

Emergency Management & Crisis Communications Technology

Dr. Denise C. Walker

Chief Emergency Management Officer

Lone Star College System

July 20, 2010

Discussion Points

- About Lone Star College System
- Crisis Communications
- System Overview
- Communication Tools
- Moving Ahead

Lone Star College System at a Glance

- ~ 85,000 Enrolled Students
- ~ 3,300 Employees
- 5 Colleges + 6 Satellite Centers + 2 University Centers
- 61 Buildings (single, mid-, high-rises) + 21 Modular + 6 High Schools
- ~5 million sq. ft.
- Largest IHE in the greater Houston area
- 2nd largest and fastest growing in Texas
- **Service Area:** City of Houston, Northern Harris County and Montgomery County

LSCS Communications at a Glance

- **Telecommunications**

- 4,941 directory numbers managed
- 4,627 phones managed
- 2822 voicemail accounts
- Main number
 - receives ~ 44 calls/hour
 - Average 352 calls/day.
- Police Communications Center – 1900 calls/month

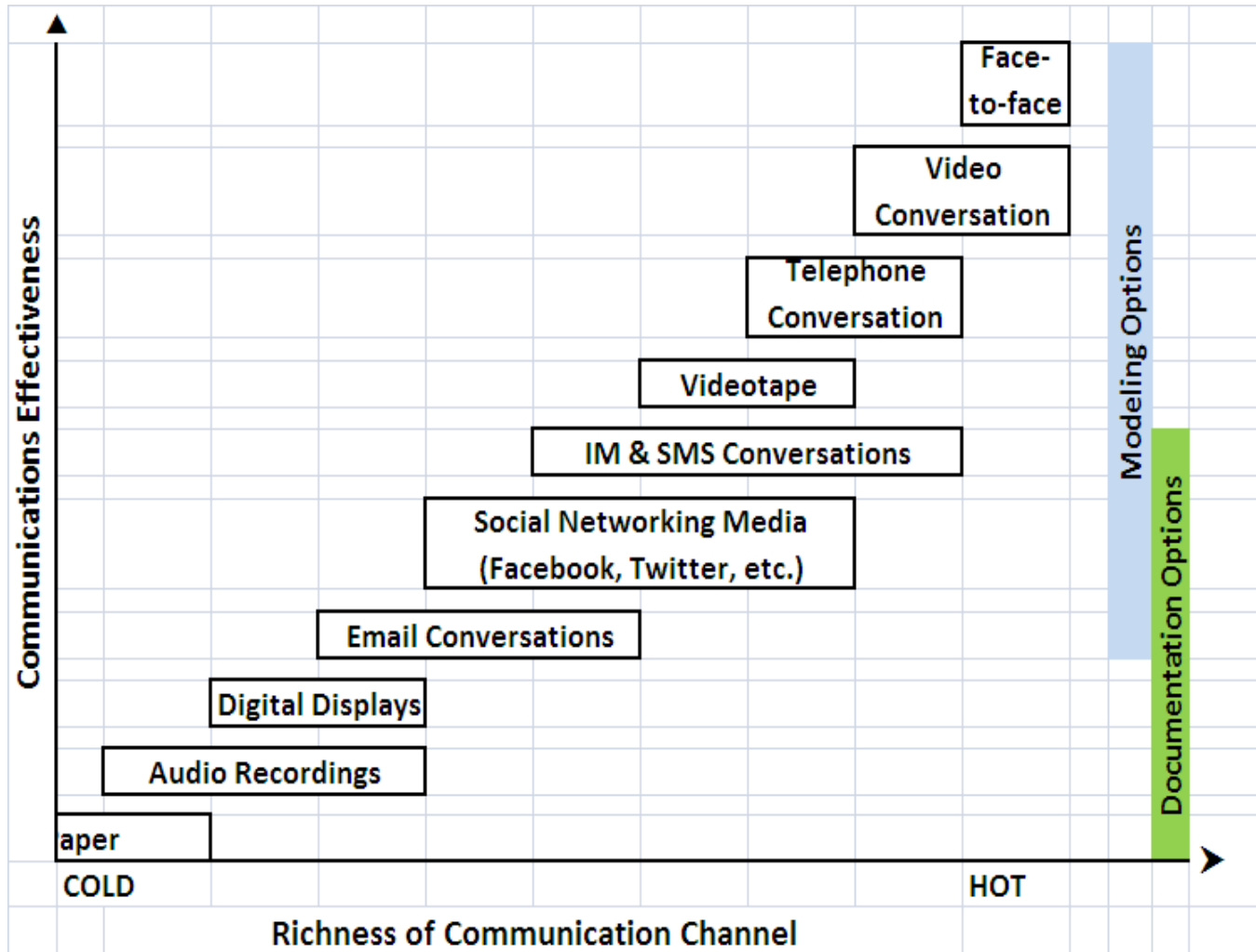
- **Web**

- Subscription Rate: 1,500 GB/month
 - 1,028 GB – June 2010

Crisis Communications

Crisis communication is very different
from every day
communication...people take,
process, and react to it differently

Communication Channels Effectiveness



When you move from right to left, you lose richness, such as physical proximity, real-time two-way communications, and you lose the ability to communicate through techniques other than words such as gestures and facial expressions... affecting how well the information is being understood by the listener.

