


IndustryAdvantage™ Program SIEMENS

Fire Alarm - Mass Notification General Overview



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Goal of Presentation SIEMENS

- To introduce you to the important industry developments with Mass Notification Systems, which is the result of significant tragedies and disasters that have occurred over the past few years.
- The concept of delivering important communications in "real time" during an emergency is the basis of this new application
- This will provide a general overview of the history, developed codes and applications that exist in the emerging area of Mass Notification Systems
- This will provide you an awareness and basic understanding, our team is available to review with you additional technical and design needs.

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Course Outline SIEMENS

Our mass notification overview will cover these topics.

- Definitions and Goals
- Drivers – Why is this so important now?
- Customers / Stakeholders
- Codes and Standards
- Planning Phase
- Technologies
- Challenges
- Application Solutions

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### Definitions – Common Terms

Terminology continues to evolve as needs become more clearly defined and understood:

- **Mass Notification System (MNS)** – Most commonly used reference to emergency communication, used by military in UFC-2002
- **Emergency Notification System (ENS)** – Refers primarily to one-way communications to individuals and/or groups
- **Integrated Emergency Notification System (IEN)** – Emergency communications through multiple systems and technologies
- **Emergency Communications System (ECS)** – Broad definition adopted by NFPA for new NFPA72 Chapter 24, 2010 Edition

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### What do we need for effective Communication

- **It's more than just getting the message out**
- **It's ensuring the message gets through.**
  - So no matter where people are or what they are doing they will receive and understand the message.
- **It's**
  - the right message
  - to the right people
  - at the right time

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### GOAL - Effective Emergency Communications

- **Inform or Notify** – Building occupants and key personnel are alerted to WHAT is happening and WHERE it is occurring
- **Provide Instruction** – Notification is only effective if it gives direction on how to act or what to do
- **Verify** – Critical communications require verification that messages are heard, understood and acted upon



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**Drivers**

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Tragic Events Make Us Aware SIEMENS



Khobar Tower Bombing, Saudi Arabia – June 25, 1996

This single event contributed to the development of a need to increase force protection of our troops

The UFC standards were developed as a result

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Tragic Events Raise the Focus SIEMENS



World Trade Center Attack  
New York – September 11, 2001

This event illustrated the need for defense from unexpected threats

The Department of Homeland Security was created in response to this event and others leading up to it

The fire alarm voice system was used by firefighters after the initial attacks

- Survivability in the design helped save many lives

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### Tragic Events Create a Need for Action

This event brought to the forefront the need to be able to communicate during emergencies to a large diverse population

The NFPA has used this and other events to help shape the direction of the codes to support effective and reliable Emergency Communication Systems



Virginia Tech Campus Shooting  
Blacksburg, Virginia – April 16, 2007

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### Customer External/Internal Drivers



Political Pressures  
Stakeholder Concerns  
Public Relations

Fiscal Responsibility &  
Budget Constraints

Code Compliance & Enforcement

Tragic Current Events  
EG: Virginia Tech

Liability Concerns &  
Risk Management

Traditional mission to provide a safe work, learning and living environment

**Administration**  
Urgency to Develop an Emergency Response Plan

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## Key Stakeholders

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### Customer Ownership May Be Unclear

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### Example – Hospital

Who are the decision makers?

Who is the AHJ?

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### Example – Public Spaces

Dynamic conditions

Multiple groups in control

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**Agencies Active in Code Development** SIEMENS

Unified Facilities Criteria (UFC 4-021-01) – Government applications (2002)

National Fire Protection Association (NFPA)

- **NFPA 72 – 2010 Edition**
  - New Chapter 24: 'Emergency Communications Systems'
  - New requirements are being incorporated into system designs*
- **Audibility**
- **Intelligibility**
- **Survivability**
- **Supervised Circuits**

Underwriters Laboratory (UL-2572) – MNS product standards

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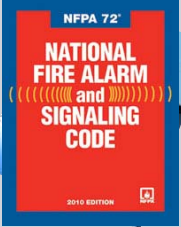
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## Regulatory Agencies

