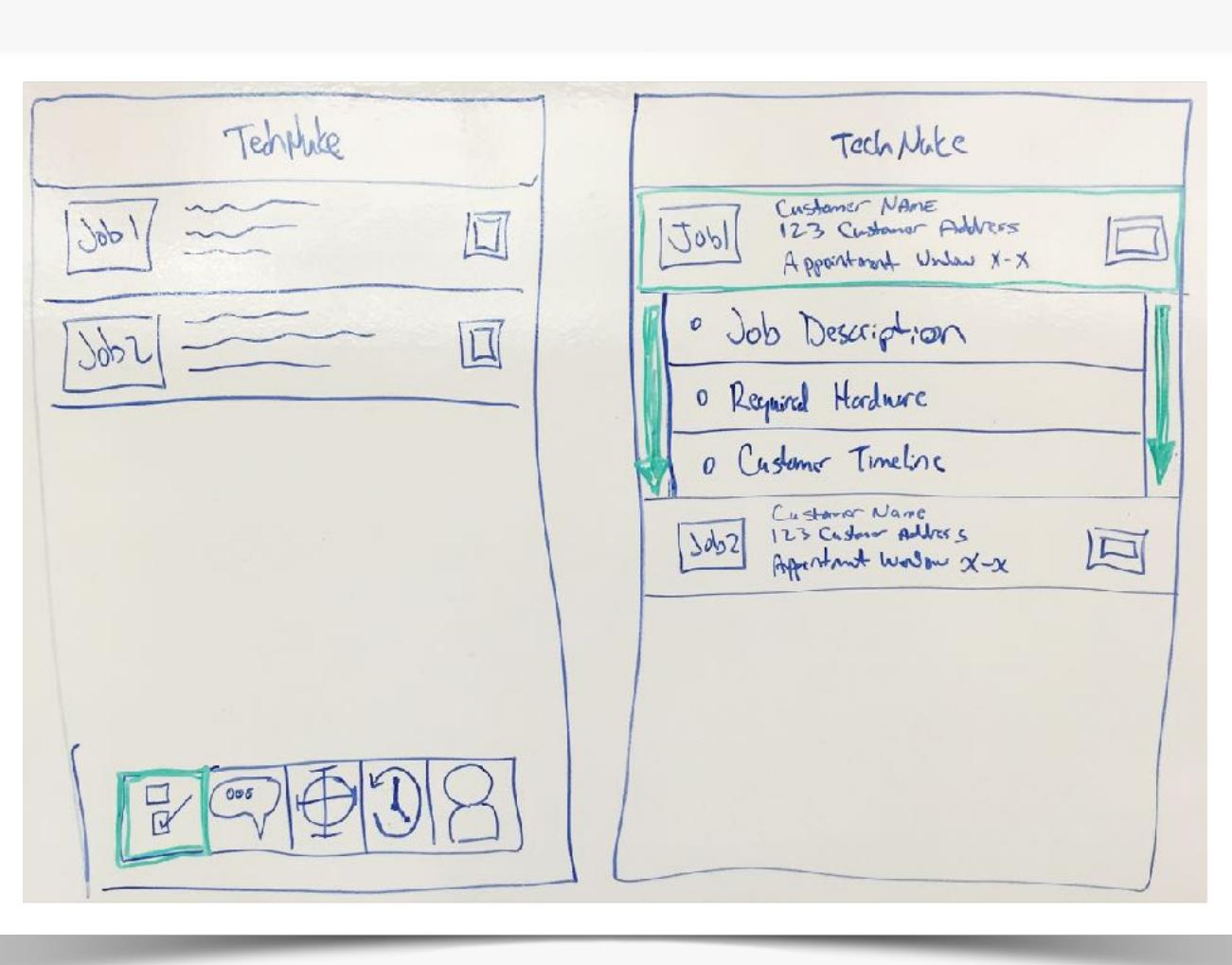
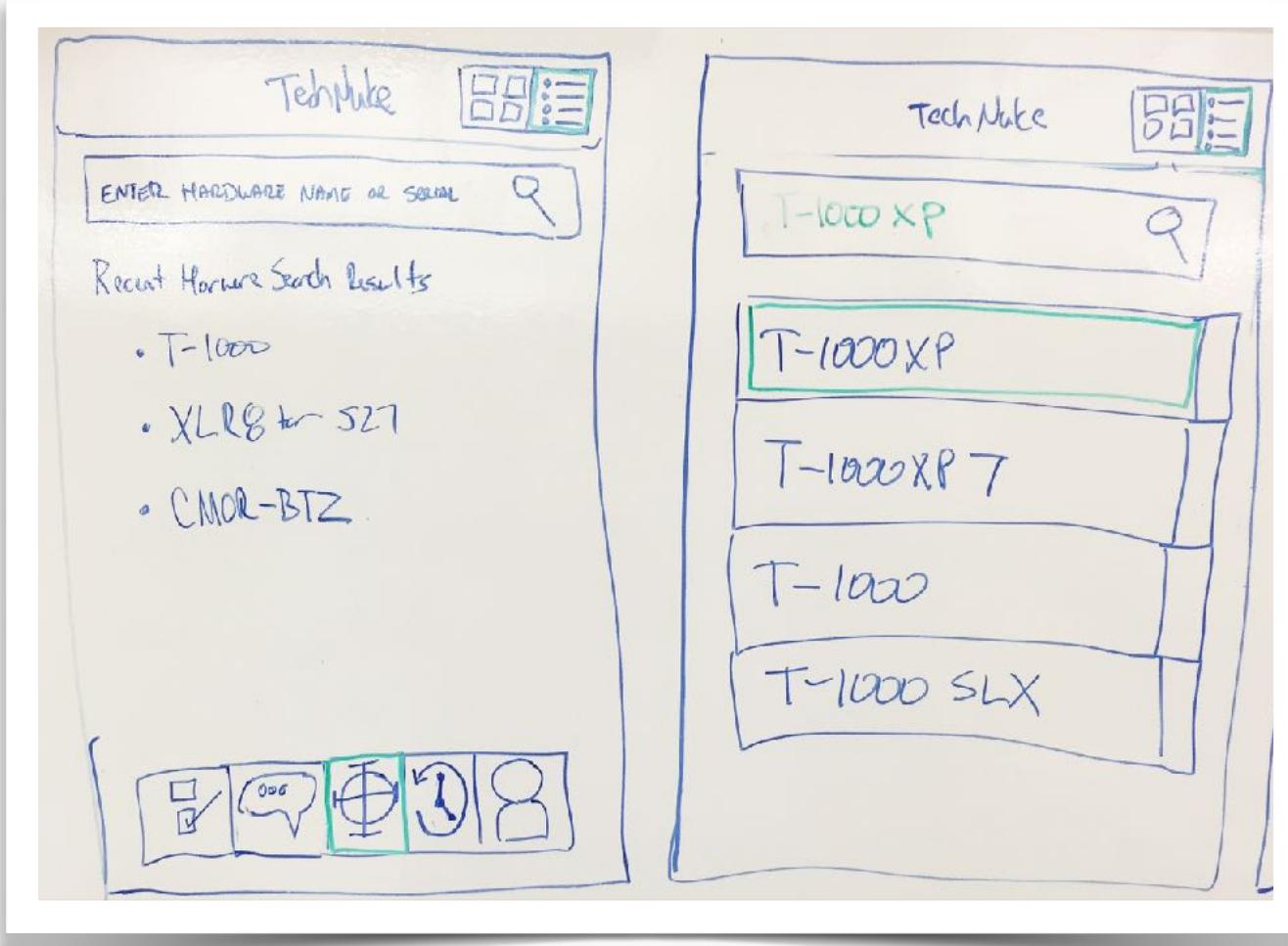
- Newsfeed organized by date, type, importance
- Unique item presentation types
- Unread/Read states
- Bylines and Avatars
- Crowd-sourced feedback
- Embedded video



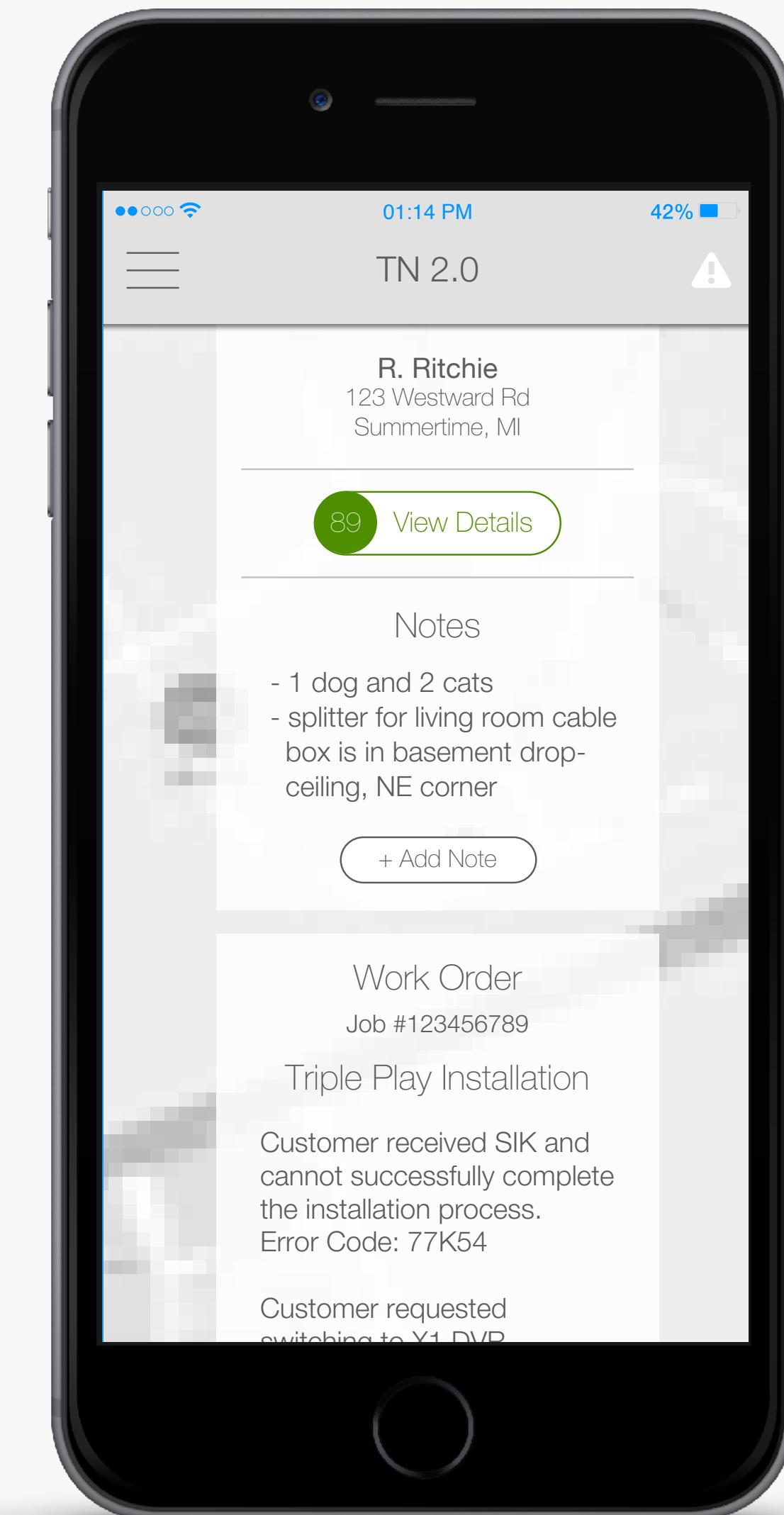
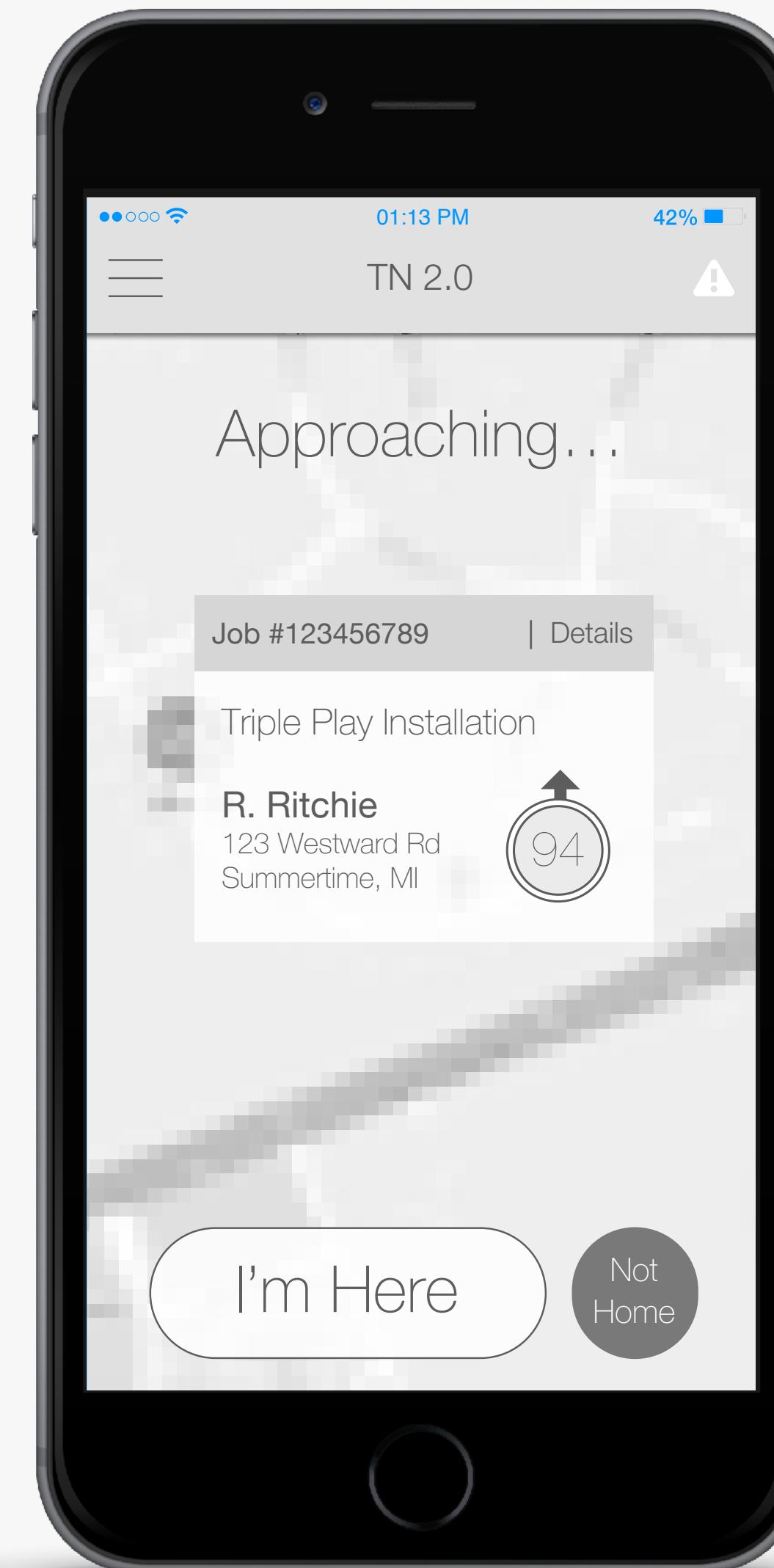
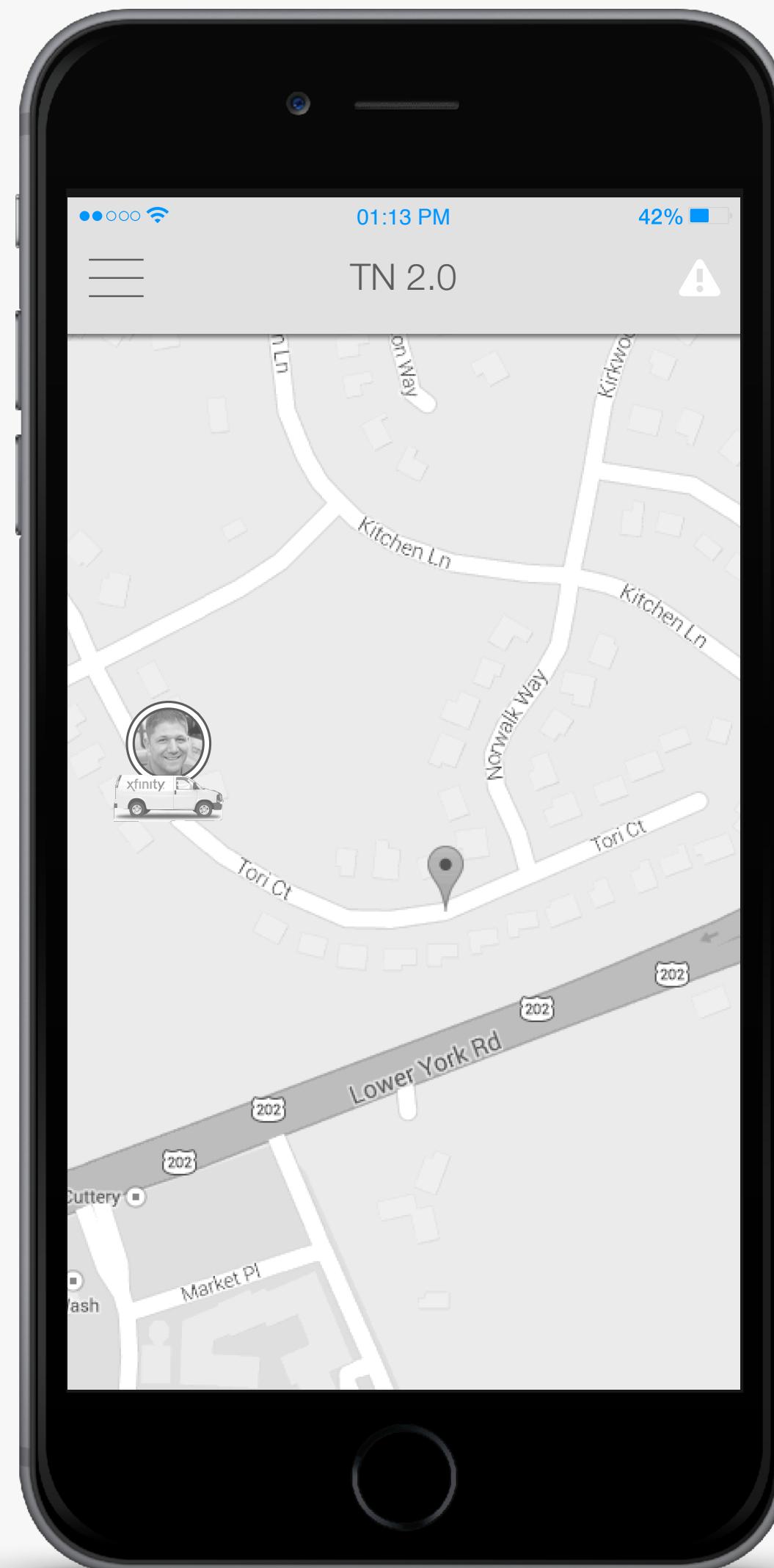
# Framework

## WITHIN THUMB'S REACH

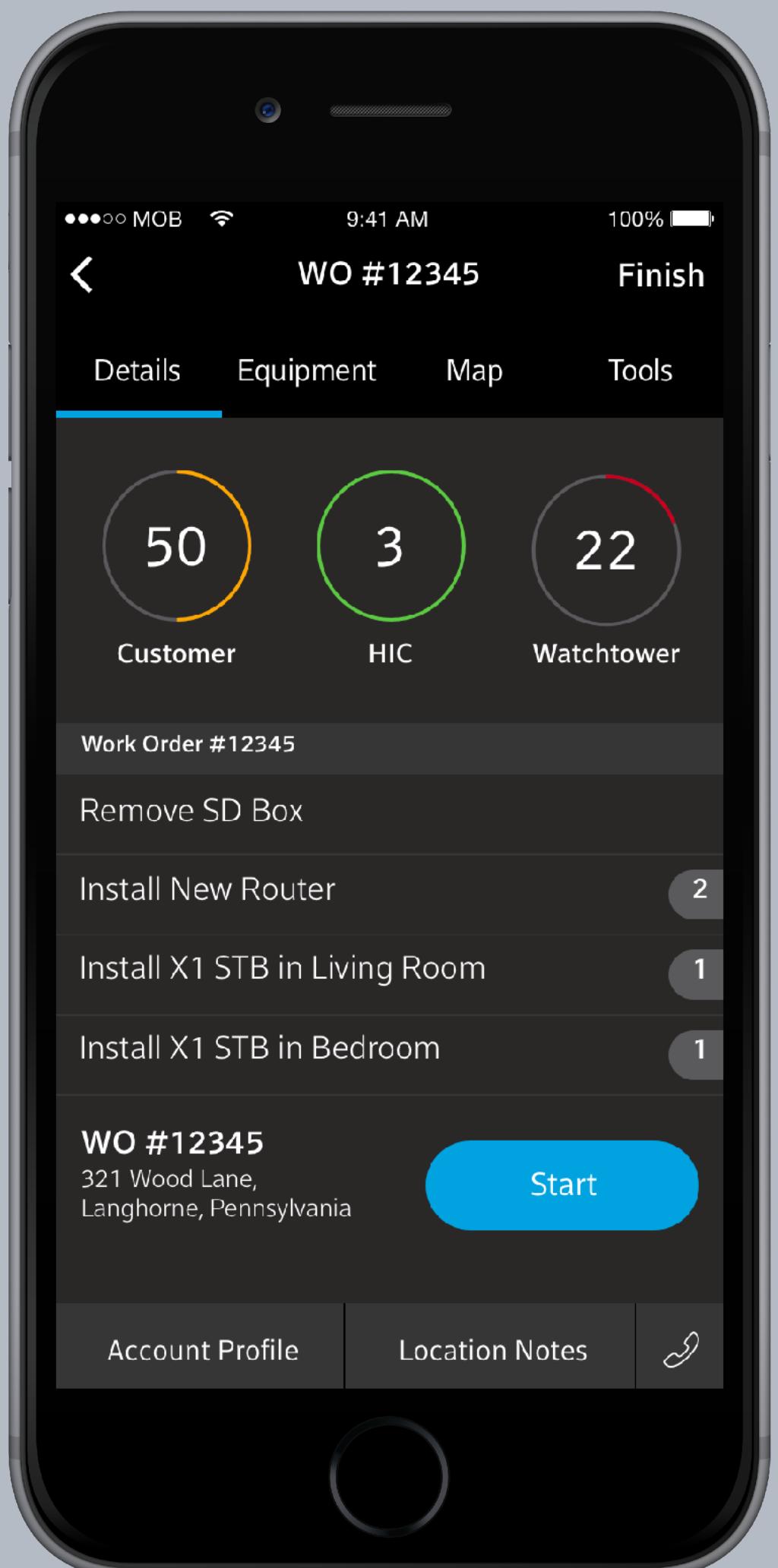
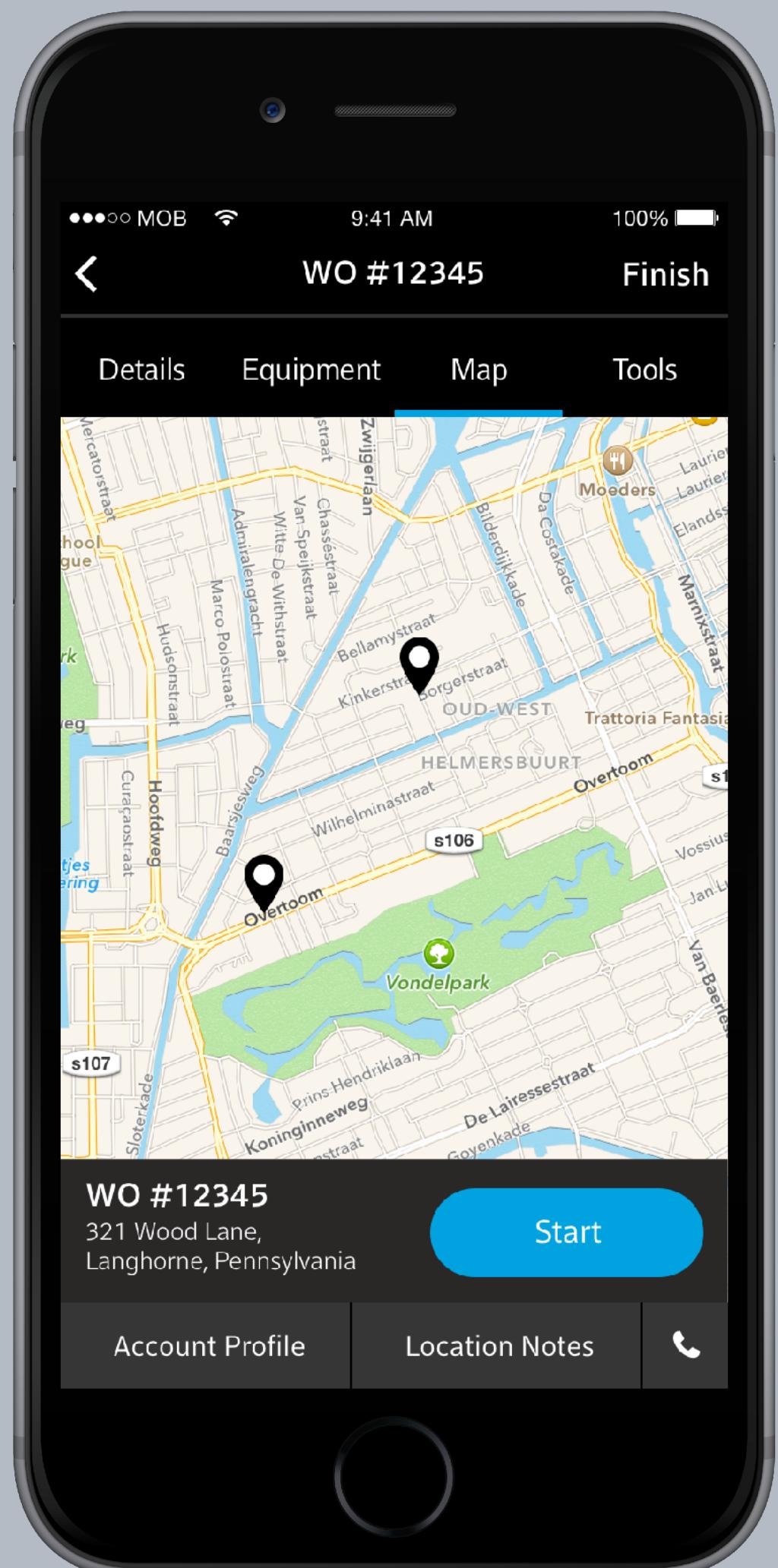
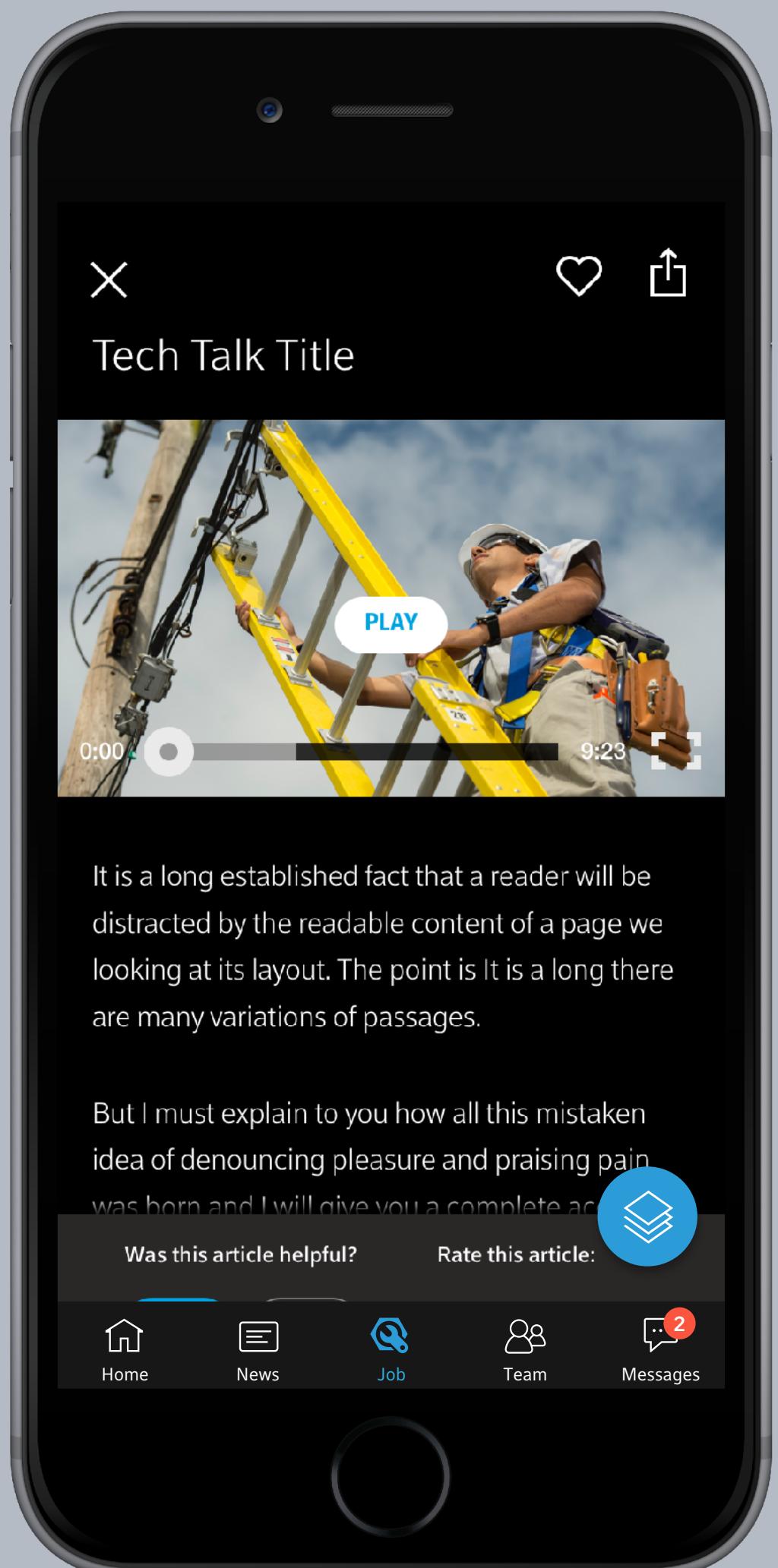
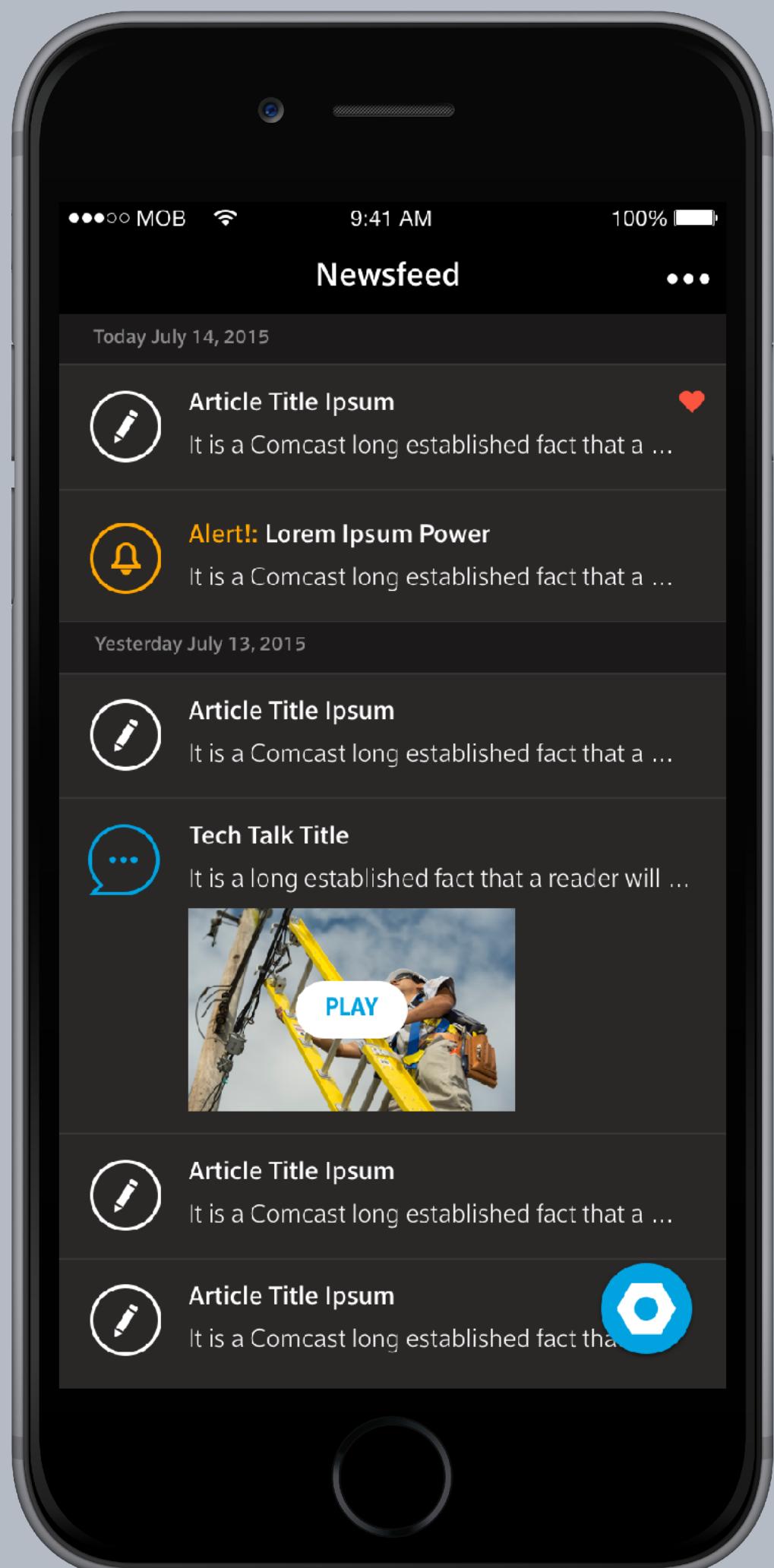
- Customer timeline
- Cloud Notes
- Tech Profile
- Tech GPS
- Tech Chat
- Job List