Effective Communications & the Human Error Rate

Error of commission (misreading a label)	3/1000
Error of omission (item embedded in procedure)	3/1000
Error of omission (without reminders)	1/100
Error in simple arithmetic (with self check)	3/100
Personnel on different shift fail to check conditions unless directed by a checklist	1/10
<i>Errors under very high stress when dangerous activities are occurring rapidly</i>	1/4

Typical Assumptions of Crisis Communications Planning...

False assumptions had by many organizations:

- Crises cannot be planned for
- Crises will not happen to us
- We are safe, secure, and well-run
- Most crises resolve themselves
- Crises turn out not to be important
- Crises are just a cost of operations
- Planning for crises is a luxury we can't afford

Typical Assumptions of Crisis Communications Planning...

These assumptions lead to:

- Limited surge capacity when its needed most
- Limited testing and exercising before an event
- Shortfalls existing in how to respond to a major event
- Higher potential for negative press
- Higher potential for major unplanned expenditures
- Higher potential for non-compliance with laws and regulations and increased auditing

A Crisis Occurs...Now What?



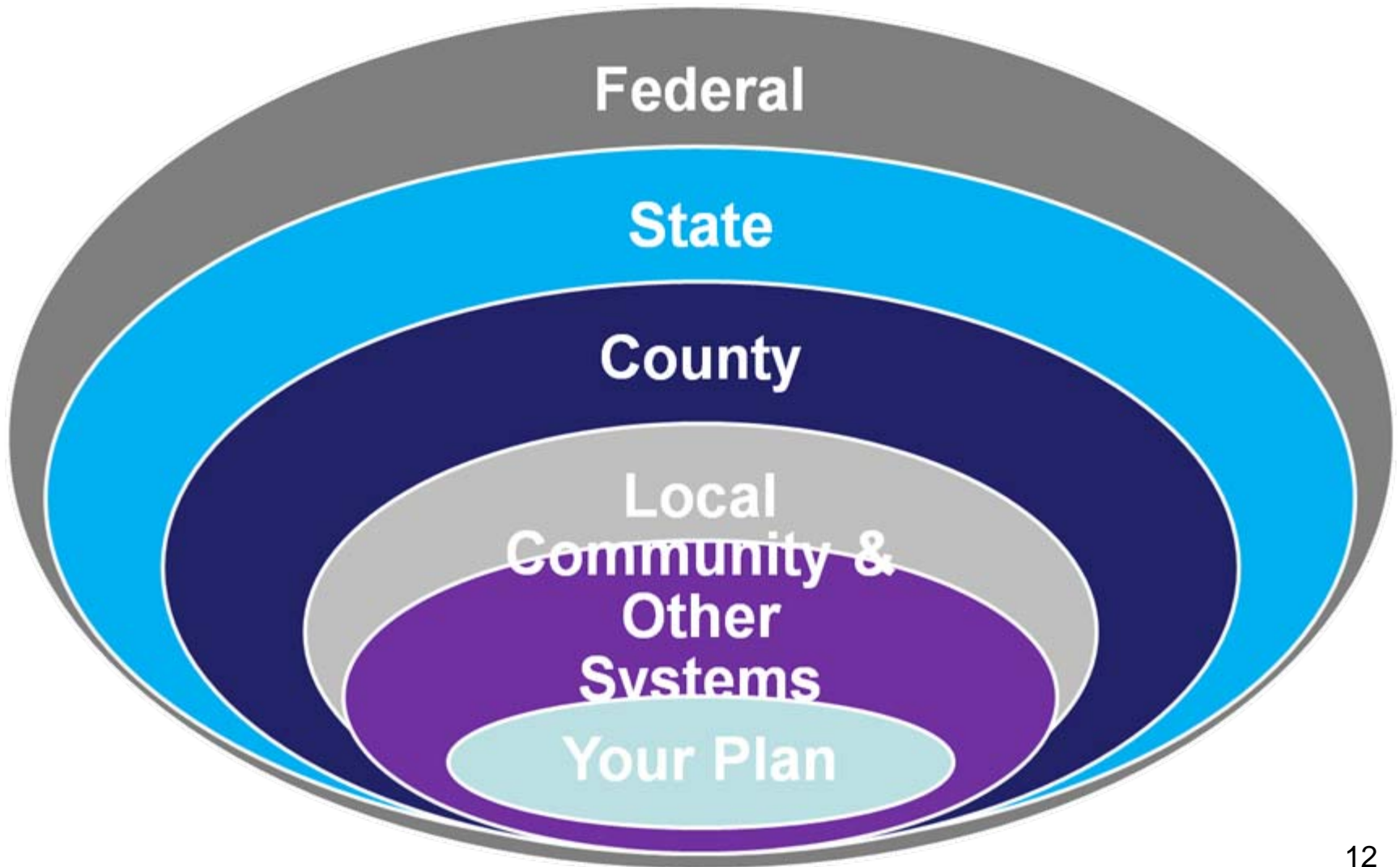
Communications Goals

- Timely
- Accurate
- Honest
- Credible
- Consistent
- Appropriate
- Regular
- Relevant

Communications Matrix

Phase	Time Frame	Description
Immediate	1 – 30 minutes	Tactical instructions to occupants
Emergency	15 – 60 minutes	Emergency announcements
Advisory	1 – 24 hours	Updates, warnings of potential threats, announcements

Crisis Communications Plans



Communications Response Plan

• Step 1

- Designate a communications coordinator

• Step 2

- Designate a *spokesperson*
 - *Should have the authority to release messages for broadcast*

• Step 3

- Identify communication needs

- Identify target audiences and severity of situation
- Identify communications goals
- Determine key messages
- Determine targeted messages per audience
- Identify materials needed
- Consider regulatory requirements (FERPA, CLEARY Act, HEOP, etc.)

Communication Response Plan

• Step 4

- Determine information dissemination channels
- Identify media and communications resources
- Prepare first announcement
- Establish update procedures
- Prepare talking points

• Step 5

- Timing and broadcasting warning message(s)
- Monitor information flow and public response