NFPA 72 – National Fire Alarm Code  
National Fire Protection Agency

- 2010 Edition, Chapter 24
- Emergency Communications Systems
- Takes on an 'All Hazards Approach'
- Allows use of FA voice for all emergencies
- Name change: National Fire and Signaling Code
- Increased focus on:
  - Audibility
  - Intelligibility
  - Survivability Siemens is active on
  - Supervised Circuits committees
  - Risk Analysis Requirements



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## NFPA (2010 Edition) – Key Changes/Clarifications

- Establishes minimum requirements for new installations, does not apply to existing systems
- Embraces a more broad 'All Hazards Approach' to addressing emergency communication
- Intelligibility measurement requirements aren't in the code, but included in Annex material
- Several references to 'Risk Analysis', 'Threat Assessment' and 'Emergency Response Plan' development
- Mass notification messages allowed to over-ride fire alarm

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## Planning Phase

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**MNS Planning Approach:  
Emergency Response Plan** **SIEMENS**

**Consultative Design Approach:**

1. Identify critical incidents for planning, perform threat assessment and address immediate need
2. Create definition of desired state
3. Prepare current assessment of readiness
4. Survey facility/campus for existing infrastructure
5. Perform gap analysis to identify needs
6. Set priorities based on factors of influence
7. Apply portfolio of technologies, products & services
8. Scale solutions to capital and expense budgets
9. Execute effective Emergency Response Plan
10. Monitor for changing influence factors over time



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**Status of Industry Response** **SIEMENS**

- **Evolving discussion continues to define the market**
- **Potential providers positioning their respective offerings**
- **Some leading with their particular product or strength:**
  - Fire alarm companies presenting as fire alarm solution
  - Security companies presenting as security solution
  - Communication companies presenting as communication solution
  - Technology companies approaching solely as integrators
- **Some opportunistically entering the market**
- **Few companies will be long-term players:**
  - Large companies re-visit strategic fit over time
  - Small companies may not be around

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**Technologies**

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**Device Groups:  
Multiple Layers of Technology** **SIEMENS**

The system must be able to address all groups to be effective!

Mass Notification System	Inside	Outside	At Your Side
	PA / Intercom	Giant Voice	PDA's
	Video Screens	Loud Speakers	Mobile Phones
	Fire Panels	EMS / Police	Laptops
	Personal Computers	Video Screens	SMS / MMS
	Telephones	Sirens	IM Chat
	LED Displays	Radio broadcast	Email
	Indoor radio systems		
	Indoor pager systems		

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**Inside Devices** **SIEMENS**

- Fire voice speakers
- Flat panel displays
- LED displays
- PA / Intercom
- Network PCs
- Phone Systems
- Wired and wireless buttons
- Indoor camera systems

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**Typical System Architecture** **SIEMENS**