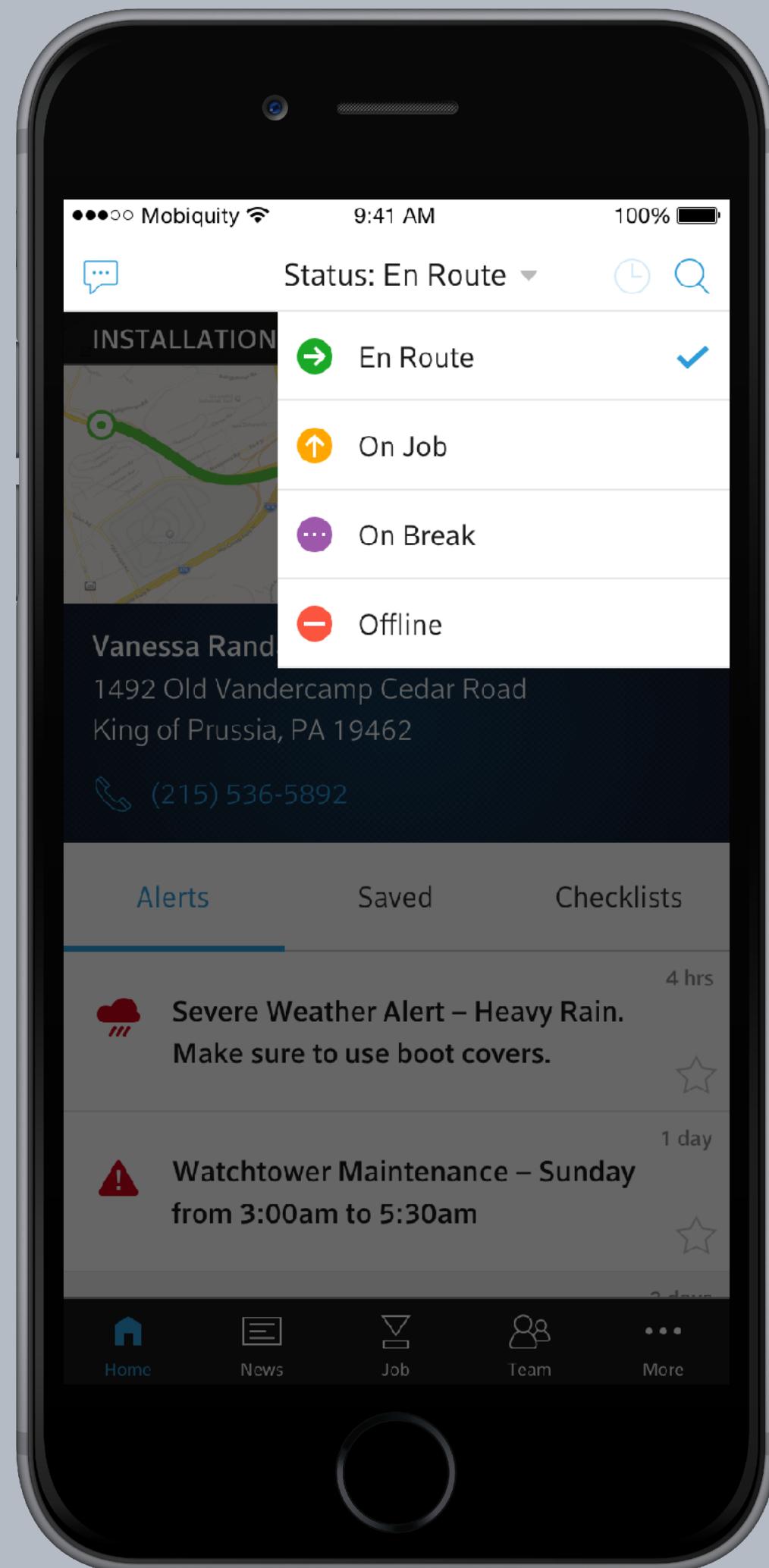
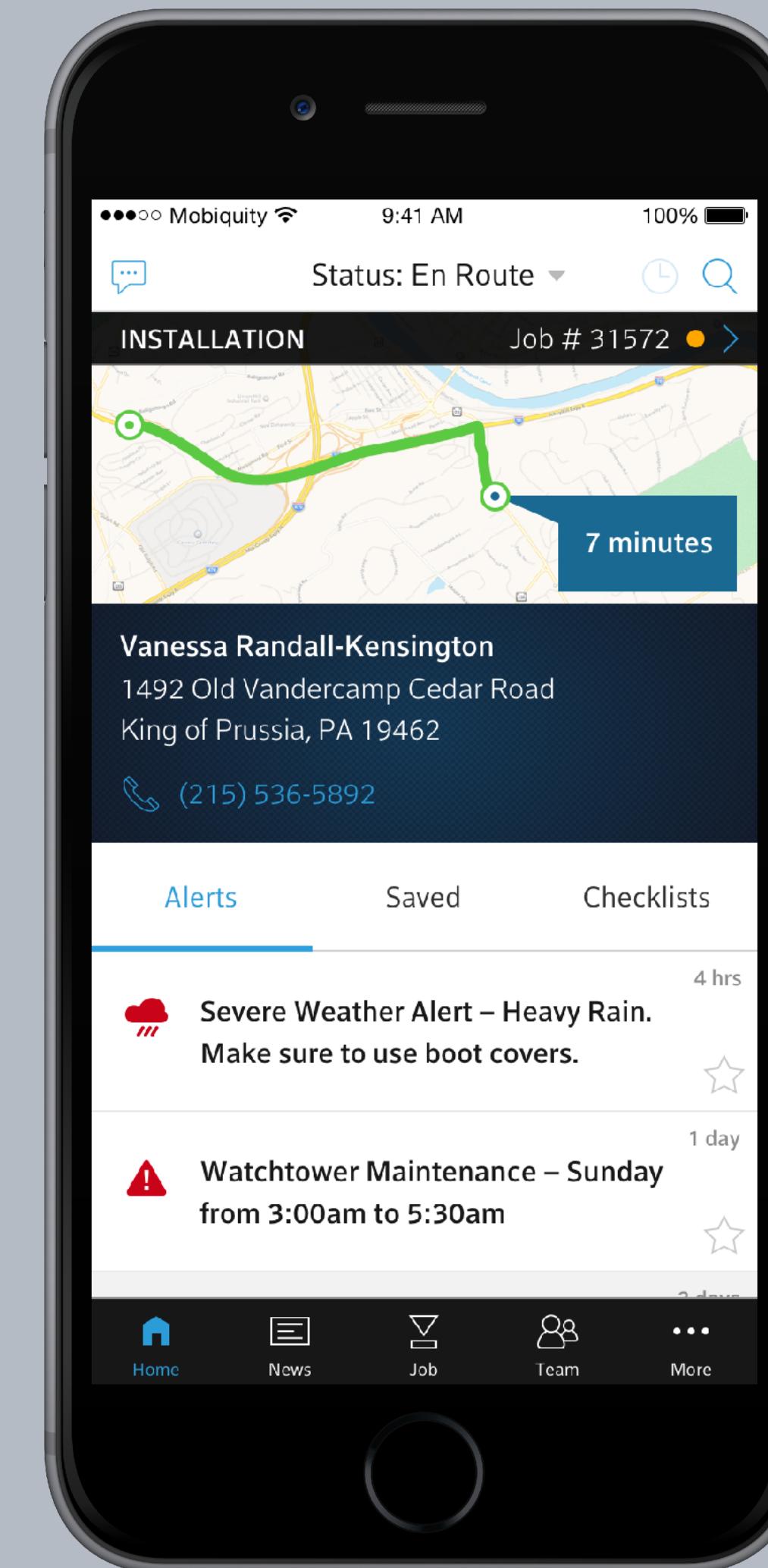
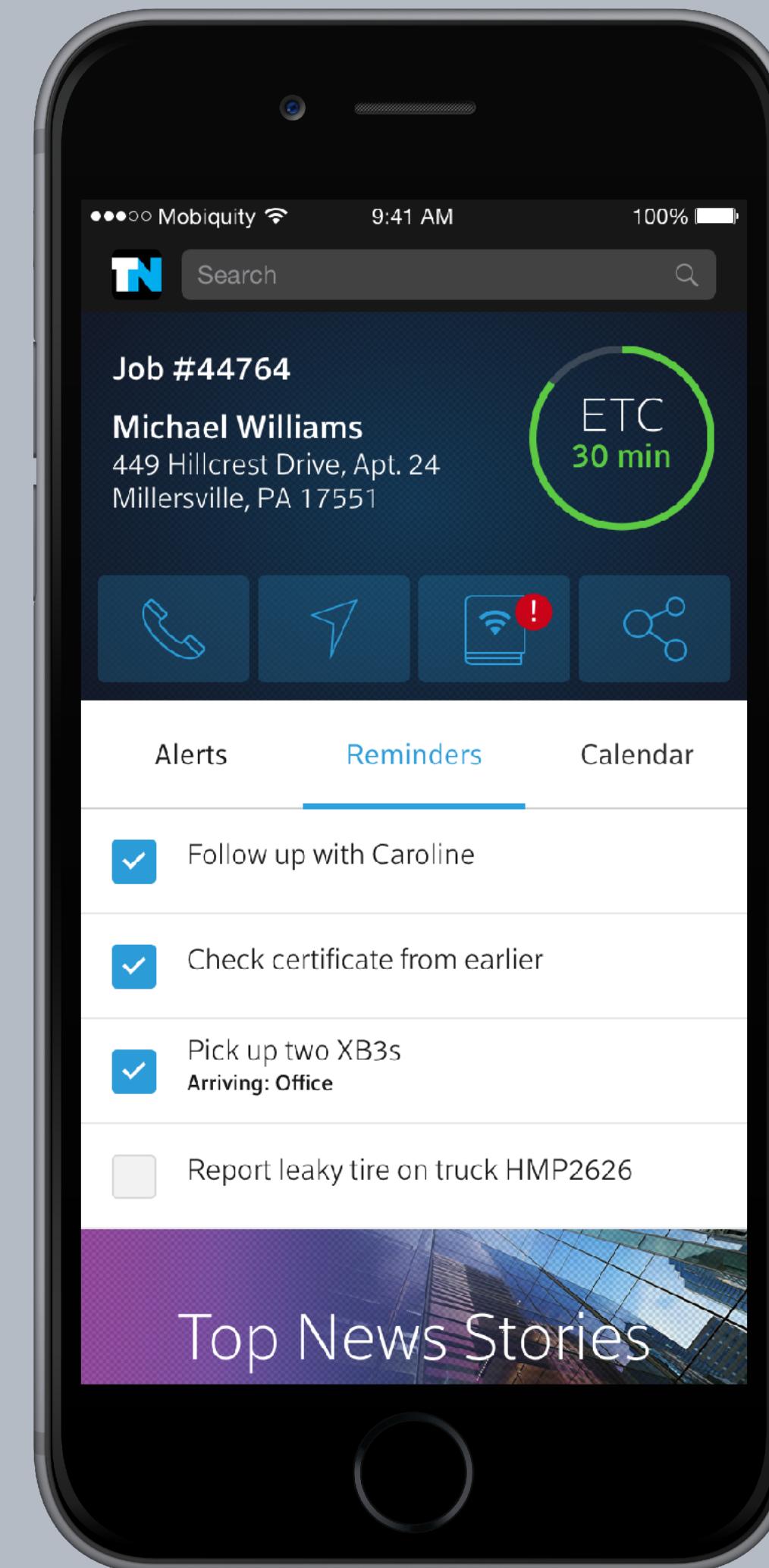
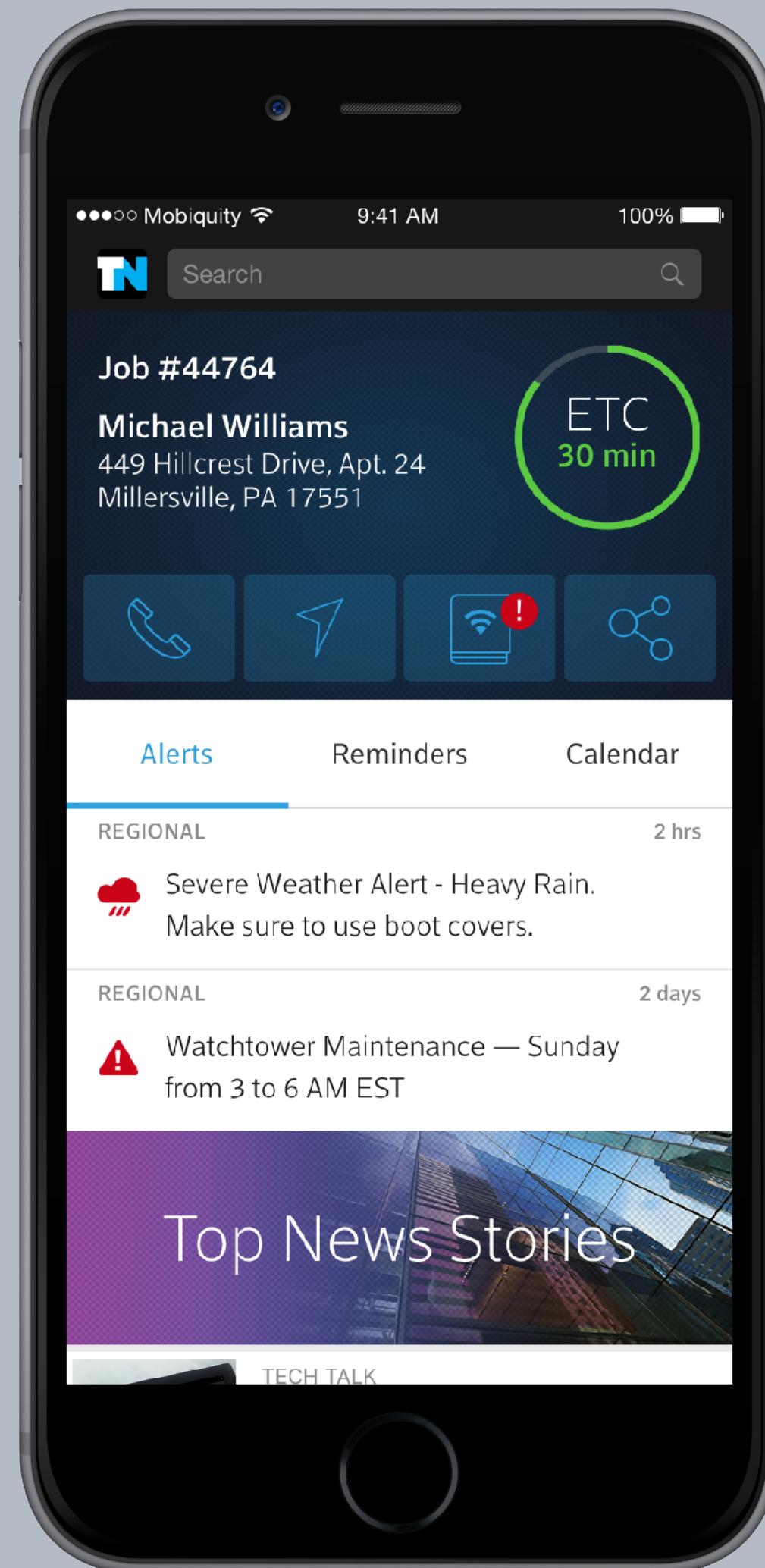
# Arriving at the Job



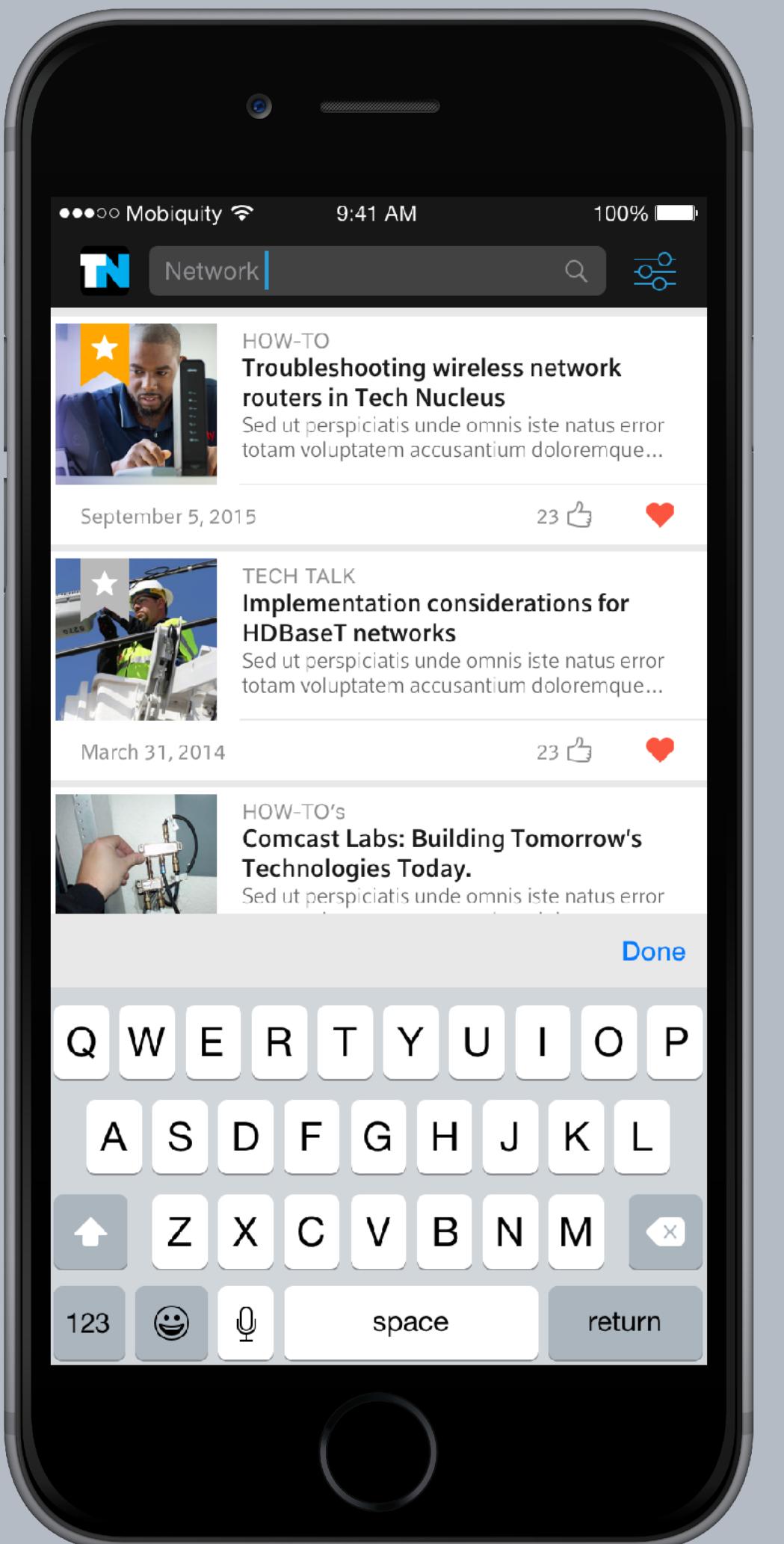
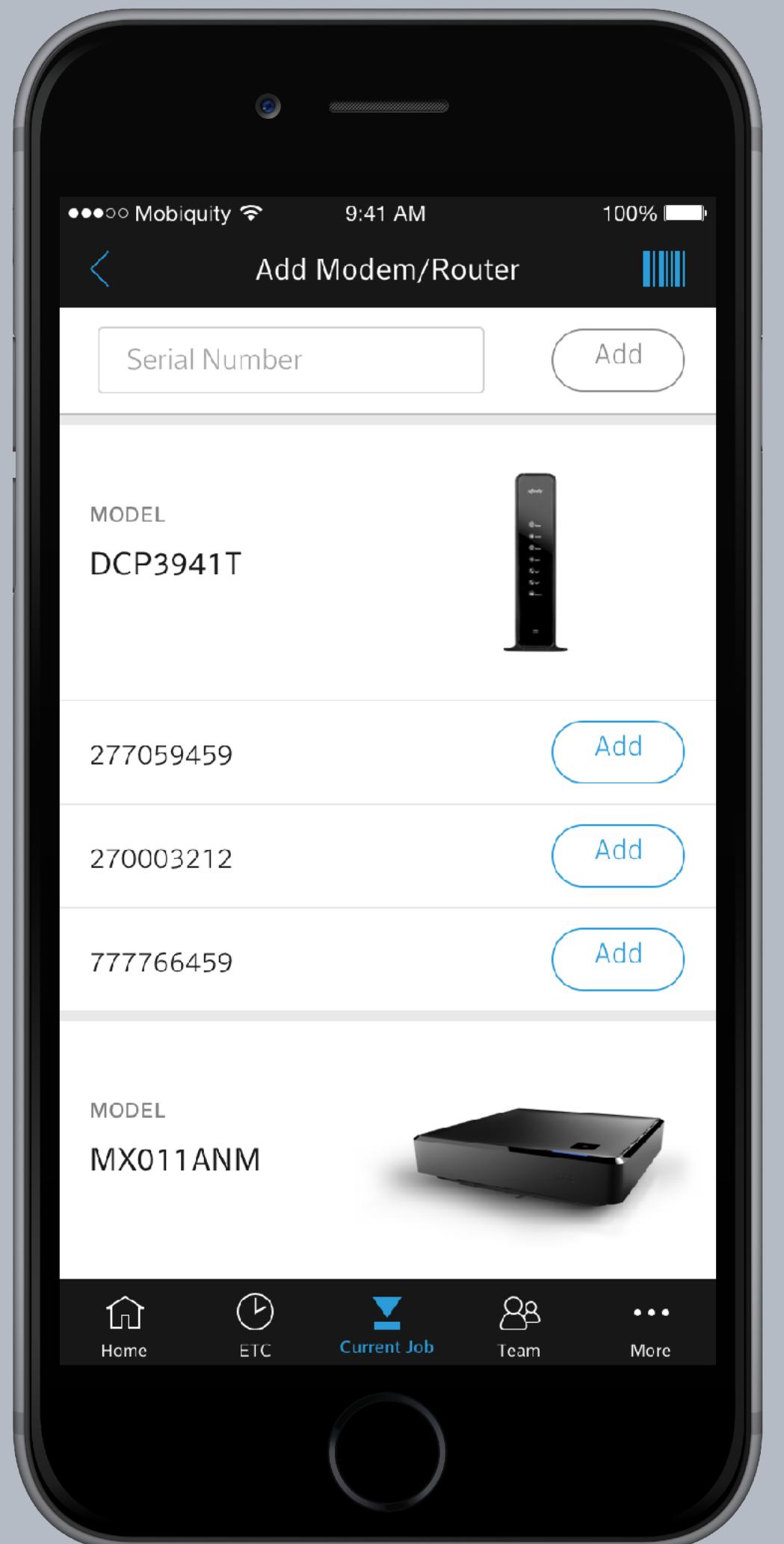
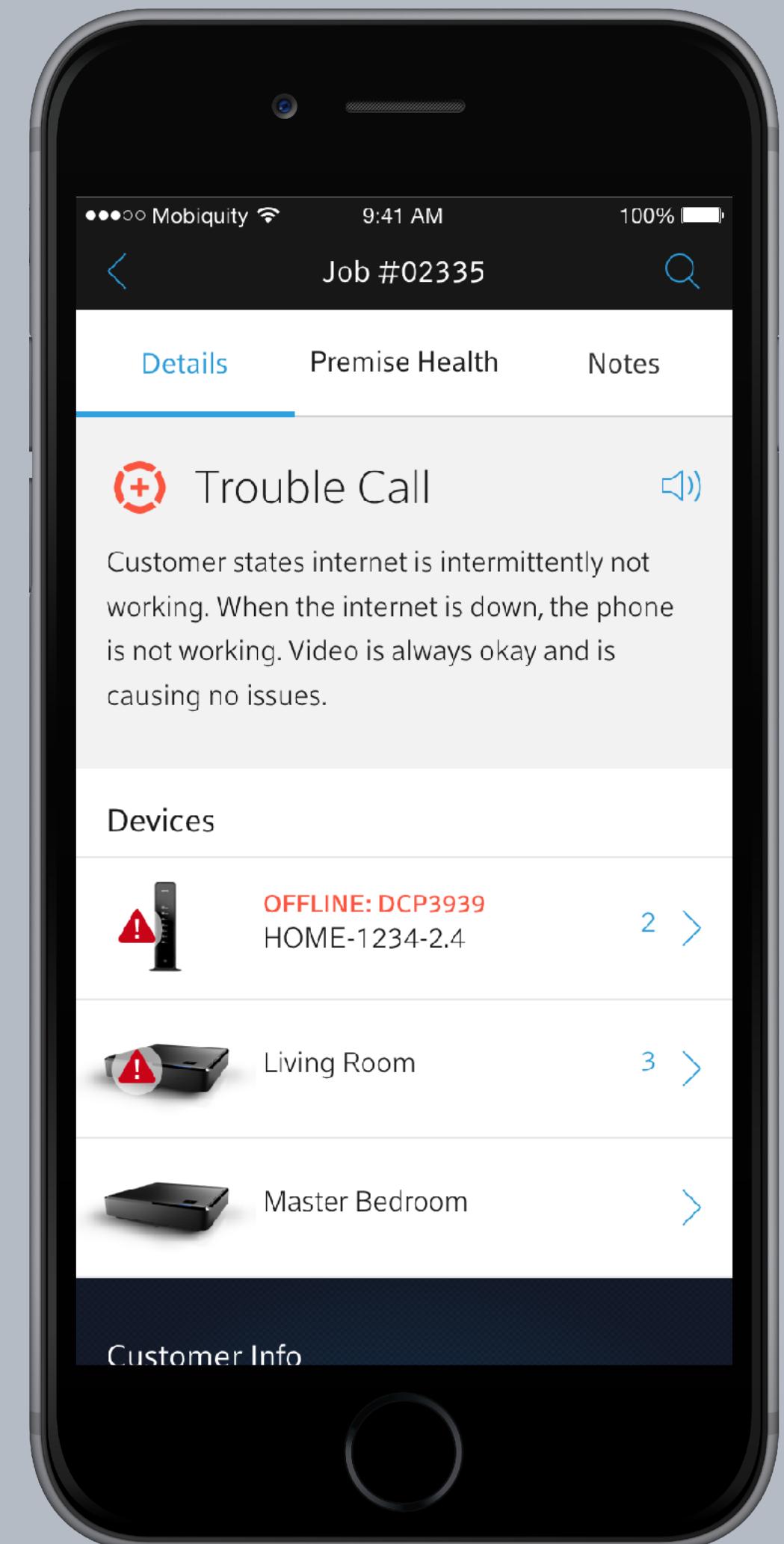
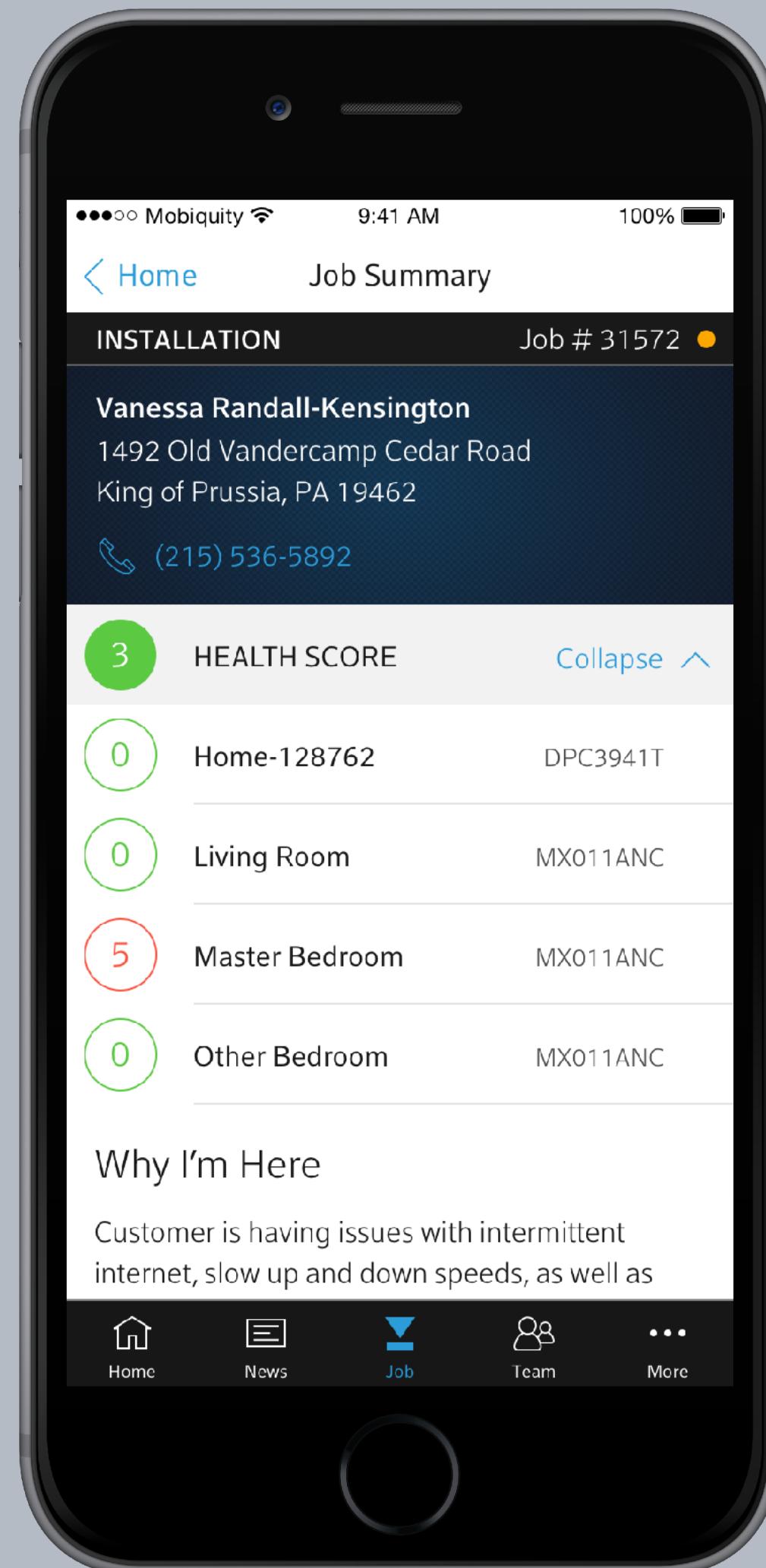
# Concepts



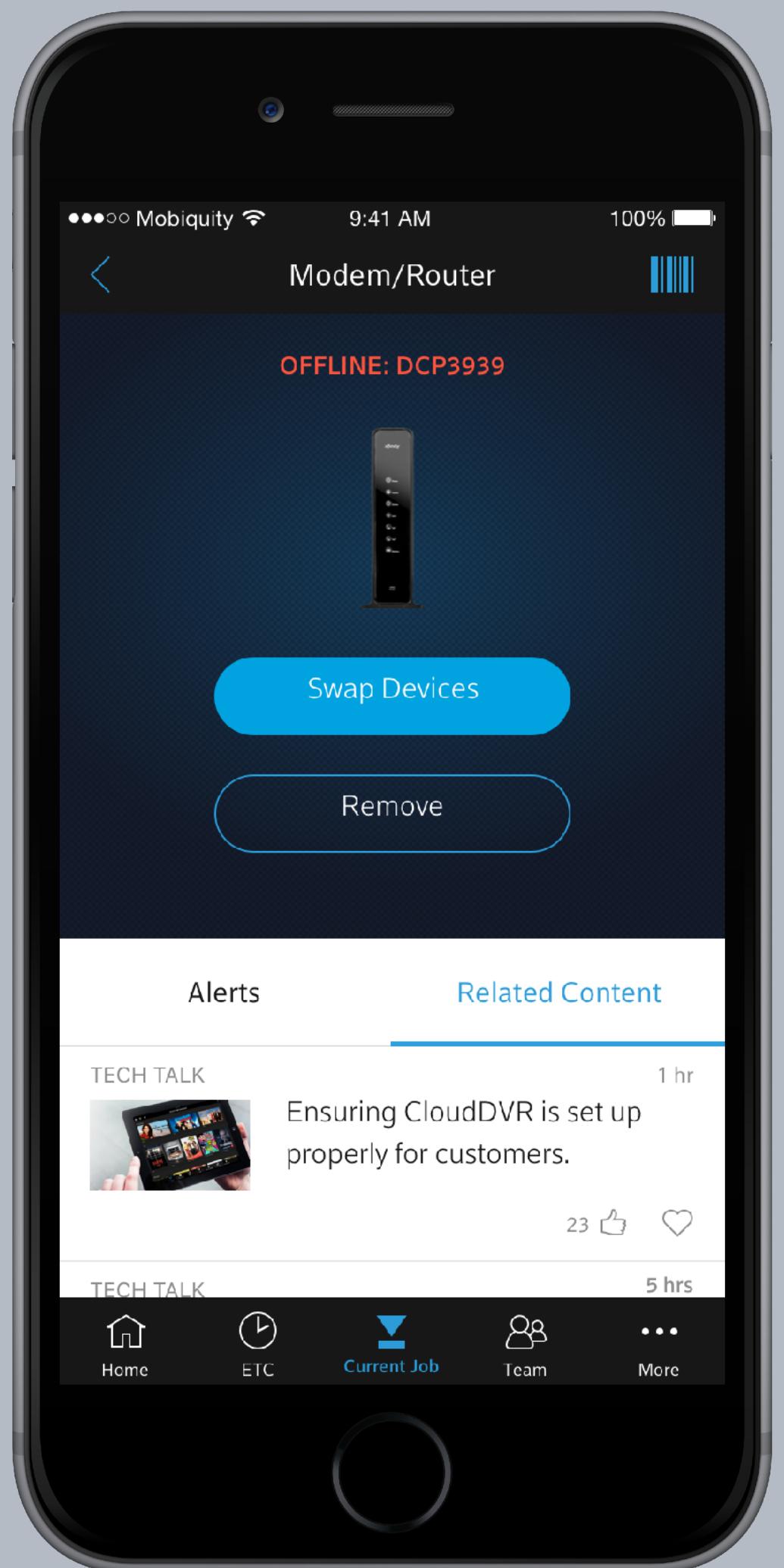
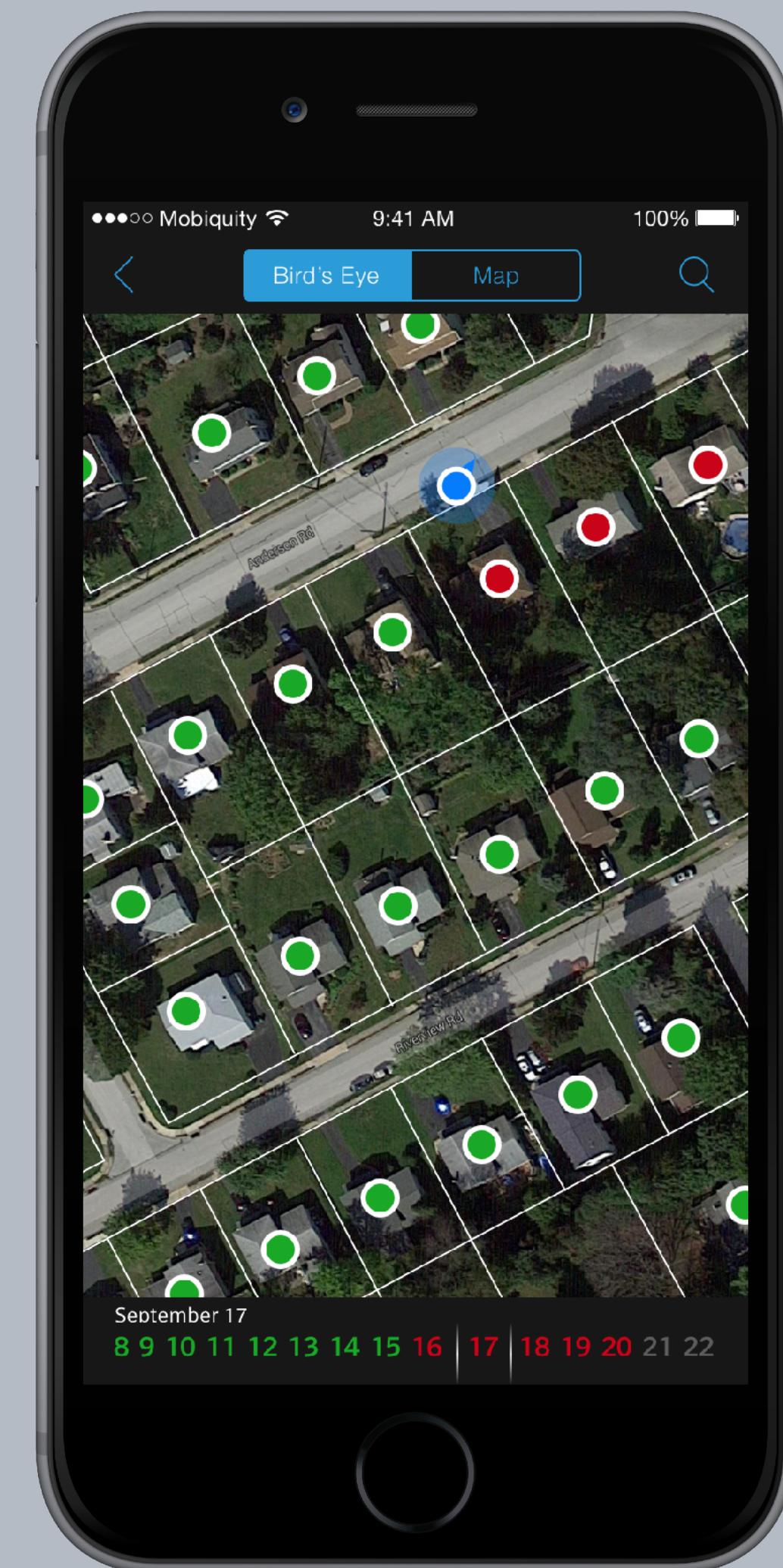
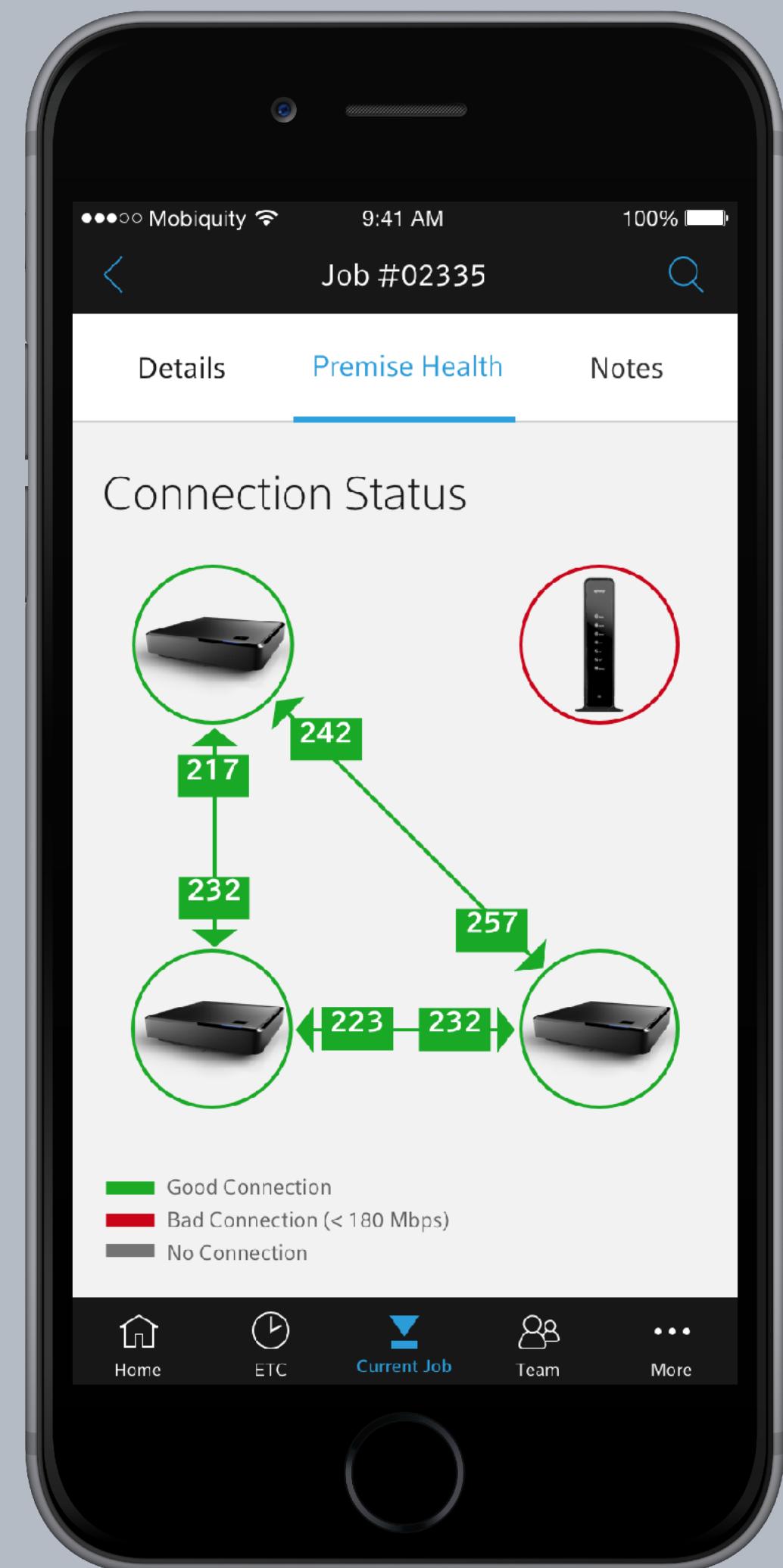
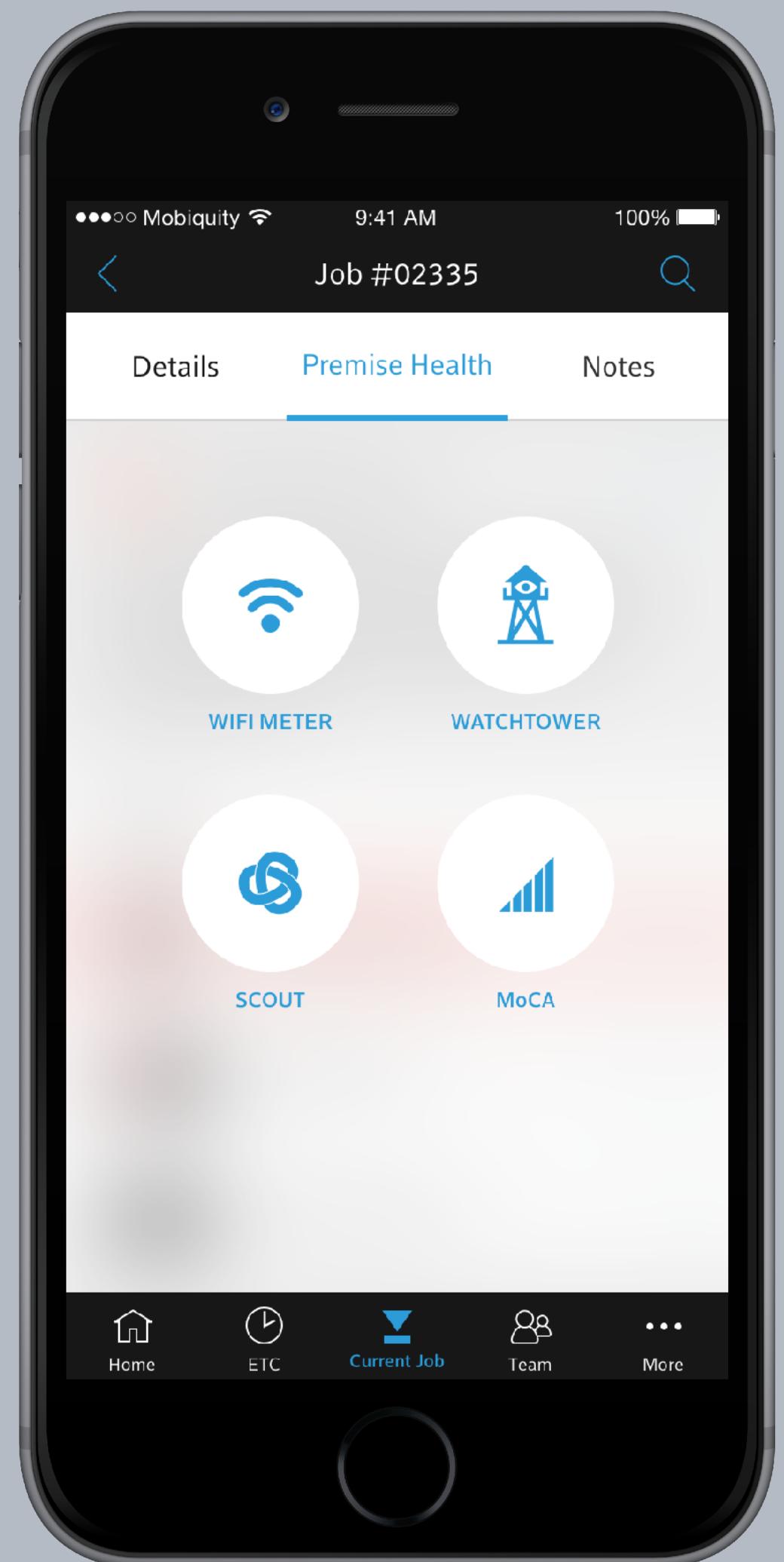
# Concepts