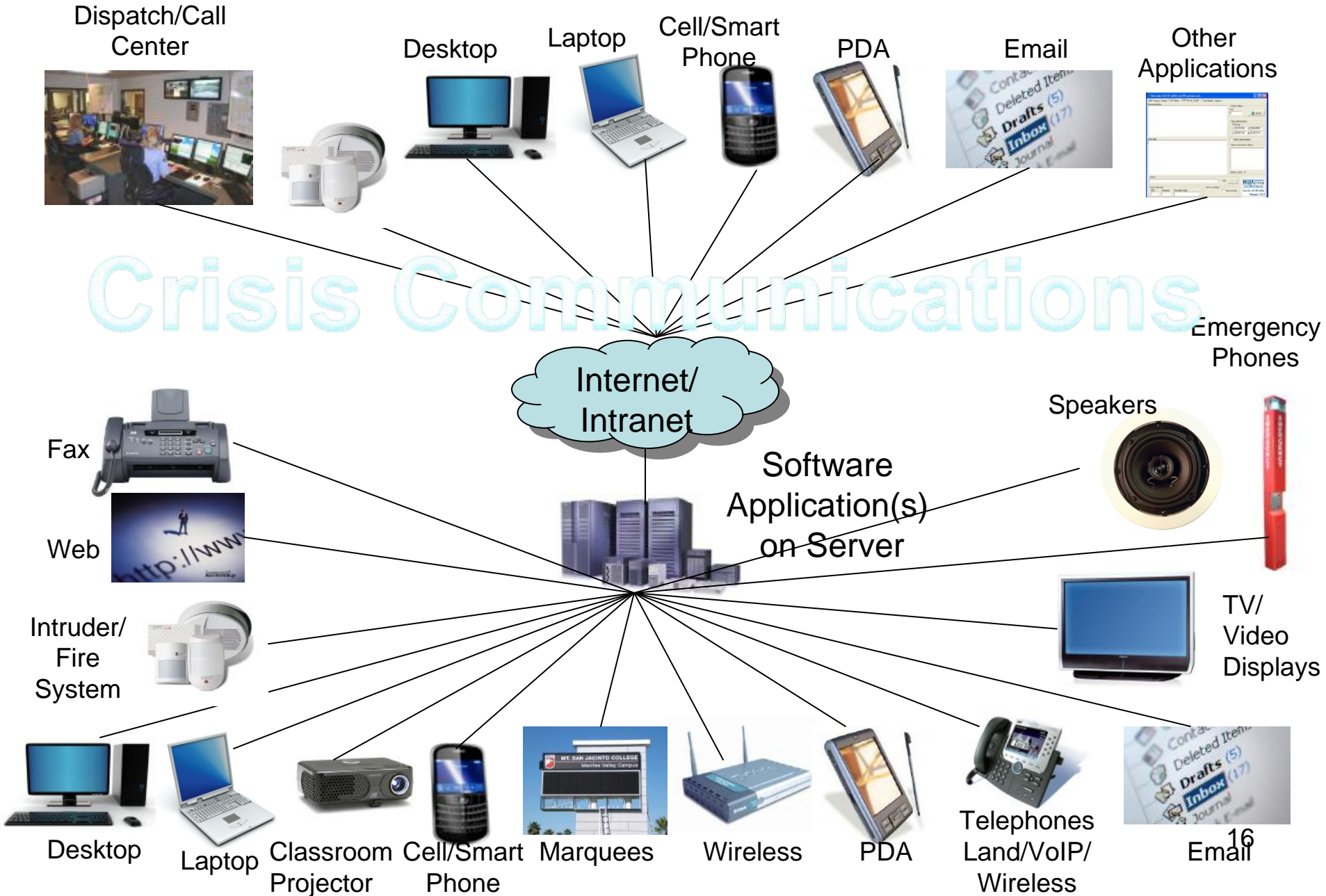


Where Are We?



More important, where should we be?

System Architecture



Warning Venerable Populations

Solution	Visually Impaired	Hearing Impaired	Special Building/Floor or Multiple Locations
Email	X	X	X
Web	X	X	X
Voice mail	X		X
PA system	X		X
Radio	X		
Route Alerting	X		X
Door-to-door	X		X
Video displays/TV		X	X
Classroom projectors		X	X
Text Msg/IM/Social Networking Media		X	X
TTY		X	
Computer displays		X	X
EAS msgs		X	

System Requirements Checklist

- Scope
 - Coordinated action by all critical assets
 - Information as available
 - Reach all affected parties (broad reach)
 - Easy, rapid deployment
 - Easy updates
- Method
 - Automated alerts, instructions, advisories
 - Central and decentralized control
 - Real-time instructions and procedures
 - Automated/dynamic triggers for on-going communications
 - Allows use of multiple languages
 - Targeted delivery by users, groups, and location

System Requirements Checklist

- Devices
 - Single button alerts activated from embedded alarm systems, desktops, phones, wireless devices
 - Multiple channels of contact and communications
 - Automated alerts, instructions and advisories triggered by other systems
 - Instant notification and targeted delivery
 - Each alert can contain a different msg for separate groups based on role/location
- Alert Management/Data
 - Verification of receipt by recipients
 - Reporting
 - Current status
 - Ability to respond
 - Alert tracking
 - User and system activities
 - Secure and verifiable communications
 - Data Repositories for vulnerable people, employees, students, minors

System Requirements Checklist

- Alert Types Supported
 - Location specific evacuation instructions
 - Lockdown instructions
 - Hazmat and fire alerts
