



# CSCI 215

## **Social and Ethical Issues in Computer Science**

False Ballistic Missile Alert



# Tensions at that Time

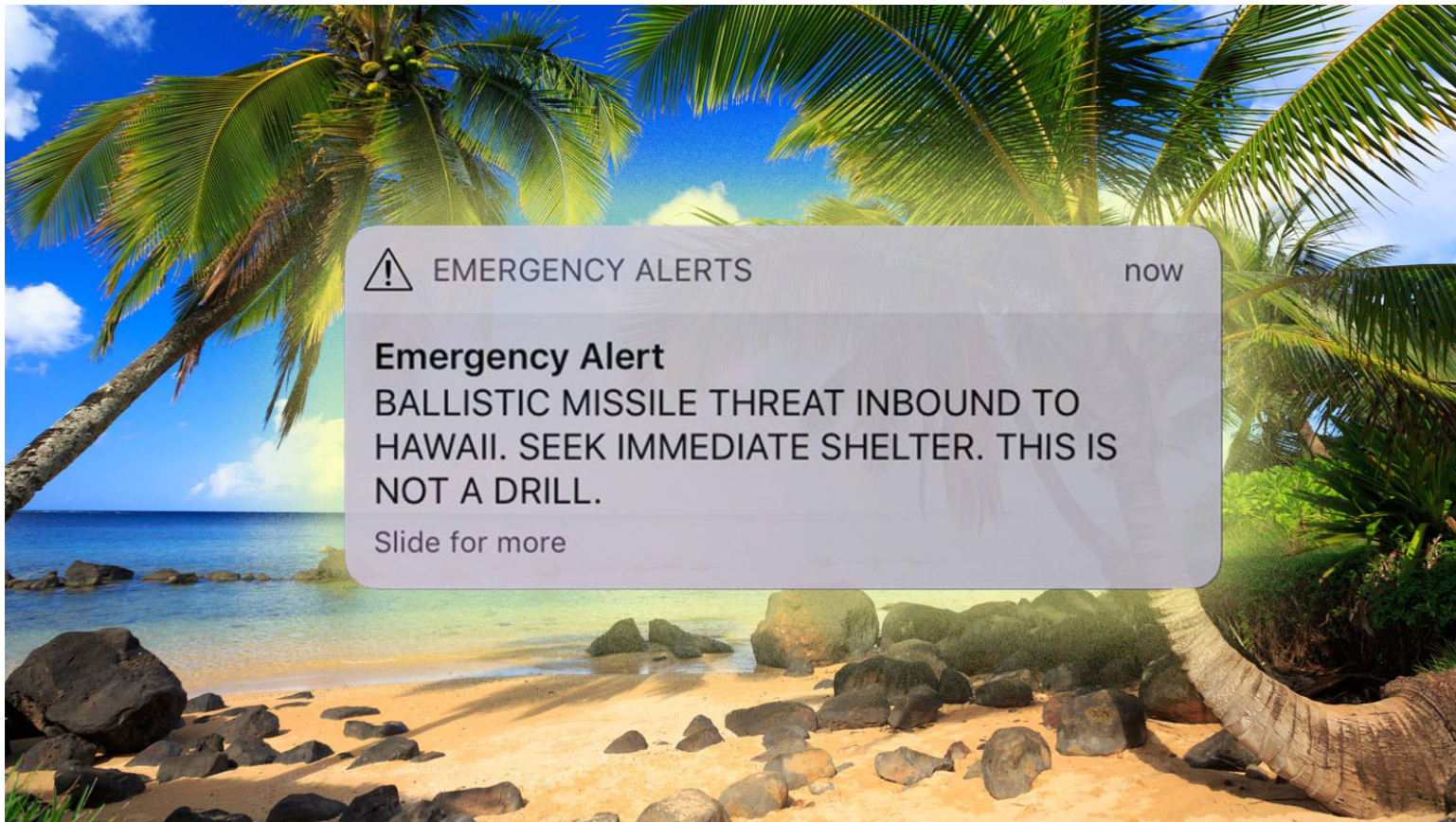
- North Korea
  - use of nuclear weapons
  - ICBM tests (most recent – Nov 2017)
- Testing of siren – Dec 2017
  - But no discussion on what to do if not a test



# What Happened?

- Tell me what happened as a result of the false missile alert in Hawaii on Jan 13, 2018
  - What was sent to the public and what were the results