# Concepts



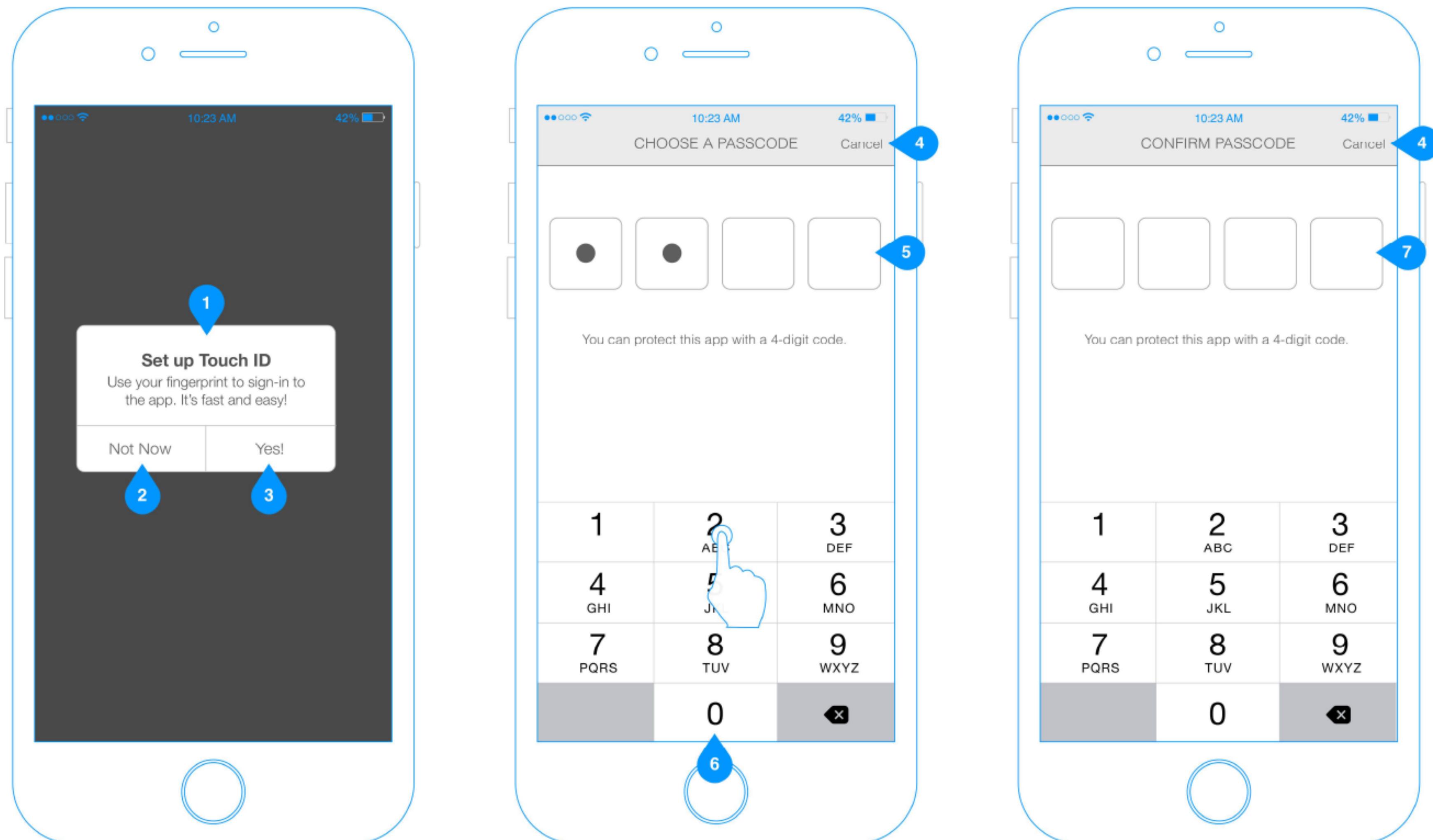
# Concepts



# Wireframes

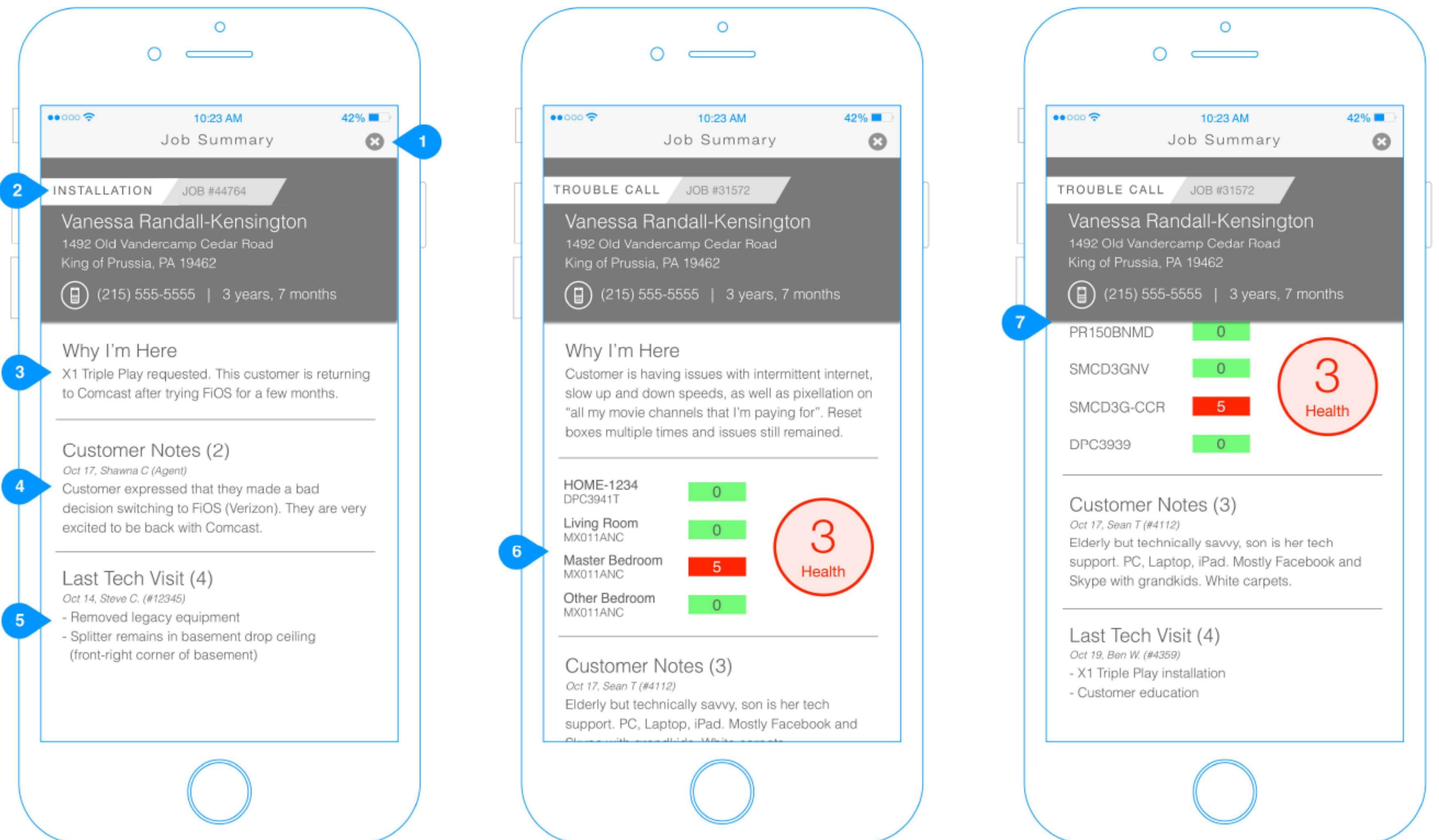
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# Non-SSO Login



- 1 Set Up Touch ID Pop-up**  
After the first successful login by a user, this pop-up will be shown to users.
- 2 Not Now Button**  
Users can tap this button to dismiss the pop-up.
- 3 Yes Button**  
Users can tap this button to dismiss the pop-up and navigate to the TOUCH-ID-PASSCODE screen to set up their desired passcode.  
NOTE: Passcode management will be detailed in the Settings area.
- 4 Cancel Button**  
Users can tap this button to stop this flow and return to the previous screen.
- 5 Passcode Entry (Masked)**  
When the 4th number is entered the app will navigate to the TOUCH-ID-PASSCODE-CONFIRM screen.
- 6 Number Keypad**  
Since only numbers are allowable for entry, the number keypad should be used for passcode entry screens.
- 6 Number Keypad**  
Since only numbers are allowable for entry, the number keypad should be used for passcode entry screens.
- 7 Passcode Entry (Masked)**  
If the passcode entered matches the passcode entered on the previous screen, then when the 4th number is entered the app will navigate to the HOME screen.

# Job Summary



## 1 Close

When finished viewing the summary, users can tap the close button/icon to dismiss this window/overlay.

## 2 Job Type / Number

In the Summary view, this area is informational only - not tappable.

## 3 Why I'm Here

This area will contain information that led to the truck roll being scheduled. Requested equipment, problem(s) the customer was experiencing, etc.

## 4 Customer Notes

This area will contain the last customer notes entered by the call center. This includes who added the note and when it was added.

## 5 Last Tech Visit

This section will contain information related to the last time a truck roll occurred at this location. This includes who the last technician was and when it occurred.

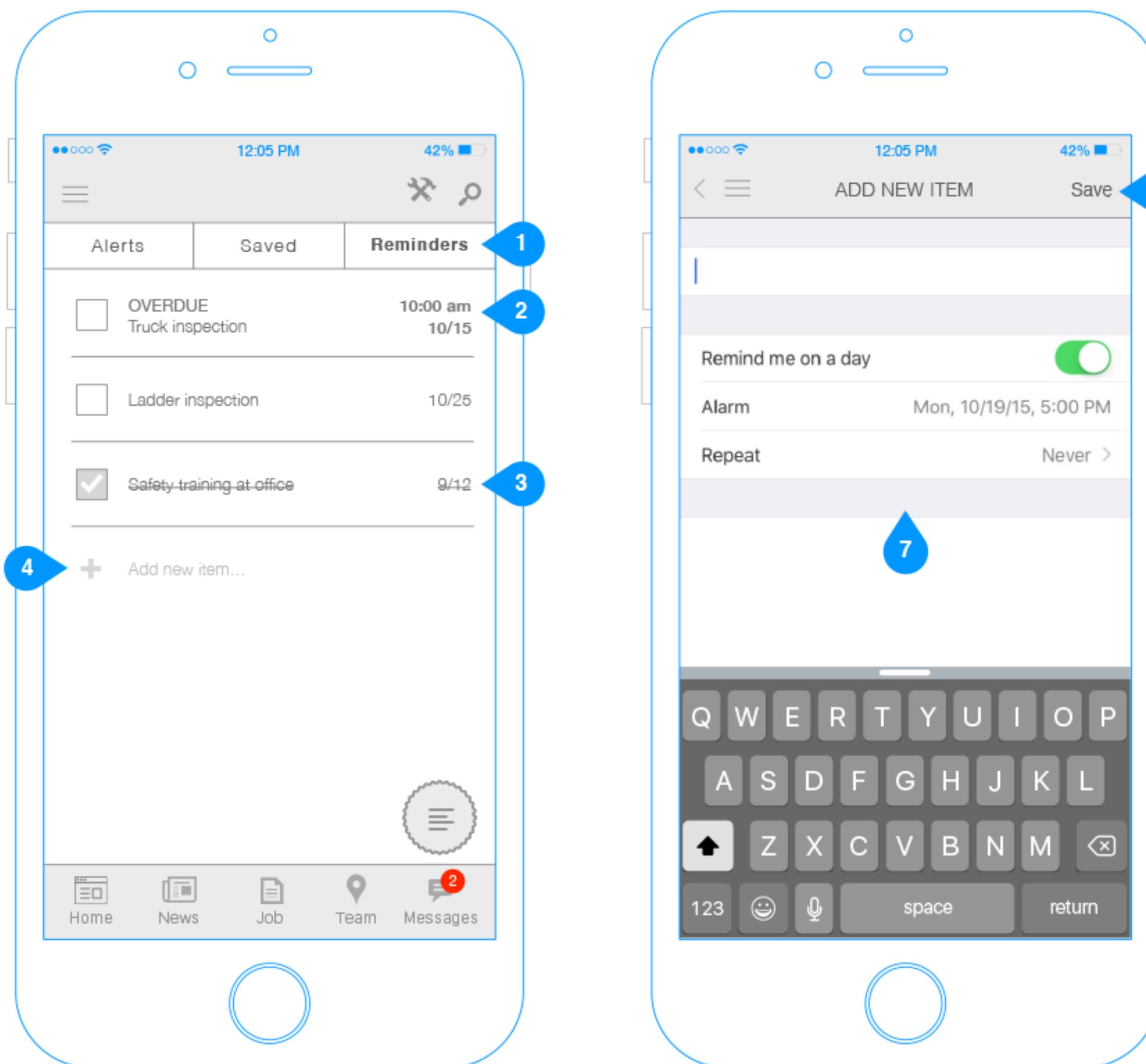
## 6 Health Information

This section will contain information related to the health of the home/business at the present time.

## 7 Scrolled

The customer information card should dock at the top of the screen and the remaining summary content should scroll beneath it.

# Reminders



## 1 Reminders Tab

When tapped, all reminders are displayed with the most recent due first. Reminders are created and deleted by the technicians.

## 2 Reminder

Similar to iOS reminders, the full text of the reminder along with its due date/time will be displayed in this view. Users will tap on the reminder to edit its details. Items that are now overdue, are marked such that they are visually different from the upcoming reminders.

## 3 Completed Reminder

Technicians can tap the checkbox to mark the reminder as completed. These reminders will be moved to the bottom of list. These reminders are persisted in this state in case the technician wishes to tap the checkbox again and mark the reminder as not completed. This allows for easily re-using reminders.

## 4 Add New Item

Technicians can tap this button to add a new reminder. The app will navigate to the Add New Item screen (REMINDERS-ADD-ITEM).

## 5 Left Triage Action

Technicians can swipe left on any reminder to reveal the Remove action. When tapped users will receive the confirmation pop-up to confirm the removal action.

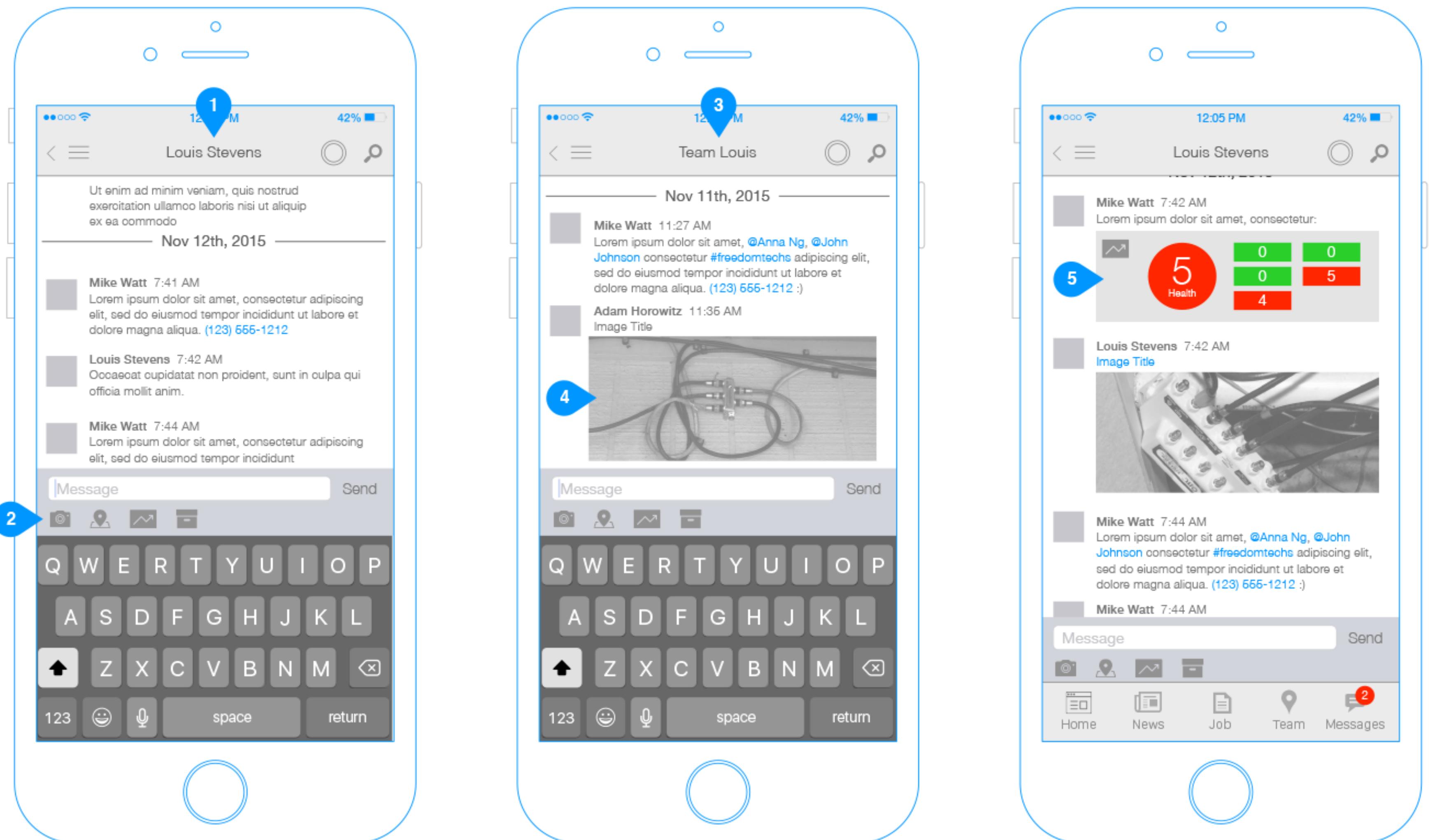
## 6 Save

When tapped, the contents of the reminder that have been entered will be committed. The app will navigate back to the Home screen with the Reminders tab open to reflect the newly added reminder.

## 7 Add New Item Form

This form will allow the user to add a new reminder. Only the title/description field is required.

# Messaging



## 1 Direct Message Conversation

In this example Mike Watt is messaging Louis Stevens.

## 2 Message Options

Technicians will have the ability to easily add several things to their messages to assist in making their point, illustrating something or marking a location. Those options are shown as: add a photo, drop a pin, show health data of current job, and show the job details card.

Tapping on these items will place a pin, health info card, or job info card directly into the message stream. Adding a picture will take the technician to their device camera roll to insert a photo or photos.

## 3 Team Message

Each tech will have an ongoing team conversation provided in their conversation list. This is an open forum to post questions, solutions, etc. and converse with their teammates.

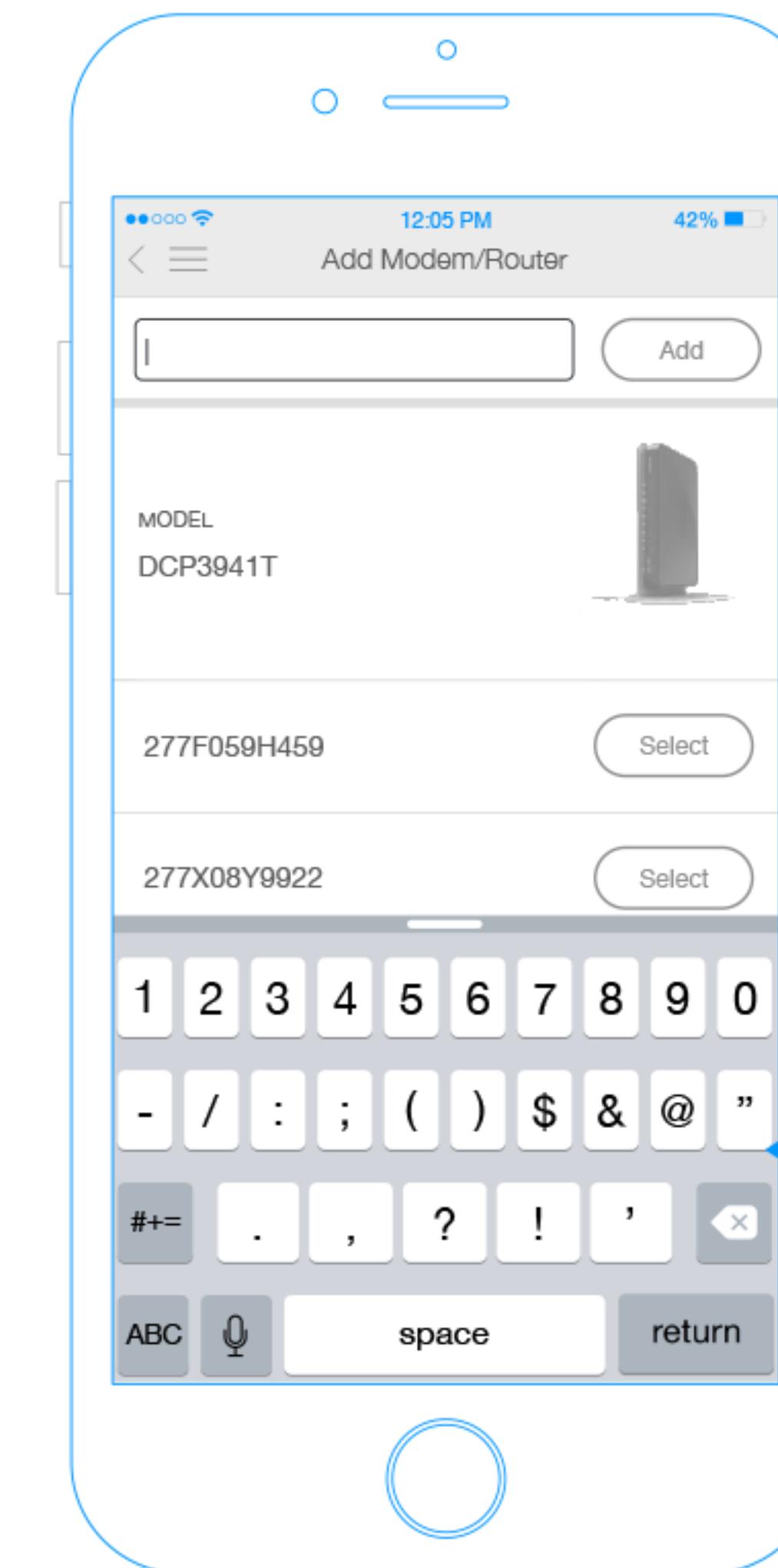
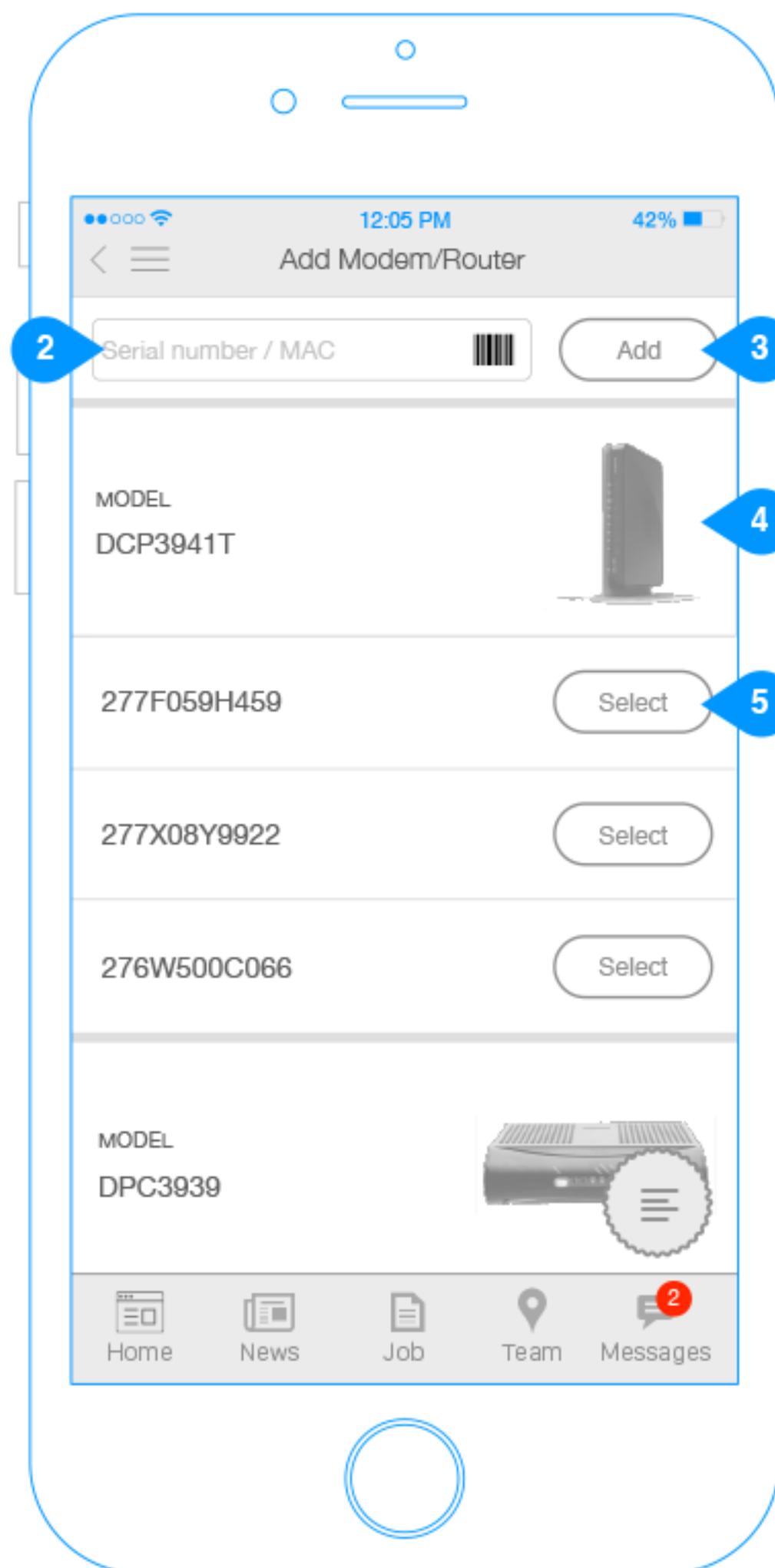
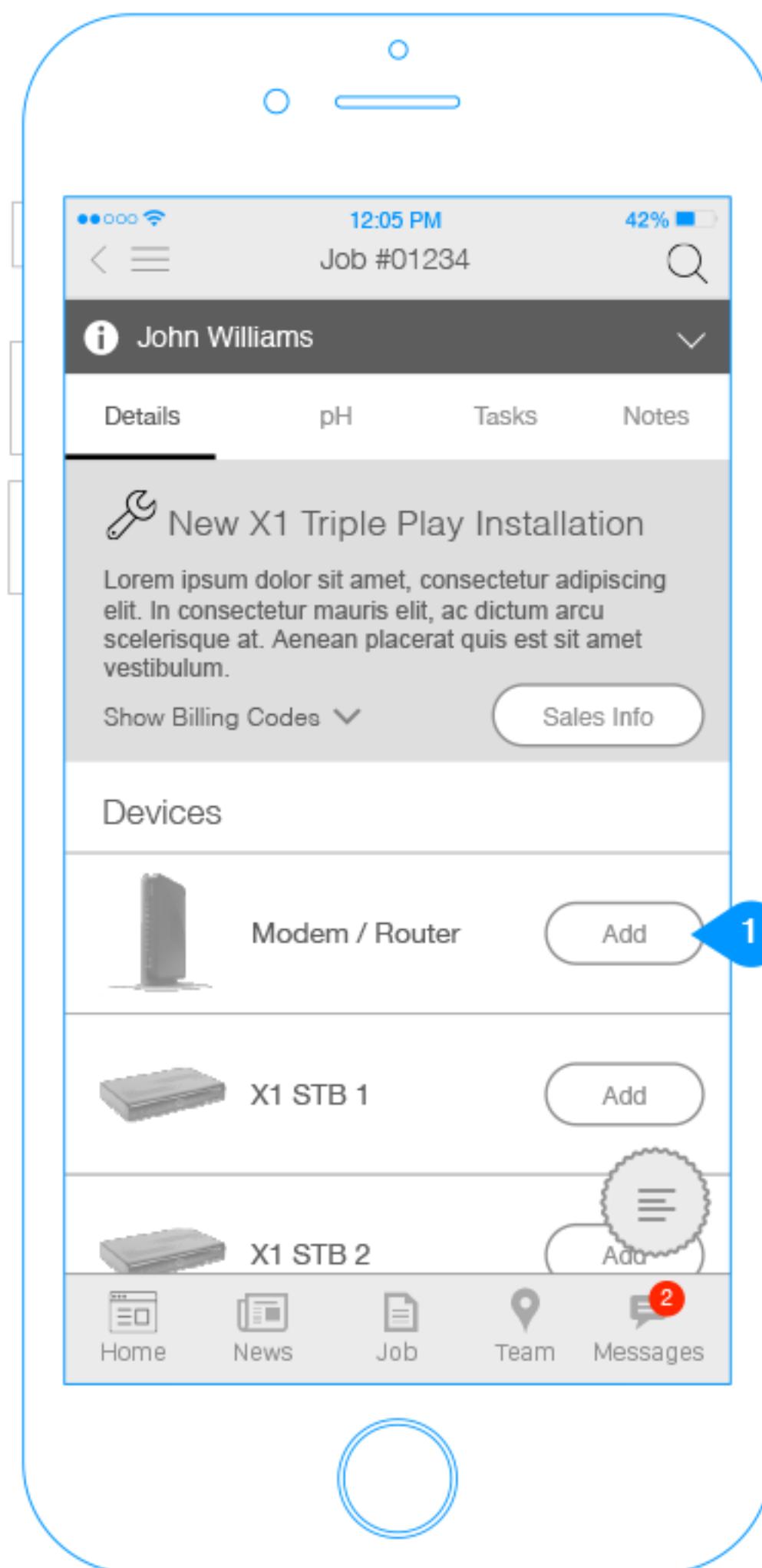
## 4 Photo Example

This is an example of a photo that was added to the team conversation by Adam Horowitz.

## 5 Health Example

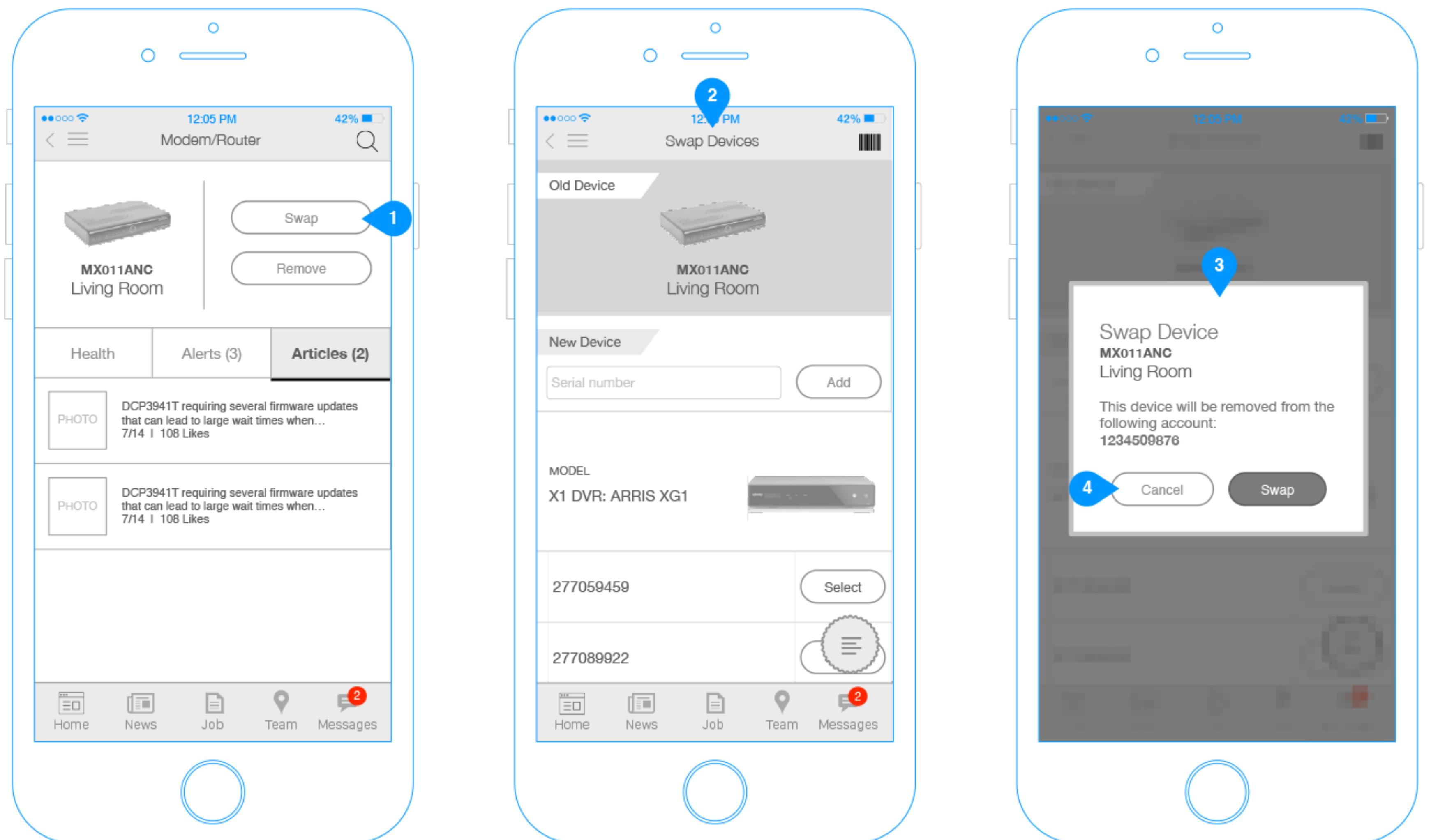
This is an example of a health card that was added to the team conversation by Mike Watt. The intent is for the card to deep link to Mike Watt's job and view the full details of the health of that home/business — this would be a read-only view of the job details screen.

# Add Device



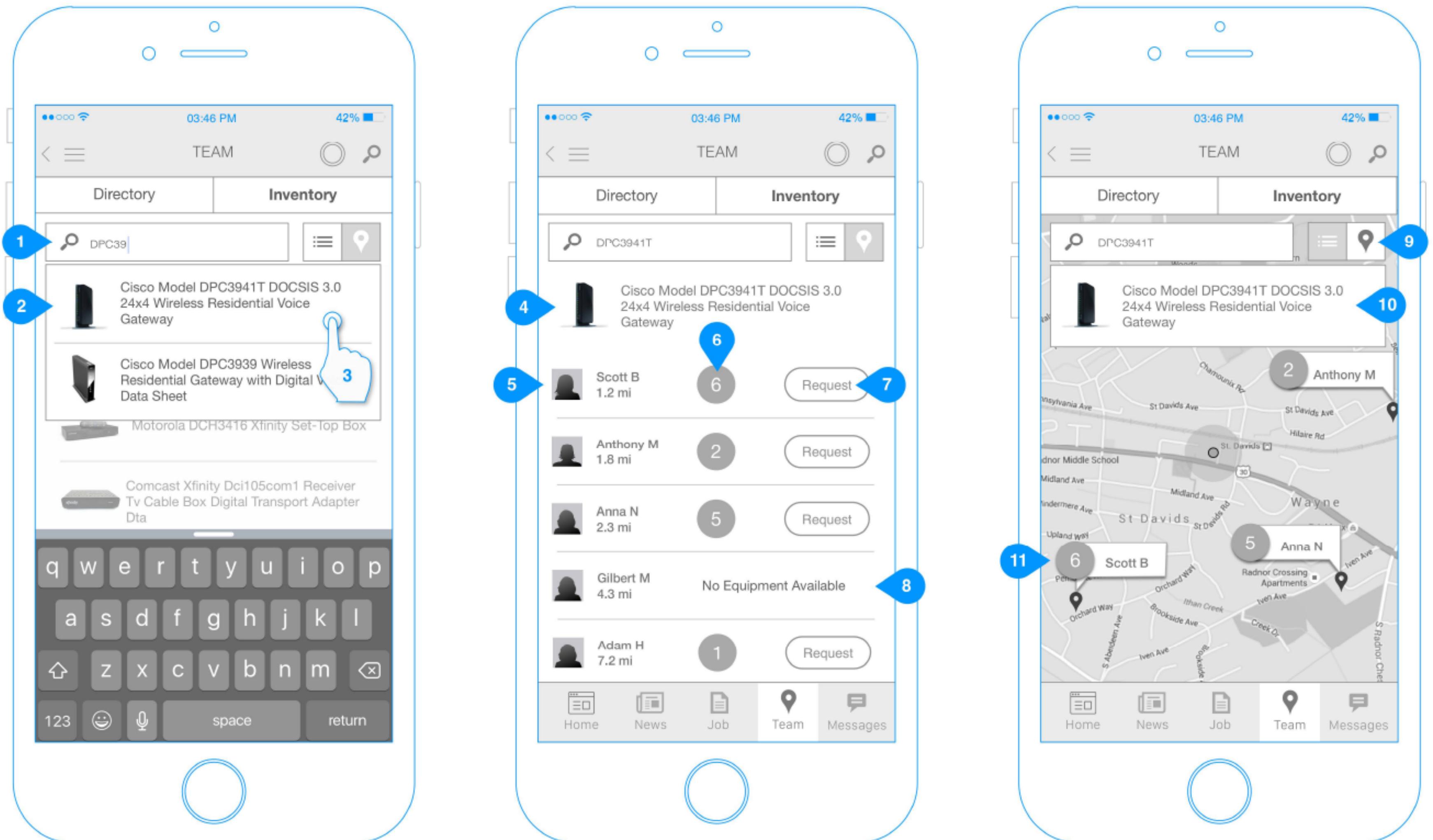
- 1 Add**  
For each device, technicians will tap the Add button to navigate to the "Add <device type>" screen.
- 2 Manual Addition**  
If a device is not displayed in the pick list below, or the technician just prefers to enter the serial number or MAC address manually, they will tap into this field. Optionally, the bar code can be tapped to scan the bar code on the device itself (this functionality is TBD).
- 3 Add Button**  
For manual entry, when the technician has finished typing the serial number, they will tap the Add button. When tapped, the app will verify the serial number and type of device, and if successful add the device to the customer account.
- 4 Device Listing**  
The device listing will be displayed by device type. Only applicable device types will be shown depending on which device needs to be added. For instance, when the tech taps to add a modem/router, only modem/router device types will be displayed. Both the model number and a device image will be displayed to assist the tech as they look for their device.
- 5 Select**  
When technicians find the device they need to add, they will tap the Select button. When tapped, the device will be added to the customer account.
- 6 Number Keypad**  
Since most serial numbers start with a number sequence, we will default the keypad to the number keypad as shown.
- 7 Type Ahead Searching**  
As the technician types in a serial number, any corresponding matches from the listings below will be shown. At any time the technician can tap Select for a given device below or tap Add when finished typing in the serial number.

