Incident Commander's Command, Control, Communication Unit

IC^{4}U

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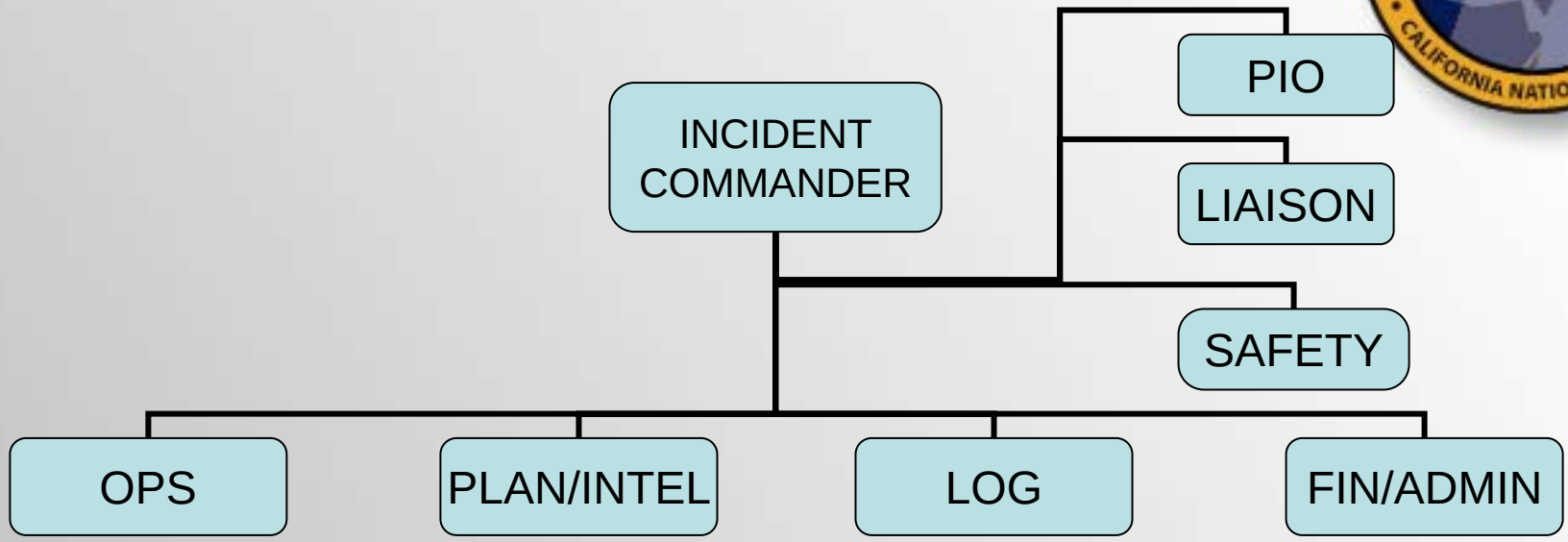
California National Guard, JFHQ, J6

Agenda

- Video of Hero's
- Challenge of Command and Control (C2)
- Background
- IC4U Overview
- Best Practices
- Hands on 15 – 20 min
- (12:50) Video of IC4U in action

