

The Next Generation of Mass Notification

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It is important to note...

To accomplish the projects identified within this presentation significant coordination had to occur between many parties. The needs of the projects dictated the solutions deployed.

» Risk Analysis

» Architecture

» Occupants

» Cultural

» Budgets



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Why is Intelligibility so important?

Auralization Examples

[Transit Center - .3 STI](#)

[Transit Center - .6 STI](#)



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NFPA-72 2016 Key Changes

Class N Infrastructure

Preface- Page 72-3

Perhaps the most significant changes to the Code pertain to wiring. The 2016 edition adds Class N, which addresses **internet** infrastructures for alarm and signaling systems; pathway performance and installation criteria are provided. Class A and Class X pathway separation requirements have been revised to specifically address emergency control function interface devices controlled by the fire alarm system on those circuits. Level 2 and Level 3 pathway survivability requirements have been revised, providing flexibility of use and to address other “fire-resistive” methods.

2016 Edition 

This also impacts the UFC 4-021-01



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The Integrated ECS

The Process

- Risk Analysis/Risk Vulnerability Assessment
- Emergency Response Plan/Crisis Intervention Plan
- Requirements reside within CSI Divisions 25, 27, or 28



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Mass Notification Layers

24.3.8 Mass Notification Layers

Emergency Communications used for mass notification shall be categorized into layers and take into consideration type of audience and reach as follows:

- (1) Layer 1- in-building ECS
- (2) Layer 2- wide-area MNS
- (3) Layer 3- distributed recipient MNS
- (4) Layer 4- public measures- broadcast radio, television, etc.



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Mass Notification Systems

Communication Type Layers

VOICE

VISUAL

PERSONAL

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MNS Communication Type Layer Usage

Transit



Healthcare



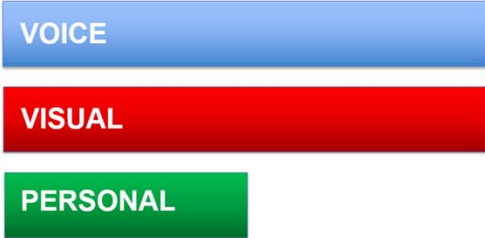
Education



Corporate



Public Venue



NFPA-72 2016

G.2.2 Warnings

Warning messages should provide information to the occupants on the state of the emergency and what they are supposed to do in response to this emergency. The warning message should come after an alert signal is given and can be provided via visual or audible means.

A horizontal banner with a dark blue background and colorful, abstract light trails on the left and right sides. The text is centered in a bold, orange font.

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G.3.1 Scenario 1

Fire in a building, partial evacuation strategy, building-wide public address announcements.

Scenario 1 is a fire located on the 10th floor of a 20-story building. Individuals are unable to use elevators in this scenario, except for those who are unable to negotiate the stairs, in which case building staff or fire fighters will assist them using the freight elevator(s).

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G.3.1 Scenario 1

Fire in a building, partial evacuation strategy, building-wide public address announcements.

Protective actions: Occupants on floors 9, 10, and 11 are told to evacuate to the 8th floor (two floors below the fire floor). All other occupants are provided with a message to remain on their floor. Therefore, in this scenario, two different types of messages are required to be provided simultaneously to occupants, depending upon the floor on which they are located: one message will be disseminated to floors 9, 10, and 11, while a different message will be disseminated simultaneously to all other floors.



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G.3.1 Scenario 1

Fire in a building, partial evacuation strategy, building-wide public address announcements.

Technology used to disseminate the message: The building wide public address system, which is capable of providing different messages to different floors (using a live voice or a dynamic voice).