# Swap Device



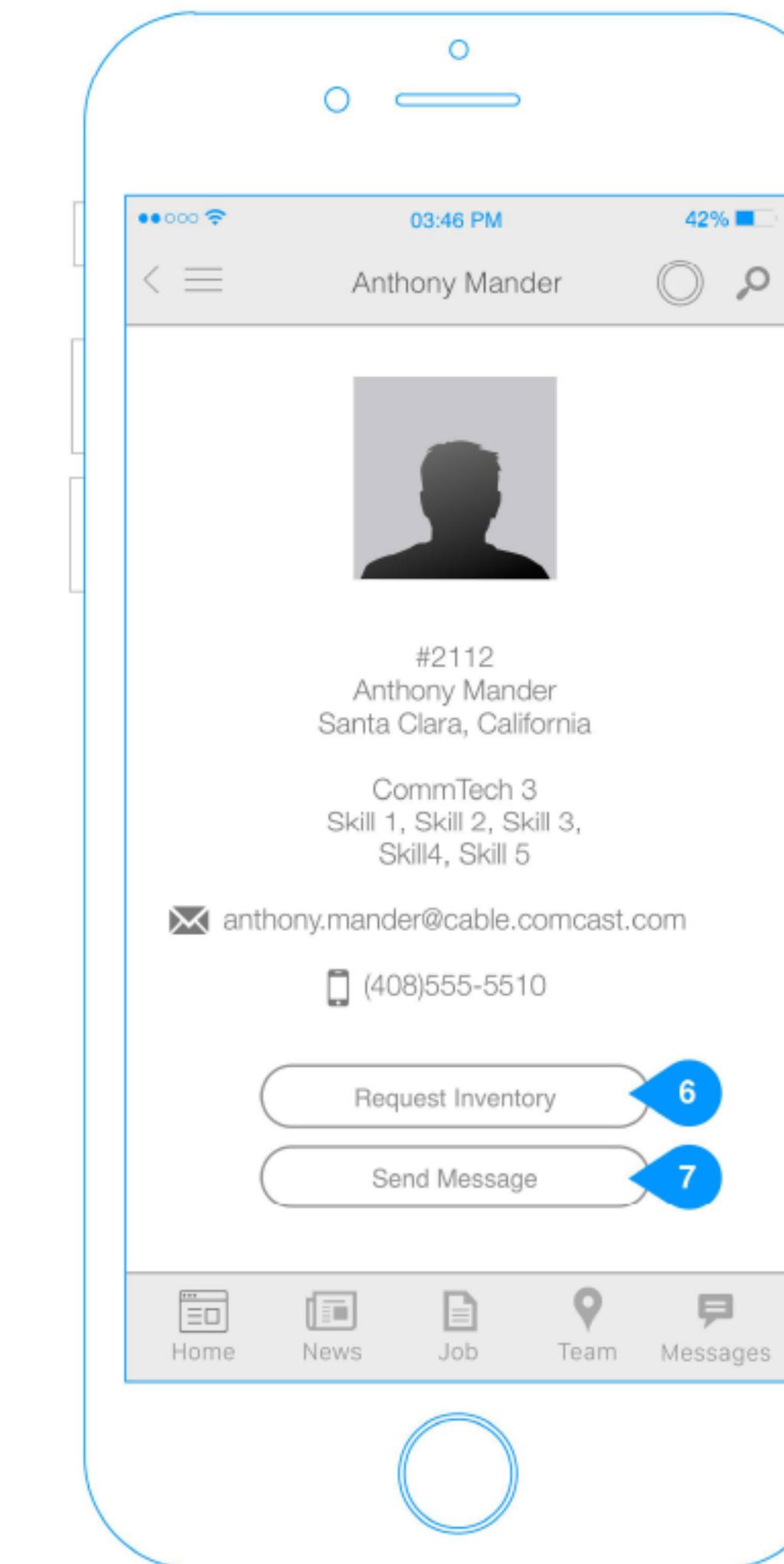
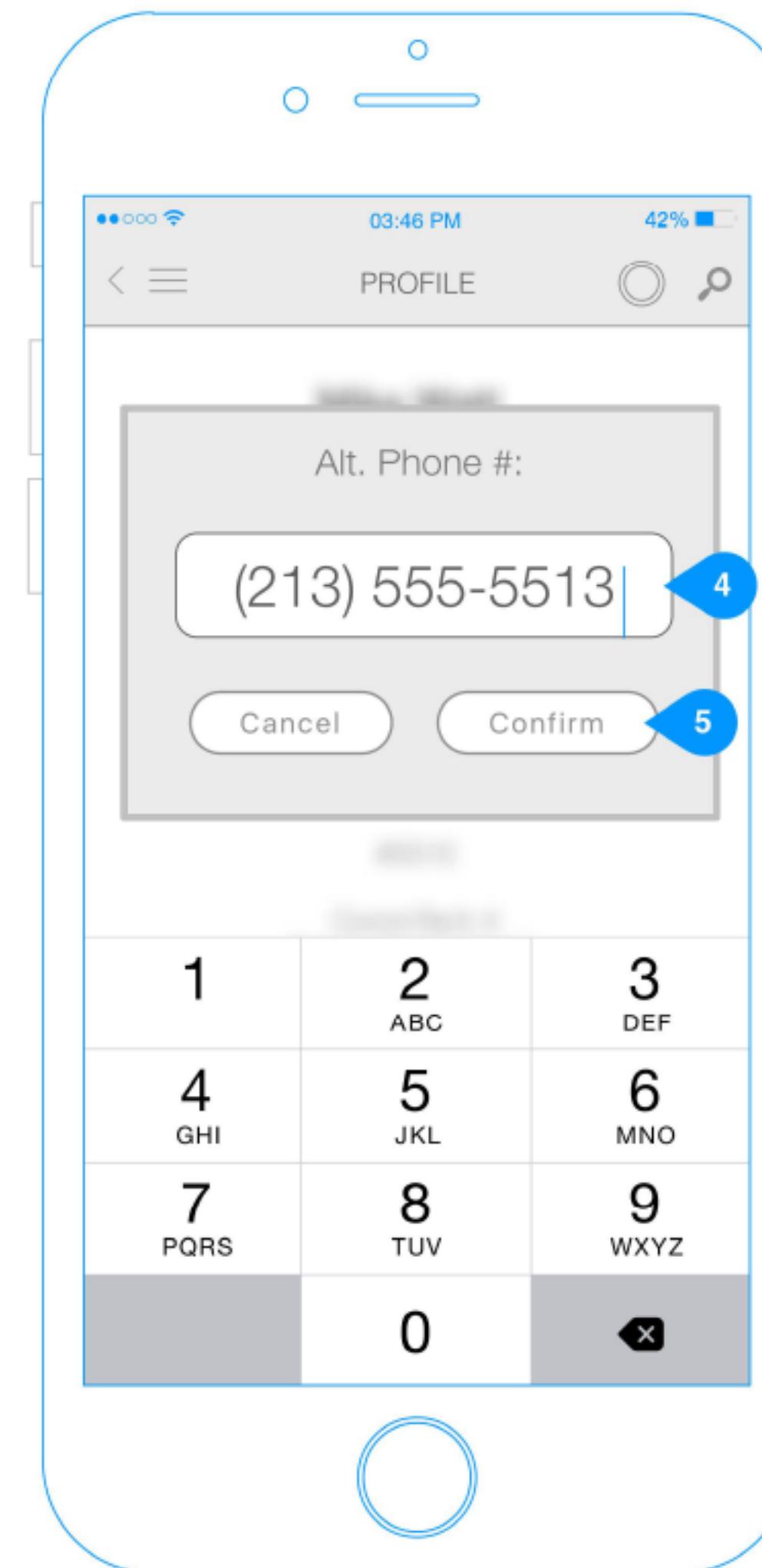
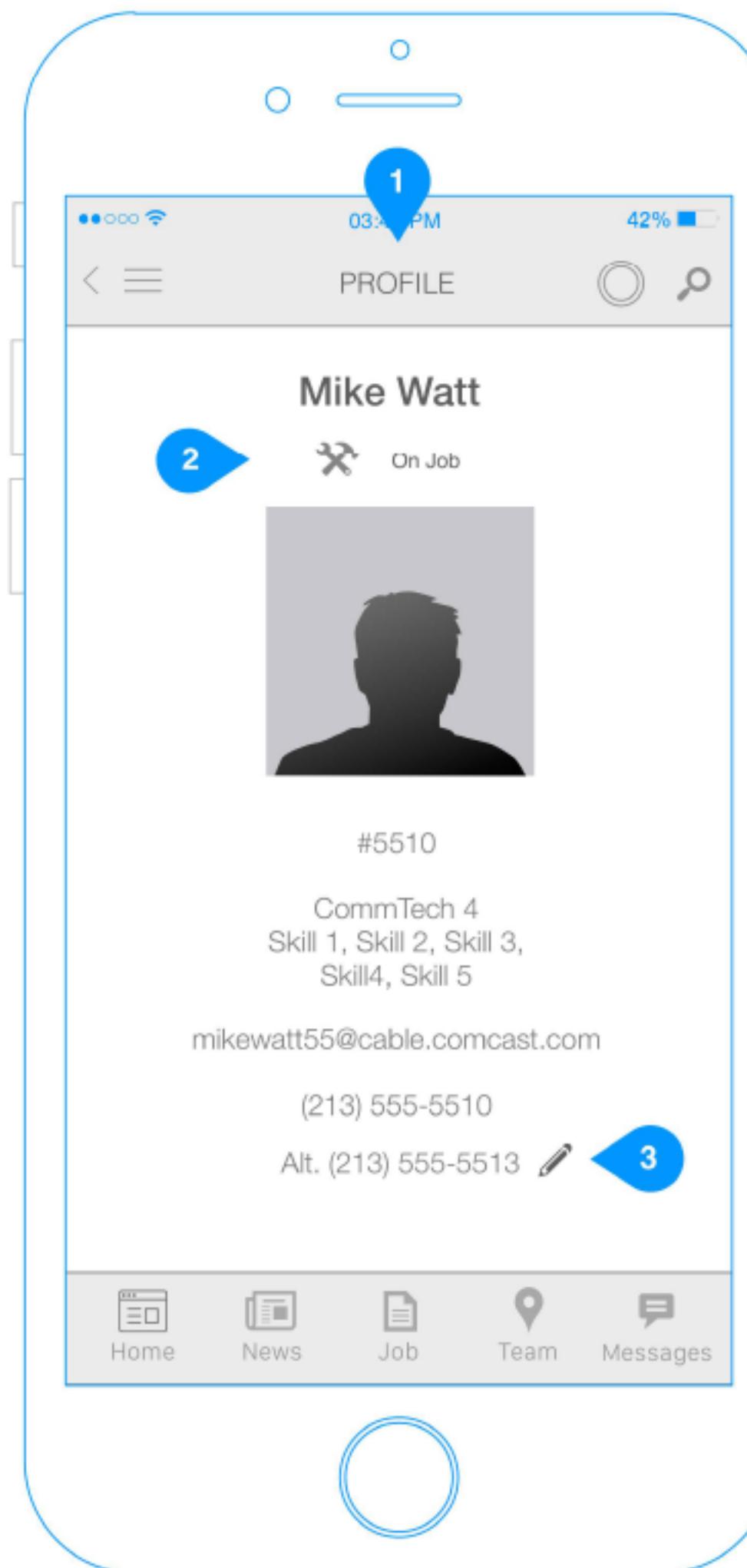
- Swap Button**  
When tapped, this will confirm the removal of the specified device and remove it from the customer account.
- Swap Devices**  
This screen displays the device that will be removed and allows the technician to select a replacement device all in one step.
- Swap Devices Pop-up**  
When a technician taps Select (or manually adds a device) from the Swap screen they will receive the pop-up to confirm the swap on the account.
- Cancel Button**  
When tapped, this preserves the current state of the account, closes the pop-up, and returns the app to its previous state.

# Find Inventory



- 1 Search**  
Technicians can search for inventory that their team members might have. As they type in criteria, the system will display predictive results.
- 2 Predictive Results**  
As the technician types in the product, results will display, showing a product image, and the full name of the product.
- 3 Selection Tap**  
Tapping on the predictive results will take the technician to the inventory search results for that product.
- 4 Inventory Search Results**  
The inventory search results will display product information at the top of the page, with the product image, and a complete name of the product.
- 5 Team Members**  
Each team member will display, in ascending order based on distance from technician, showing member profile picture, distance, and full name.
- 6 Inventory Level**  
Each team member's known inventory level for the selected product will display.
- 7 Inventory Request**  
Tapping the request button will generate a request message with the selected team member.
- 8 No Inventory**  
For team members that do not have any inventory of the selected product, no request button will display.
- 9 View Toggle**  
Once switched, a technician is allowed to view the search within the context of the map.
- 10 Inventory Search Results**  
The inventory search results will display product information at the top of the page, with the product image, and a complete name of the product.
- 11 Inventory Level**  
Each team member's known inventory level for the selected product will display along with their name on the map.

# Profile

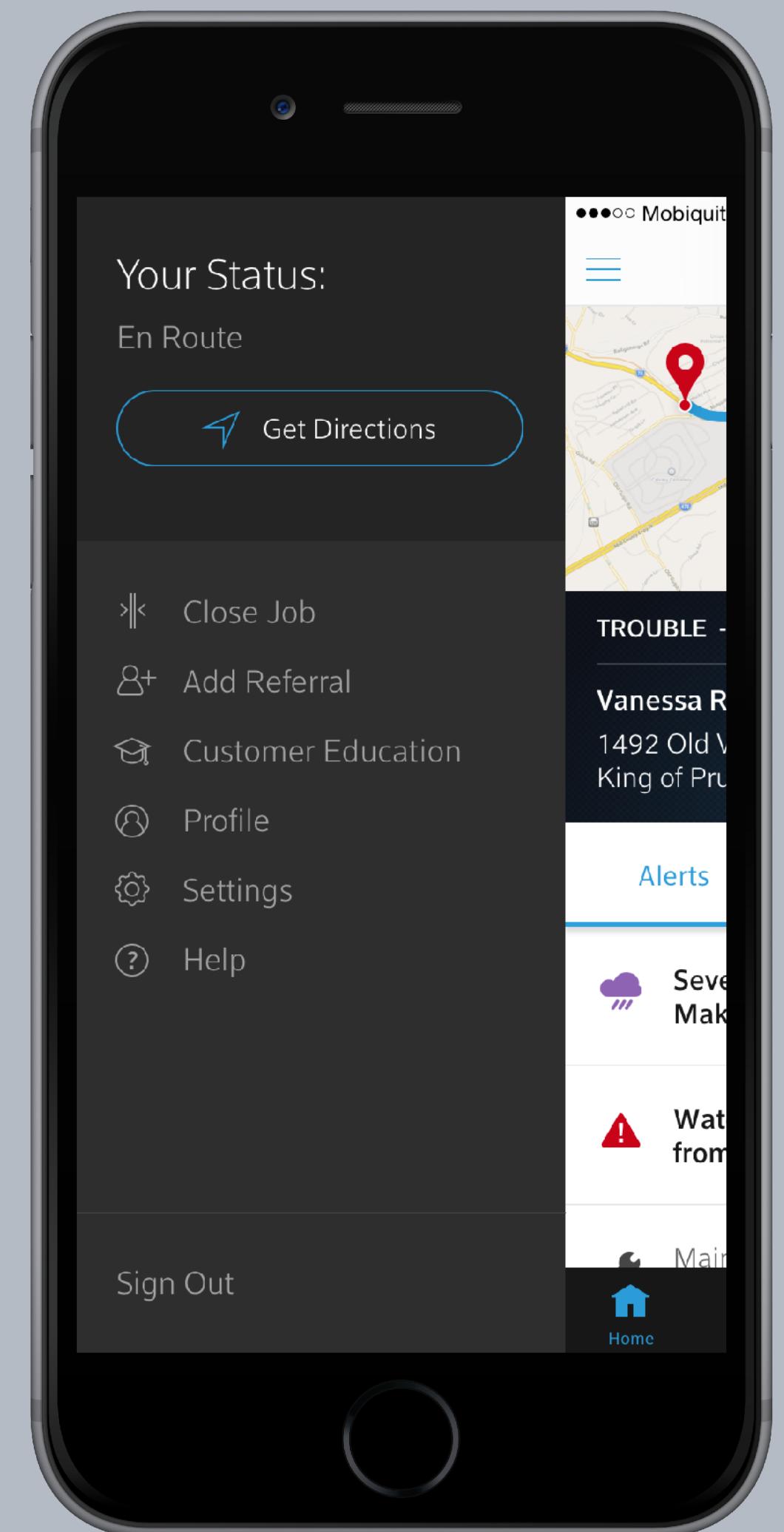
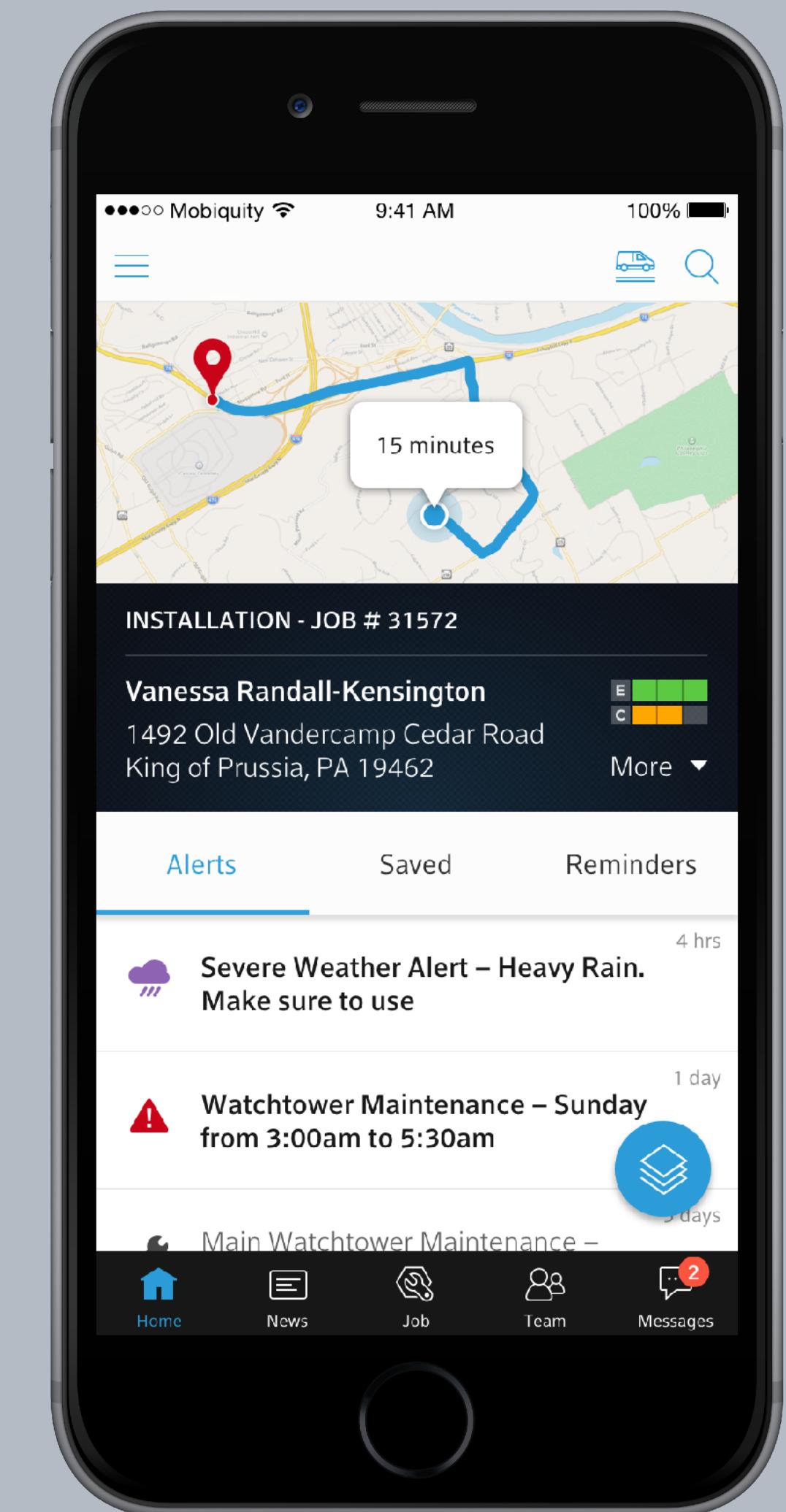
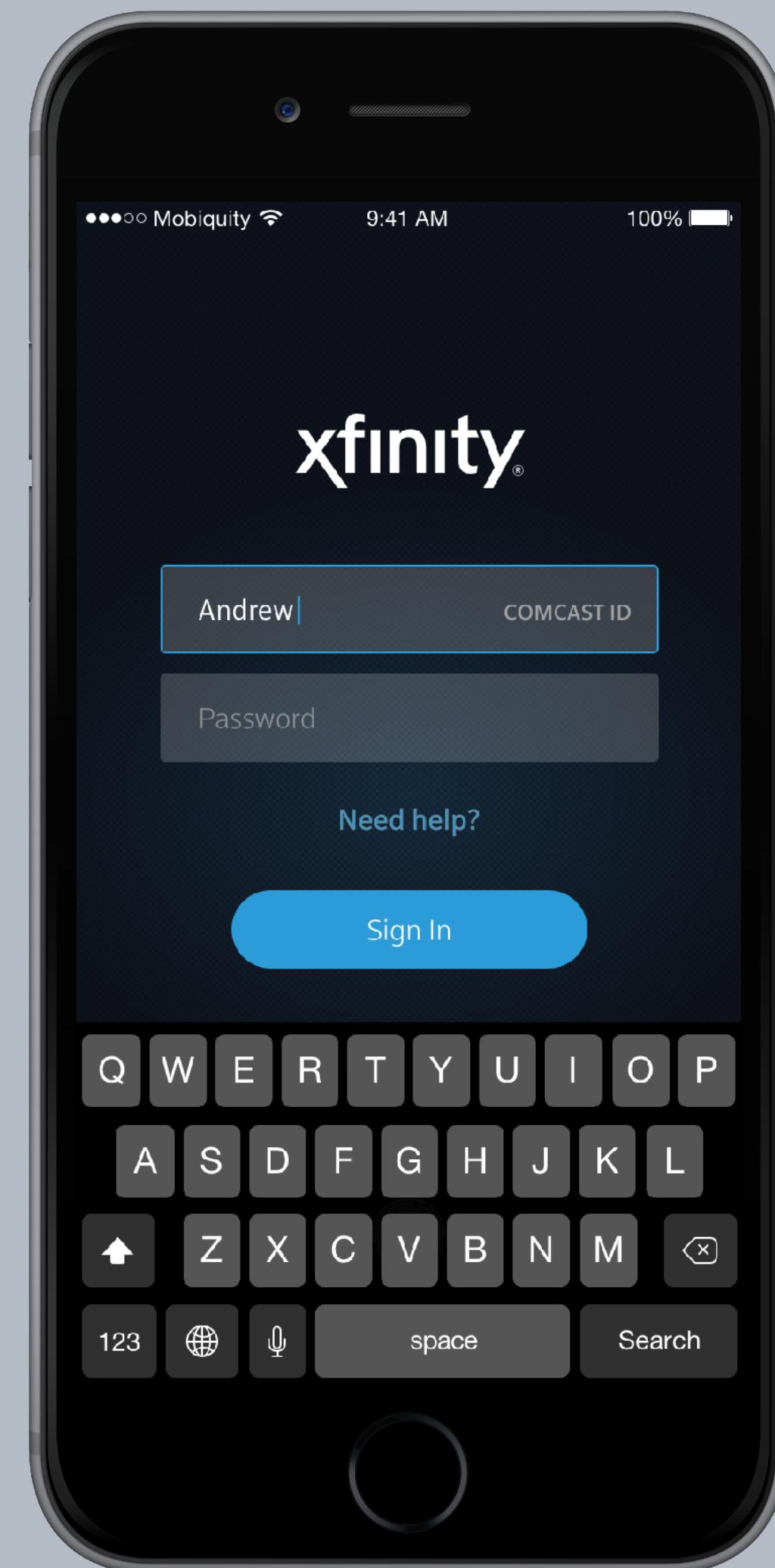
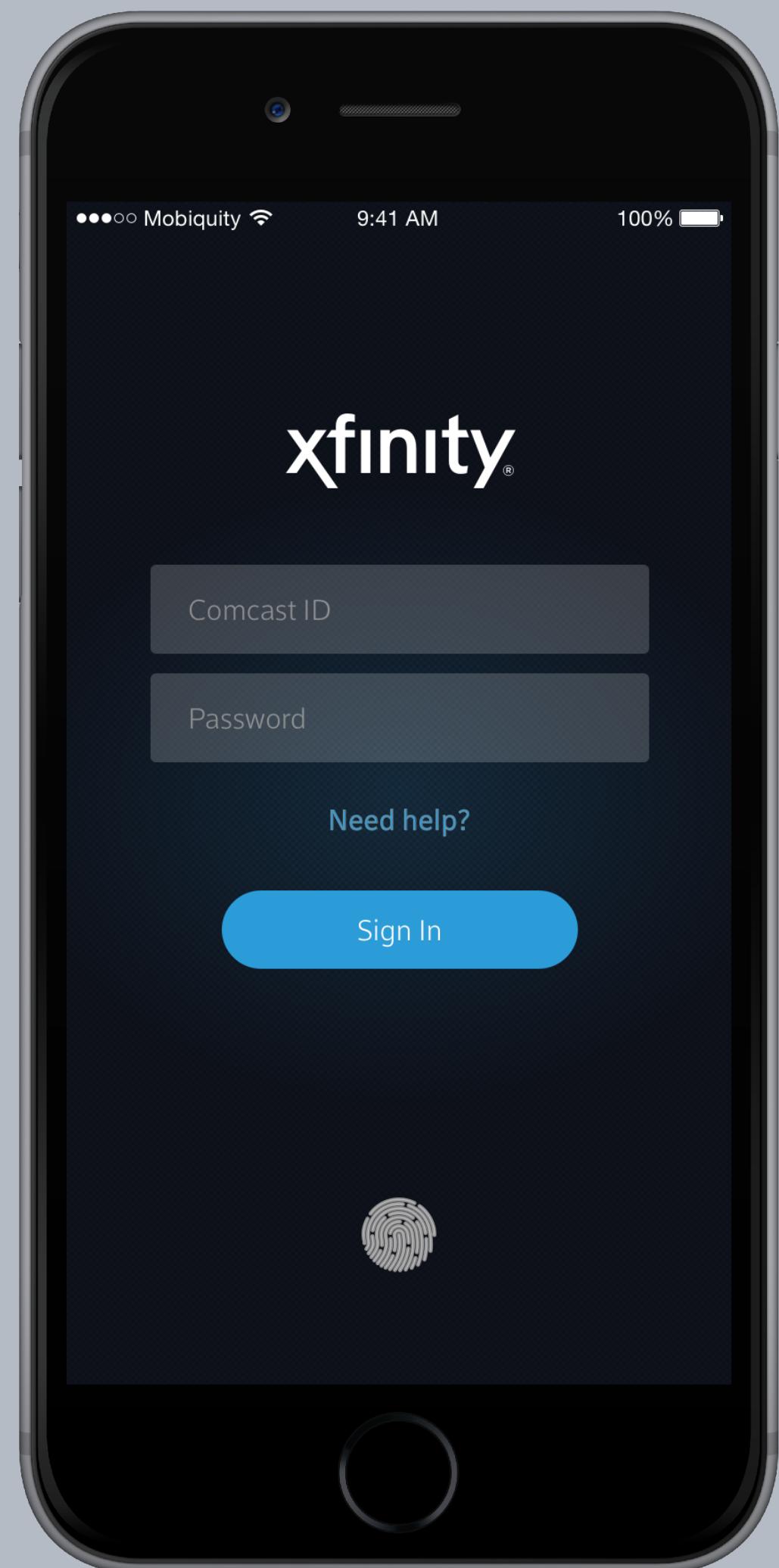


- 1 Profile Page**  
Each technician will have a profile page, displaying information about him. A technician can access his own page through the contextual menu, and make edits from there.
- 2 Profile Information**  
Each profile will display the following information
  - Current work status, with icon
  - Profile image
  - Personal message
  - Tech number
  - Screen name
  - First and last name
  - General location (not current GPS location)
  - Job Level
  - Job Skills
  - Email address
  - Phone numbers
- 3 Edit Alt Phone Number**  
On the technician's page, he will have the ability to tap to edit his phone number.
- 4 Enter Alt Phone Number**  
Technicians can tap in their phone number with the provided keypad.
- 5 Confirm / Cancel**  
The Cancel button will dismiss the pop-up and return the tech to the previous page (Profile page). The Confirm button will save the phone number that was typed in and return the tech to the previous page (Profile page).
- 6 Request Inventory**  
When tapped, this will navigate the technician to the Team page with the Inventory tab displayed.
- 7 Request Inventory**  
When tapped, this will navigate the technician to a conversation with this technician. If no conversation exists with this technician, a new one will be started.

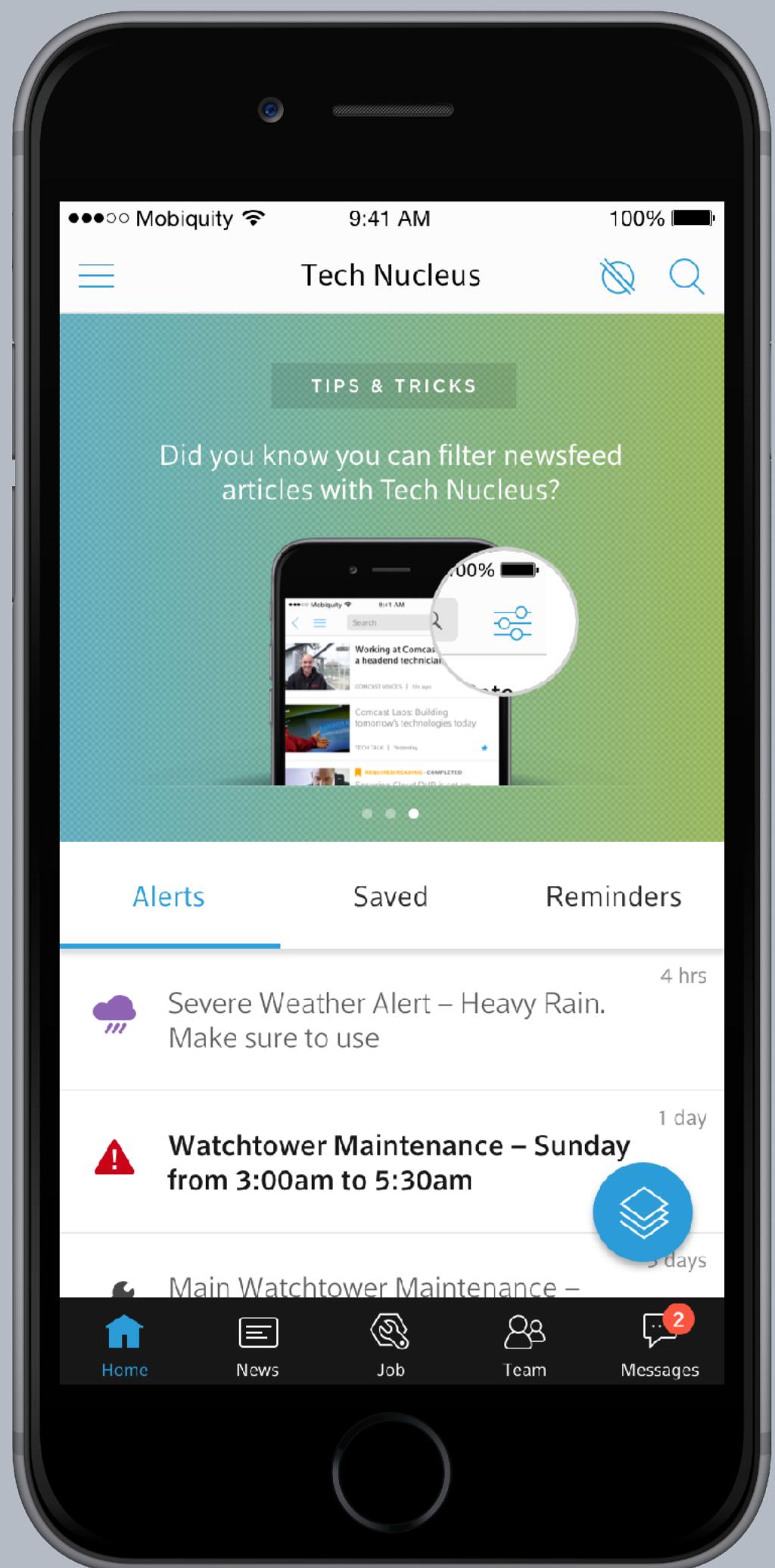
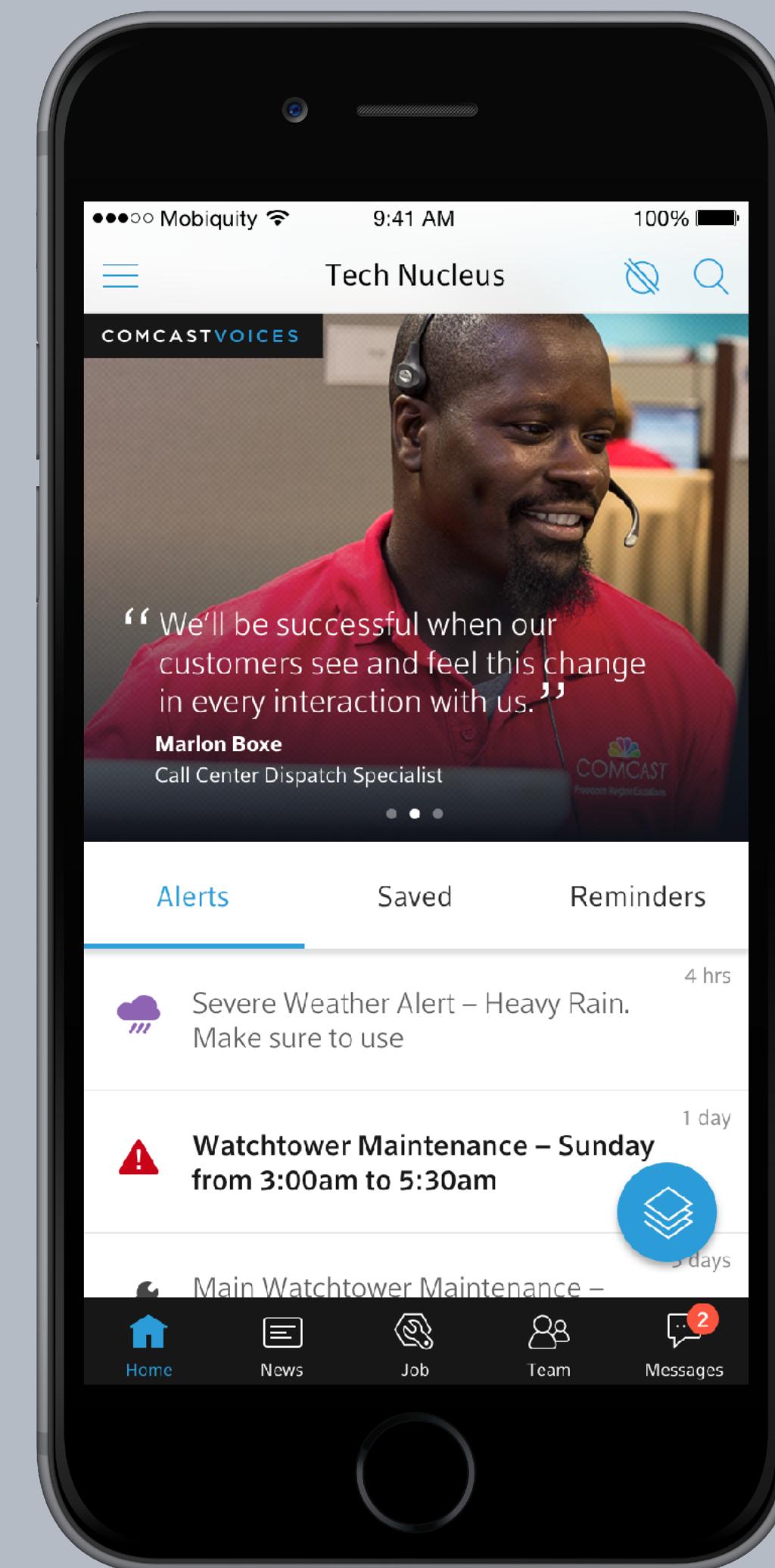
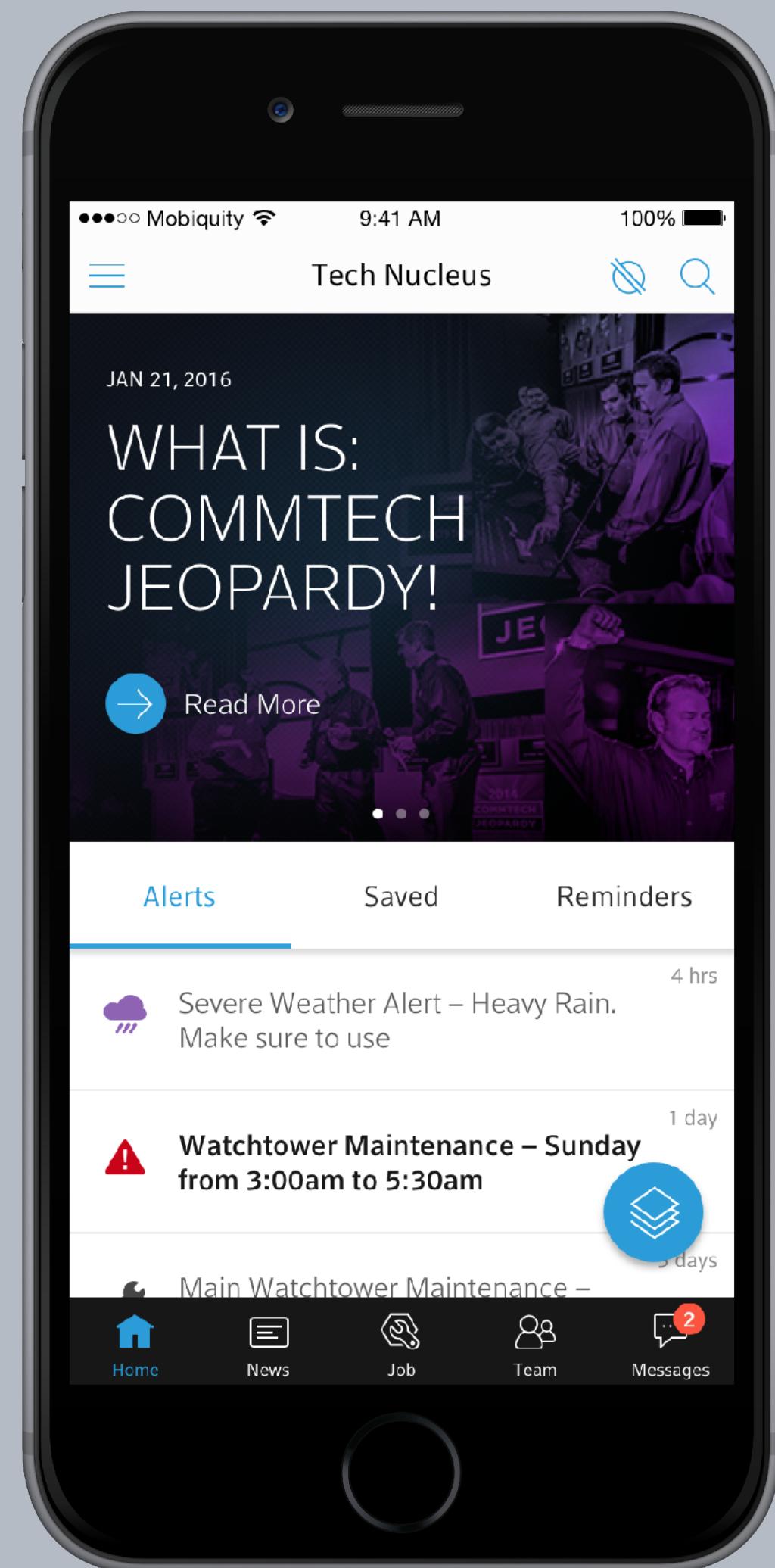
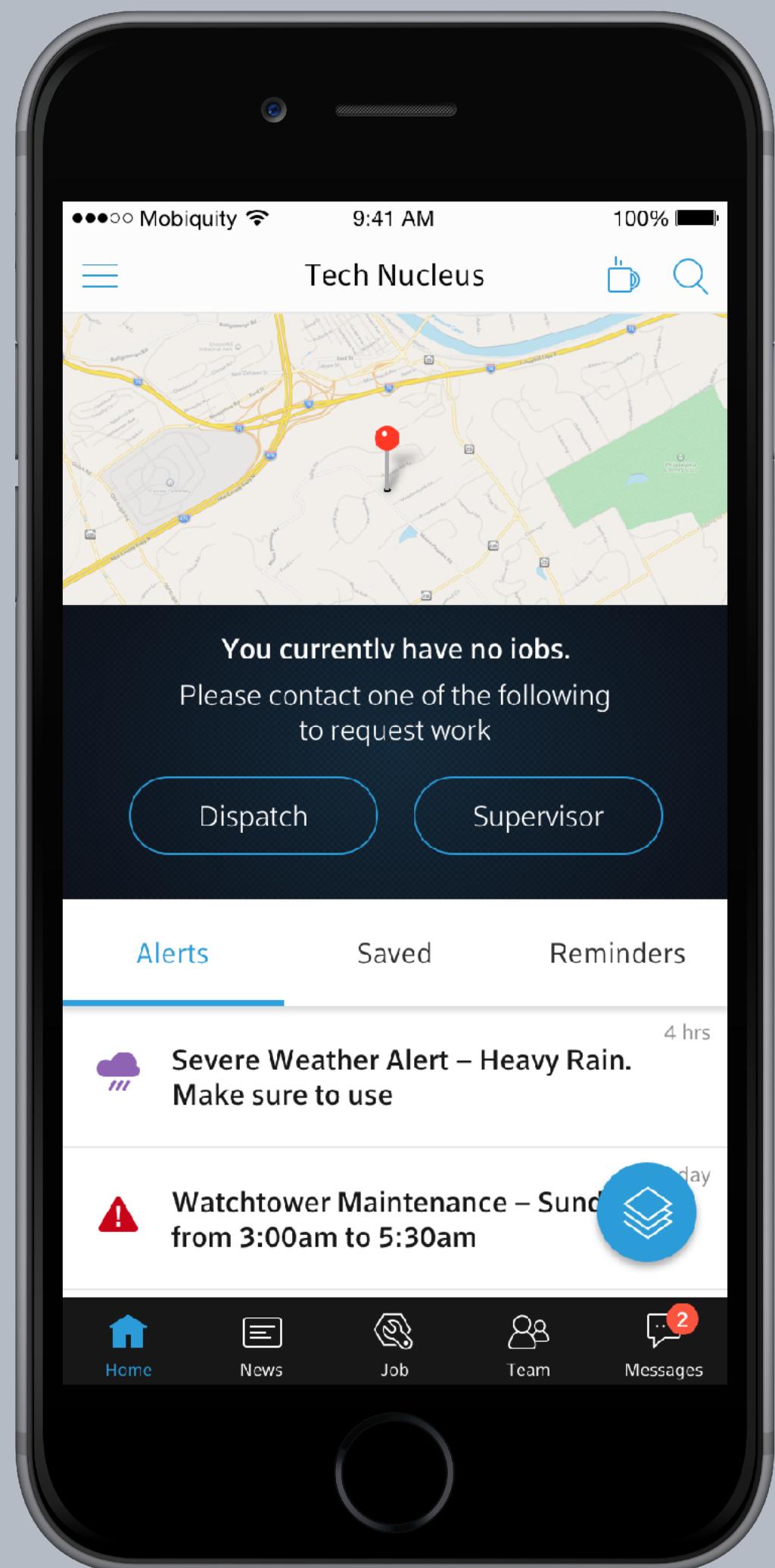
# Visual Design

