



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

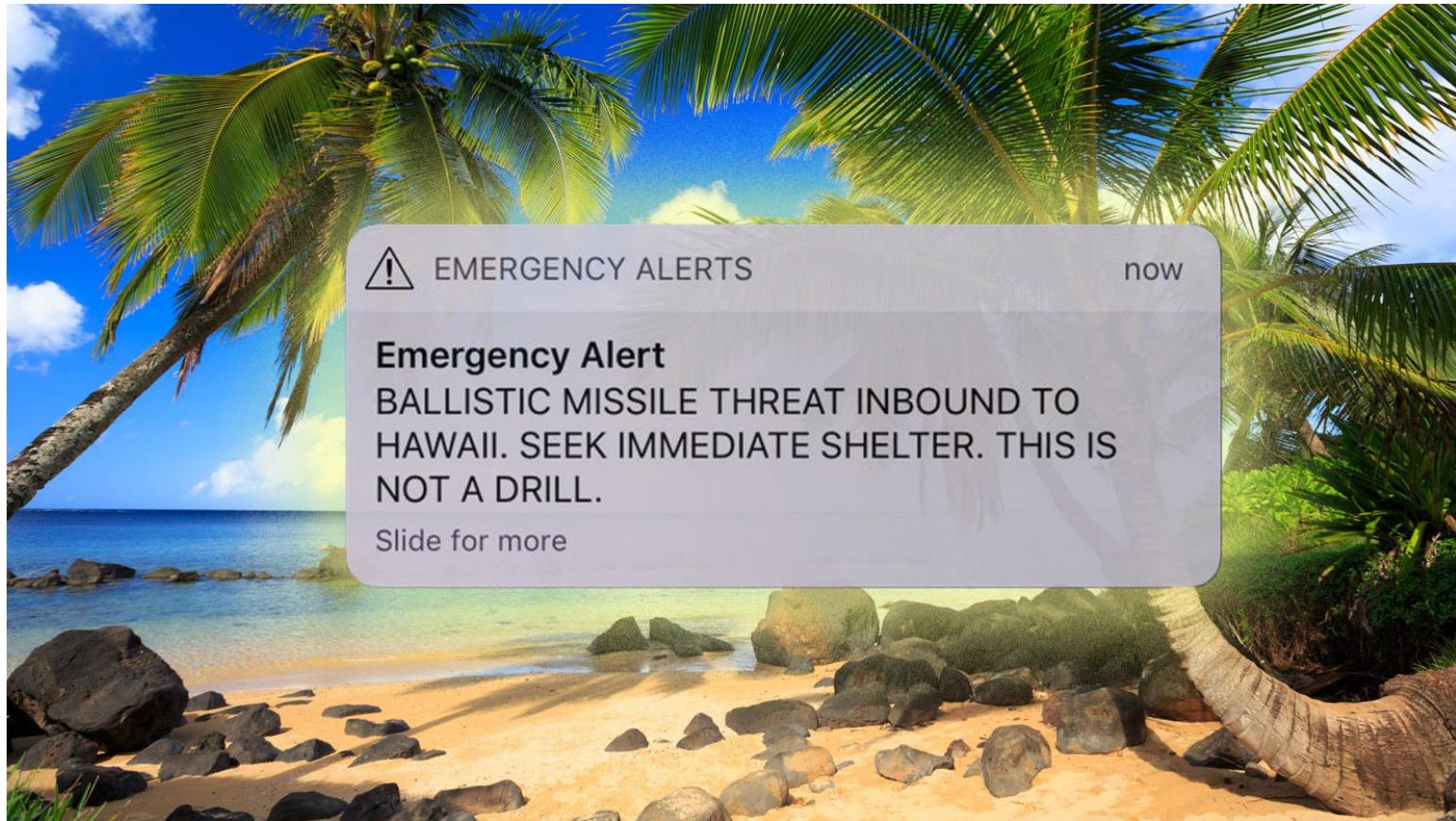


# What Happened?

- 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)  
<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)  
<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)  
<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.

A screenshot of the AlertSense IPAWS Experience dashboard. The interface has a dark background with white and light gray sections. On the left, there's a sidebar with the 'AlertSense' logo and a navigation menu. The main content area is titled 'IPAWS Experience'. It features a 'Messages' section with a button to 'SEND A PUBLIC MESSAGE', and an 'IPAWS-OPEN Service Status' section showing two entries: 'TEST' and 'DEMO', each with a status indicator and a 'Status' button. To the right, there's a 'Recently Created Templates' section listing various templates like 'Earthquake Warning LIVE', 'High Surf Warning LIVE', etc. A large black arrow points from the text 'Step 1: Select Send A Public Message' at the bottom left towards the 'SEND A PUBLIC MESSAGE' button.

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



# Software Screens

AlertSense

Create Public Message

Templates

Selected Template: Earthquake Warning LIVE

\*TEST TEMPLATES

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

LIVE TEMPLATES

- Earthquake Warning LIVE

Message Type

IPAWS-OF

Message Settings

Save New Template   Update Template   Delete Template

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

A screenshot of the AlertSense software interface. At the top, there's a navigation bar with tabs for 'Templates', 'Selected Template: Earthquake TEST', 'Save New Template', 'Update Template', and 'Delete Template'. Below this is a 'Message Type' section with a dropdown menu set to 'IPAWS-OPEN Endpoint TEST - COG ID: 120028' and checkboxes for 'EAS' and 'WEA'. A large black arrow points from the text 'The system supports both 'practice' (demo) and 'live' scenarios.' to the 'IPAWS-OPEN Endpoint' dropdown. Another arrow points from the text '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.' to the 'Event Type' dropdown in the 'Message Settings' section. At the bottom, there's an 'EAS / NWEM: Broadcast Message Content' section with fields for 'Event Headline' (Earthquake Warning - TEST ONLY) and 'Event Description' (TEST ONLY Earthquake Warning), along with a preview window showing an emergency alert message.