# Screenshot





# Videos

- Link:  
<https://www.cnn.com/videos/us/2018/01/13/hawaii-basketball-game-false-missile-alert-sot-nr.cnn>
- Link: <https://abcnews.go.com/US/hawaii-startled-false-alarm-imminent-missile-attack/story?id=52329674>
- Link: <https://www.msnbc.com/velshi-ruhle/watch/what-happened-in-hawaii-s-false-missile-alert-1137384003898>



# False Missile Alert in Hawaii

The employee accidentally clicked "PACOM (CDW) - STATE ONLY" instead of the similarly named option "DRILL-PACOM (DEMO) STATE ONLY", creating massive panic until a follow up message 40 minutes later revealed it was a mistake.

# Software Screens

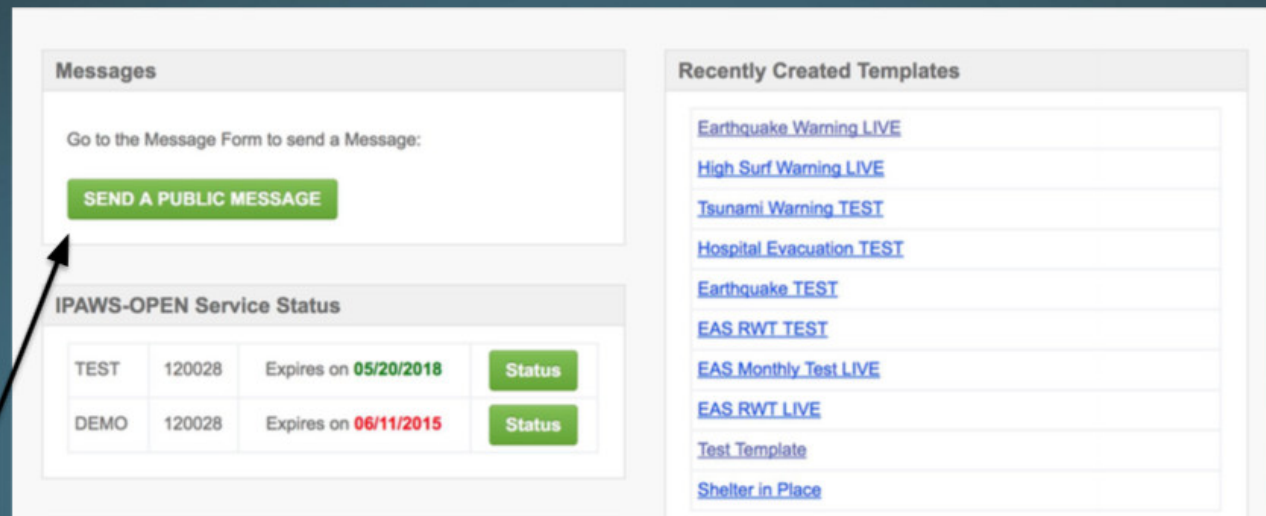
AlertSense

## IPAWS Experience

Once logged into the system, this Dashboard is shown.

The user can review recently created templates, history, verify connection to IPAWS and initiate a public message.

Since this system is permission based, some users may see more information than others.