 - ERT activation
 - Severe weather
 - “Code” Alerts (medical, crime in progress, etc.)
 - IT alerts for virus warning, cyber attacks, email outages
 - Business continuity updates for critical systems and power outages
 - Testing of systems
 - False alarms
 - Emergency road closures/traffic information
 - Dynamic and easily customizable alerts

LSCS Communication Modes

Mode of Communications	Students		Faculty/Staff		Responsible Party (Implementation)
	On Campus	Off Campus	On Campus	Off Campus	
Fire alarm annunciation	Yes	No	Yes	No	Police; Facilities (Limited)
Speakers/PA System	Yes	No	Yes	No	Primary – Police; Alternate – External Affairs
Two-way radio	No	No	Yes	No	Police-800 Mhz; Facilities & Others-400 MhZ
LSCS email	Yes	Yes	Yes	Yes	OEM; OTS Service Desk
Main phone greeting update	Yes	Yes	Yes	Yes	External Affairs
LSCS website/portal update	Yes	Yes	Yes	Yes	External Affairs – Web Team
Local/area media – News Router	Yes	Yes	Yes	Yes	External Affairs
Local/area media – ISC Forms	Yes	Yes	Yes	Yes	OEM
Rapid notify – Text messaging	Yes	Yes	Yes	Yes	External Affairs: OEM. Future – LSCS Police

LSCS Communication Modes

Mode of Communications	Students		Faculty/Staff		Responsible Party (Implementation)
	On Campus	Off Campus	On Campus	Off Campus	
Marquees	Yes	Yes	Yes	Yes	OTS Service Desk; External Affairs
Video displays	Yes	No	Yes	No	OTS Service Desk; External Affairs
Internal TV Override	Yes	Yes	Yes	Yes	OTS Service Desk
Desktop PC notification – networked only	Yes	No	Yes	No	OTS Service Desk
VoIP broadcast	Future	No	Future	No	OTS Service Desk
Social Media Sites – Twitter, Facebook	Future	Future	Future	Future	OEM; External Affairs
Door-to-door notification, Route Alerting (Paper/ Word of Mouth)	Yes	No	Yes	No	Primary – Police; Alternate – External Affairs; President’s Office