**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**

The screenshot shows the AlertSense software interface. On the left, there's a 'Text Message' section with a preview window showing 'TEST ONLY Earthquake Drill'. Below it is a 'Target Area' section with fields for 'Area Description' (set to 'Area'), 'Geographic Area' (set to 'Circle 1'), 'Add Shape' (checkbox), and 'FIPS Codes' (set to '016000 - IDAHO - ALL STATE'). At the bottom is a green 'SEND MESSAGE' button. On the right, three blue callout boxes provide instructions:

- Step 5:** Create / modify / preview / verify Message Content and Formatting
- Step 6:** Specify the target area
- Step 7:** Click Send Message

Arrows point from each callout box to its corresponding part in the software interface.

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 software interface. At the top, there's a navigation bar with "AlertSense" and other options. Below it, a "CAP to EAS Translation:" section displays a civil authority warning message about an earthquake. The main area shows a "WEA: Mobile Phone Content" section with an auto-generated text message: "Earthquake Warning in this area until 8:30PM MST". A "Text Message" button is visible. A pop-up confirmation dialog box is overlaid on the screen, asking "Are you sure you want to send this Alert?", with "Send Alert" and "Cancel" buttons. An arrow points from the text "Step 8: Click Send Alert As final confirmation" to the "Send Alert" button. At the bottom, there's a "Target Area" section with "Area Description" and "Geographic Area" fields.

**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.

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



- 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.”

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 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



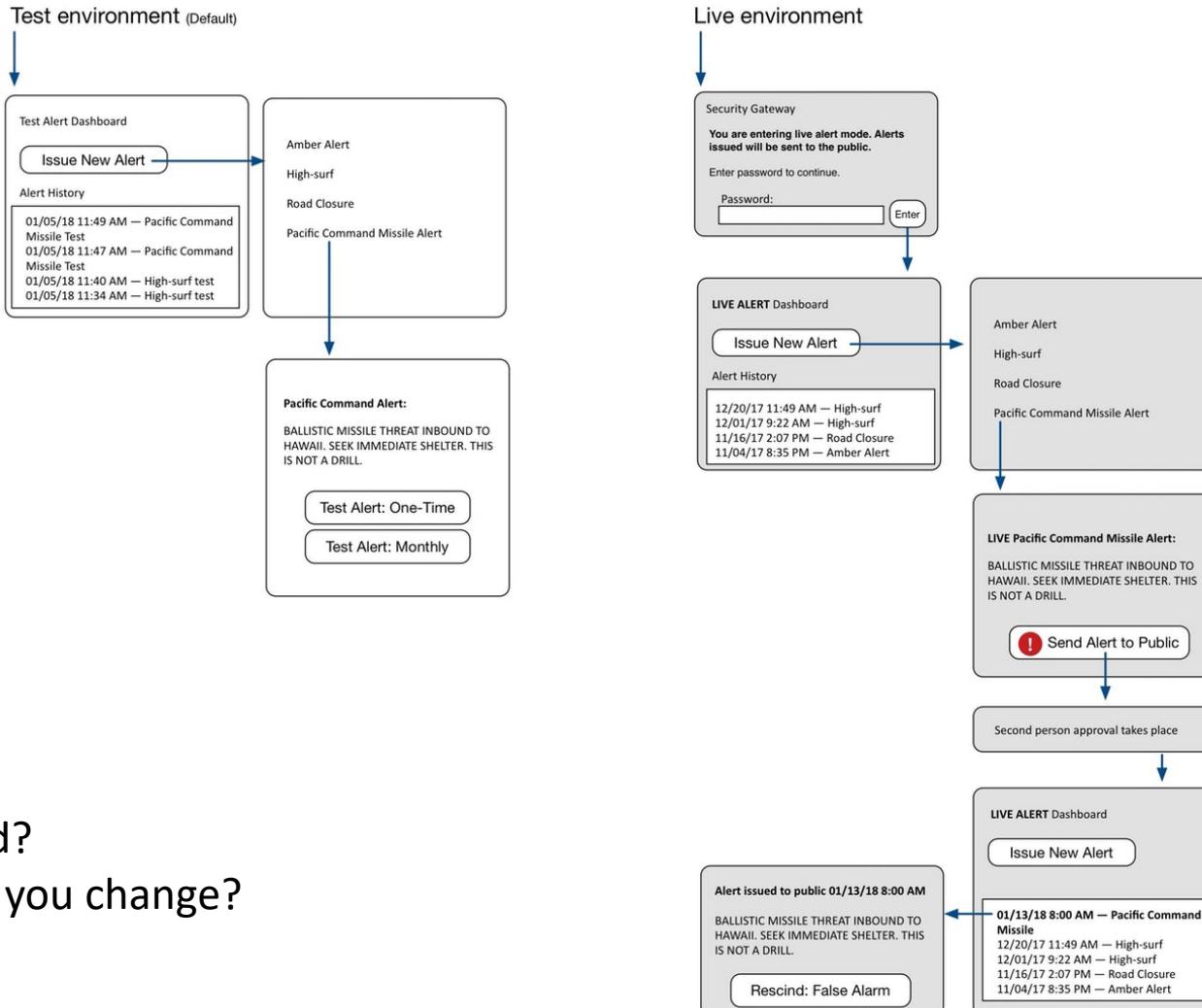
- Flaherty would also recommend a function that would let the state immediately send a second message to call off the first

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



# A Mockup Of a Solution

## State Emergency Operations (State EOC)



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