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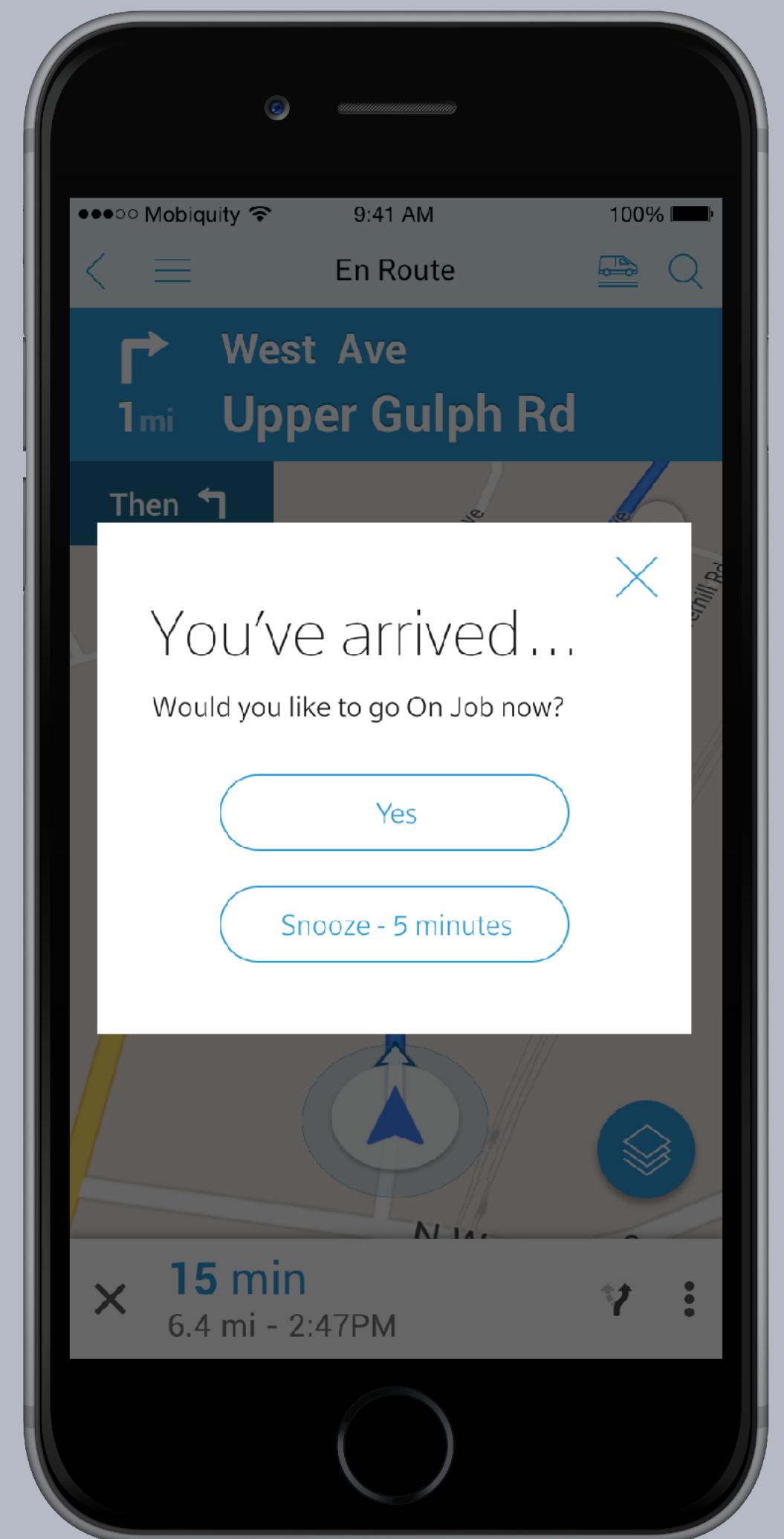
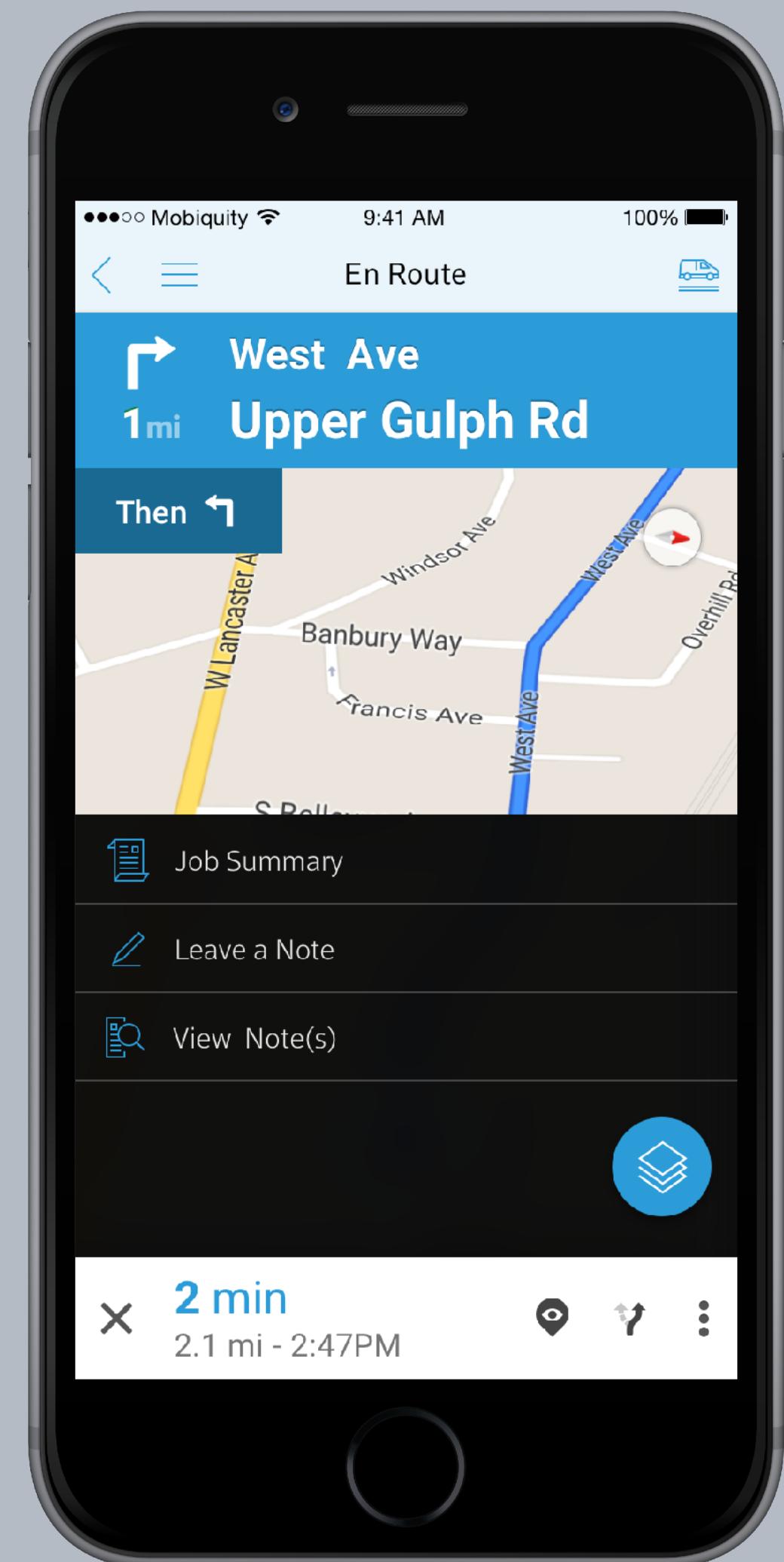
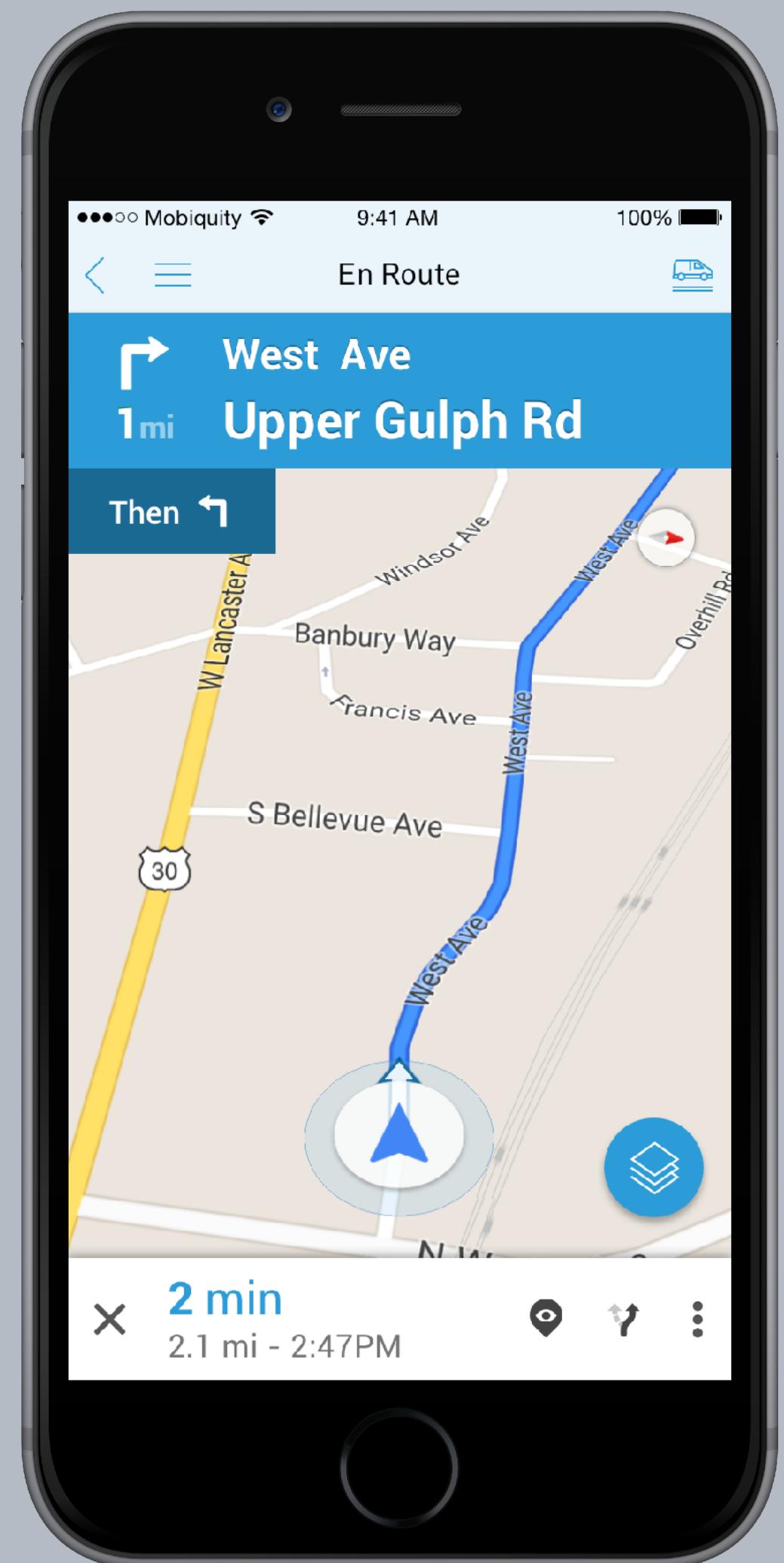
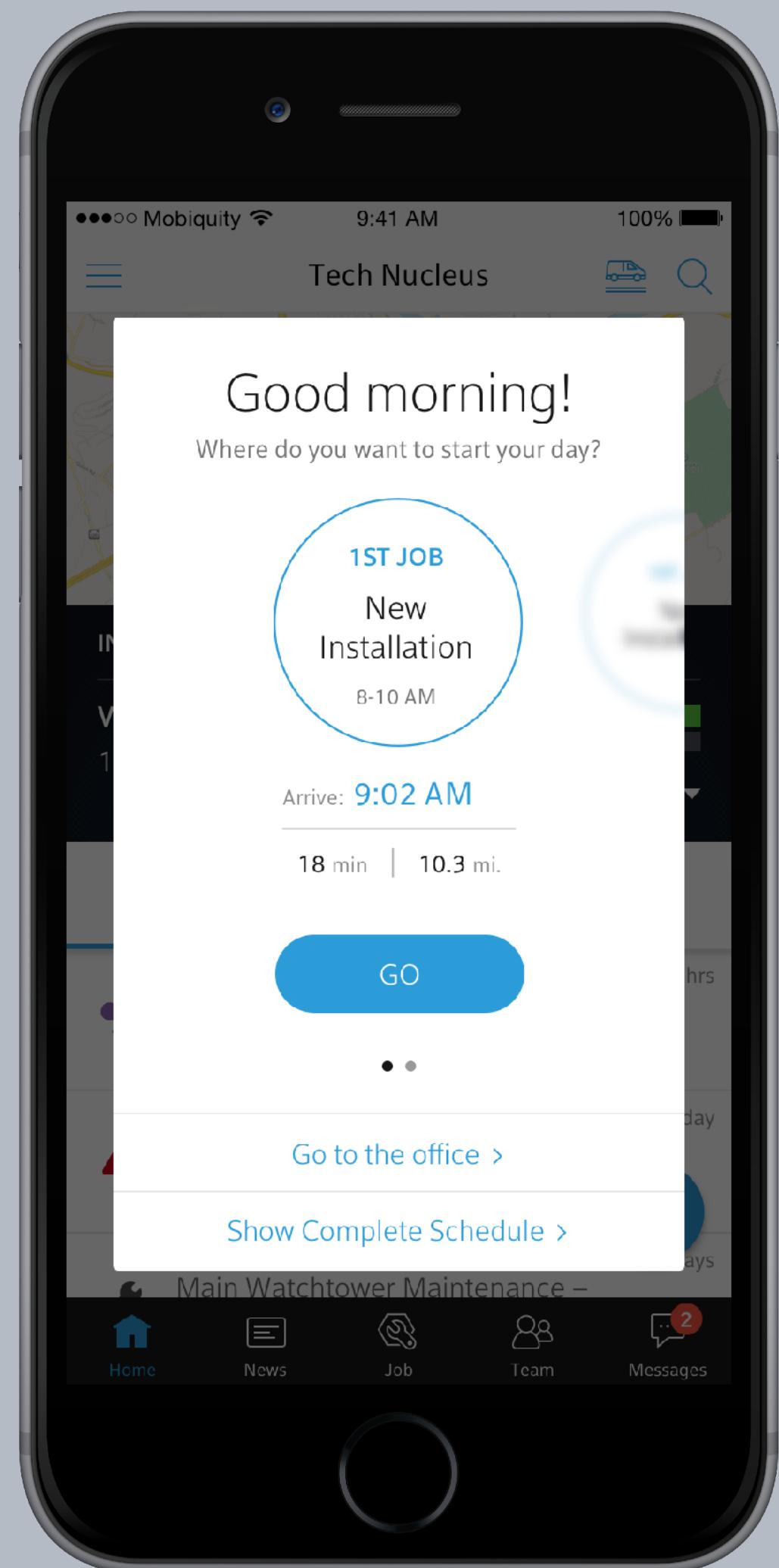
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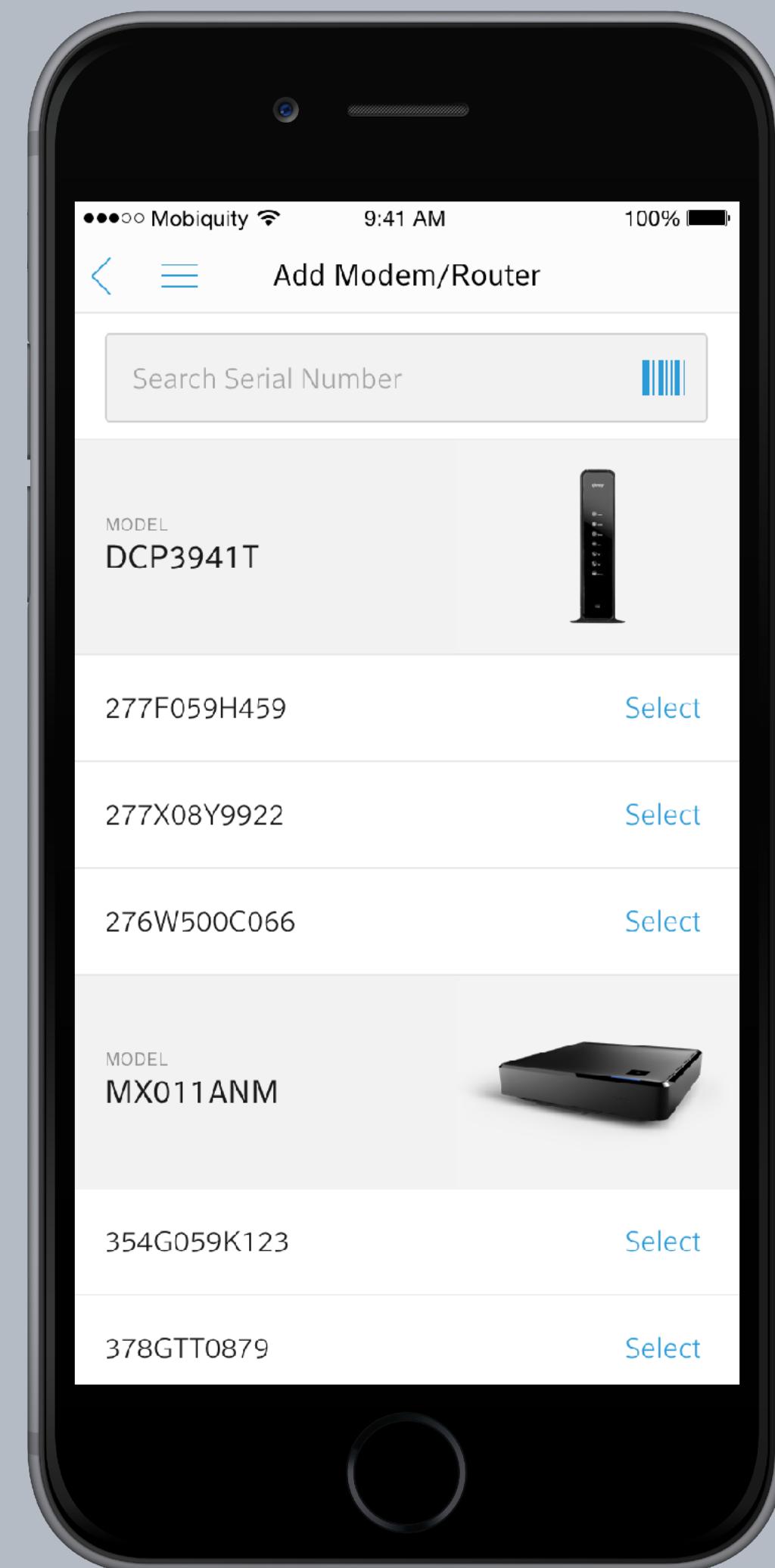
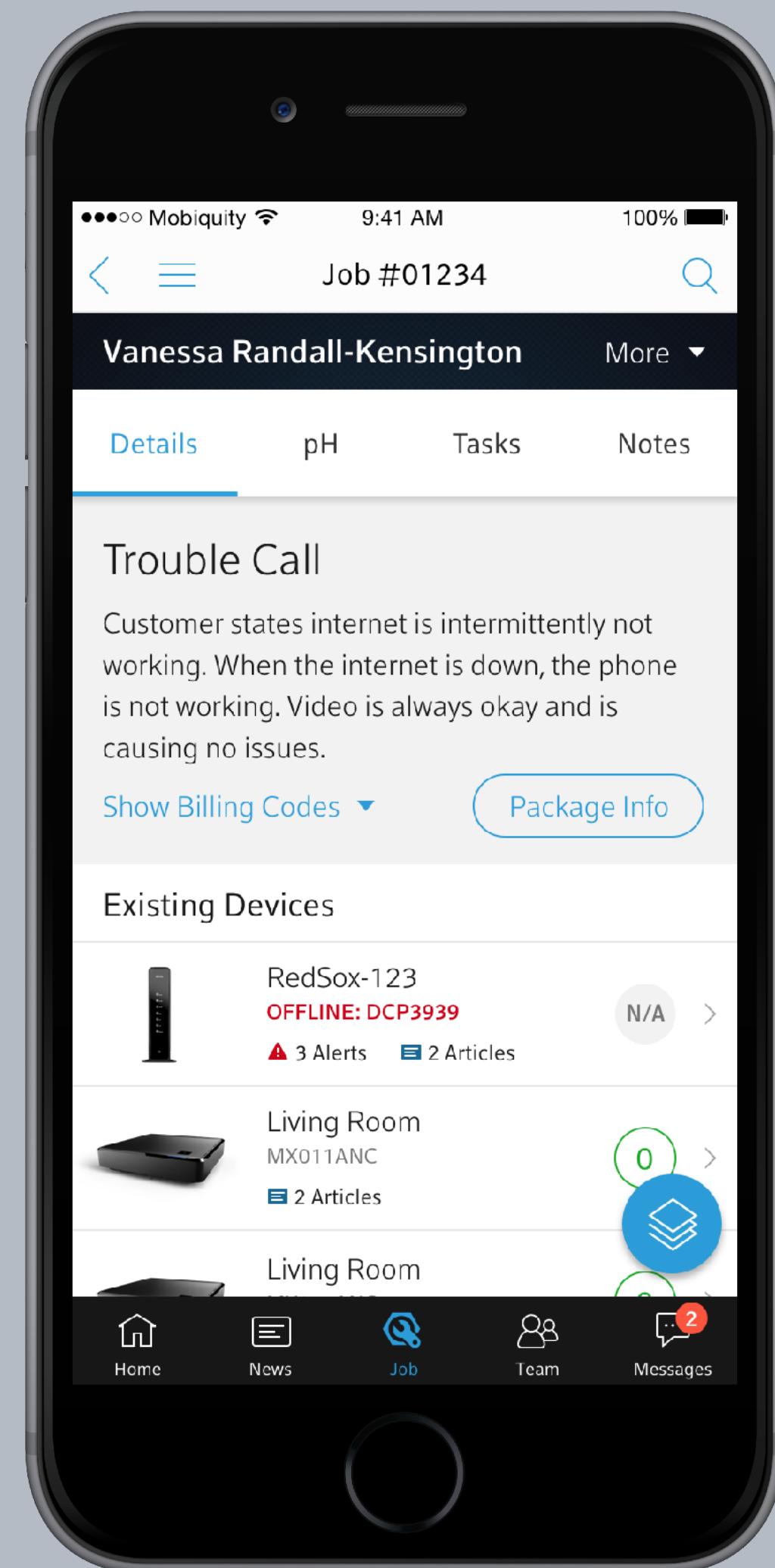
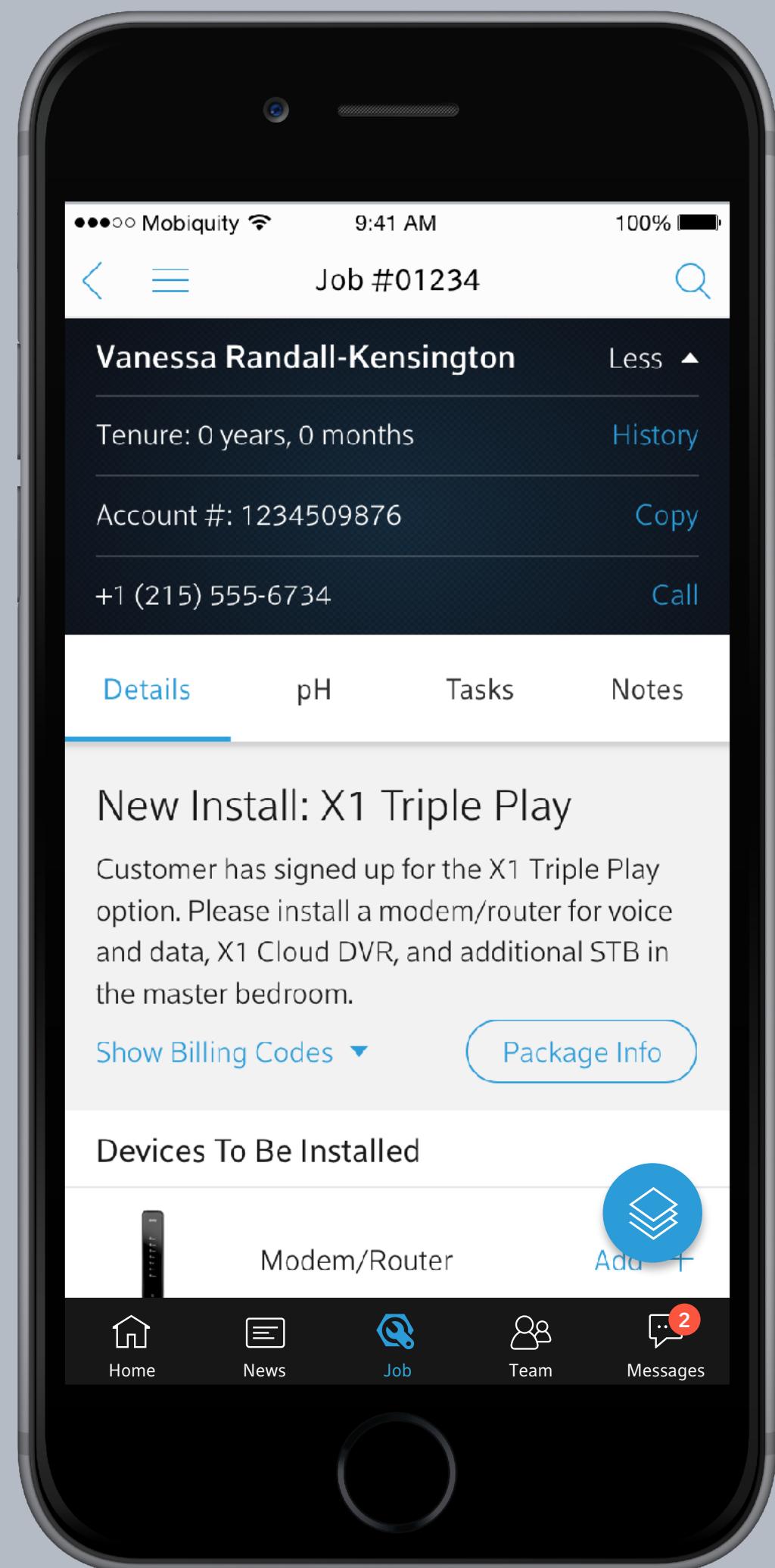
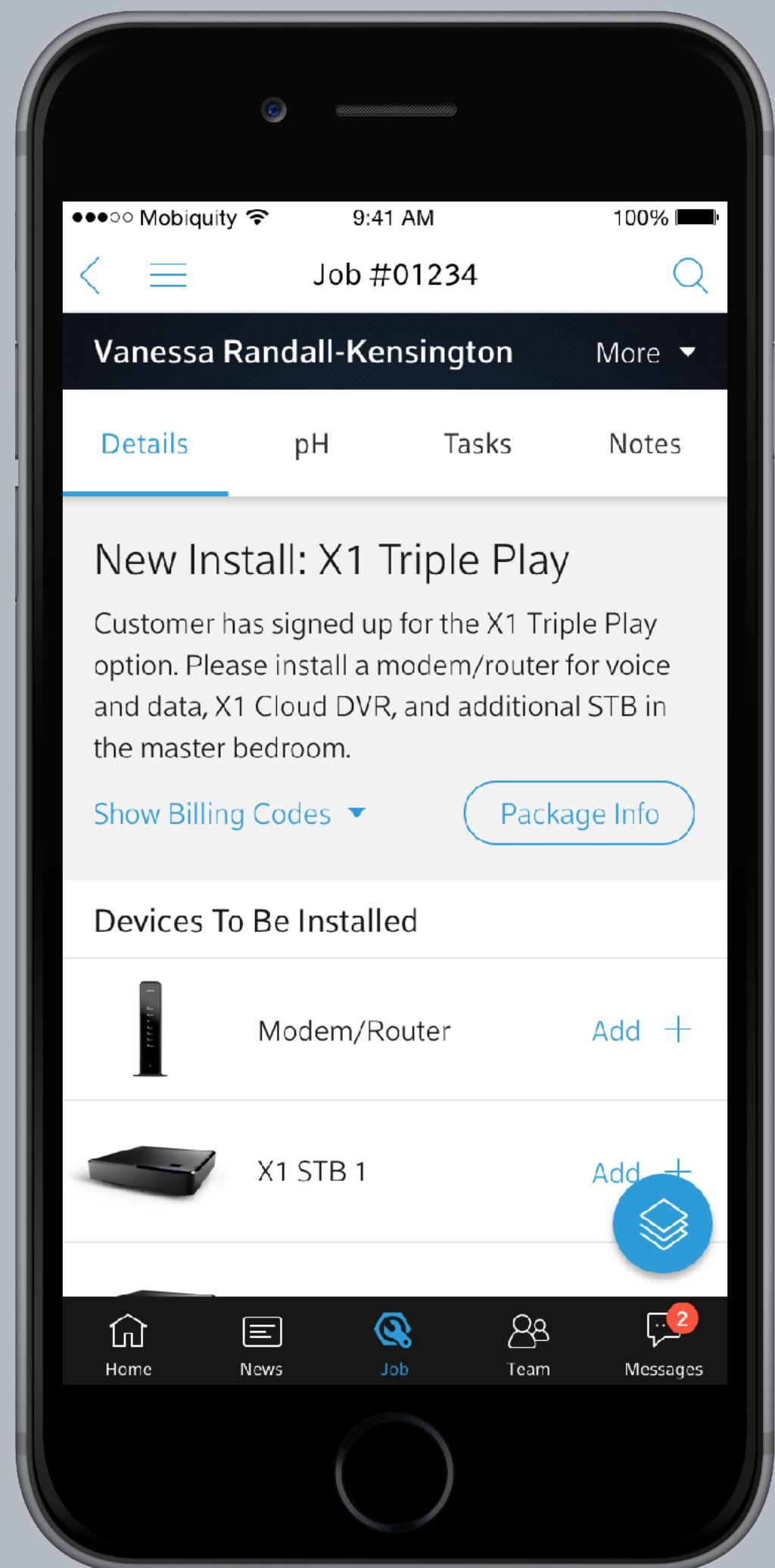
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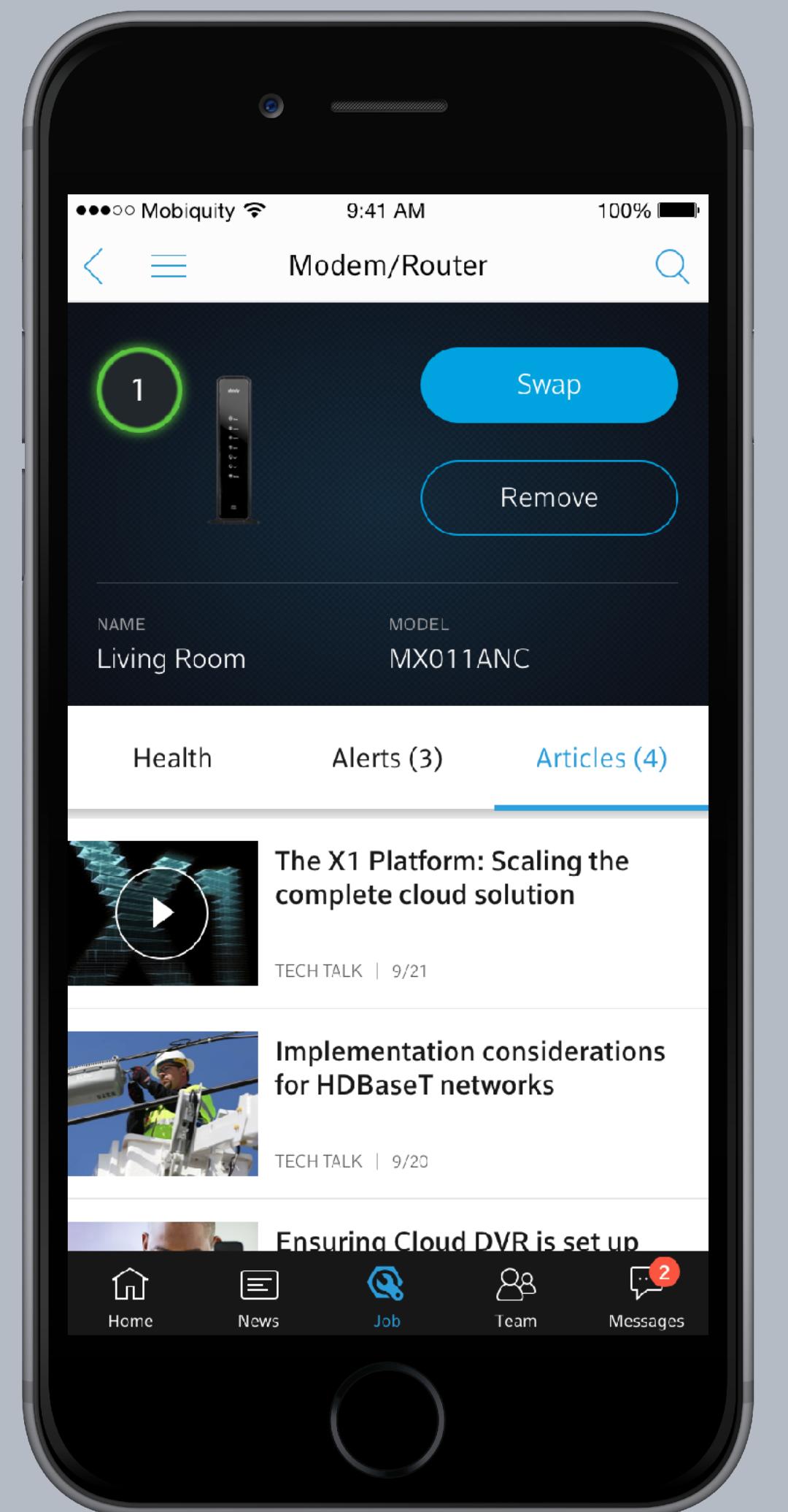
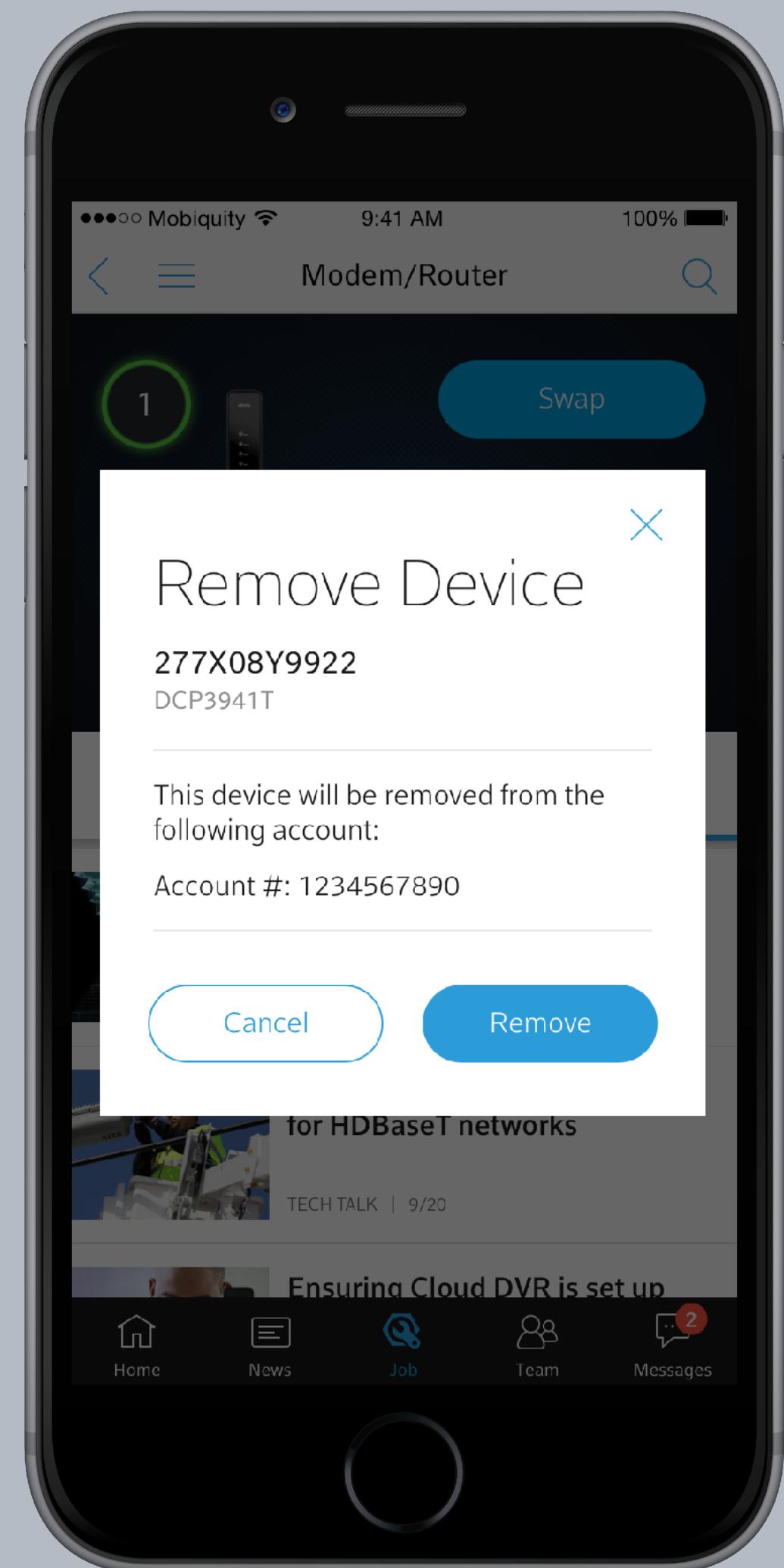
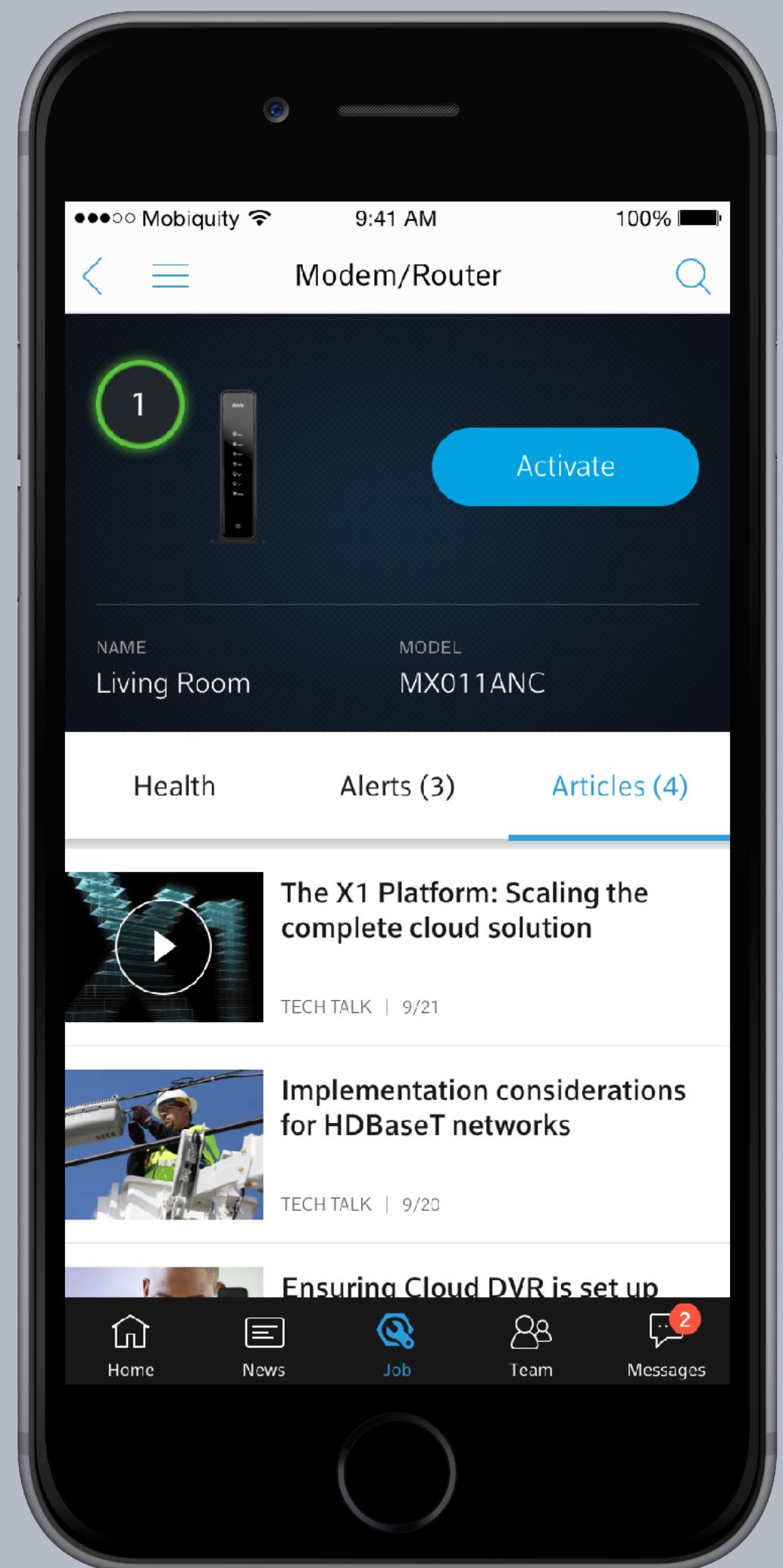
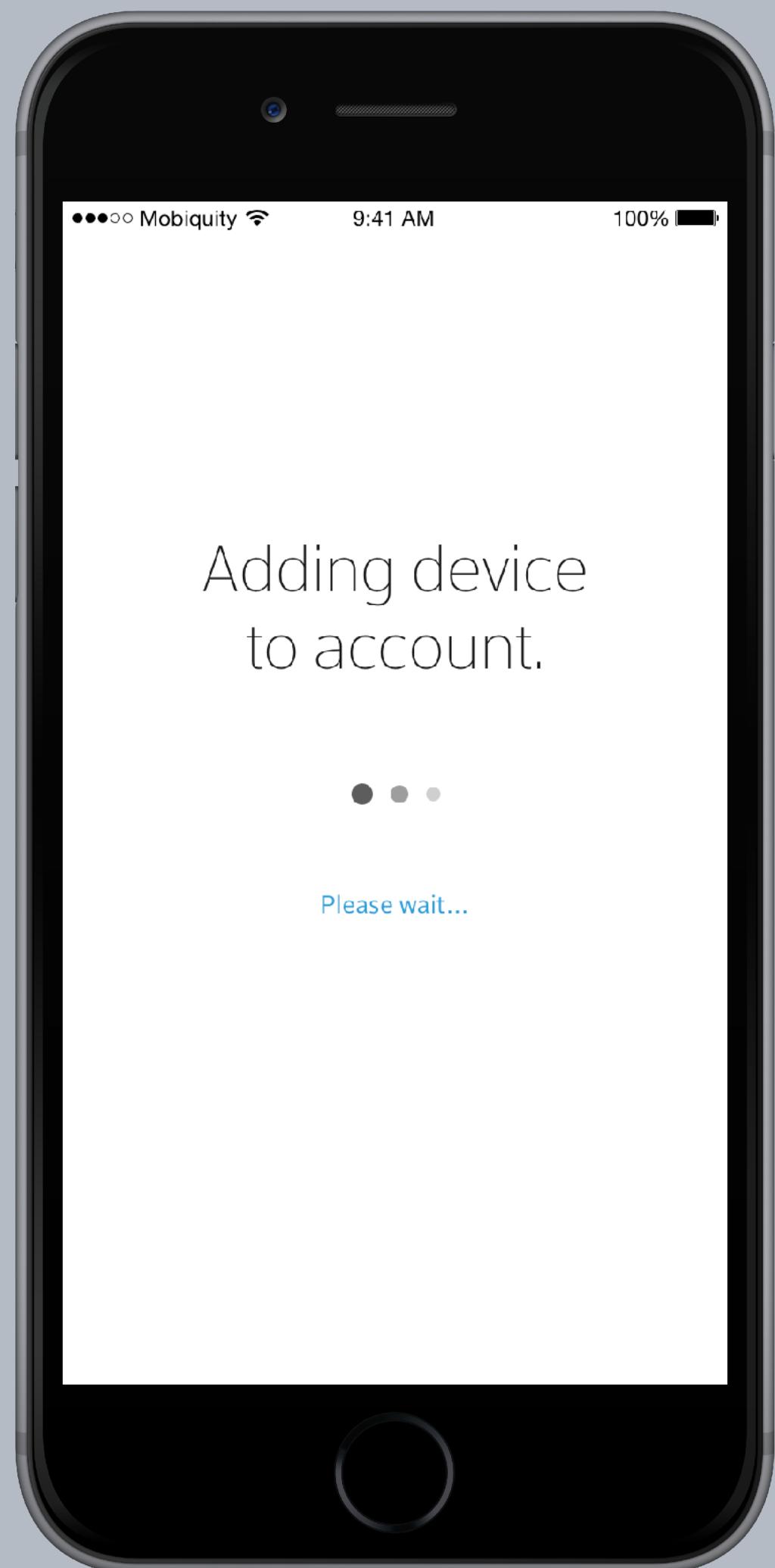