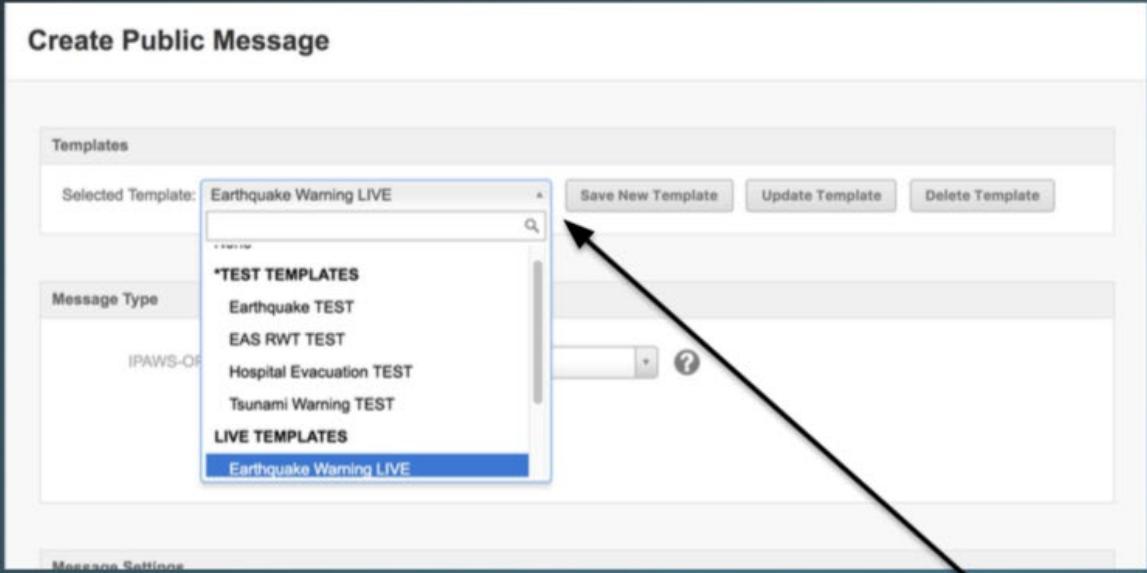

IPAWS-OPEN Service Status			
TEST	120028	Expires on 05/20/2018	Status
DEMO	120028	Expires on 06/11/2015	Status

**Step 1:**  
**Select Send A Public Message**





# Software Screens



**Create Public Message**

Templates

Selected Template: Earthquake Warning LIVE

Save New Template Update Template Delete Template

Message Type

IPAWS-Of

**\*TEST TEMPLATES**

- Earthquake TEST
- EAS RWT TEST
- Hospital Evacuation TEST
- Tsunami Warning TEST

**LIVE TEMPLATES**

- Earthquake Warning LIVE

Message Settings

Regardless of the previous selection, the user is brought to a 2nd page in the system, which provides the alerting form necessary to complete the message.

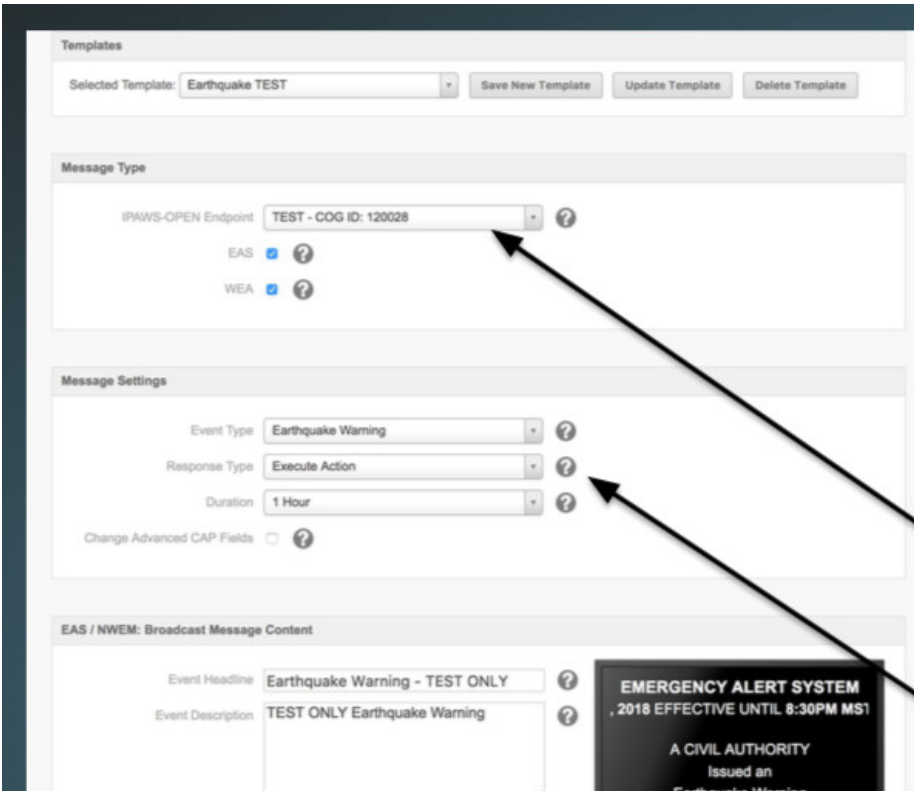
Templates provide a convenient starting point for alerts and they can be organized into different groups. The emergency alerting team names and organizes templates in accordance with their specific needs, use-cases and processes.

If a template is selected, the form is pre-populated with everything that was saved in that template, including endpoint (demo or live), communication channels and other message options.