LSCS Pre-recorded Message

ALERT	Public: Text Message, LSCS Web	Private: IC & Other Authorized Personnel/Agencies	Public: Desktop/Video Displays
Lockdown / Armed Individual	Lockdown : A dangerous situation has been reported on campus. Please evacuate area immediately.	Armed individual reported on campus. Lock rooms and offices and contact police at X5911 or 281.290.5911.	Lockdown - Close and lock all doors. Close all blinds and move away from windowed areas.
Drop, Cover and Hold	Drop, Cover and Hold An emergency situation has occurred. Please drop, cover, and hold until further notice.	Drop, Cover and Hold Drop, Cover and Hold until emergency situation has ceased then investigate situation.	Drop, Cover and Hold An emergency situation has occurred. Please drop, cover, and hold until further notice.
Evacuate Building	Evacuate the building immediately and assemble in the campus assembly area.	Evacuate the building immediately and assemble in the campus assembly area.	Evacuate the building immediately and assemble in the campus assembly area.

LSCS Pre-recorded Message

ALERT	Public: Text Message, LSCS Web	Private: IC & Other Authorized Personnel/Agencies	Public: Desktop/Video Displays
Evacuate Site	Evacuate the campus immediately. Proceed to safe off-campus location.	Evacuate the campus immediately. Proceed to safe off-campus location.	Evacuate the campus immediately. Proceed to safe off-campus location.
Shelter in Place	A dangerous situation has occurred. Please collect within an on-campus room and seal all doors and windows.	A dangerous situation has occurred. Please collect within an on-campus room and seal all doors and windows.	A dangerous situation has occurred. Please collect within an on-campus room and seal all doors and windows.
Central Shelter	A dangerous situation has occurred. Assembly in central indoor campus location. (Gymnasium)	A dangerous situation has occurred. Assembly in central indoor campus location. (Cafeteria)	A dangerous situation has occurred. Assembly in central indoor campus location.

ALERT	Public: Text Message, LSCS Web	Private: IC & Other Authorized Personnel/Agencies	Public: Desktop/Video Displays
False Alarm	The alert was a false alarm. It is safe to return to your previous activities.	The alert was a false alarm. It is safe to return to your previous activities.	The alert was a false alarm. It is safe to return to your previous activities.
All Clear	The emergency situation is now under control. You are safe to return to campus and resume your activities.	The emergency situation is now under control. You are safe to return to campus and resume your activities.	The emergency situation is now under control. You are safe to return to campus and resume your activities.
Request Security Assistance in Room	An emergency situation has been reported and assistance has been requested in Room #####	An emergency situation has been reported and assistance has been requested in Room #####	An emergency situation has been reported and assistance has been requested in Room #####
WEATHER ADVISORY	A tornado watch has been issued through HH:MM. Please continue to check for updates.	A tornado watch has been issued through HH:MM. Please continue to check for updates.	A tornado watch has been issued through HH:MM. Please continue to check for updates.

Crisis Communication Tools Review

Public Address Systems (in-building voice announcements) (Immediate)

Pros

- Reaches majority of persons exposed to threat real time
- Requires no special equipment or preparation on part of public
- Allows specific instructions for incident in progress, tailored to specific locations
- Can connect to fire alarm panels, mass notification panels via network/Internet
- IP addressable speakers, low voltage, attach to Network drop (POE)

Cons

- Expensive infrastructure
- Less expensive if part of fire alarm systems
- Does not reach hearing impaired population
- Cost ~\$220/classroom
- Cost ~\$2700/Floor & common areas



Outdoor Sirens & Speaker Arrays (outdoor siren or voice warning) (Immediate)

Pros

- Immediate message delivery
- Reaches outdoor population
- Speaker arrays can be wireless
- Requires no special equipment or preparation on part of public

Cons

- Expensive infrastructure
- Does not allow delivery of instructions, unless voice system is used
- Does not allow instructions specific to location by building or area
- Does not reach hearing impaired population



Speakers & Video Surveillance Emergency Phones (Immediate, Emergency)

Pros

- Immediate message delivery
- Reaches outdoor population
- Outdoor population can reach you
- Can use for multiple purposes - video surveillance, speaker, siren, telephone (auto or manual dialing), panic button
- Harden device
- Can be an IP based system
- Can reach hearing and visually impaired

Cons

- Expensive infrastructure
- Cost ~\$10K/phone with camera, and four speakers
- Costs v. use



Video Displays / Marquees / CATV (Immediate, Emergency, Advisory)

Pros

- Immediate message delivery
- Can be an IP based system
- Can reach hearing and visually impaired
- Can provide written and audible notifications
- EAS Captioning; multiple-languages



Cons

- Expensive infrastructure
- Reaches only population in immediate area of device
- Video displays are prone to theft
- Cost ~2200/each



Text Messaging

(text messages to cellular phones) (Emergency)

Pros

- Relatively inexpensive per message
- Message delivery 1 to 5 min
- Allows specific instructions for incident in progress
- Can send from multiple platforms – any cell phone and email address listed in db
- Over 85% of students own cell phones