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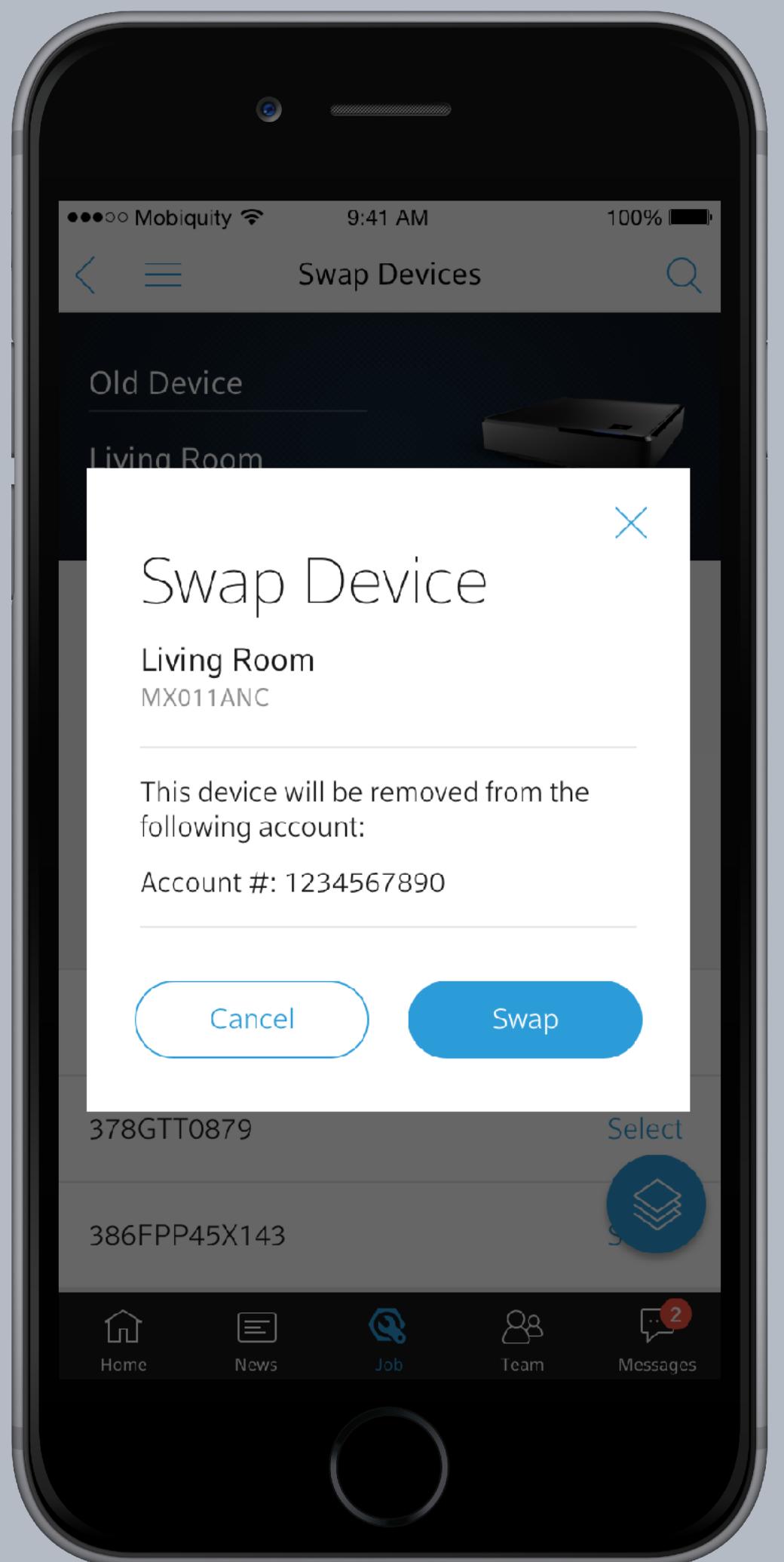
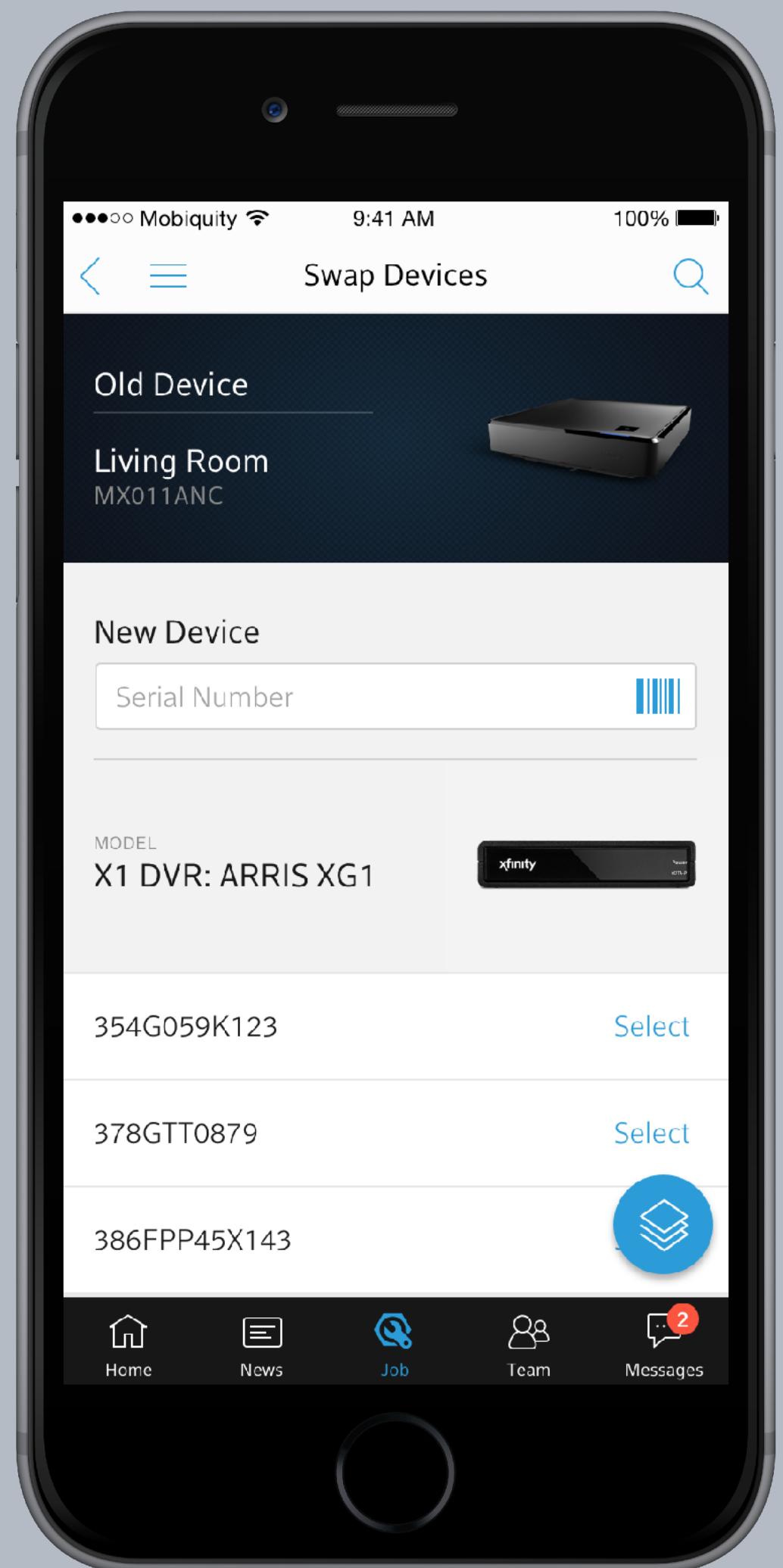
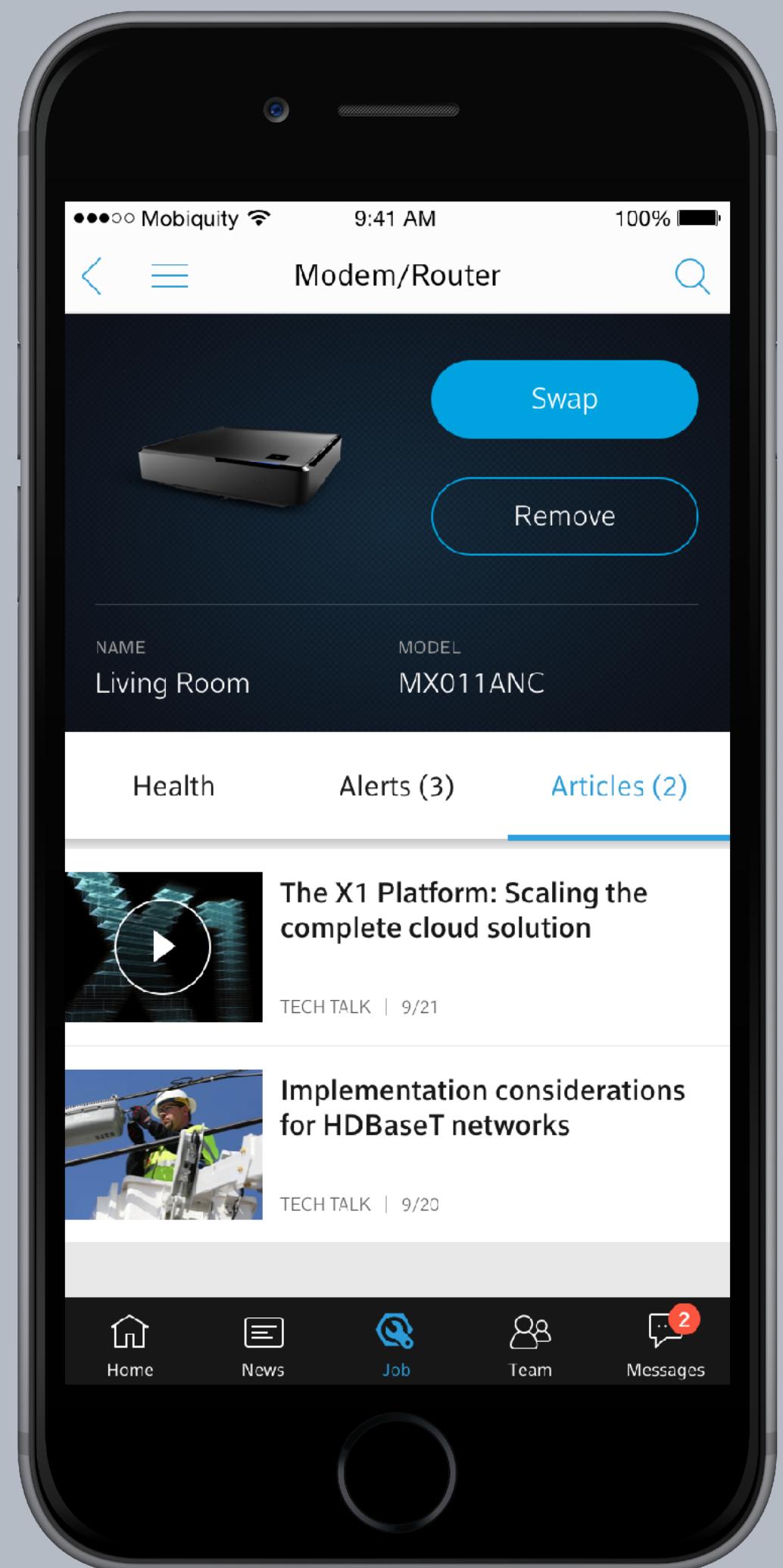
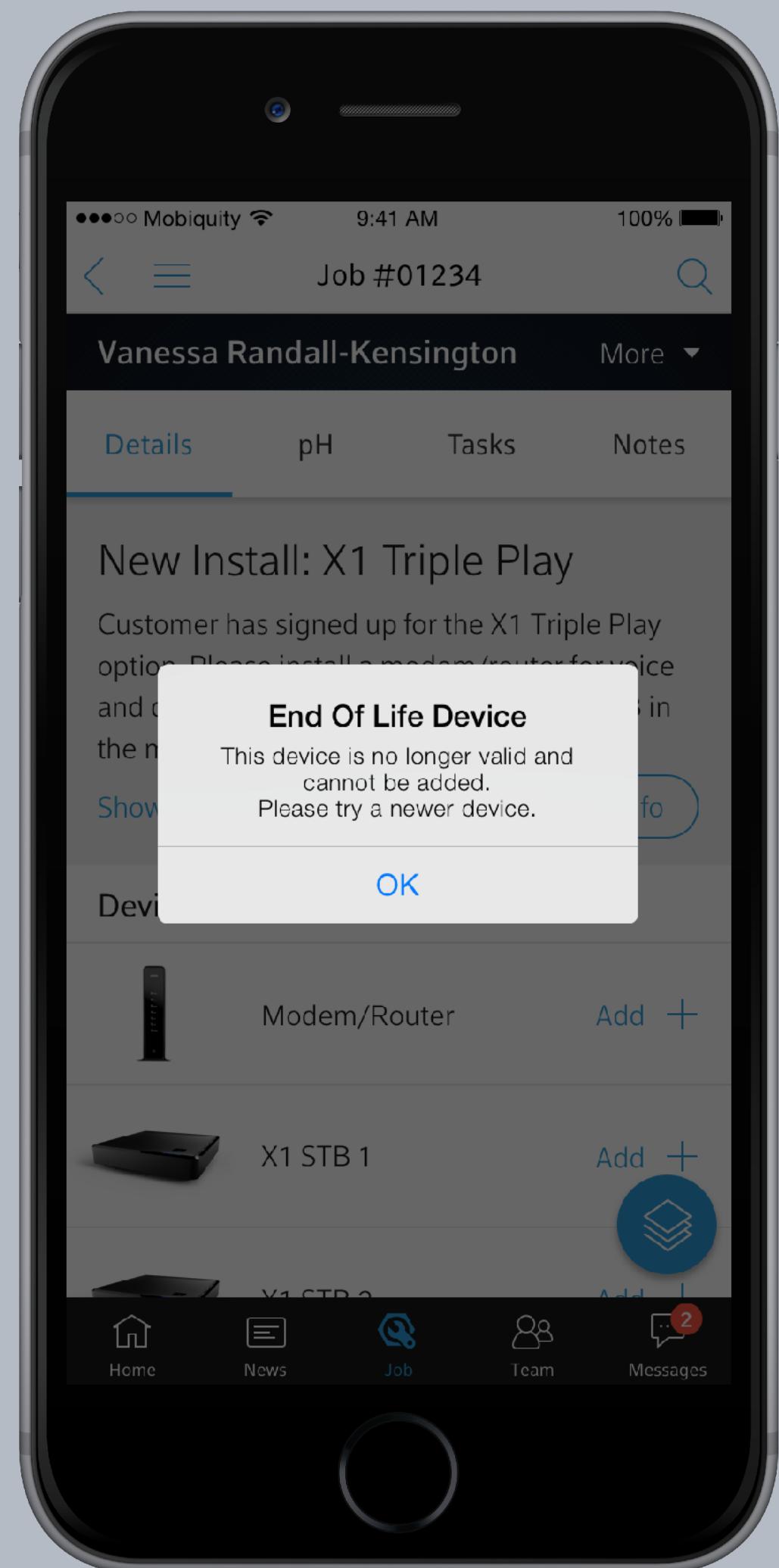
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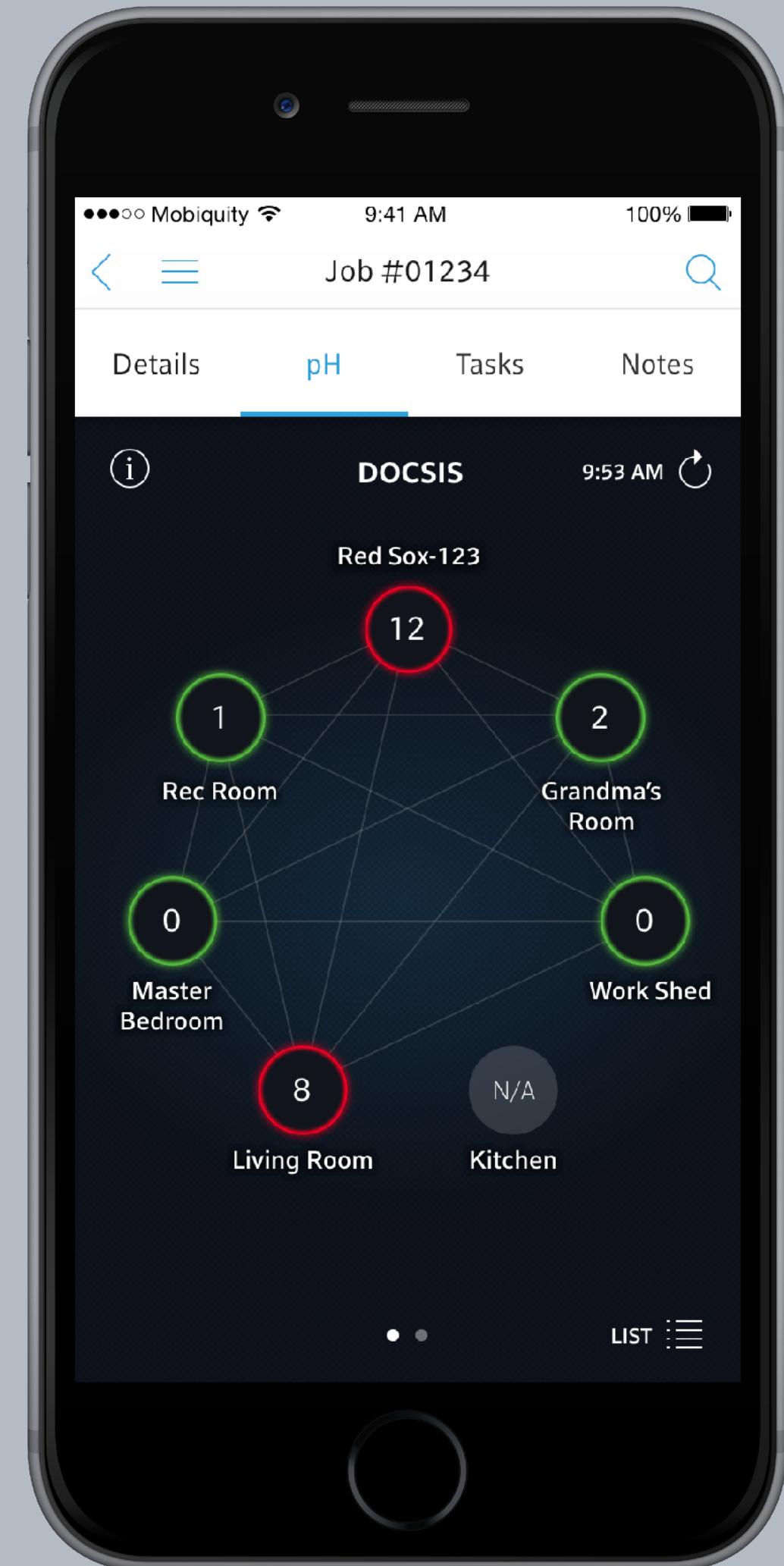
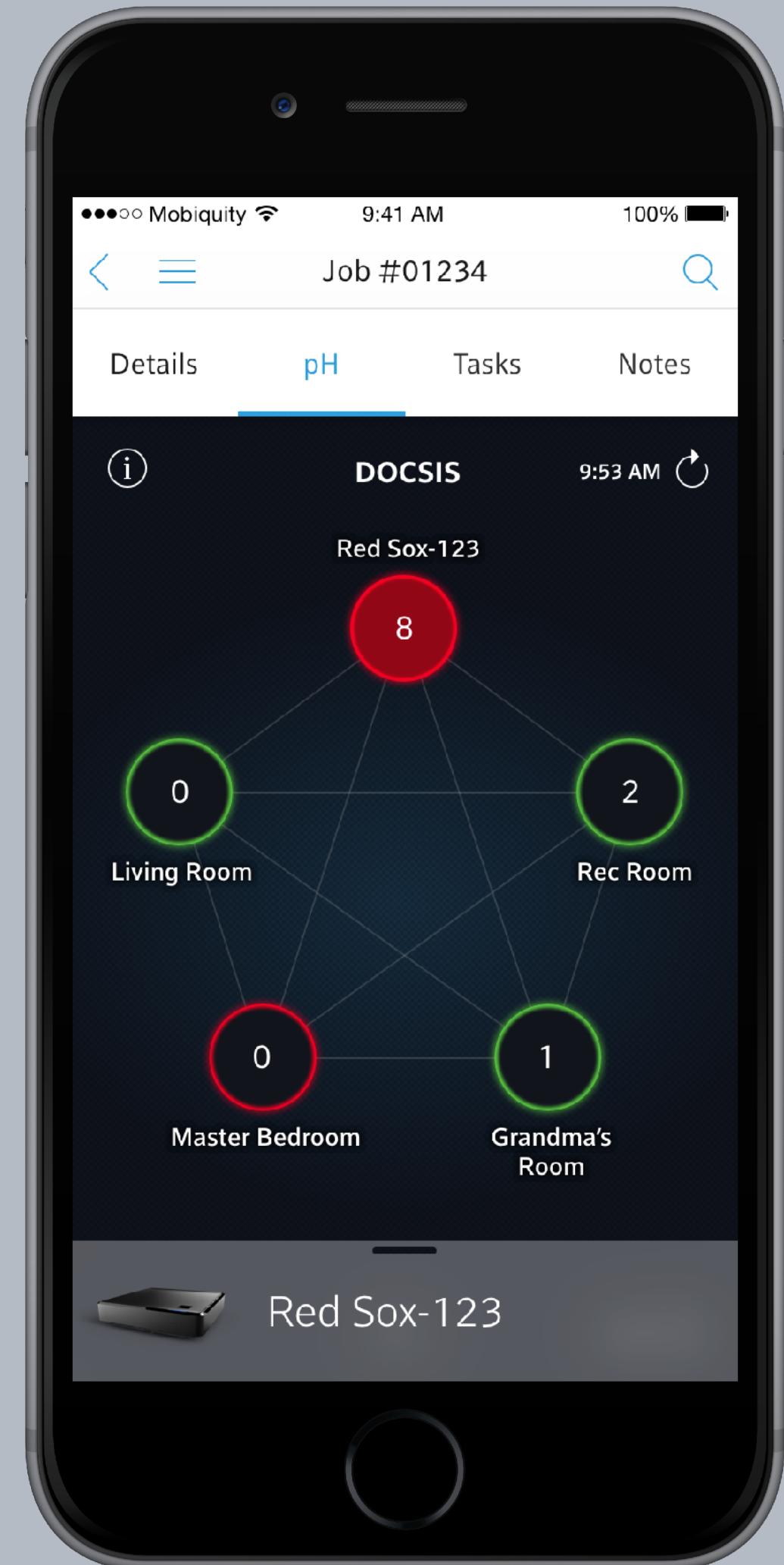
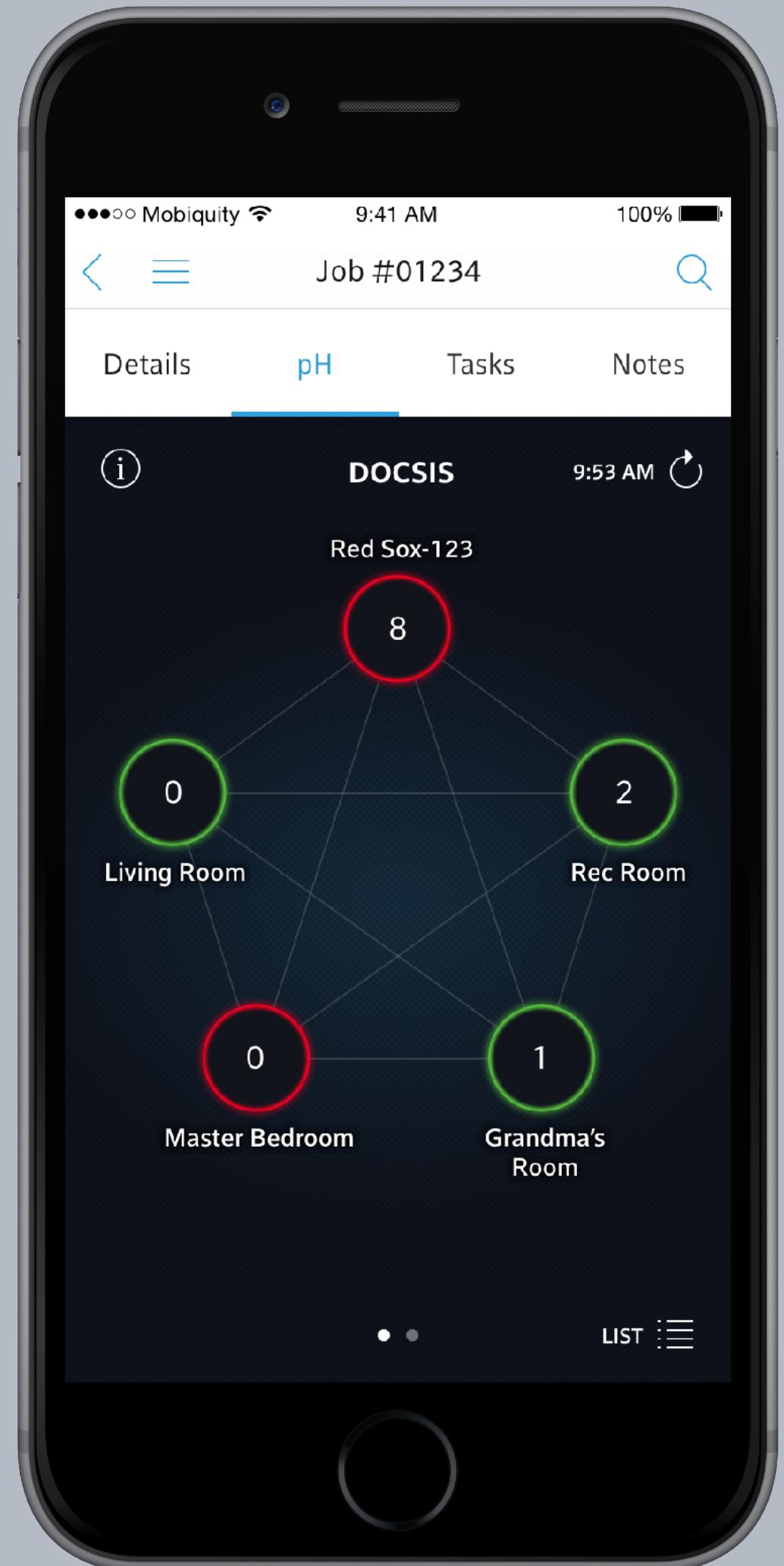
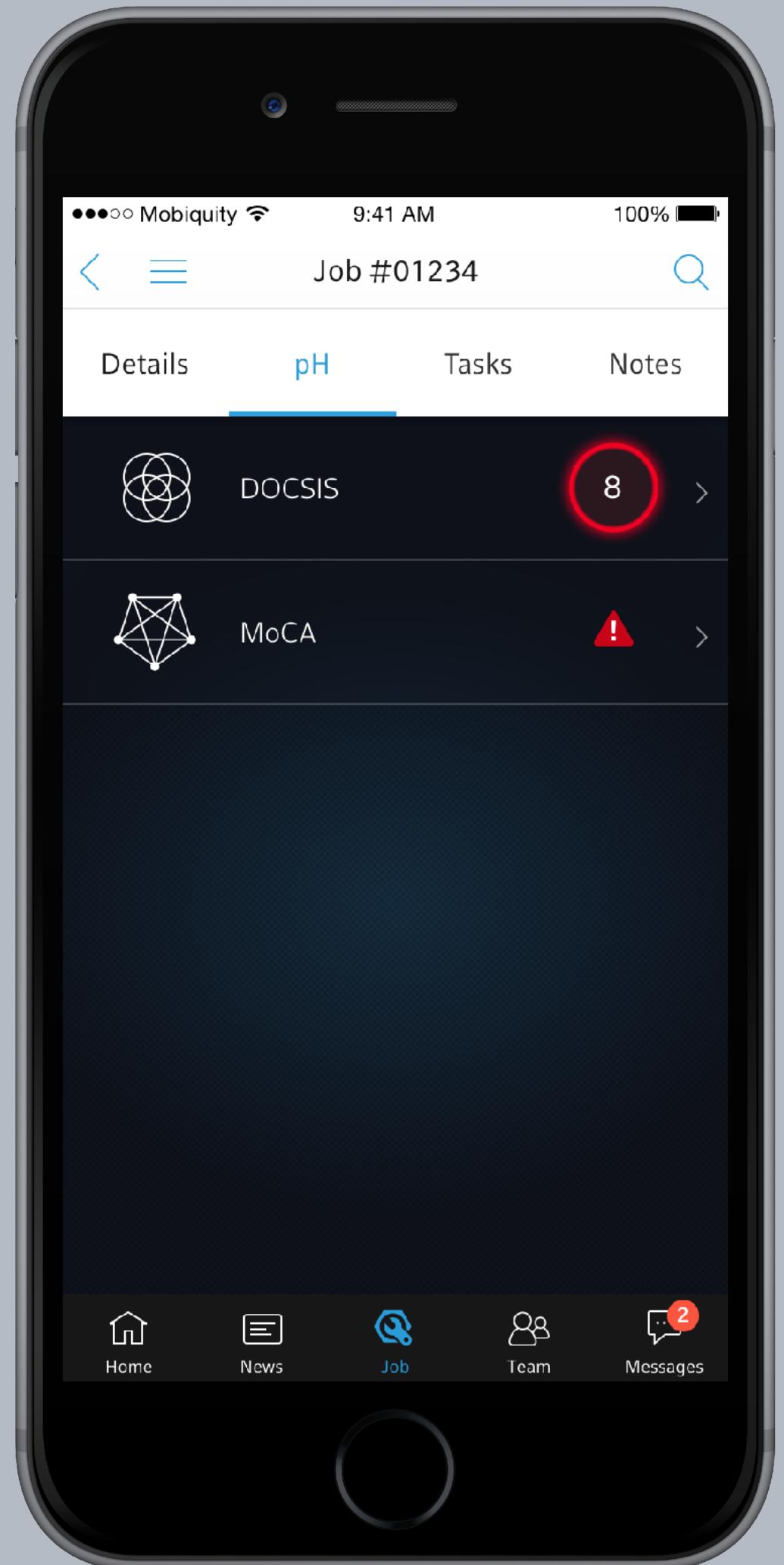
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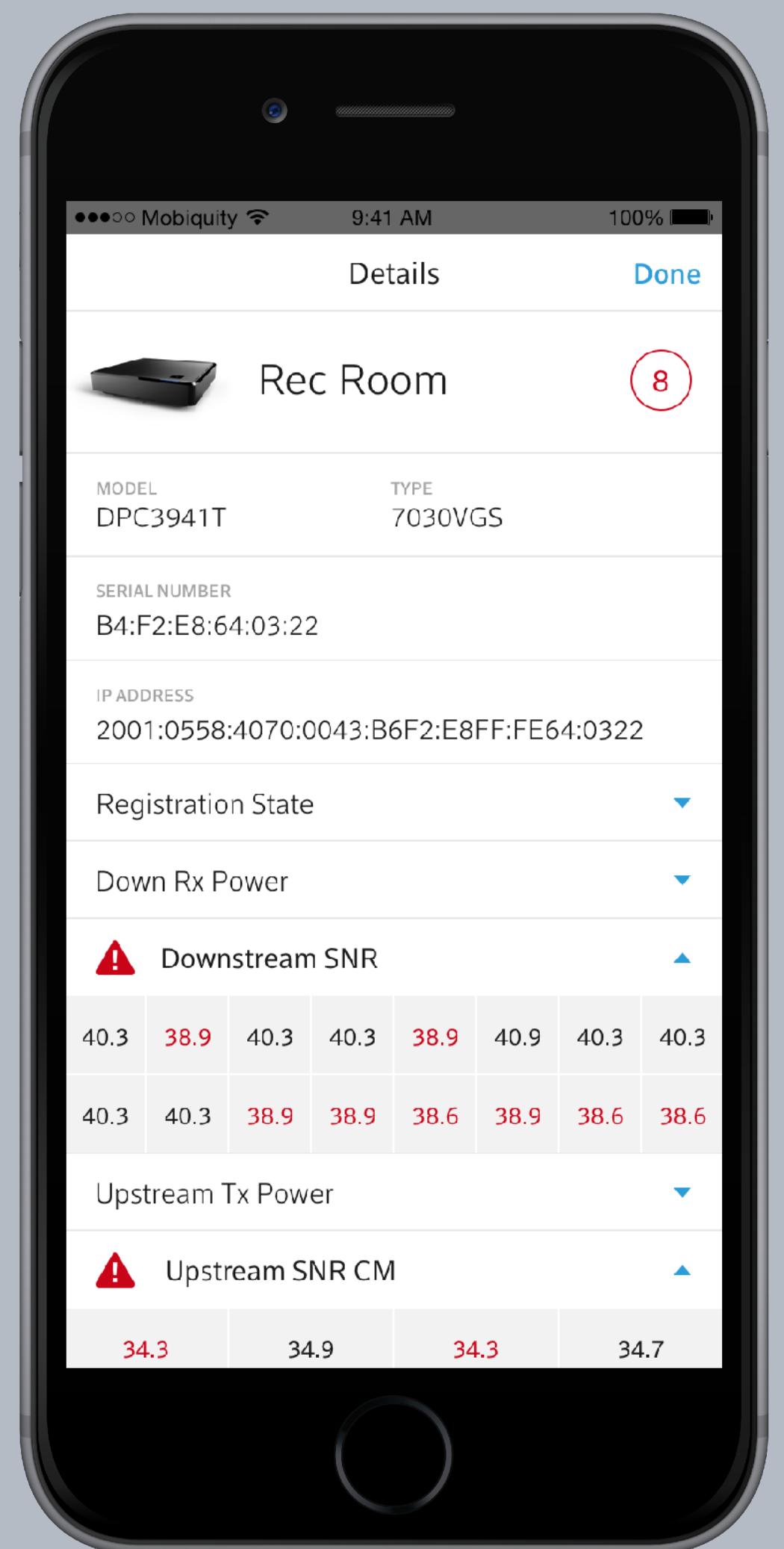
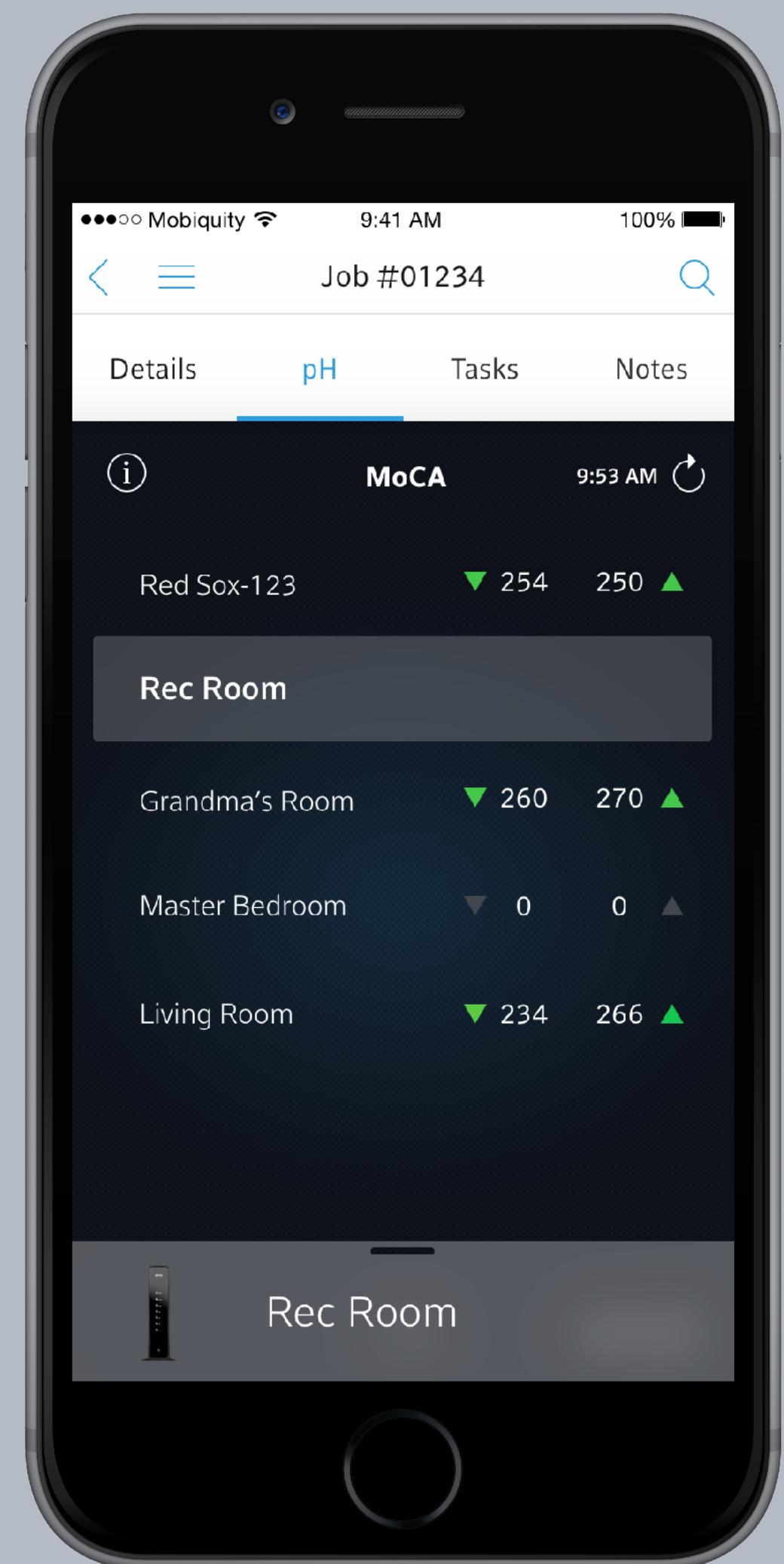
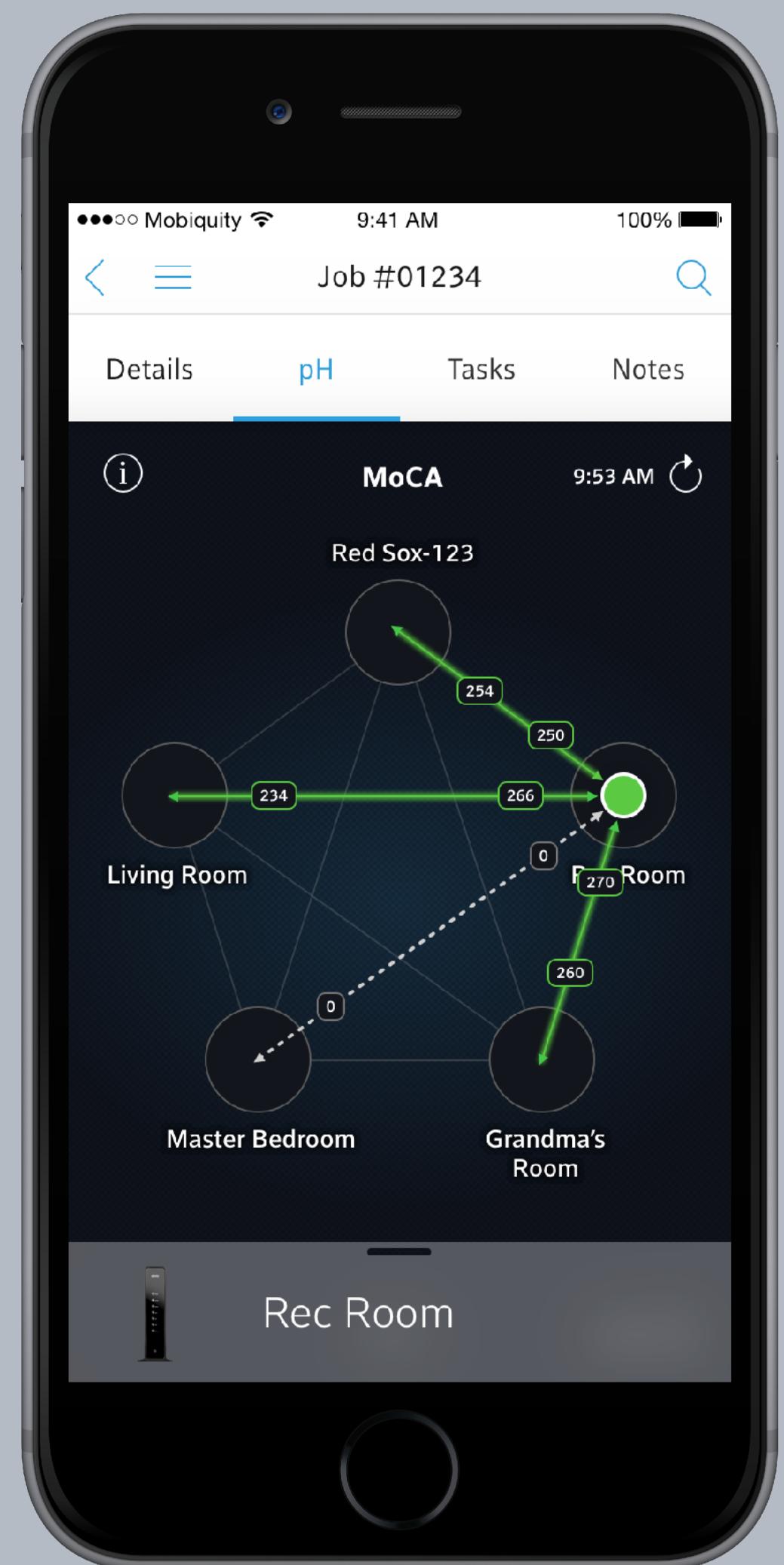
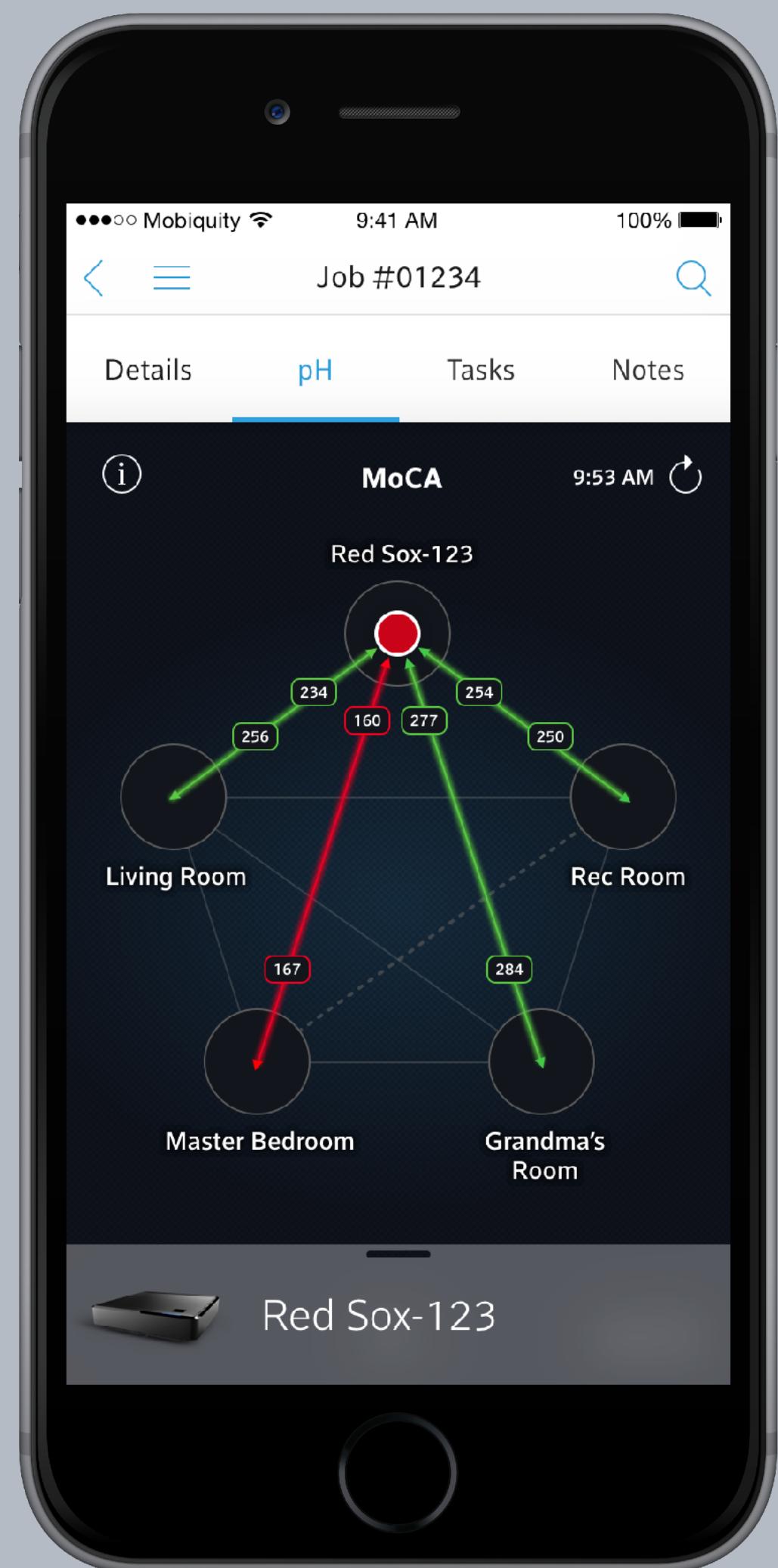
