

Mark P. Bagby, Washington University in St. Louis

WUSTL Emergency Notification Dashboard

WASHINGTON UNIVERSITY IN ST. LOUIS

- × Medium sized, independent research university
- * 6 campuses spread across St. Louis city/county
- × ~14,500 students from 50 states and 120 nations
- × ~15,000 employees

× www.wustl.edu & www.emergency.wustl.edu

THE PROBLEM

- Over the years, we had amassed an emergency/mass notification system comprised of multiple disparate systems.
- We determined that it would take a dispatcher 30+ minutes to independently activate all of them in order to notify the entire University in an emergency.
 - + By doing a Hazard Vulnerability Assessment, we deemed this to be too long



POLICY & NEEDS ASSESSMENT COMES FIRST

Develop the need and the policy

- + Who do you need to reach and how?
- + Who is authorized to issue a message?
- + Who has the ability to set off the system?
- + When will the system be used?
 - × Weather, violence, fire, etc.
- + Who "owns" the system (admin rights/upkeep/programming)?
- + What technology(ies) do you have or want to use/integrate?

THE SOLUTION

Work with our vendor partners + integrate into a centralized dashboard=



"aka" the Easy Button



Matt's "Washington University Emergency Communications Alerting" Matrix

Executive Authorization	Chancellor's Letter/MOU			
Operational Responsibility	Crisis Management Team			
Operational Authority	Incident Assessmen	t Team (Operations, WUPD, MSPS, PA,	AtC, EHS, Emergency)	
Incident Timeline	Incident Happens	CMT Control	Time until Incident 'Ends'	
Incident Type	HEOA - 'Save Lives Now'	Emergency	Follow-On / Informational	
Incident Examples	"immediate threat to the health or safety of students or staff"	Hazardous Materials Spill, Fire, etc	Campus Illness (Meningitis episode two years ago), tornado/earth quake follow-on information	
Alert Authorization	Pre-Approved as per WUPD/MSPS Protocol	Incident Assessment Team (Authorized Eight)	CMT - Public Affairs - DCM	
Responsible to Send Alert	WUPD/MSPS Dispatch (Alertus Level 1 Training Required)	WUPD/MSPS Officers/Mgmt Bagby / Arthur (Alertus L2)	Digital Content Management (PA) Bagby / Arthur (Alertus L2)	
Modes of Communication	All Available (Tornado Warning Sirens provided by STL County)	Alert Affected Campus (All) Inform All Others (eMail/DTPupUp)	As required by situation	

ACTIVATION

- × We created 3 "Levels" of user access
- Preset: Dispatchers in our Police/Public Safety Dept can send prescripted messages to predetermined devices
- Customized: Police/Public Safety Managers & 11 University officials can send customized messages to any and all devices
- × Admin: Administer & maintain the system



Manually



HOME | PRESET ACTIVATION | CUSTOM ACTIVATION | REPORTS | SUPPORT | LOGOUT

MAIN	I Menu	
, in the second se	Preset Alert Activation	
72	Customized Alert Activation	
31	Reports	
	Support	
+	Logout	

PA_DCM (User) [Logout]

Version 1.9.8.2073





HOME | PRESET ACTIVATION | CUSTOM ACTIVATION | REPORTS | SUPPORT | LOGOUT

PRESET ALERT ACTIVATION



Launches a Preset Alert for a preplanned scenario.

- · Select a Preset Alert to activate
- . Click "Continue" to go to the confirmation page where you can verify and send the alert

Preset A	lert Select: [?]	All Clear	*
		All Clear	
		Threat to SafetyDanforth Campus	
Continue		Threat to SafetyMedical School Campus	
Continue		Threat to Safety North Campus (700 Rosedale)	
		Threat to SafetyTyson Research Center	
		Threat to SafetyWest Campus	
		Tornado WarningAdjacent Counties	
		Tornado WarningSTL County/City	







HOME | PRESET ACTIVATION | CUSTOM ACTIVATION | REPORTS | SUPPORT | LOGOUT

ALERT NOT YET SENT - EDIT/CONFIRM ALERT BELOW

CONFIRM PRESET ALERT ACTIVATION

🏹 Ple

Please verify the alert below before it is transmitted.