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G.3.1.1 Message Templates for Scenario 1

Building-wide announcement to Floors 9, 10, and 11:

“Attention [floors 9, 10, and 11]. This is your [Building Safety Officer, Joe Smith]. A fire has been reported on the [10th] floor of the building. Everyone on the [9th, 10th, and 11th floors] should move to the [8th floor] to be protected from heat and smoke, since heat and smoke can creep into nearby floors during a fire. Use the stairs immediately. Do not use the elevators. Those who need help getting to the [8th floor], please wait inside the stairwell [or go to the freight elevator lobby].”

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G.3.1.1 Message Templates for Scenario 1

Building-wide announcement to all other floors:

“Attention. This is your [Building Safety Officer, Joe Smith]. A fire has been reported on the [10th floor] of the building. Please wait on your floor. At this time, you are safer remaining on your floor than leaving the building, because this building is designed to confine the fire [e.g., locally or to the 10th floor only]. Do not use the elevators for any reason. We will give you further instructions, if the situation changes.”

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The Integrated ECS

Thinking about the NFPA message templates?

Integration provides the following:

- Disparate and autonomous systems are brought together to achieve a common goal
- Each system has a different level of priority depending upon the facility and the application of the MNS layers and communication types
- Automation is used to simplify the complex tasks required during the crisis thus reducing workflow



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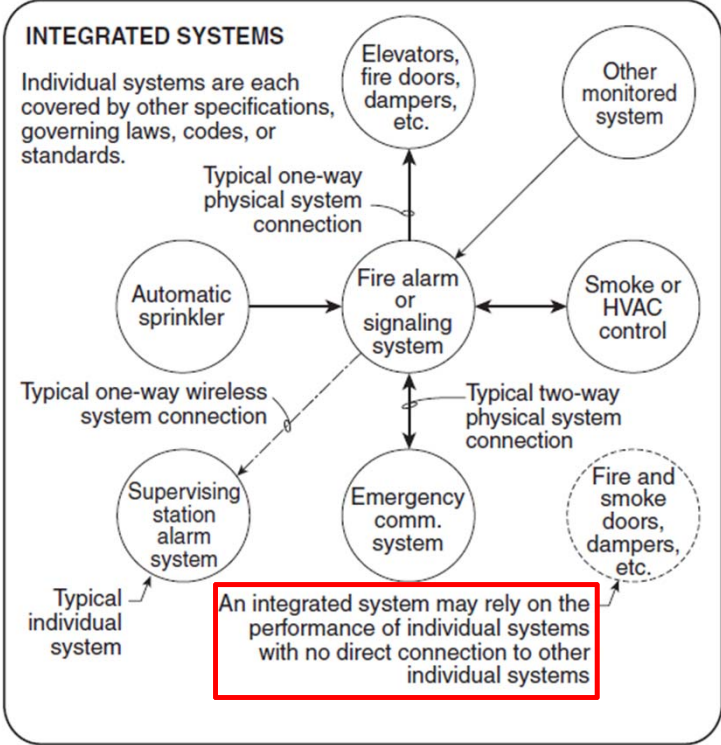


FIGURE A.21.1 Integrated Systems. (Courtesy of R.P. Schifiliti Associates, Inc.)

The Integrated ECS

Solution types for Integration

- Vertical Transportation
- Access Control
- Transit Data
- Nurse Call
- Common Alert Protocol (CAP) Services
- Physical Security Information Management (PSIM)



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Integration must consider:

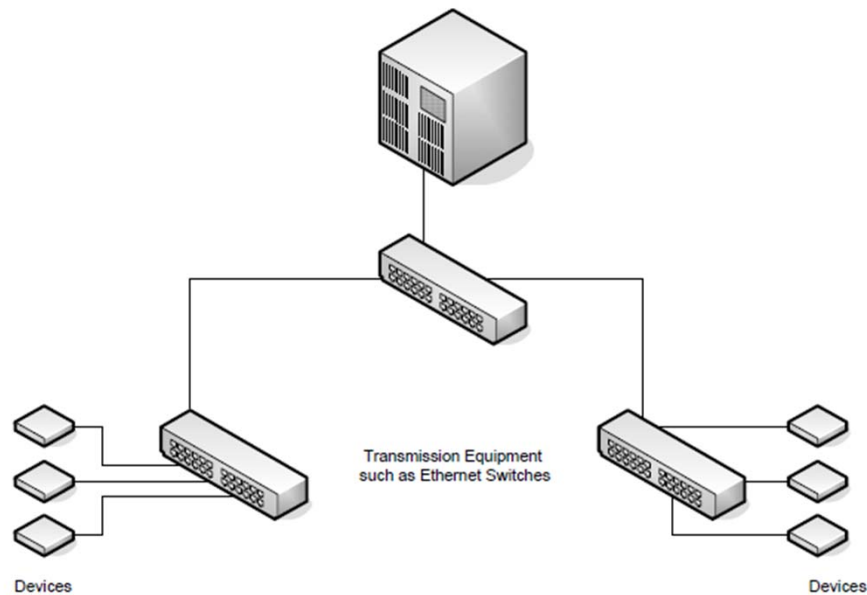
- Fire Personal Operations
- Testing
- Serviceability
- Training
- Documentation



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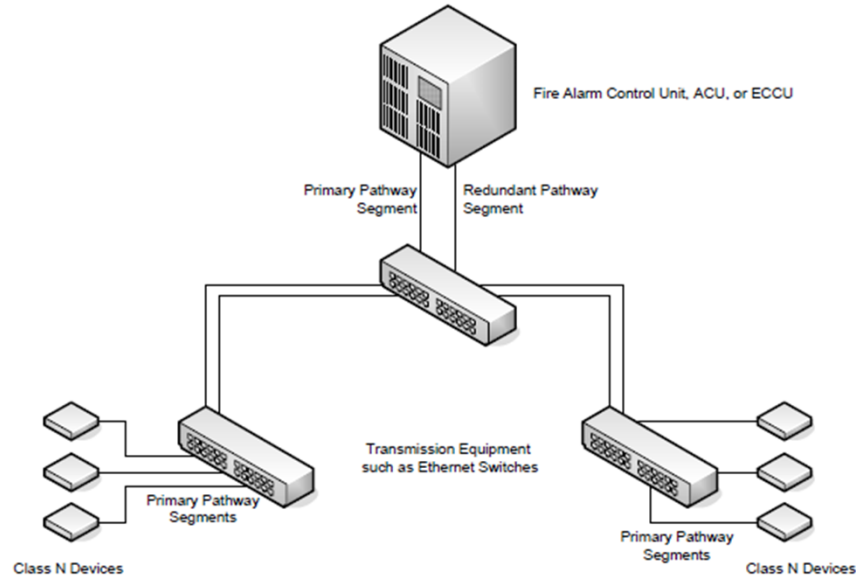
Ethernet Block Diagram



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Class N Block Diagram

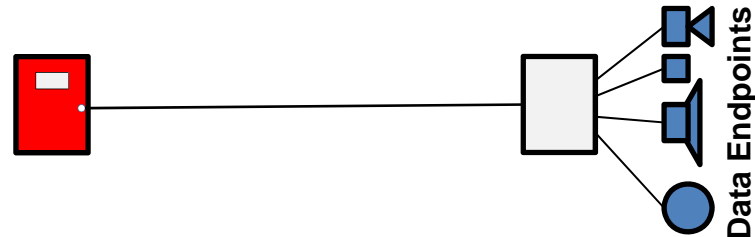


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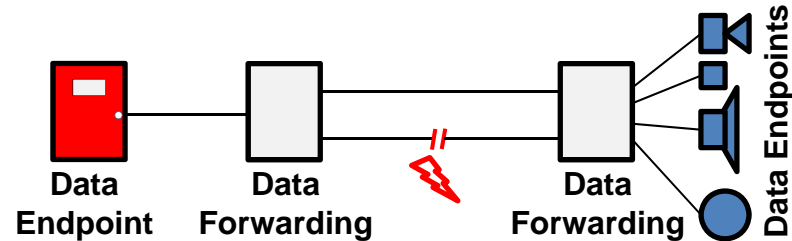
NFPA-72 2016 Key Changes