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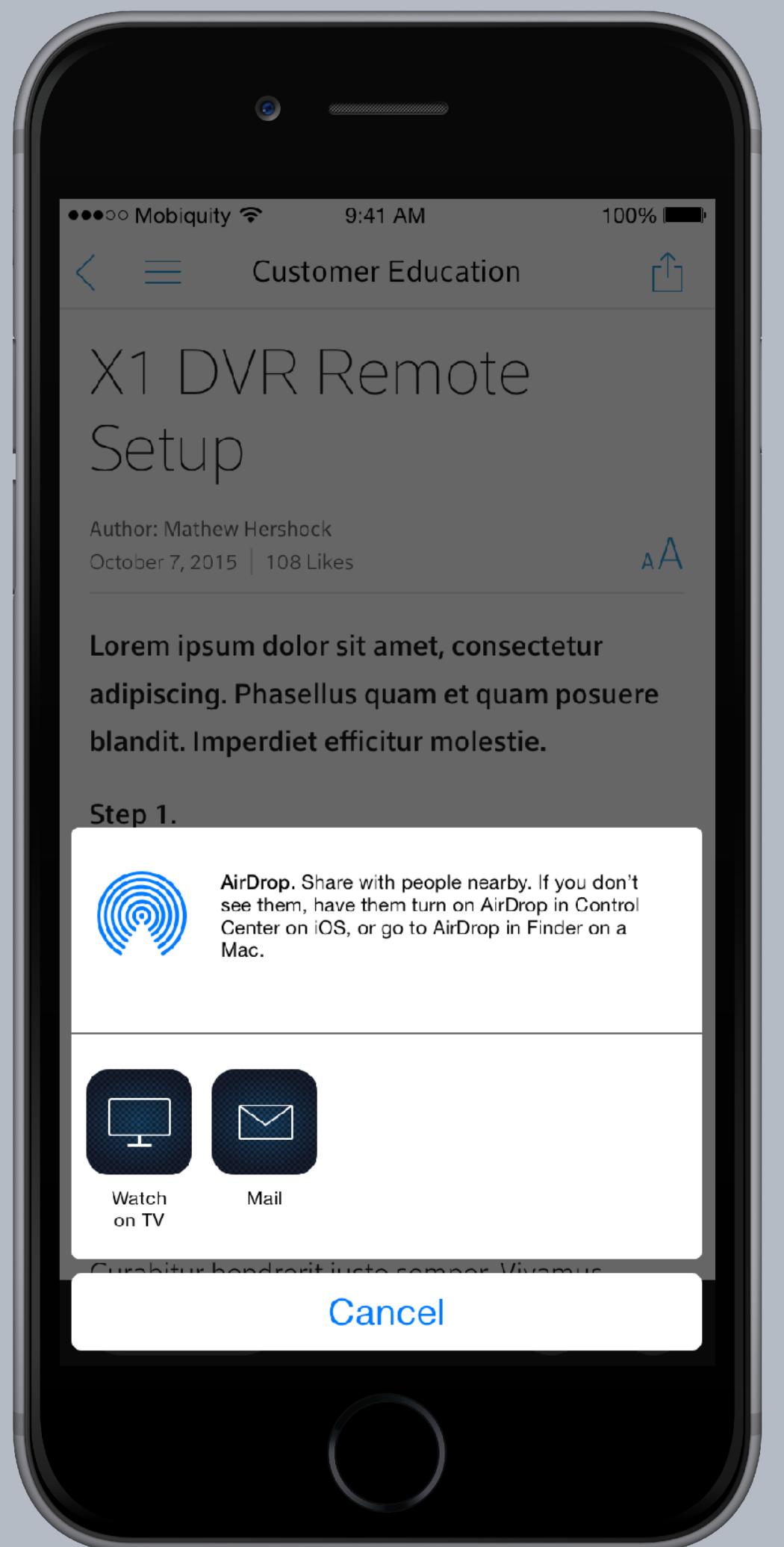
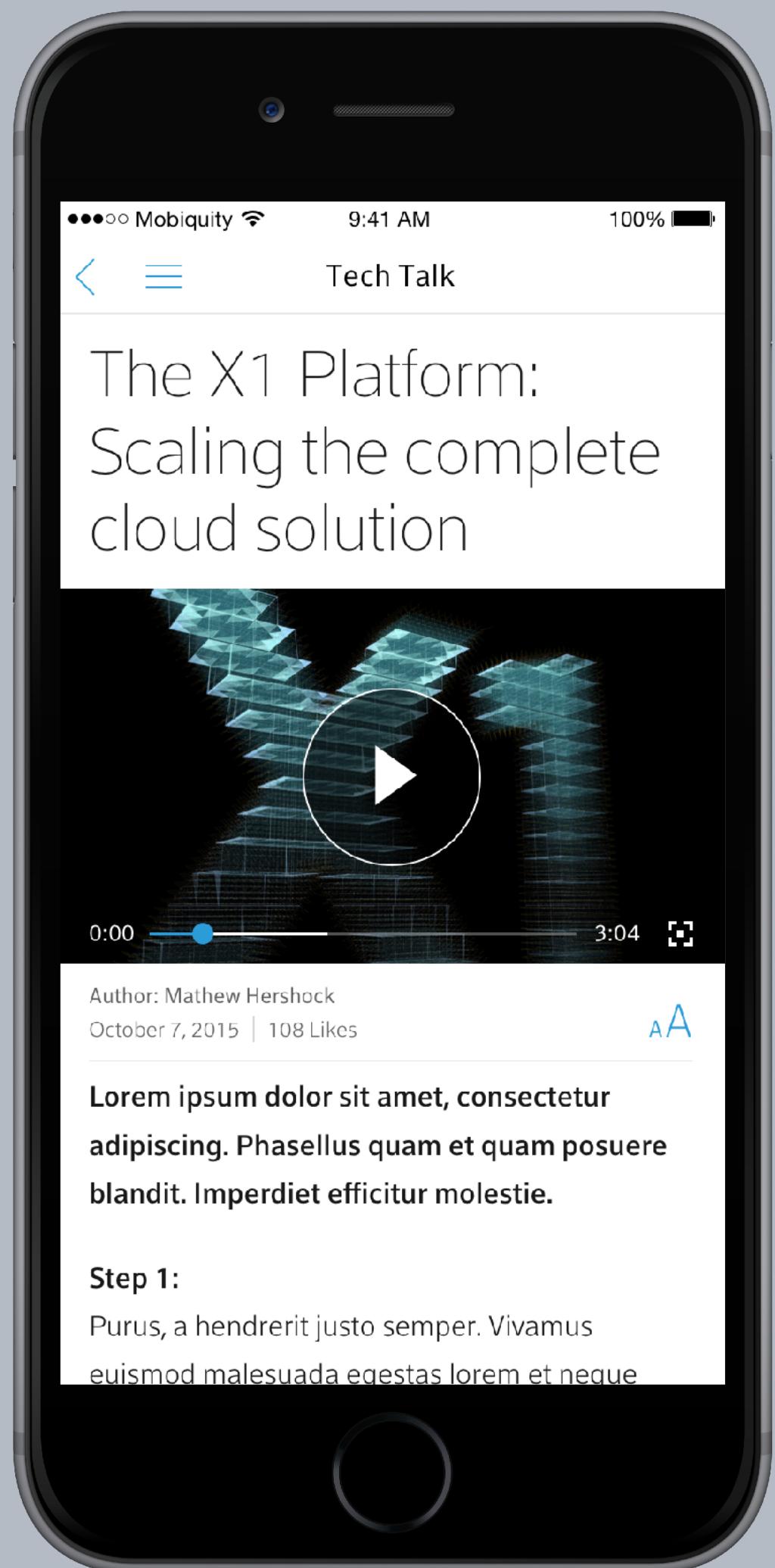
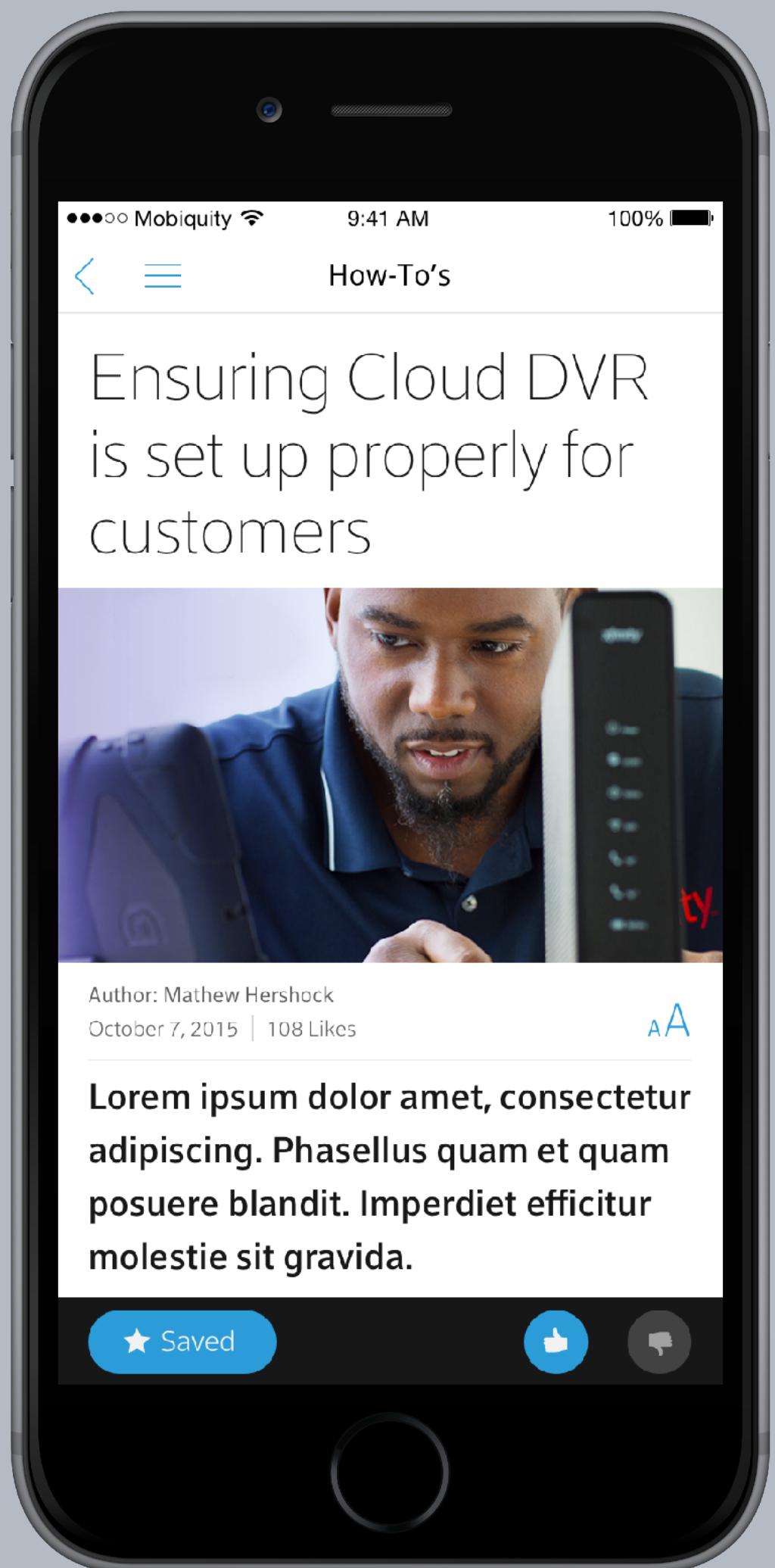
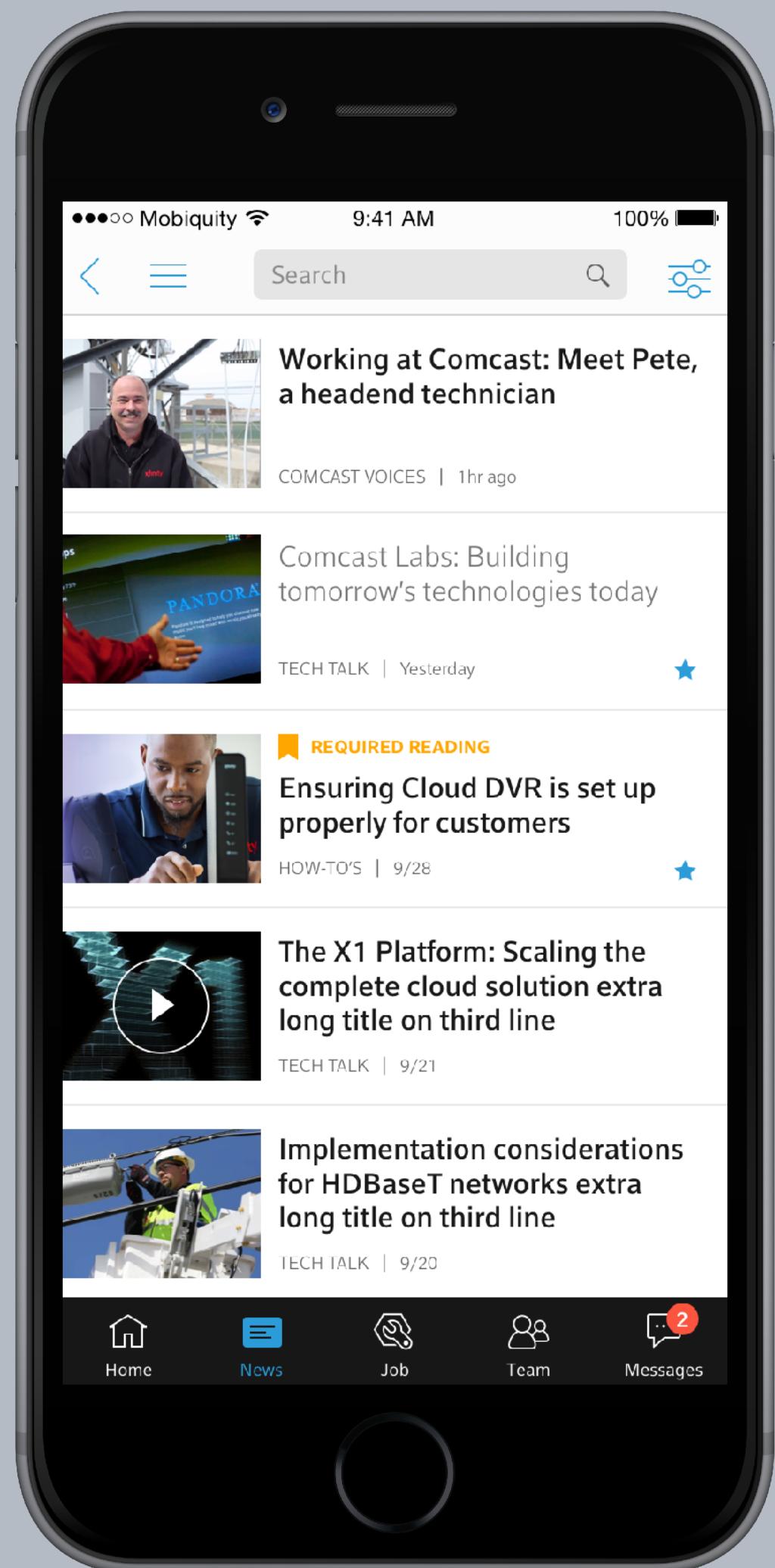
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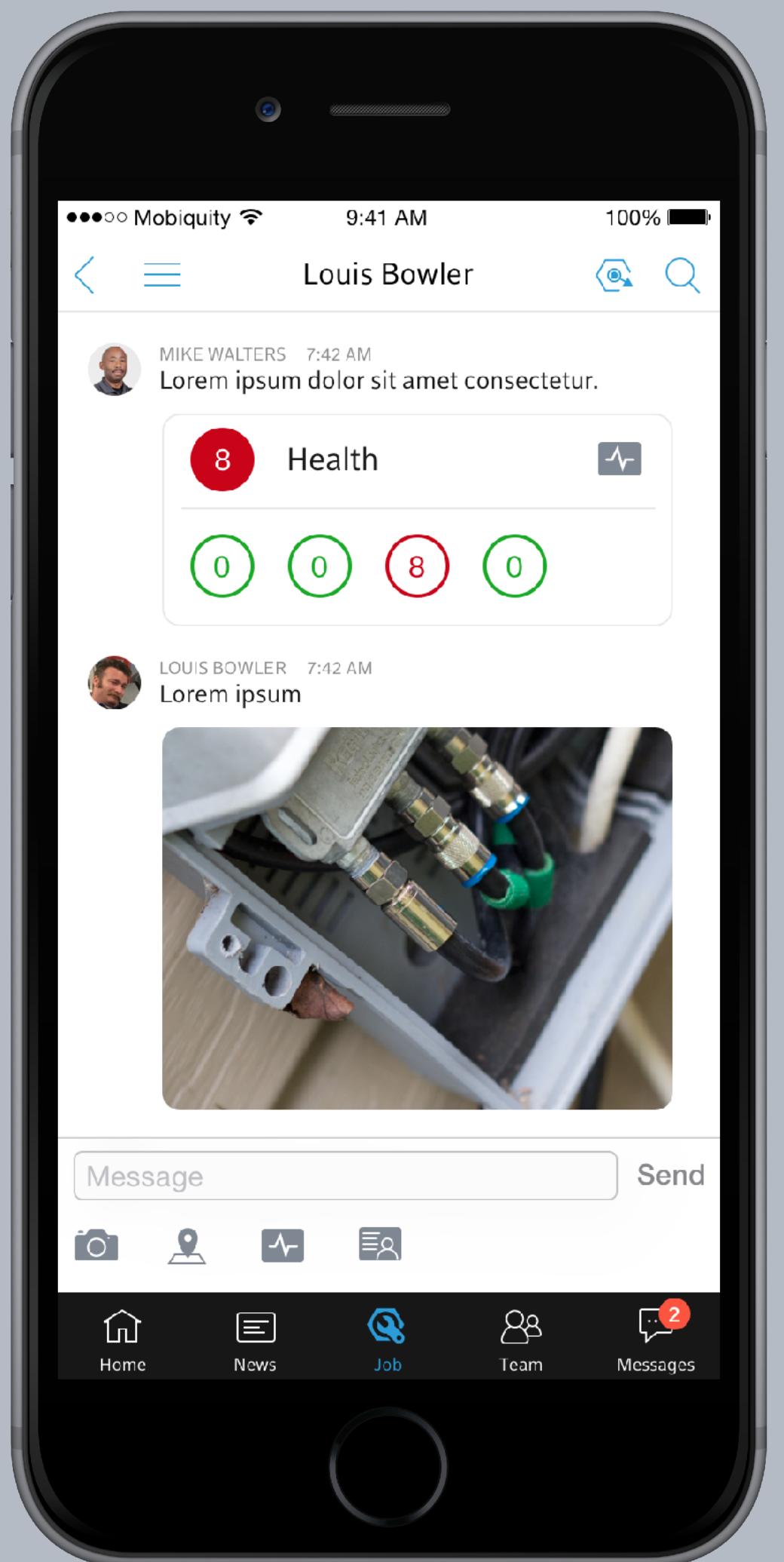
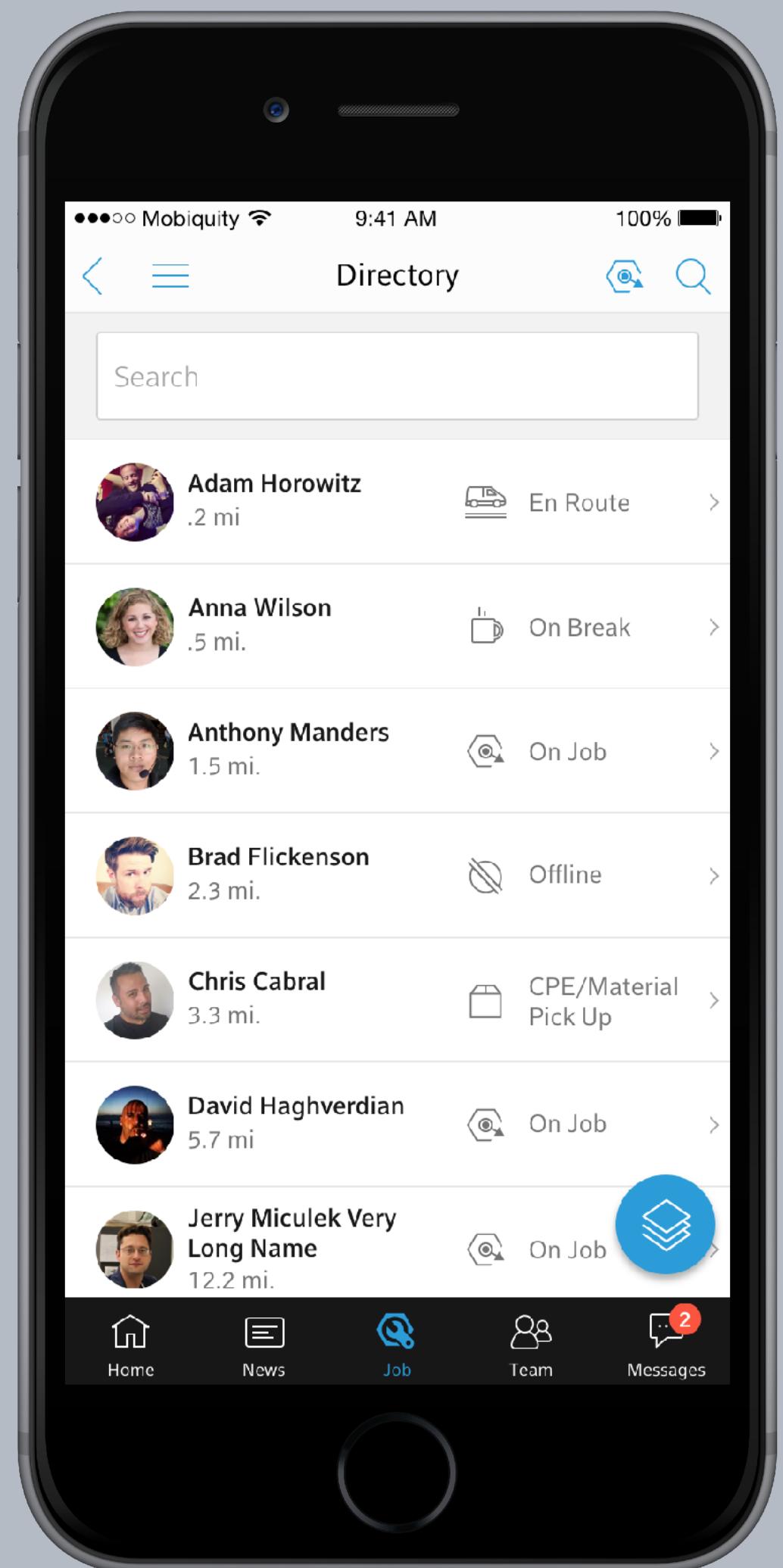
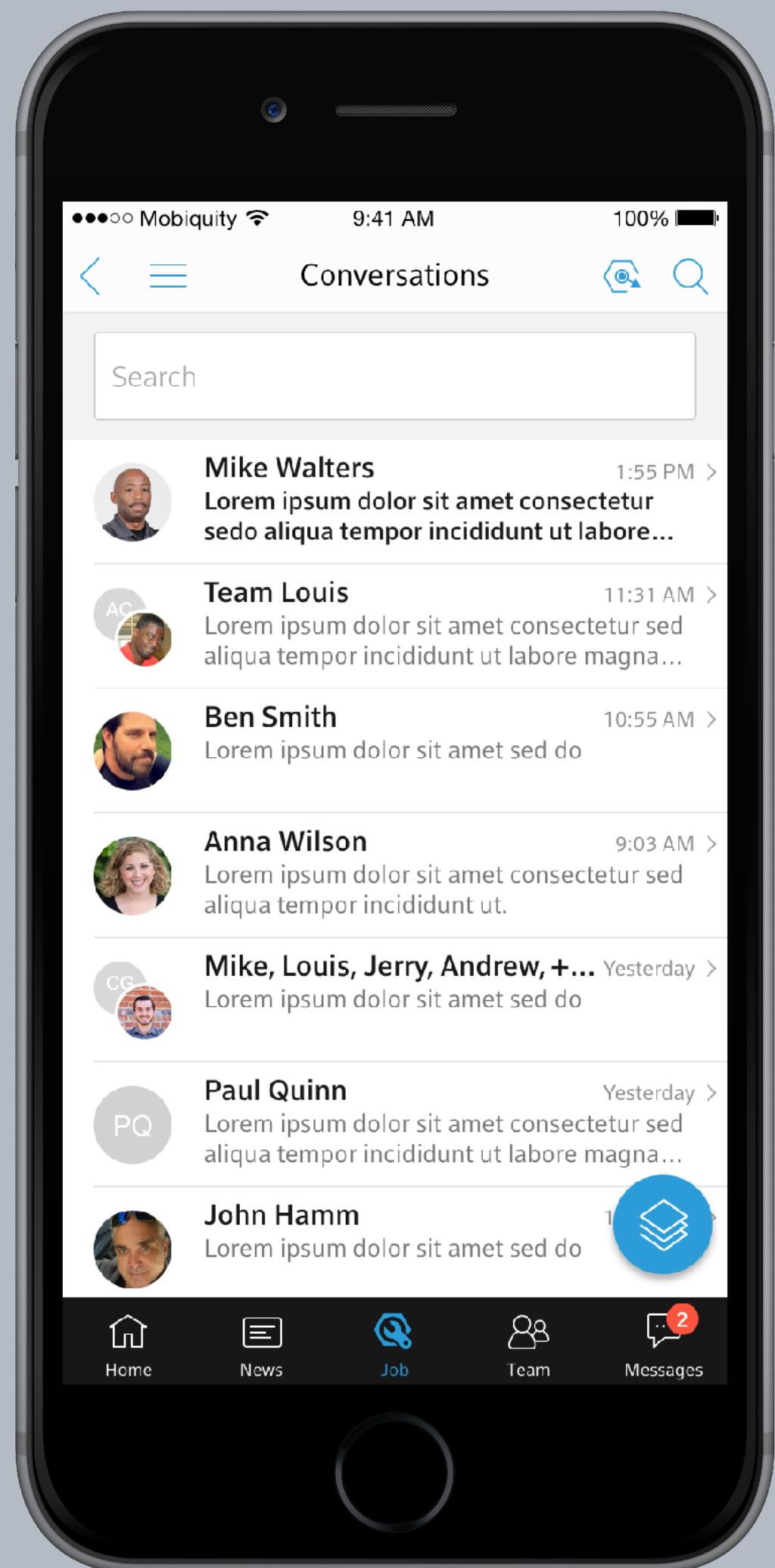
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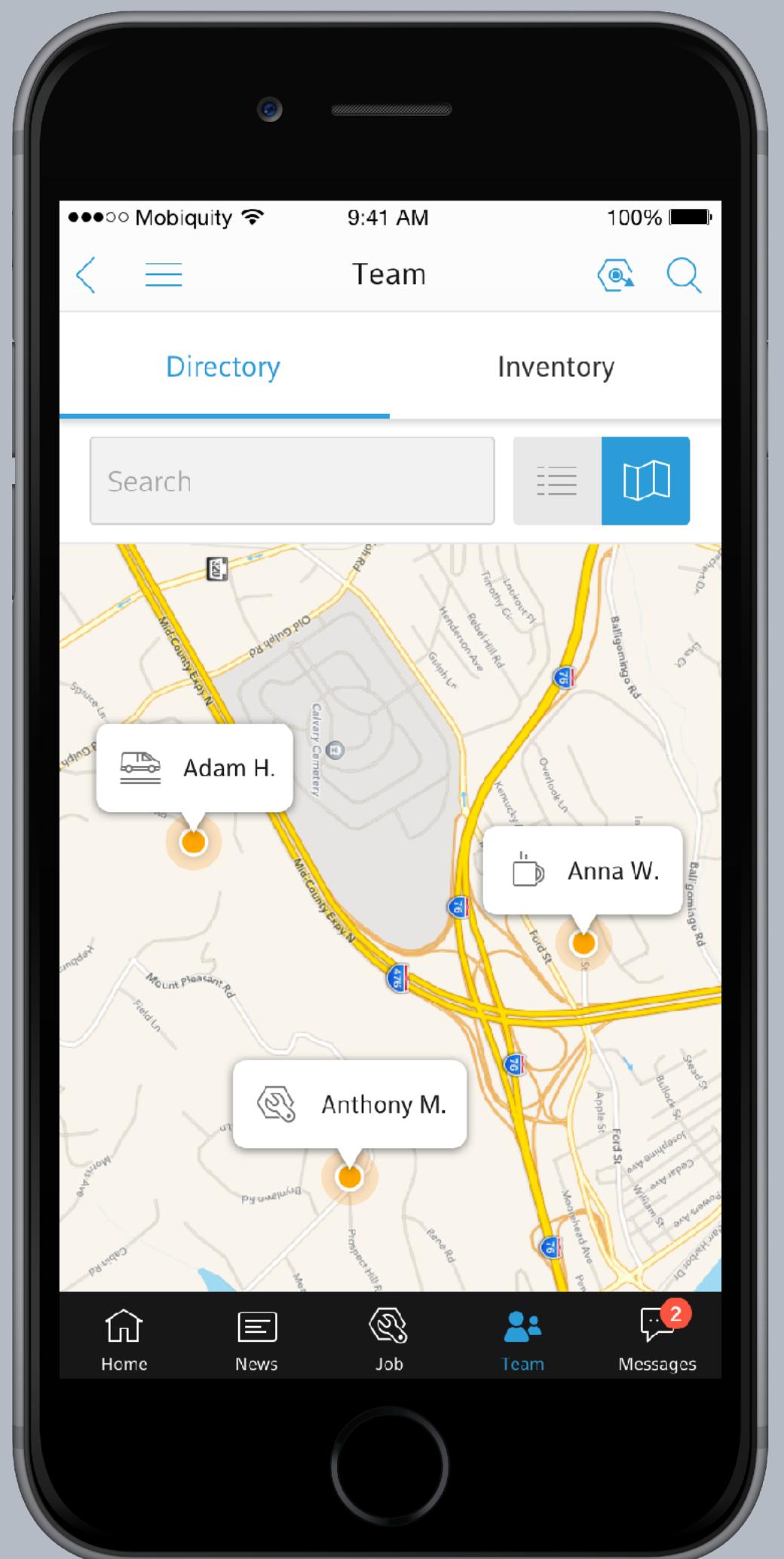
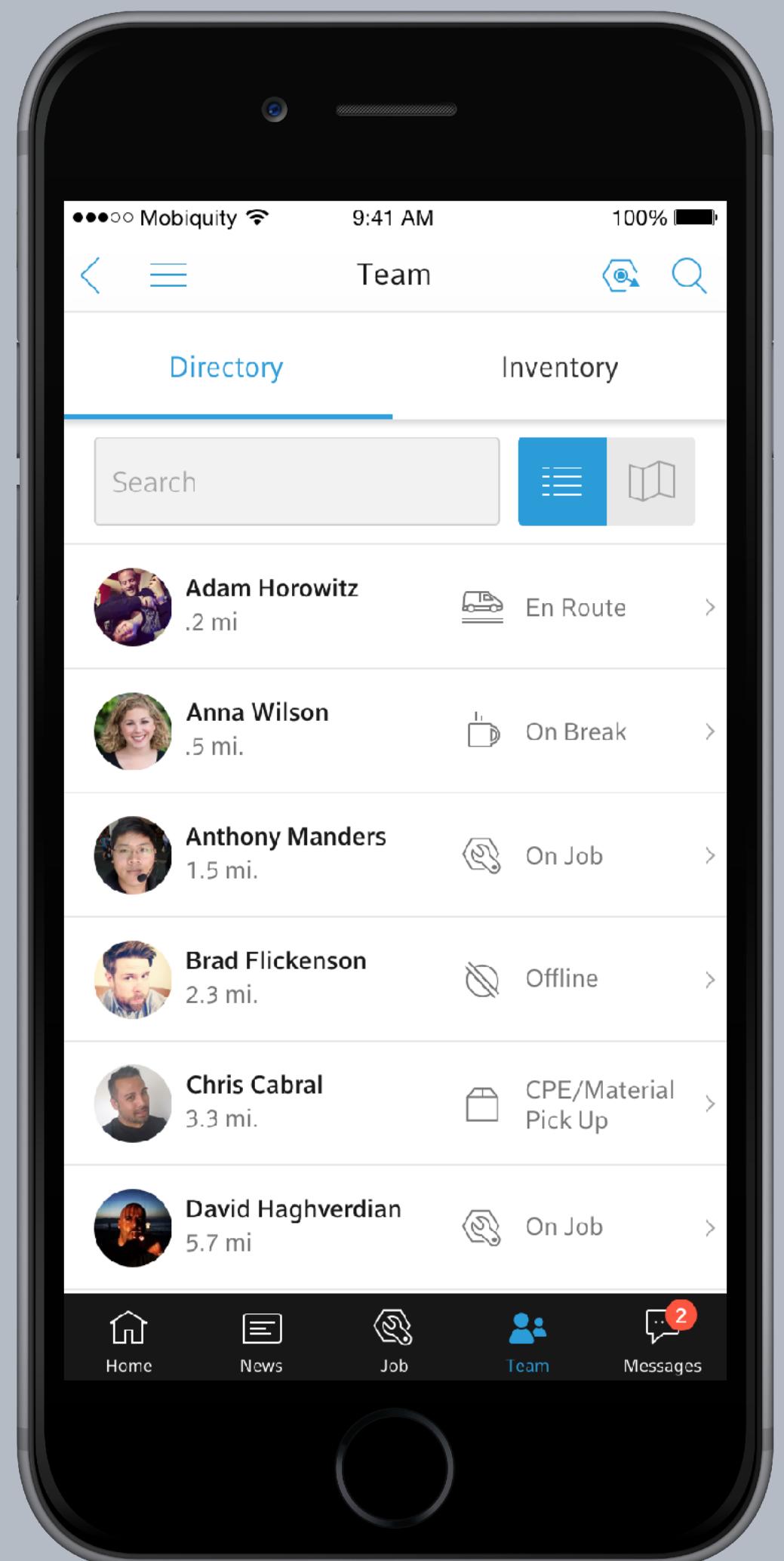
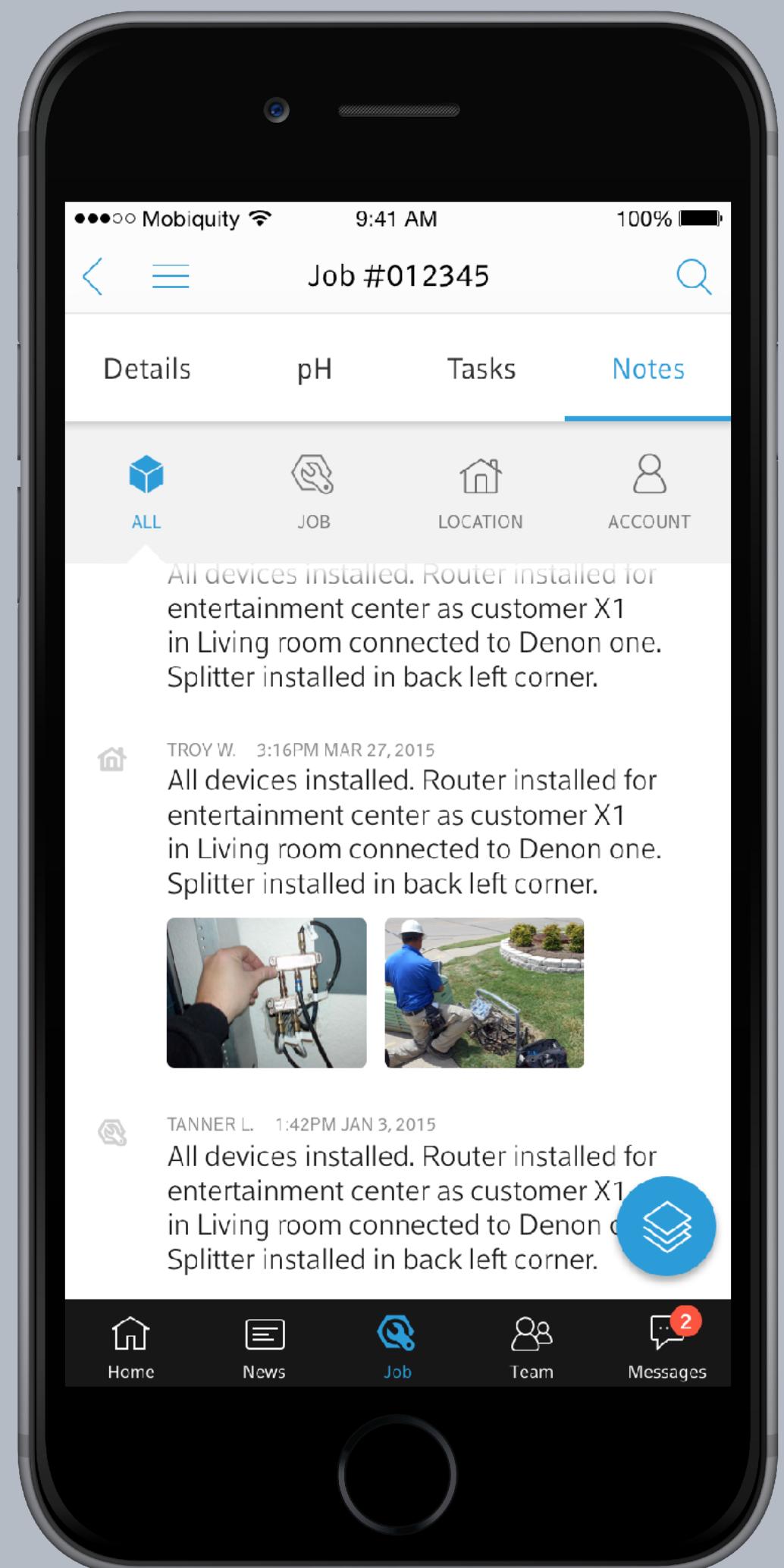
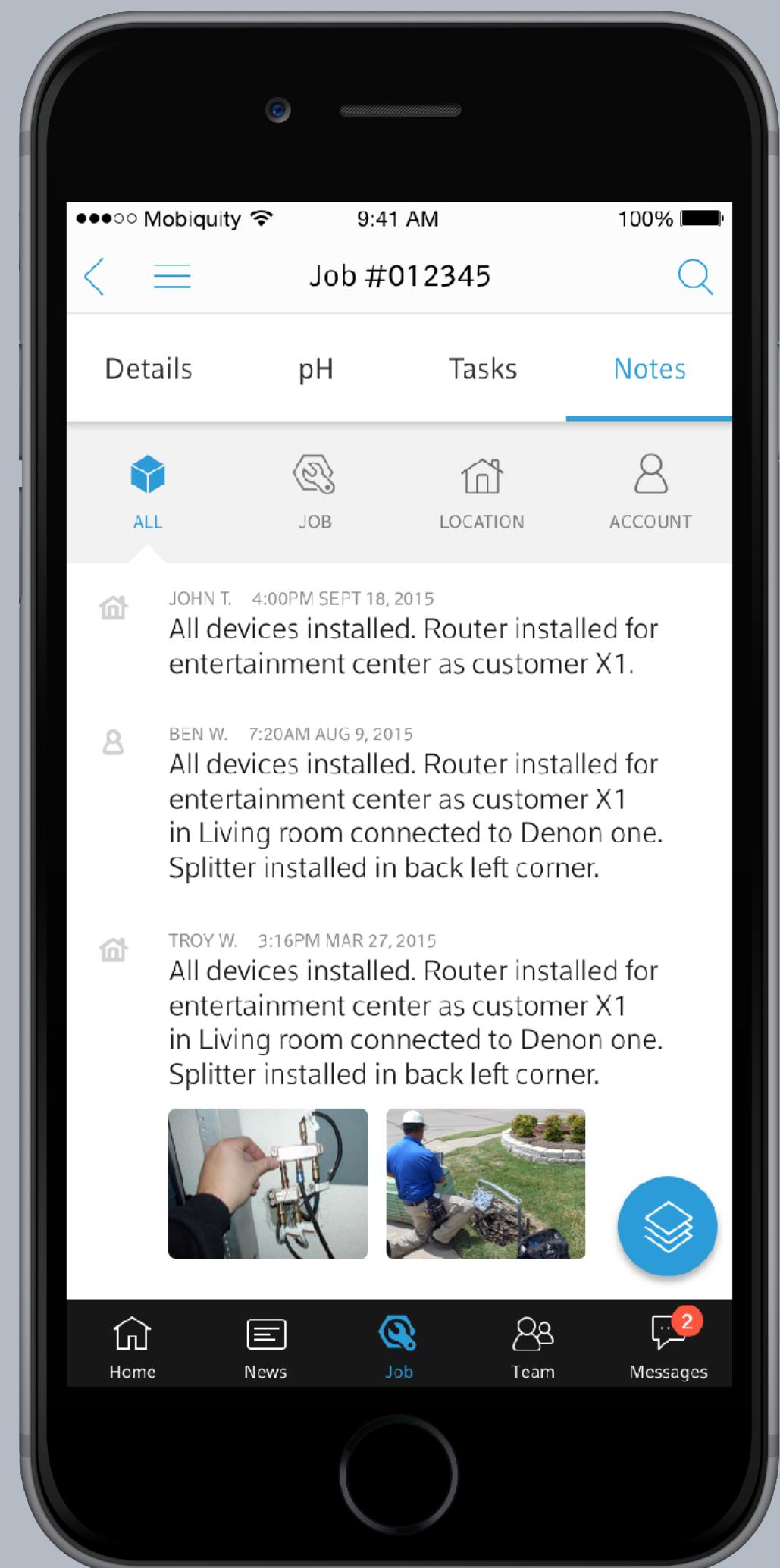
# Visual Design