- If you wish to select a different preset alert, click "Back"
- · If the alert is ready to be sent, click "Send"

WARNING: DO NOT use your browser's "Back" button/function

Message Text: ^[2]	A potential THREAT TO SAFETY exists on the Danforth Campus. GO TO A SECURE LOCATION and remain there until further notice. For further information visit emergency.wustl.edu
Send to: 🕅	Danforth-PA's, Danforth Beacons, CableTV Group, NorthCampus DesktopAlert, Danforth DesktopAlerts, WestCampus DesktopAlerts, MedSchool DesktopAlerts, OffCampus DesktopAlerts, b-Danforth-Sirens Only
Map Selection: 🔝	None
Alert Duration: [?]	30 mins
Complete Alert Settings: (Click to show/hide)	

🖛 Back

OR CUSTOMIZE EVERYTHING ON THE FLY

Prescripted Message: [?]	Custom Text 💌
Notification Text: [?]	Enter Your Custom Message Here
Recipients: [?]	Standard Mode Unit Mode
	 a-Danforth Scenario (no sirens) a-Medical School scenario a-North Campus scenario a-Off Campus scenario
	a-West Campus scenario b-Danforth-Sirens Only
Alert Durat	ion: [?] 30 minutes 💌
Settings from Alert Pro	ofile: 🔝 [Custom Alert Settings] 💙
Custom Alert Settings: (Click to show/hide).	

Continue

OR MODIFY A PRE-CRAFTED MESSAGE

Prescripted Message: [?]	Campus Closedmust insert campus name 💌
Notification Text: [2]	Access to the Washington University (INSERT CAMPUS NAME) Campus is currently restricted. Only Washington University students, faculty and staff are allowed access. For further information visit emergency.wustl.edu
Recipients: [?]	Standard Mode Unit Mode
	a-Danforth Scenario (no sirens) a-Medical School scenario a-North Campus scenario a-Off Campus scenario
	 a-West Campus scenario b-Danforth-Sirens Only
Alert Durat	tion: [?] 30 minutes 💌
Settings from Alert Pro	ofile: 🕄 [Custom Alert Settings] 🚩
Custom Alert Settings: Click to show/hide).	

(C

AUTOMATED ACTIVATION

- × Automatic
- For Severe Weather (Tornado Warnings), the system automatically activates from the Alertus Threatwatcher (tied to a NWS data feed) that keys in certain words, i.e. St. Louis County & Tornado Warning



POINT OR POLYGON BASED WARNINGS



CUSTOM EVENT TRIGGERS

• Custom Event Triggers allow users to perform configurable actions when an qualifying event occurs.

Name: 🛛	Severe Weather Alert			
-				
(optional) [?]	Dispatches a Severe Wea when a corresponding CA	ather preset alert AP Alert is		
	retrieved.			
Enabled 🕅	N			
Event Source: [2]	Incoming CAP Alert	-		
Criteria: 🛙				
ID	El Field ^{El}	Operator 😰	Value 😰	
#1	Sender 💌	Equals 💌	NOAA	Clear
#2	Category 💌	Contains Any	🔹 Geophysical 🔺	Clear
			Safety	
			Rescue	
#3	Severity 💌	Contains Any	Extreme	Clear
			Severe Moderate	
			Minor Unknown 💌	
#4				Clear
#5		•		Clear
#6		•		Clear
#7		•		Clear
 Advanced 	Settings: (Click to show/hide)			
Actions to take: 🛙	Action Type [2]		Action Details [2]	
	1. Send Preset Alert	Severe Weath	her 💌]
	2. Send Email	support@alert	us.com	

AUTOMATIC ACTIVATION

CONFIRM PRESET ALERT ACTIVATION

Please verify the alert below before it is transmitted.

- If you wish to select a different preset alert, click "Back"
- · If the alert is ready to be sent, click "Send"

WARNING: DO NOT use your browser's "Back" button/function

Message Text: [2] Send to: [2]	A TORNADO WARNING has been issued for St. Louis City & County. Be prepared to SEEK SHELTER. GET additional information from the National Weather Service, local media or emergency.wustl.edu Danforth-PA's, Danforth Beacons, CableTV Group, NorthCampus DesktopAlert, MedSchool Beacons, Danforth DesktopAlerts, WestCampus DesktopAlerts, MedSchool DesktopAlerts, OffCampus DesktopAlerts,		
	North Campus Beacons, West Campus Beacons, Off Campus Beacons		
Map Selection: 🖾	None		
Alert Duration: 🕅	15 mins		
Complete Alert Settings: (Click to show/hide)			

POLICY/PROCEDURE

- For immediate threats to life and safety,
 Dispatchers have the ability to send select messages.
- For tornado warnings for STL City/County from the NWS, the system automatically sends out a message.
- 11 University administrators can authorize a message at any time.