**Step 2:**  
**Select or Verify Template**



# Software Screens



The screenshot displays the AlertSense web interface for configuring an emergency alert. It is divided into several sections:

- Templates:** A dropdown menu shows 'Earthquake TEST' as the selected template. Buttons for 'Save New Template', 'Update Template', and 'Delete Template' are present.
- Message Type:** The 'IPAWS-OPEN Endpoint' is set to 'TEST - COG ID: 120028'. Below this, checkboxes for 'EAS' and 'WEA' are both checked.
- Message Settings:** This section contains three dropdown menus: 'Event Type' (set to 'Earthquake Warning'), 'Response Type' (set to 'Execute Action'), and 'Duration' (set to '1 Hour'). A checkbox for 'Change Advanced CAP Fields' is unchecked.
- EAS / NWEM: Broadcast Message Content:** The 'Event Headline' is 'Earthquake Warning - TEST ONLY' and the 'Event Description' is 'TEST ONLY Earthquake Warning'. To the right, a preview of the alert message is shown: 'EMERGENCY ALERT SYSTEM, 2018 EFFECTIVE UNTIL 8:30PM MS1' and 'A CIVIL AUTHORITY Issued an Earthquake Warning'.

Two black arrows point from the text boxes on the right to specific fields in the interface: one points to the 'IPAWS-OPEN Endpoint' dropdown, and the other points to the 'Event Type' dropdown in the 'Message Settings' section.

AlertSense

The system supports both 'practice' (demo) and 'live' scenarios. Practice alerts can help the team maintaining their skills. Treating them seriously insures that team members are well versed in their own processes and familiar with the software system.

Regardless of whether a template is used as a starting point, and regardless of whether the alert is practice or live, the next steps are to modify, review and verify the message type, message content and other settings for the specific scenario.

**Step 3:**  
**Verify Message Type (demo or live)**

**Step 4:**  
**Complete the Message Settings section**

# Software Screens



**AlertSense**

**A CIVIL AUTHORITY  
Issued an  
Earthquake Warning**

Recommended Instructions: Seek shelter if needed. TEST ONLY

Audio Message: [Preview Text to Speech](#), [Select Existing File](#), [Upload File](#)

**CAP to EAS Translation:**  
A CIVIL AUTHORITY HAS ISSUED AN EARTHQUAKE WARNING FOR THE FOLLOWING COUNTRIES/AREAS: NO AREA AT 7:39 PM MST ON JAN 16, 2018 EFFECTIVE UNTIL 8:30PM MST. Message from: TEST ONLY EARTHQUAKE WARNING. SEEK SHELTER IF NEEDED. TEST ONLY

**WEA: Mobile Phone Content**

Auto Generated Text Message: Earthquake Warning in this area until 8:30PM MST  
Execute Action

Edit Text Message: ☒ ?

Text Message: TEST ONLY Earthquake Drill  
26 of 90 characters used.

**Target Area**

Area Description: Area ?

Geographic Area: Circle 1 ?

Add Shape ?

FIPS Codes: 016000 - IDAHO - ALL STATE ?