# Visual Design



# Visual Design



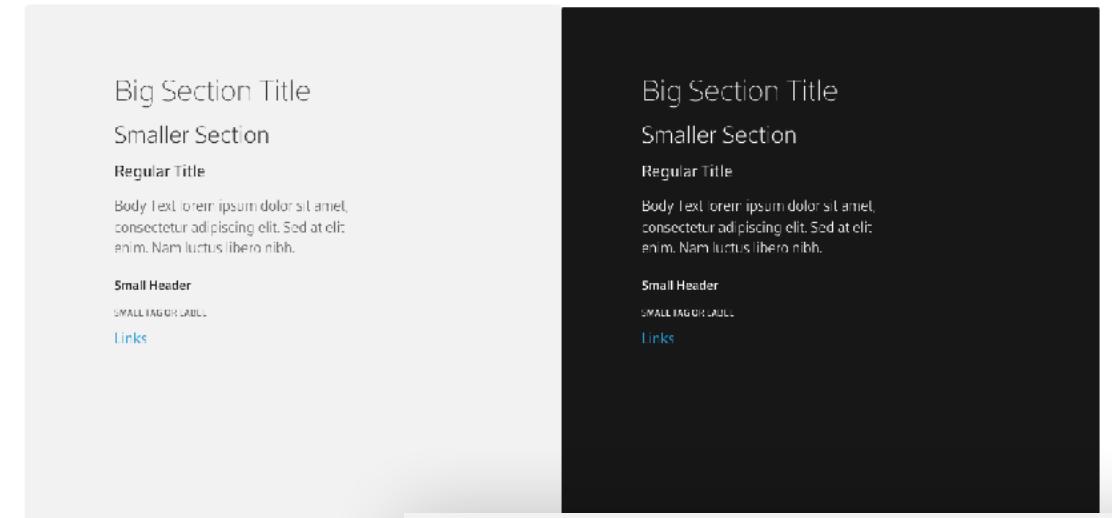
# Style Guide

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# Comcast Tech Nucleus UI Kit – Version 9.0

This UI Kit was created at 1x for iOS. Use these patterns and templates to efficiently design mobile experiences for Comcast Tech Nucleus.

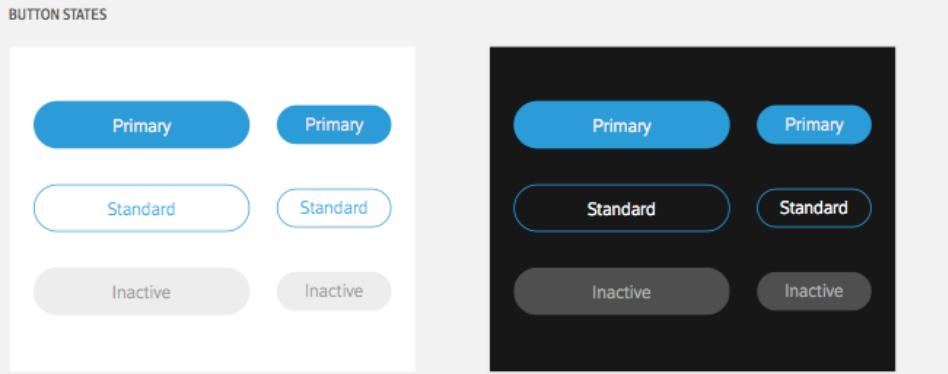
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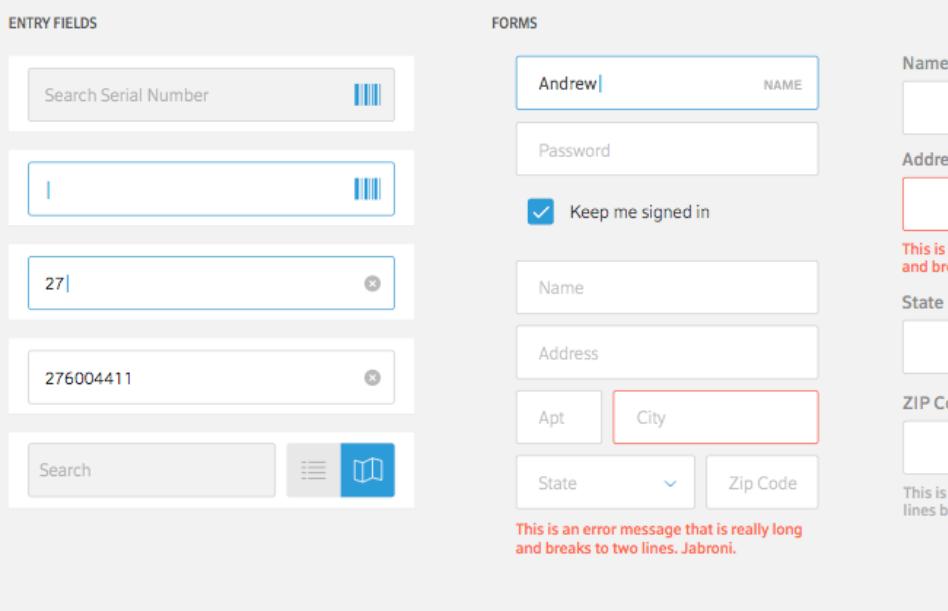
## Color



## Buttons & Form Elements



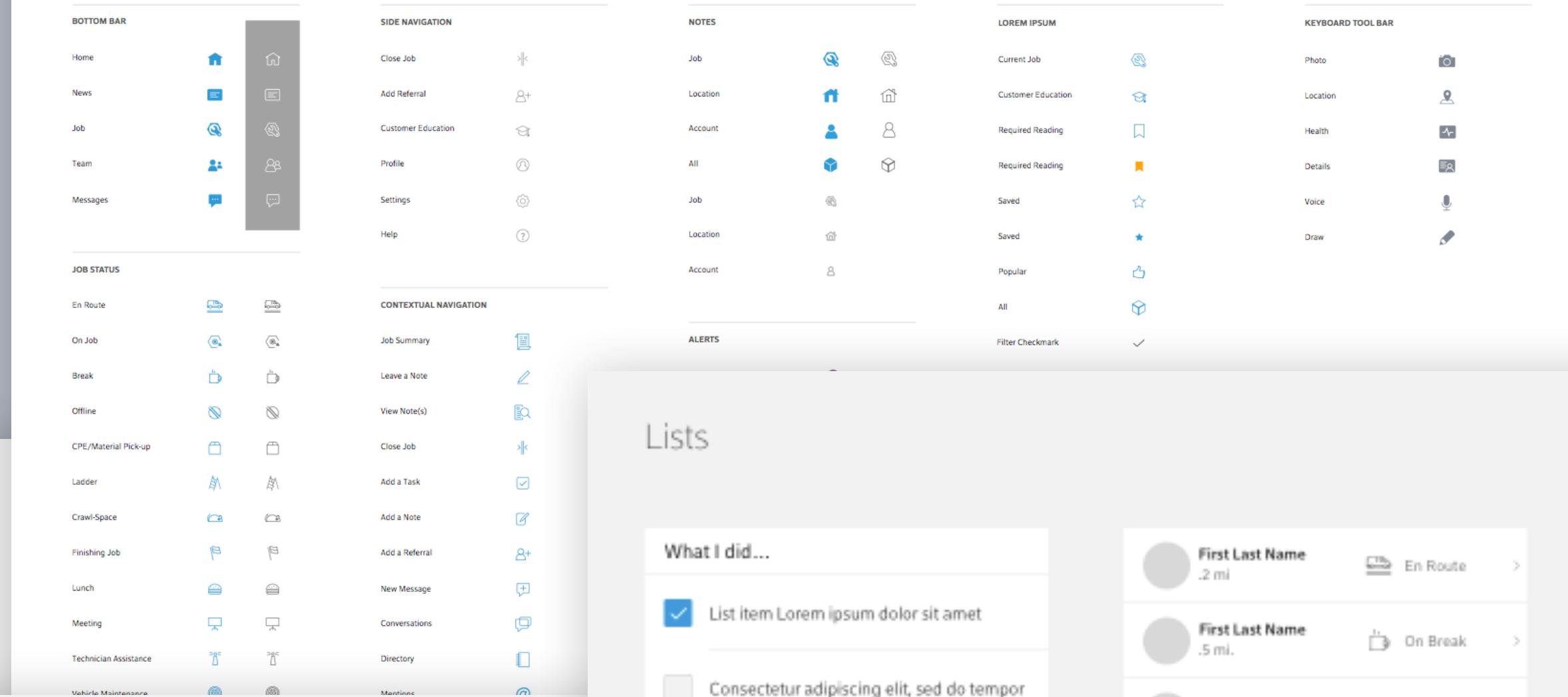
## Framework



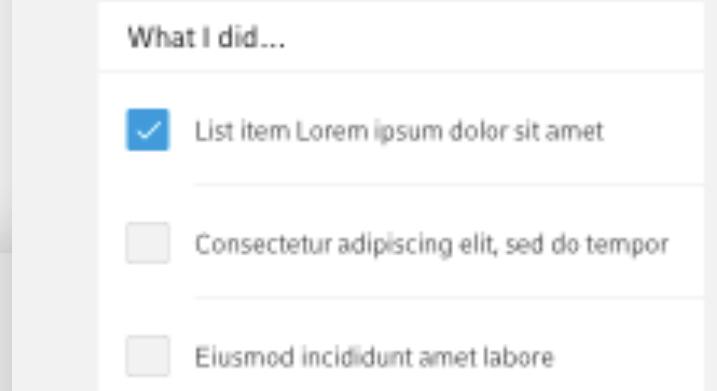
## STATUS BARS (DARK)



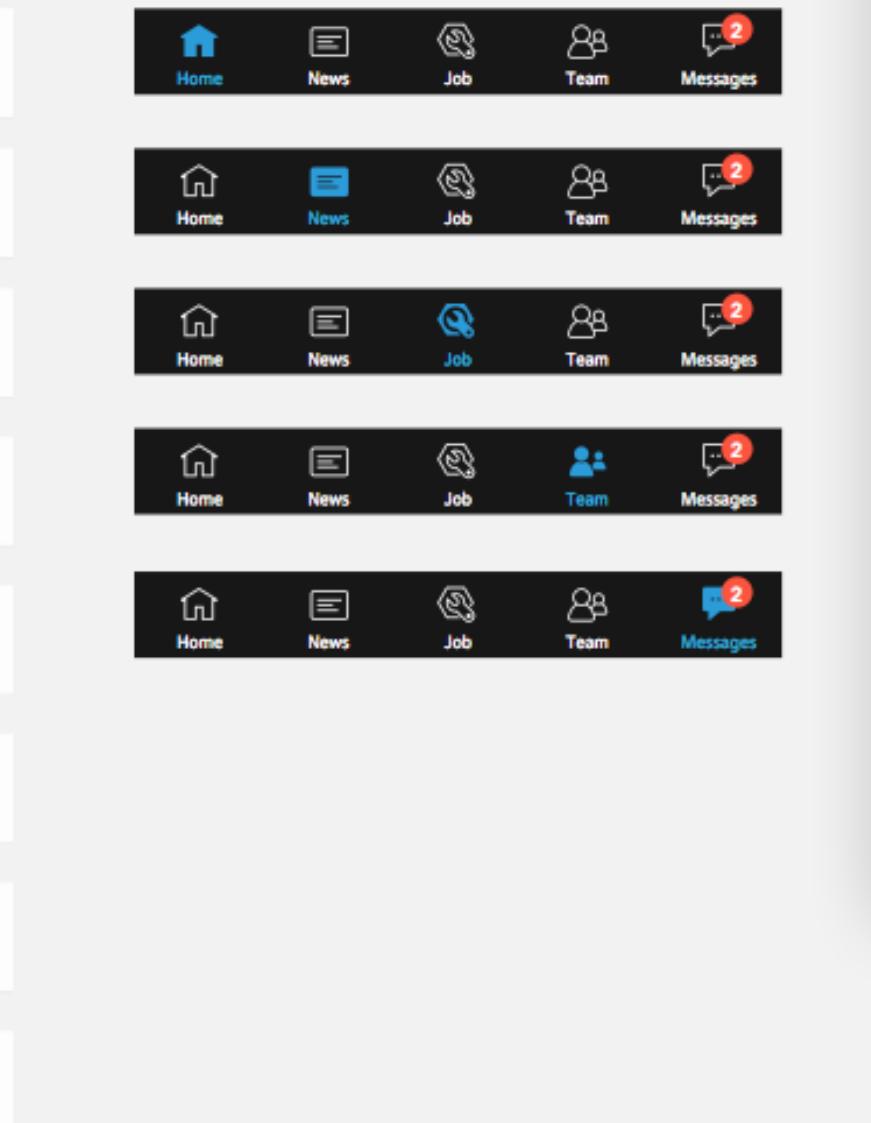
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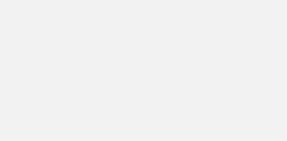
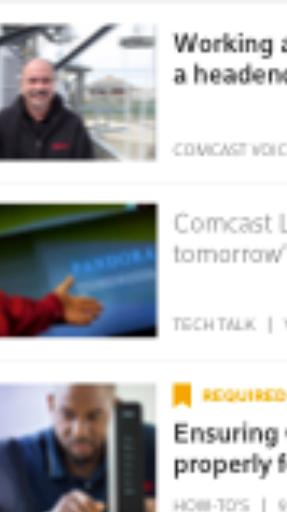
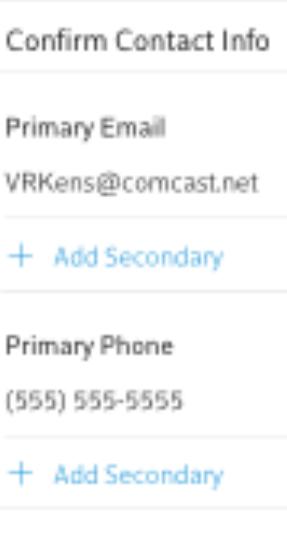
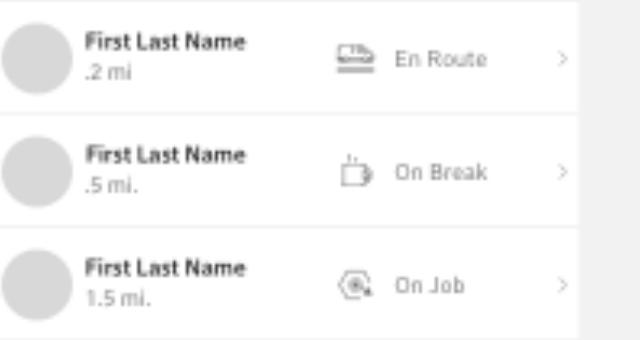
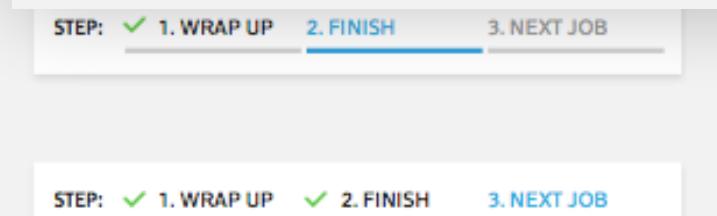
## Lists



## BOTTOM BAR



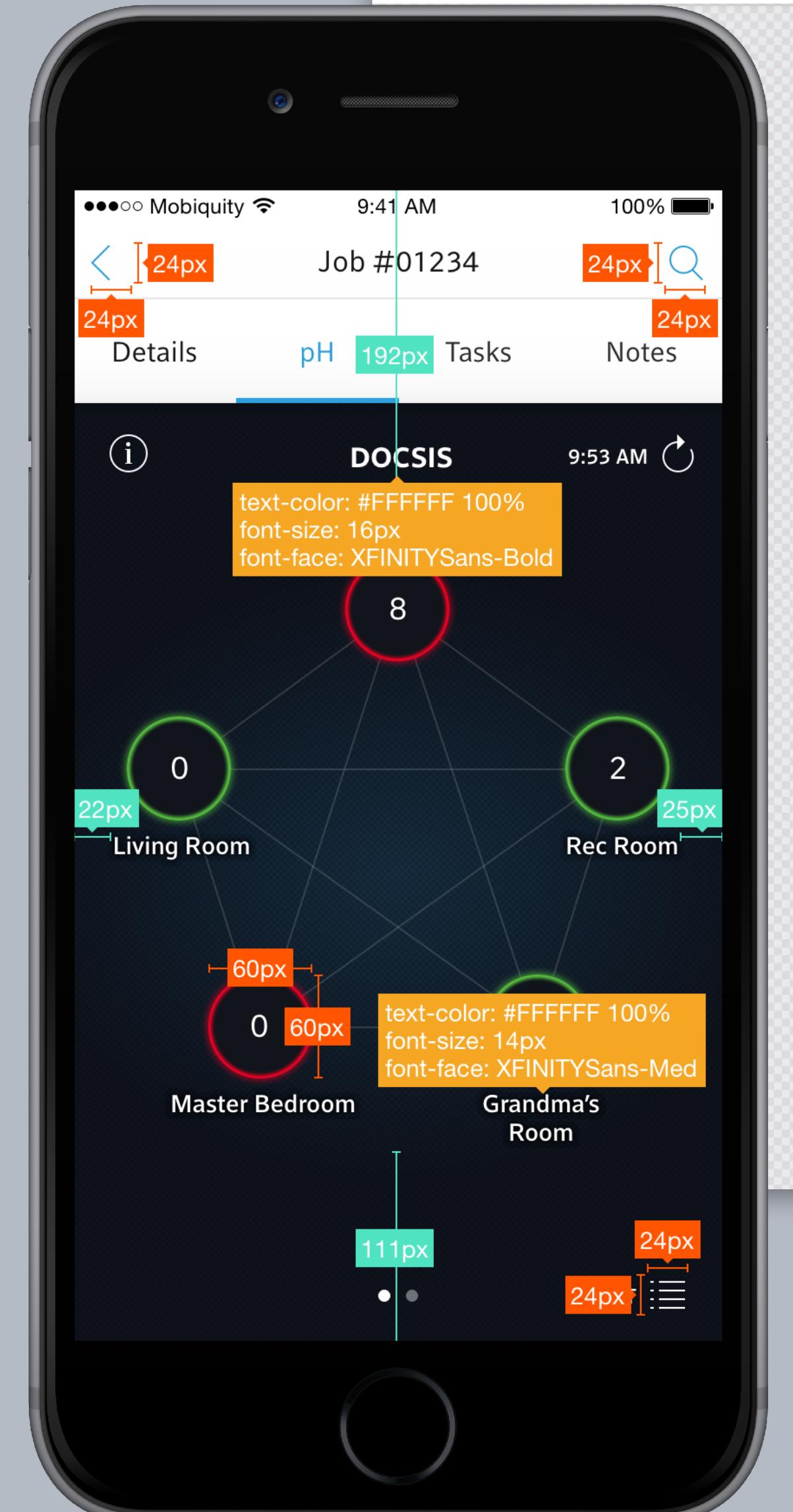
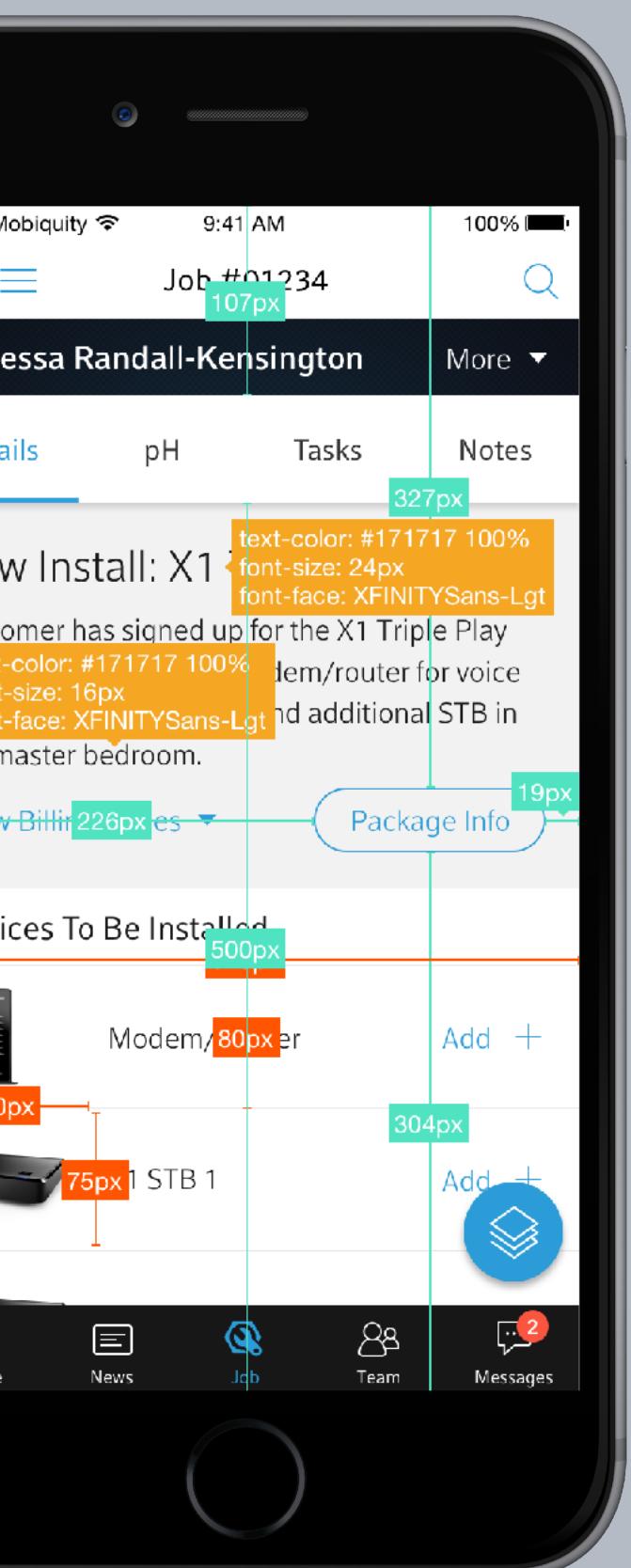
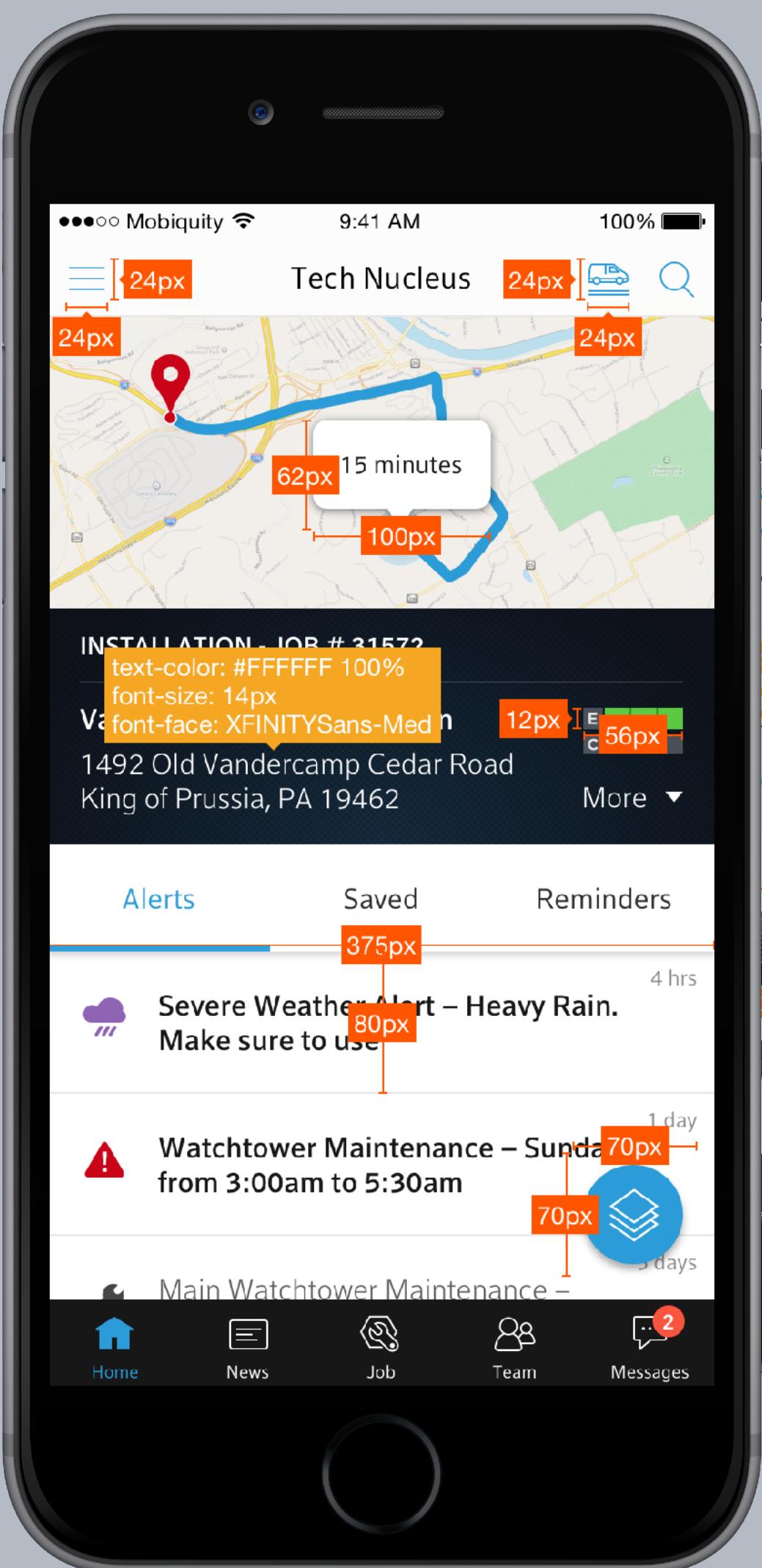
## Devices to Be Installed



# Redlines

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# Redlines



The desktop application window shows a job detail card for "Job #01234" assigned to "Vanessa Randall-Kensington". The card includes sections for Details, pH, Tasks, and Notes. The Notes section contains the same text as the smartphone screens: "Customer has signed up for the X1 Triple Play option. Please install a modem/router for voice and data, X1 Cloud DVR, and additional STB in the master bedroom." The right side of the window features a "PROPERTIES" panel with settings for the card's position, size, opacity, typeface, and content. The content panel also displays the same note text. The bottom navigation bar includes Home, News, Job, Team, and Messages.