INSIDE

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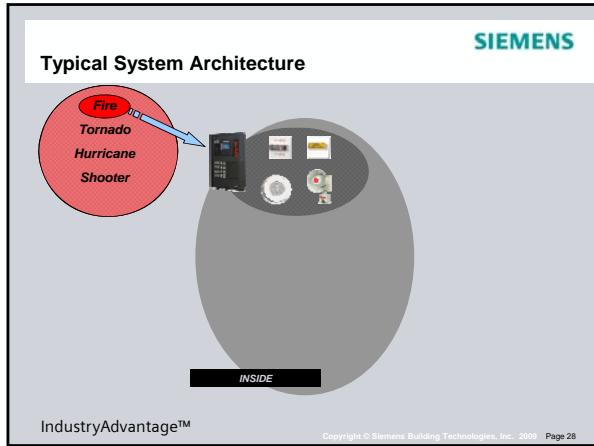
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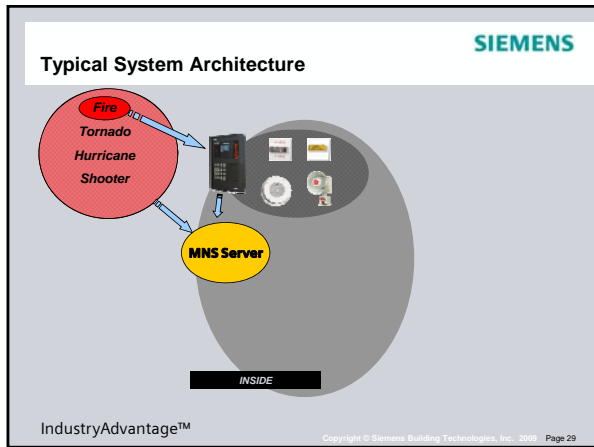
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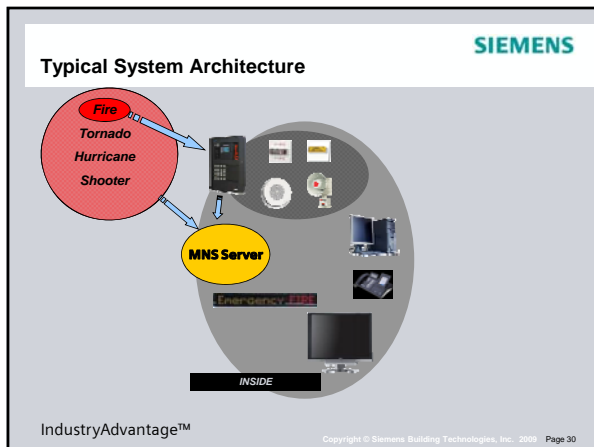
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### Outside Devices

**What Is "Outside"?**

The Outside Components consist of the following:

- Omnidirectional Speaker Arrays
- Directional Speaker Arrays





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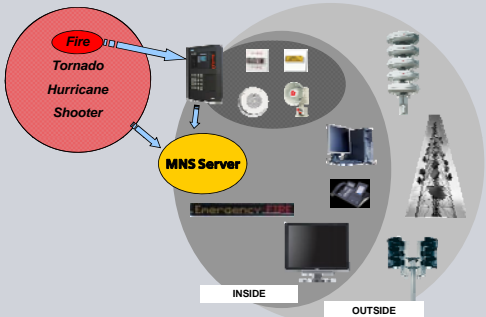
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**SIEMENS**

### Typical System Architecture



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### At Your Side Devices



**Products**

- Pagers
- Cell phones / Smart phones
- Personal E-mails
- IM (Instant Message) Alerts
- Duress Alarms
- Hand-held Radios