Cons

- Subject to availability of cellular service (prone to overload in major emergencies and dead spots)
- Limited to 140 characters/msg
- Requires subscription by end-users
- Upkeep of subscription db –"Opt In"
- No means of tailoring message to location of person
- Not all cellular phones or service packages allow text messaging
- Many cellular services charge to deliver text messages
- Does not reach visually impaired

Highway Alerting

(text messages on highway sign boards)

(Emergency)

Pros

- Message delivery in 1 to 5 minutes
- Reaches population who may be en-route to campus
- If on Interstate, can work with local OEMs to implement message



Cons

- Access to signage may not be possible or requires an intermediary
- Allows only very short message
- Limited to reaching those who are driving on Interstate highway
- Expensive to implement, if organization owns signage
- Special permits and restrictions may apply if owned by organization

Cellular/Smart Phones

(Immediate, Emergency, Advisory)

Pros

- Can pool minutes
- Recall and redistribution contingency
- Can exchange text, video and pictures
- Can browse web and access mobile applications
- Have contact list at your fingertips

Cons

- Monthly service costs
- Prone to outages due to dead zone or heavy use during some emergencies
- Battery life is limited



Two-way Radio

(Immediate, Emergency, Advisory)

Pros

- Two-way Radios – 800 MHz
 - Law enforcement agencies
 - Broad coverage
 - 24 hour battery
- Two-way Radios 400 MHz
 - Common emergency frequency
 - 1-2 Mile range
 - 16 hour battery



Cons

- Two-way Radios – 800 MHz
 - Restricted to law enforcement use only
- Two-way Radios – 400 MHz
 - Cannot interface with law enforcement radios
 - Cannot use if beyond 1-2 mile range



Voice Mail

(voice message to telephones mailboxes)
(Emergency, Advisory)

Pros

- Relatively inexpensive (if institutional phone system configured to provide the service)
- Message delivery in 1 to 2 minutes
- Allows specific instruction for incident in progress

Cons

- Requires person to be at their desk and to retrieve phone message
- Not all campus phones have voice mail service
- Does not reach hearing impaired
- Does not allow specific message by location



Email

(text messages to e-mail accounts using bulk mail lists) (Advisory)

Pros

- Relatively inexpensive per message for institution
- No cost to end-user (assuming existing email account)
- Message delivery in 1 to 5 minutes
- Allows specific instructions for incident in progress
- Allows detailed message of long length



Cons

- Requires person to be at their desk or otherwise using email
- Requires subscription by end-users, except for institutional accounts
- No means of tailoring message to location of person, some tailoring may be done by pre-established lists, i.e., student vs. staff)
- Does not reach visually impaired

Flash Messages (Immediate, Emergency)

Pros

- One short message to all network attached computers redirecting users to web portal
- Can tailor message by pre-established lists of groups, users as defined by network access scheme
- No cost to end-user
- Message delivery in 1 to 5 minutes
- Allows specific instructions for incident in progress

Cons

- Requires person to be at their computer and attached to the network
- Requires users to go to web portal, a second platform for more information
- No means of tailoring message to location of person, some tailoring may be done by pre-established lists, i.e., student vs. staff)
- Does not reach visually impaired

Web Page

(text message on institutional home page
(Emergency, Advisory))

Pros

- Relatively inexpensive
- Allows detailed information delivery
- Allows links to additional information
- Allows simultaneous delivery of multiple messages

Cons

- Subject to availability of Internet and/or LAN service (server may overload under heavy use)
- Requires longer lead time to put in place (30 to 60 minutes)
- Requires higher level of training/ability on part of person creating the message (must be able to edit web page and upload the information)



Public Media

(television, radio, newspaper)
(Emergency, Advisory)

Pros

- Inexpensive
- Wide spread reach to general public
- Reaches persons who are off-campus

Cons

- Generally long delivery times
- Institution does not control actual message delivered
- Public must be watching TV, listening to radio to receive message



FUTURE: Reverse 911

(voice message to telephones by geographic location) (Emergency)