Networks Ground Faults or Breaks

Network devices can be categorized in two basic categories:
Data Endpoints and
Data Forwarding Equipment

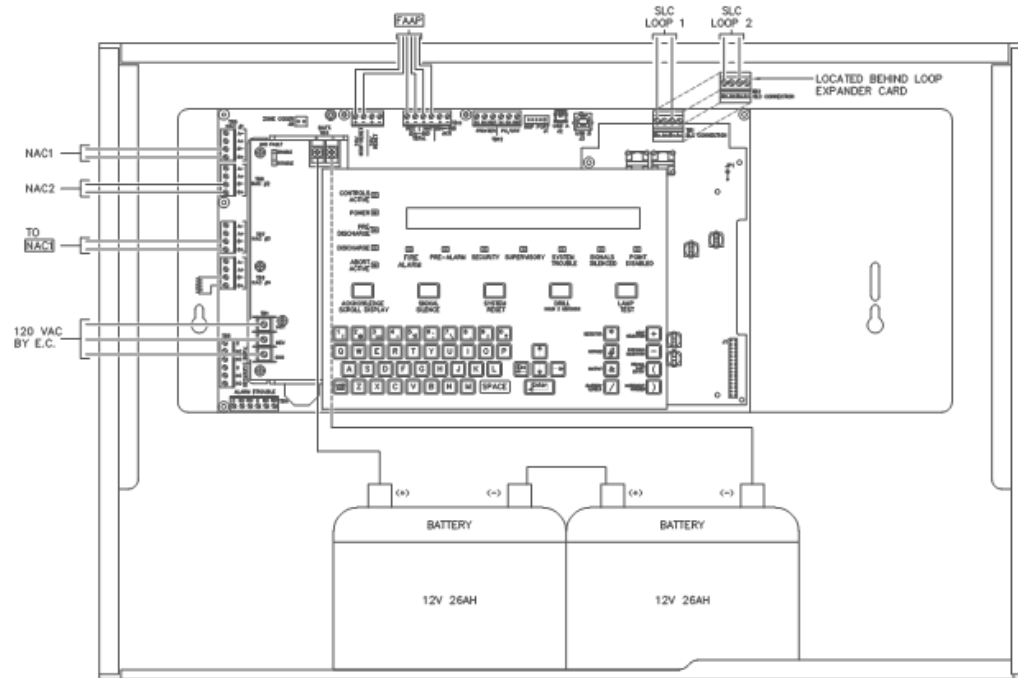


Class N paths require alternate communication pathways where more than one device would be impacted by a fault