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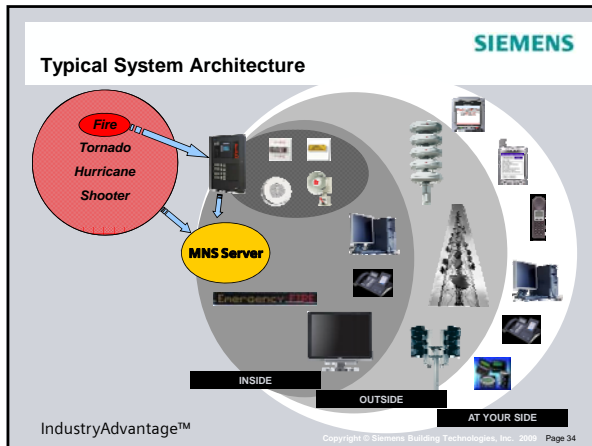
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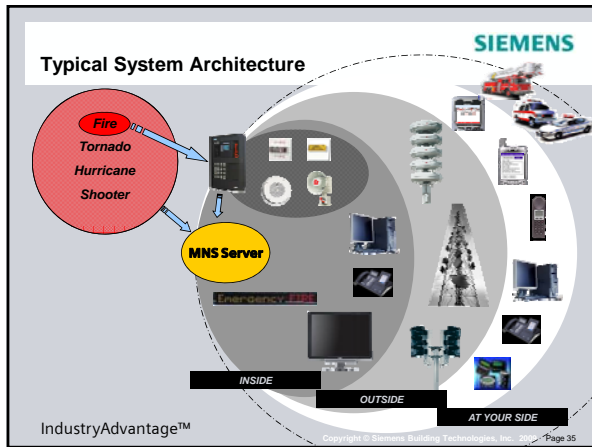
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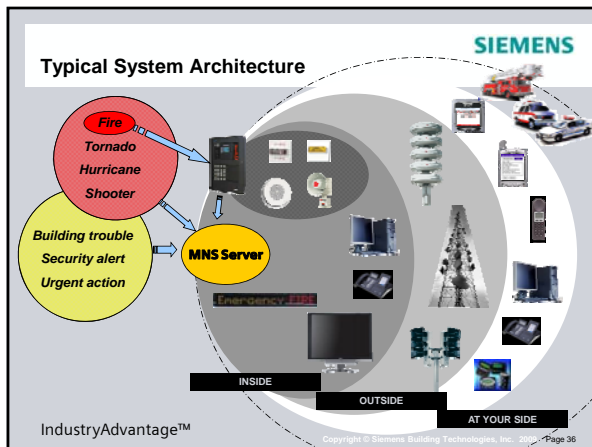
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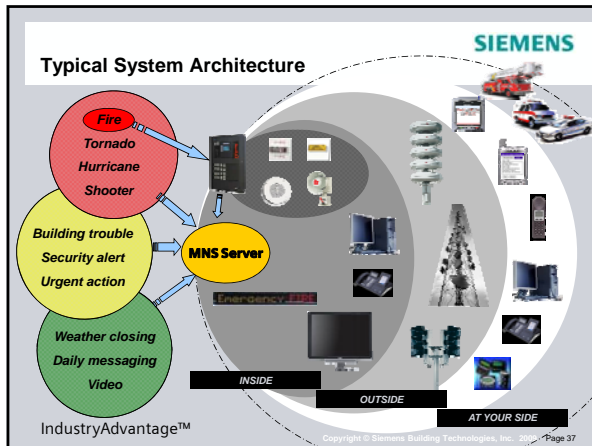
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**Hosted Messaging** SIEMENS

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**I got the emergency text message 2 days later** SIEMENS

**Lowest – Level 1 (Mobile Text Messaging, Wireless Text Messaging)**

- Not technically "true" SMS. Basically email to mobile devices.
- Only 1-way, delivery delays, security issues, spam, server congestion
- **Should not be relied on for emergency situations**

**Medium – Level 2 (SMS device to SMS device)**

2-way messaging, improvement in delivery and security over Level 1  
Retail technology - used for messaging between friends and relatives  
Messaging companies do not use level 2. **Many do use Level 1**

**Highest – Level 3 (Commerce Transactions) (INSIST ON THIS LEVEL)**

- Speed, accuracy, and reliability is of utmost importance for carriers. Highest care taken.
- 1-to-many, 2-way, premium cost – mostly offered as a subscription
- **Level 3 messages have delivery priority over Levels 1 and 2**

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**Reach Anyone, Any Device, Anywhere** SIEMENS

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## Challenges

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### Challenges

- Identifying the decision makers in a facility
- Getting buy in from all stakeholders
- Threat Assessment
- Emergency Action Planning
- Financial Impact (Budgeting)
- Phased implementation (Master Planning)
- Ongoing evaluation (perpetual integration)
- Long term support

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## Application Solutions

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**Involve Key Decision Makers to Solve the Issue** **SIEMENS**

- Thought Leadership**
  - Master Planning
  - Consultative Approach
  - Perpetual Evaluation
- Education**
  - Education
  - Innovation
- Use of existing infrastructure**
  - Adaptable solution for occupancy changes
  - Select proven vendors that are driving the technology forward
- Gap Analysis**
  - Community Awareness
  - Benefit to the public

**Education**

- Detailed discussions of the risks and needs
- Select decision makers per discipline
- Communication of the plan and schedule

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**Leverage Existing Infrastructure & Resources** **SIEMENS**

**Fire Alarm Systems**   **Paging Systems**   **IT Networks**   **Telephone Systems**

**Construction Budgets**   **Security Systems**   **Scoreboards and Audio Systems**   **Government Funding**

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**IndustryAdvantage™ Program** **SIEMENS**

**Mass Notification Overview**

**Thank You !**

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