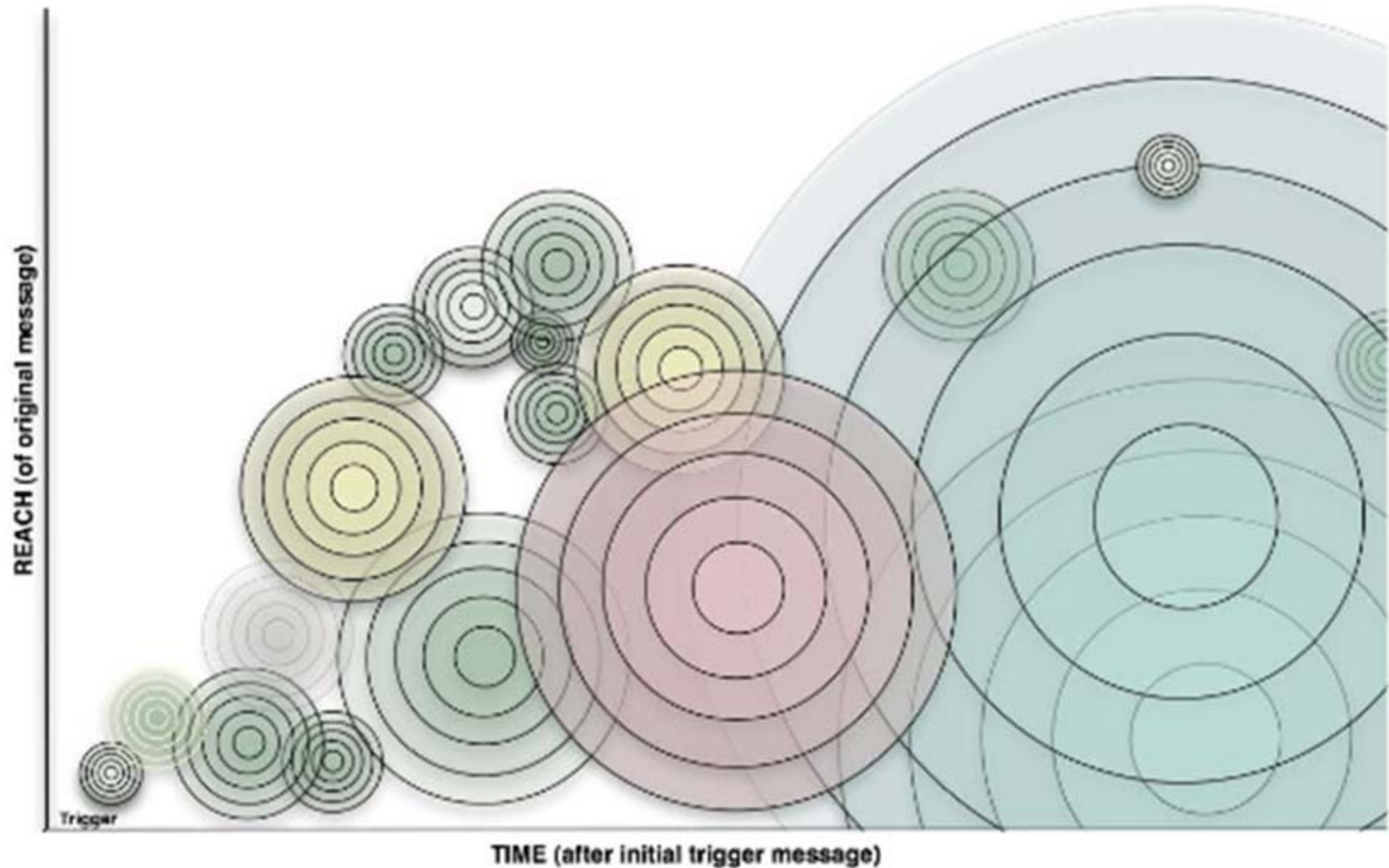
Pros

- Message delivery in 1 to 5 minutes
- Allows specific instructions for incident in progress

Cons

- Requires person to be at their desk to receive call
- Subject to availability of phone service (prone to overload in major emergencies)
- Relatively expensive infrastructure required
- Requires db of all telephones on campus
- Does not reach hearing impaired

Social Network Ripple Effect



Facebook

(Emergency, Advisory)

- A personal profile based site (not blog) that acts as a “gated community” - the member stands at the gate and allows other members to connect, or not.
- Information is restricted
- Has many viral “*touchpoints*” to pass information
- Role is distribution rather than content based.
- Any organization can create for distribution in the social network.
- You cannot blog.
- Used to connect to others in a time of crisis, to find news on others, to share community rituals and events around a situation.
- Applications such as ClipIn give donation and fundraising tools for anyone

Twitter

(Immediate, Emergency)

- A mobile social network
- Tweet: 140 characters
 - *Testimonials:* (I am going to work)
 - *Distribution:* Linking URL (blog, wiki, <http://www.lonestar.edu/>)
 - *Conversation:* (@dwalker how are you today)
- Functions as a real-time (synchronous) network – fast distribution
- Can broadcast the latest news
- Retweets ripples your message out
- Can connect to people based on geo-location, interest or reach
- Use to get message out and receive intelligence.
- Not a depth of content - a conversation/distribution network.
- A half-gated policy - openly broadcast your content/selectively follow others.
- Has open APIs and hundreds of applications/services

Really Simple Syndication – RSS (Emergency, Advisory)

- Publish content online in a broadcast fashion via subscription.
- Allows subscribers to access content where and when wanted
- In Web 2.0, content is separate from the form (receive information as text headlines/images, without having to go to the host page.)
- *Emergency RSS – a great tools for breaking news.*
- People can see when they have been updated without having to open email or visit you.
- You can create content on You-Tube, Flickr, and other content social media sites, and allow fans to subscribe (be notified) of new content.
- Breaks the internet up so that people can receive your latest headlines on their Facebook page, My Yahoo! an RSS reader, email, in their browser, etc.