**SEND MESSAGE**

**Step 5:**  
**Create / modify / preview / verify  
Message Content and Formatting**

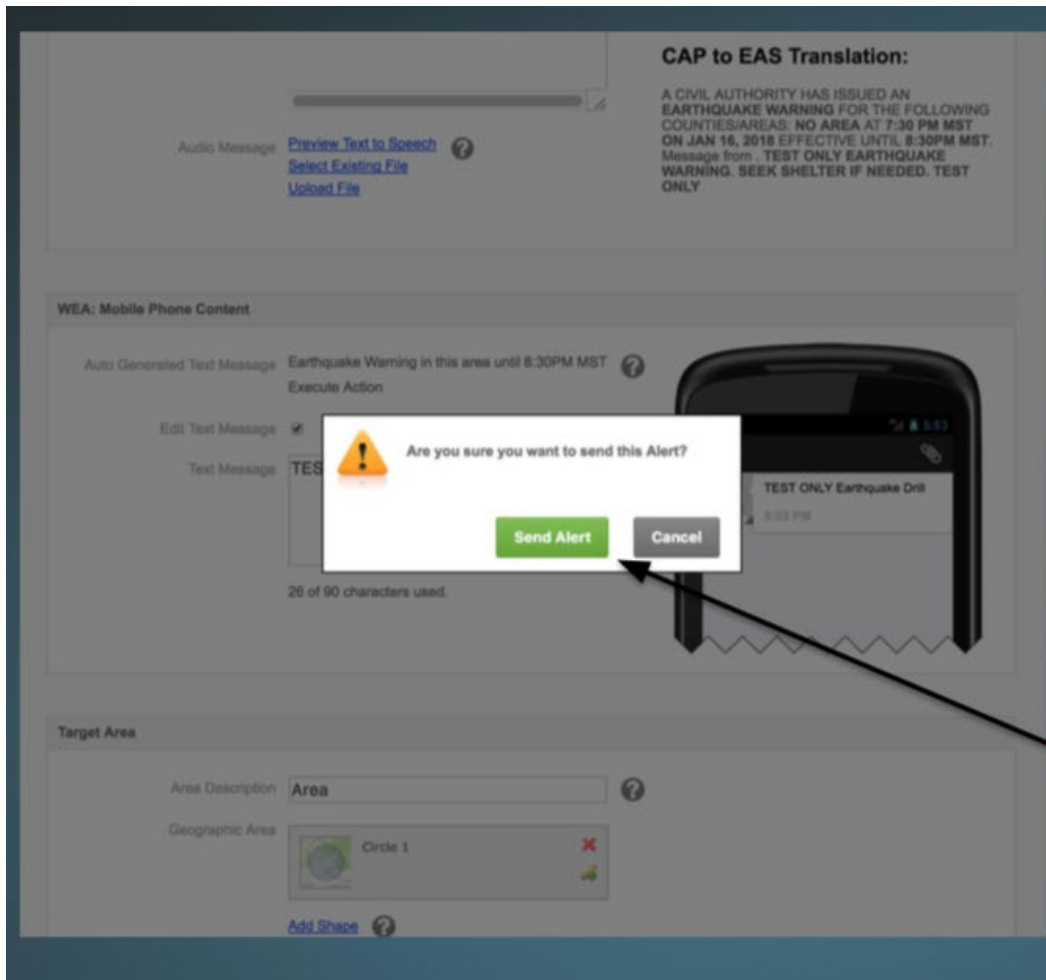
**Step 6:**  
**Specify the target area**

**Step 7:**  
**Click Send Message**

System operators review and edit all information before sending the message in a clear and easy **WYSIWYG** (what you see is what you get) format.

Whether for practice or live scenarios, these content preview steps are very important to ensure that the alert message is accurate and formatted correct before pressing "SEND".

# Software Screens



The screenshot shows the AlertSense web interface. At the top right is the 'AlertSense' logo. Below it, there's a 'CAP to EAS Translation' section with a text area containing a test earthquake warning message. Below that is a 'WEA: Mobile Phone Content' section with a text input field containing 'TEST ONLY Earthquake Drill'. A confirmation dialog box is overlaid on the screen, asking 'Are you sure you want to send this Alert?' with 'Send Alert' and 'Cancel' buttons. A blue callout box with an arrow points to the 'Send Alert' button, containing the text 'Step 8: Click Send Alert As final confirmation'.

**AlertSense**

After completing the form, and pressing “SEND MESSAGE” a third confirmation dialog is presented. This dialog is presented such that the underlying form and previews are still visible.

After the message has been reviewed, the user confirms that the message is to be sent by clicking “SEND ALERT” in the pop up window.

Send Alert will send the message to IPAWS for dissemination to the channels selected.

Cancel will take the user back to the form for further review.

**Step 8:**  
**Click Send Alert**  
**As final confirmation**



# Software

- Can you think of
  - something good about this software?
  - something bad about this software?

# A User Interface Designer's Opinion

Kim Flaherty, a design expert at the research firm Nielsen Norman Group



- “Any critical system, whether it’s in a hospital or a critical alert system for public safety, should be specifically designed to prevent errors like this,”

Taken from <https://theoutline.com/post/2954/user-interface-designers-are-horrified-by-hawaii-s-missile-alert-system?zd=2&zi=m3ow6edq>

# A User Interface Designer's Opinion

Kim Flaherty, a design expert at the research firm Nielsen Norman Group



- The system would have two modes — a sandbox mode for testing purposes, like the routine drill the employee was trying to select, and a separate one for live alerts that would be differentiated by clear visual cues.