ONE SYSTEM TO CONTROL ALL OUR MNS COMPONENTS



PERSONAL
 Everbridge for SMS, Phone, Emails

OUTDOOR -Whelen Siren System

INDOOR

- -Alert Beacons
- -Desktop Popups
- -Cable TV Override
- -Digital Signage Override
- -PA Systems / Fire Alarms

INTEGRATION METHODS

Method	Pros	Cons
Vendor Specific API Application Programming Interface	 Tightest Integration (most control) Ability to report information back (confirmation other system received) Fastest (data is pushed) 	 Might not be an option or May need to convince vendor to implement.
Common Alert Protocol (CAP) / IPAWS-OPEN	 Open Standard All leading MNS vendors will eventually support Good way to share information between organizations (IPAWS- OPEN) 	 Less control over what downstream systems do in response. Many CAP implementations are incomplete. No standard for how CAP is transferred.
RSS Feeds (Really Simple Syndication)	 Most widespread method for non- emergency systems such as Digital Signage and dynamically updating websites 	 Slower (pulled) Less Secure (Vulnerable to man in middle attack)

EVERBRIDGE / PERSONAL NOTIFICATION

 ★ Alertus implemented Everbridge API → All the notifications methods (SMS,Phone,etc) can be seamlessly activated by Alertus.





DIGITAL SIGNAGE

* 4 Winds offers the ability to override the default content when RSS Feed is active.



RSS TO WEBSITE-AUTOMATIC

172.20.87.36	And Day Ownerson Bir Ann Carps Strate Standards States 2 in dail	C (S Coope		
and Thenerower (Veral Lues Street Street	Washington University in St. Louis	- Prozenijski i Constan		
	Emergency			
	WUSTLALERT SYSTEM WHERE TO GO BE PREPARED ABOUT			
	NO EMERGENCY	NATIONAL WEATHER SERVICE	~	
	2013-14 FLU Information Influenza thu) is a potentially serious illness that affects many Washington University students, faculty and staff every year. More information: Monthly outdoor string sirens, located on the roots of Nemerov House, Broothag and Selige Hailu, unit keep lace 111 and on the first Monday of each month in conjunction with St. Louis City's and St. Louis Cours's outdoor warning airen text. The tests will last approximately two minutes and are weather permitting.	There are no active watches, warrings or advisories SEARCH Samith EMERGENCY NUMBERS Emergency lad kiddline (34) 495 5000 Or of Ava (38) 223-2385 CE CEC AVA (38) 223-2385 CE C		
		WHERE TO CO Image: State of the state		

BE READY FOR LOTS OF HITS TO YOUR WEBSITE



Varnish Cache Servers

VOICE GENERATION METHODS

Method	Pros	Cons
Live Voice	- Specific Information	 Operator needs to have microphone training and be calm during emergency. Ties up a person on your staff. Lack of consistency across a campus
Pre-Recorded	- Solves limitations of Live Voice - Most "natural" sounding	 Lacks ability to specify specific information about emergency. Hassle to maintain. Adds an additional step. Prevents automation.
Text-To-Speech	 Solves all limitations of Live Voice & Pre-recorded. High Reliability → Text can be transferred over low bandwidth carriers such as FM, Paging, Mesh. 	 Some proper nouns may require lexicon customization. Not as natural as pre-recorded

OUTDOOR SIREN CONTROL

- Alertus' Text-To-Speech module provides voice for Outdoor Public Address
- Special Technology programmatically adjusts the pauses between phrases to mitigate echo
- Keep message to under 4 min to prevent overheating of siren components





Text-to-Speech

Siren Controller / UHF Radio Transmitter



Whelen Sirens



NFPA 72 CHAPTER 24

 2010 edition for the first time extended the scope beyond the realm of fire alarm to include other life-safety systems.

 Fire Alarm PA System can now be used for Mass Notification.