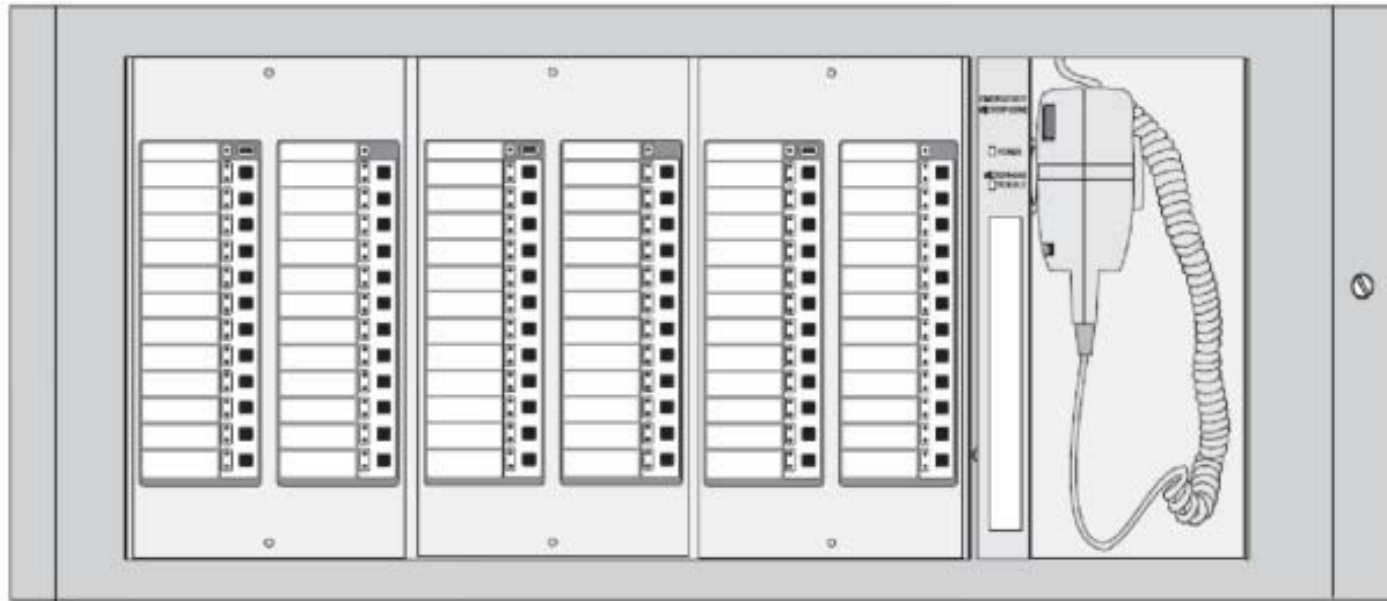
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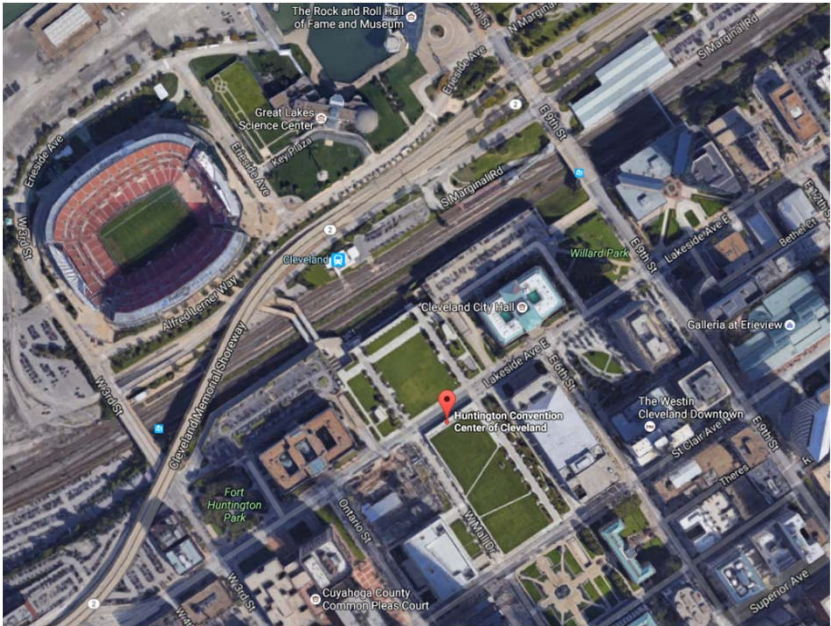
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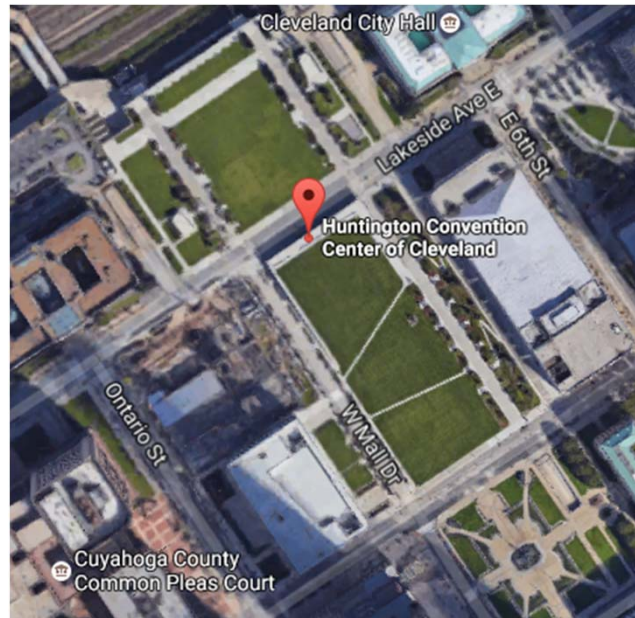