# A User Interface Designer's Opinion

Kim Flaherty, a design expert at the research firm Nielsen Norman Group



- A better system, Flaherty said, would also require a user to complete a small task before the system would send a critical alert. It could be as simple as a CAPTCHA image or two-factor authentication, or it could require another employee to separately authorize the alert. Systems that simply ask if a user is sure they want to take an action, as the Hawaii system [reportedly did](#), are notoriously ineffective, she said, because people get used to clicking them every time.

# A User Interface Designer's Opinion

Kim Flaherty, a design expert at the research firm Nielsen Norman Group



- Flaherty would also recommend clearer copywriting and better on-page organization, since the options on the image Hawaii are released are ordered strangely and laden with acronyms like “PACOM” and “CDW.”

# A User Interface Designer's Opinion

Kim Flaherty, a design expert at the research firm Nielsen Norman Group



- “The wording and the way these are written up is very cryptic,” she said. “It takes a lot of mental work to differentiate between these. If this is getting tested once a week, someone’s going to eventually push the wrong button.”

# A User Interface Designer's Opinion

Kim Flaherty, a design expert at the research firm Nielsen Norman Group

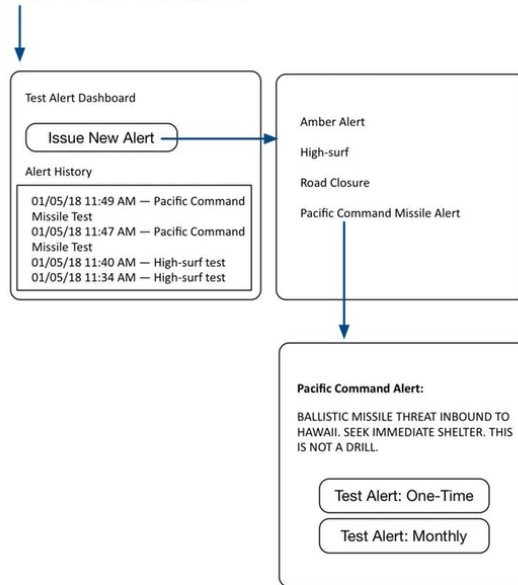


- Flaherty would also recommend a function that would let the state immediately send a second message to call off the first

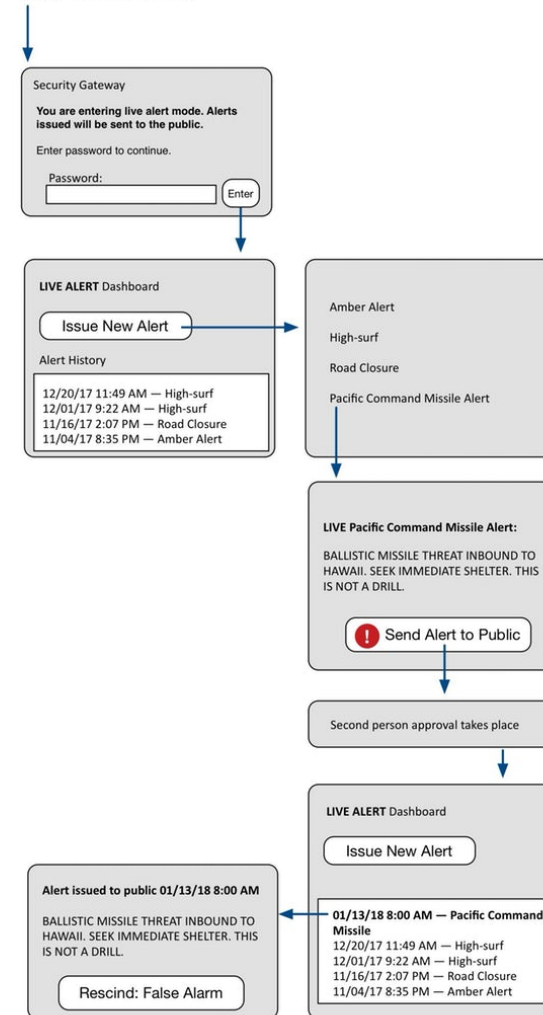
# A Mockup Of a Solution

## State Emergency Operations (State EOC)

### Test environment (Default)



### Live environment



What is good?

What would you change?



# Who should be held liable?

- Developer
- Developer company
- Hawaii government
- User/operator
- Operator/supervisor
- Trainer
- Others?





# Presentation Speakers

- Tuesday, 9/1

Brown, Jack

Fehres, Megan

Johnson, Coulter

Jubenville, John

Skoog, Ezra