INDOOR PA SYSTEMS

- x Text-To-Speech technology converts the text to spoken voice.
- Very cost effective way to alert entire building <u>if it already</u> has a PA System.



VOICE OVER FIRE ALARM (CAMPUS STANDARD)



NFPA72 ON VISUAL NOTIFICATION

- Textual visible notification appliances shall be permitted to be used for primary or supplemental notification. (24.4.2.21.5)
- * Where audible notification is provided, mass notification systems shall also provide visual information to serve the hard-of-hearing and for high-noise areas. (24.4.2.19.1)
- Transmission of visible notification and messages shall be simultaneous to audible notification and messages. (24.4.2.19.4)
- * The word "ALERT" shall be stamped or imprinted on the appliance and be visible to the public. (24.4.2.20.3)
- Emergency textual messages shall override non-emergency. (24.4.2..21.12)
- Distributed recipient mass notification systems alerting shall not be used in lieu of required audible and visual alerting mass notification systems but shall be integrated with mass notification systems whenever possible. (24.4.4.1)



Excerpt of 2010 National Fire Alarm and Signaling Code Handbook

nmunications Systems 527



EXHIBIT 24.9 Wall-Mounted Message Display with Integral LEDs and Sounder. (Source: Alertus Technologies, LLC, Beltsville, MD)

ALERT BEACONS

- Devices are placed in high density areas across the University (dining, large lecture halls, pedestrian areas)
- Help fill the void when people are out and about, places that don't have cell reception, etc.
- 106db Siren + 32 High Intensity
 Strobes get attract attention
- × ADA Visual + Audible Notification

Where audible notification is provided, mass notification systems shall also provide visual information to serve the hard-of-hearing and for high-noise areas. (24.4.2.19.1)

Emergency

ication System.

ALERT



IP

COMPUTER POP-UPS

- Turns existing computers into a MNS tool
- × Cost effective
- Works on Windows and Mac computers (90% of campus computers)





IP

Philip I. Thomas @philipithomas Sellow

All the @wustl computer monitors in the engineering department just switched to this. Too cool. pic.twitter.com/1ihTU9pX

Reply 🕄 Retweet 🔺 Favorite



powered by 🖾 Photobucket

Flag this media



7:13 PM - 28 Apr 12 via Twitter for iPhone · Embed this Tweet

CABLE TV

- × Limited Duration to 3 minutes.
- Overrides all channels (digital + analog).

IP





Video +

Contact

Closure

Alertus CableTV Override Solution Washington niversity in St. Louis ALERTUS **Emergency** Alert System Testing SYSTEM TES

Cable TV Headend

WUSTL APP

Push Notifications to WUSTL App



ALERTUS

TRT 🛜 10:07 AM	65%
Notifications	Close
This is a TEST of the Washington University 9/16/15, 12:05:1	ity Emerge 6 PM CDT
This is a TEST of the Washington Universi 6/30/15, 3:13:1	ity Emerge 2 PM CDT
Clear Notifications	

SUMMARY OF SECRETS TO A SINGLE STEP

- Select dashboard that was designed for emergency notification... "Alert Profiles"
- Select Vendors which focus on interop methods such as: API, CAP, RSS
- x Text = Lowest Common Denominator
- Ability for different alert modalities to have different alert duration.
 - + Siren's, PA Systems, Cable TV (~3 mins max)
 - + Alert Beacons/Desktop Alert Full Duration (15-30 min)
- Test your system at least once a year (HEOA requires it!!!)



PROBLEMS ENCOUNTERED

- Getting permission to place devices in classrooms was controversial
 - + "It could disrupt academic learning if it goes off!"
 - + "It'll go off all the time!"
- Limiting access to the system based on job function
 - + Preset vs Custom and ditching Emergency
 - System Security: went to LDAP/WUSTL Key

WUSTL - LEADING BY EXAMPLE

- Numerous requests to talk about WUSTLAlerts from higher education emergency management and technology groups
- CSHEMA Campus Safety Health and Environmental Management Association

+ 2012 Solutions At Work Award

 ACUTA – Information Communications Technology Professionals in Higher Education

+ 2013 Institutional Excellence Award

- × Over 85 WUSTL Personnel Involved With Installation
 - + Disaster Preparedness Committee
 - + Crisis Management Team
 - + Emergency Management
 - + Facilities
 - + WUPD and Protective Service
 - + WashU IT