Blogs (Advisory)

- One-to-many
- Series of articles written in a diary format with comments and social tools embedded
- Written by one before presented to the social network
- A good crisis communications tool
- No software to download; accessible on the webpage
- Writer should be aware of the audience, topic, tone and content for community conversations.

Wiki (Advisory)

- An article on a web page that is editable by a group of people
- A broadcast or collaborative knowledge management system
- Have both an editable article and a discussion tab for comments
- No software to download; accessible on the webpage
- Can use as an alternate to email
- Can upload pictures, videos, FAQs, etc.
- Can be a collaborative system

Widget (Advisory)

- Also called a snippet or gadget (Google)
- A way of extending RSS content.
- Graphical and can be extended into games and information boxes.
 - A list of weather in U.S. cities is an RSS feed
 - Pinning live updates of the weather to area maps, with the map widget being clickable/zoomable, makes for a more interactive experience.
- Breaks up the internet into “little bits everywhere”
- Highly customizable and personal sites.

Forums (Advisory)

- Also called *Bulletin Boards* or *BBS*
- Many-2-Many: Allow anyone to start a conversation - unlike blogs.
- Topics placed in relevant sub-forums that others can join
- Conversations (called threads) are not editable by members
- Each member can comment back in a linear fashion.
- Asynchronous (not real-time). (Opposite – chat channels)
- Have built-in social networking tools that the other social media tools do not offer (i.e., titles for commenters (“posters”))
- Power: one can ask a question and another can answer it.
- *Can be Complex and multi-layers becoming challenging to follow.*

Combined Alerting System

(software to allow delivery to multiple platforms)
(Emergency, Advisory)

Pros

- Message delivery in 1 to 5 minutes, assuming sufficient phone lines to system
- Allows specific instructions for incident in progress
- Uses multiple platforms to reach end-user (telephone, text messaging, e-mail, pager)
- Simplifies task of person initiating message by allowing entry to generate multiple deliveries

Cons

- Requires person to subscribe to service
- Db upkeep is extensive
- Subject to availability of phone service (prone to overload in major emergencies)
- Expensive infrastructure required if owned by institution
- High cost per message if outsourced provider used; high annual fees to retain service
- Does not allow instructions specific to location of person

Other Crisis Communications Solutions To Consider

- VoIP Phone System – paging options and two-way emergency phones in classrooms
- Mass Notification System integration with fire alarm system
- Centralize monitoring of life safety and security systems
- Email/IM Accounts - Alternative Emergency Email Accounts For EOP Personnel
- Launch a “light” version of your website to avoid stress on services
- Have dedicated phone lines available to avoid circuit overload
- Stock a mobile media center
- Consider use of a computer lab to serve as your EOC
- Educate constituents of where to look for official, current and regular internal communiques, i.e., daily emails and web page announcements
- Provide briefing notes for leadership

Other Crisis Communications Solutions To Consider

- Review/revise crisis communication plan annually, or when significant technology or organizational changes occur
- Train new employees on the crisis communication plan during orientation
- Include standard language regarding emergencies and where to go for information in the syllabus
- Add new technology to the plan as it becomes available
- Ensure that future construction and renovations includes the devices and infrastructure to support technology
- Leverage your faculty in the areas of Communications, IT, Art & Design, Social Work, and Printing and Art Design
- Leverage external resources available to your organization radio and TV stations, newspapers, telecommunication companies, and event promoters
- Use virtual worlds such as Second Life and Twinity for training and simulation exercises

Why We Are Here!



Is technology the whole story?

Technology is important, but it does not constitute a crisis communications plan. To be prepared, you should have:

- documented plans for all major risk scenarios
- a strategy for updating plans regularly
- Establish protocol for education and training,
- a testing strategy.

The most advanced technology in the world is useless if you do not test.

The Right Choice

- *Go with a product that offers multiple layers of notification*
 - A system that can simultaneously call multiple numbers or send an e-mail to other e-mail addresses or cell phones
- *Despite the temptation, do not overuse your mass-notification system*
 - If you overuse it, the recipient can become desensitized to it

Questions?

Thank you

Contact Information:

Dr. Denise Walker

Chief Emergency Management Officer

Denise.c.walker@lonestar.edu

281.290.3680

www.lonestar.edu/oem

References

- FEMA, National Warning System Operations Manual.
- FEMA, Guide for All-Hazard Emergency Operations Planning (SLG-101).
- Park, K. (1997). “Handbook of Human factors & Ergonomics”, p. 163
- Papworth, L. (2008). Social Media