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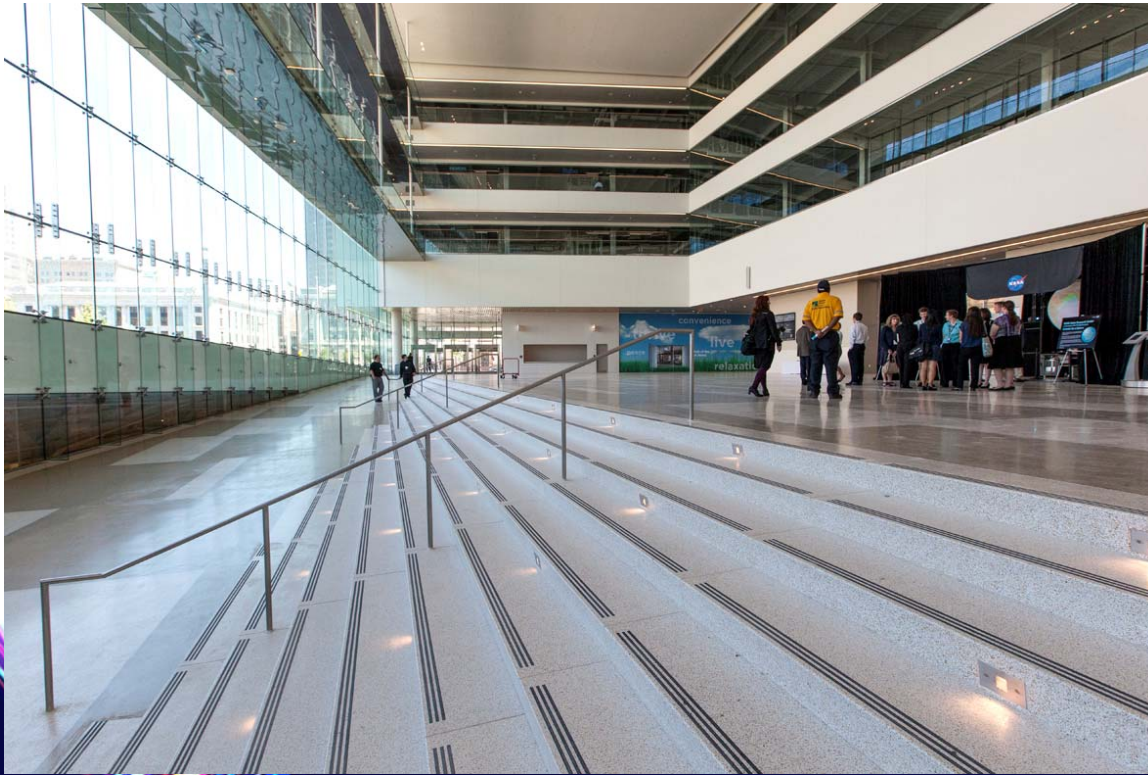
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Questions?

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Thank You

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