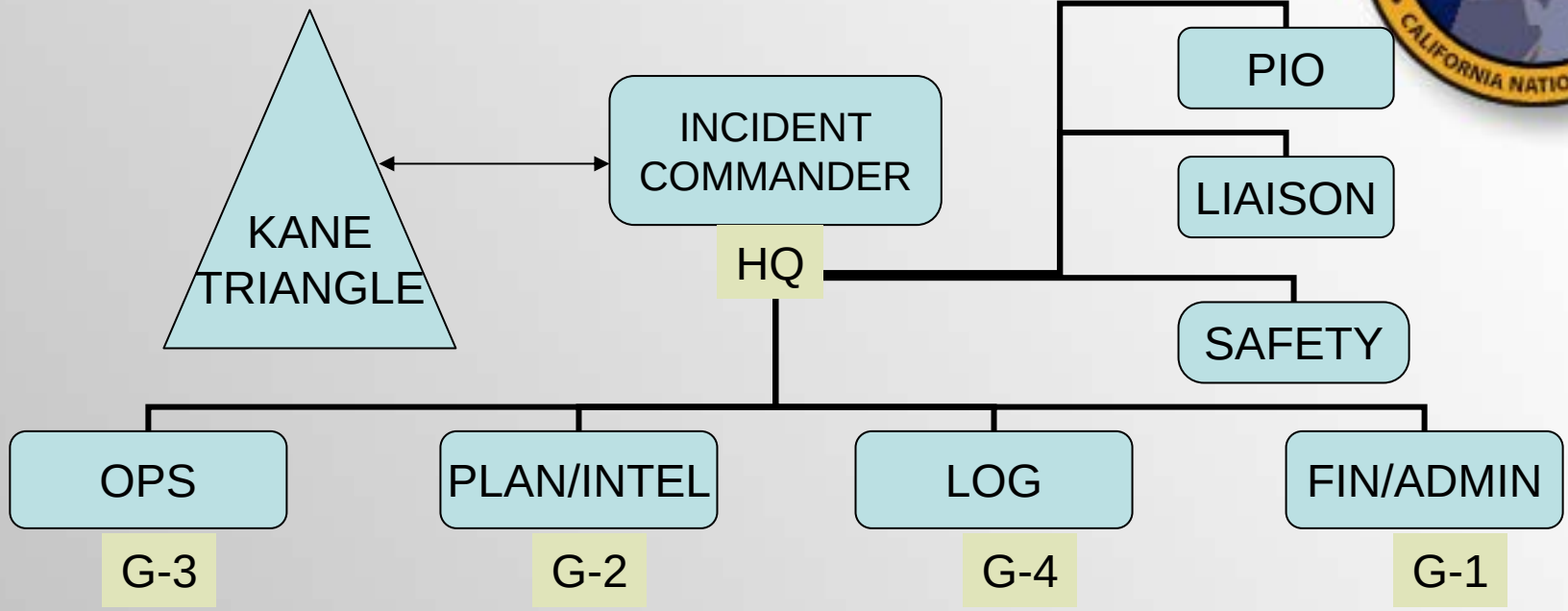
Incident Command System



-ICS is a PROCESS that has 8 major sections – combined or separate

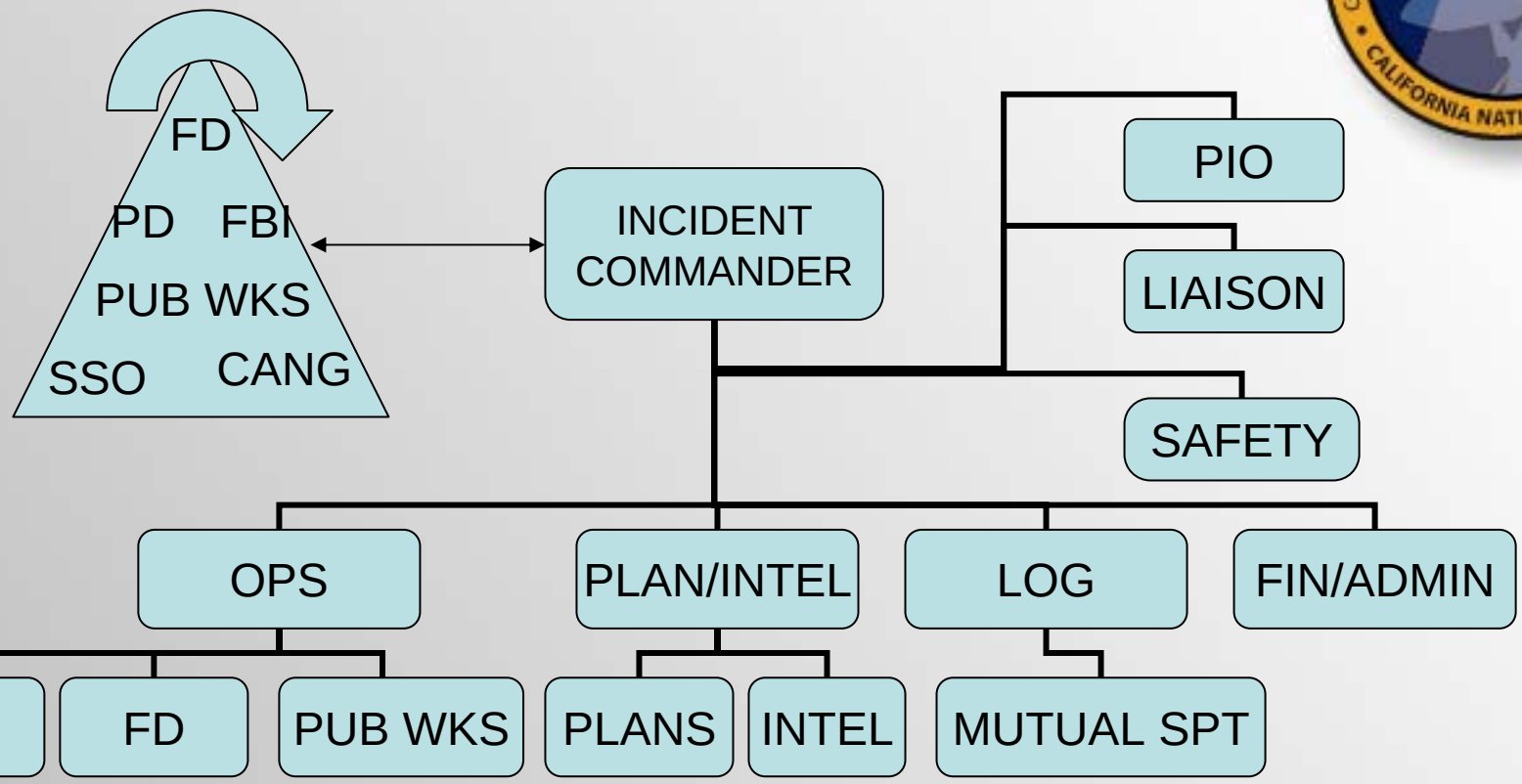
- An explosion occurs in downtown Sacramento and blows up 60% of the court house, 40% of the jail next door:
  - electrical grid out, major damage to gas, water, and sewer
  - 500 people injured, 150 dead
  - first responders arrive within 2 min
  - who is in charge and what is the events that will occur next?

ICS or Military Organization

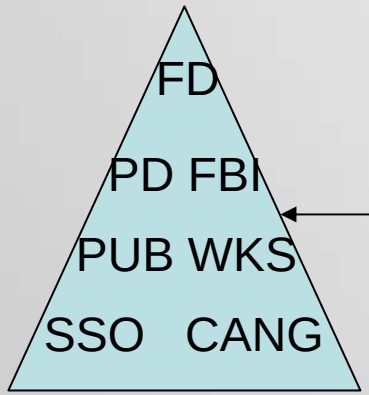


-First on the scene: PD, FD, HP, Sheriff and local citizens
-These individuals use the ICS process to organize actions
-Rescue and building evacuation is the primary - perimeter security-in/out
-FD is the IC – Has the largest mission requirement
-Other agencies OIC take direction from the IC
-Pre determined personnel take position within the all the major branches

Incident Command System



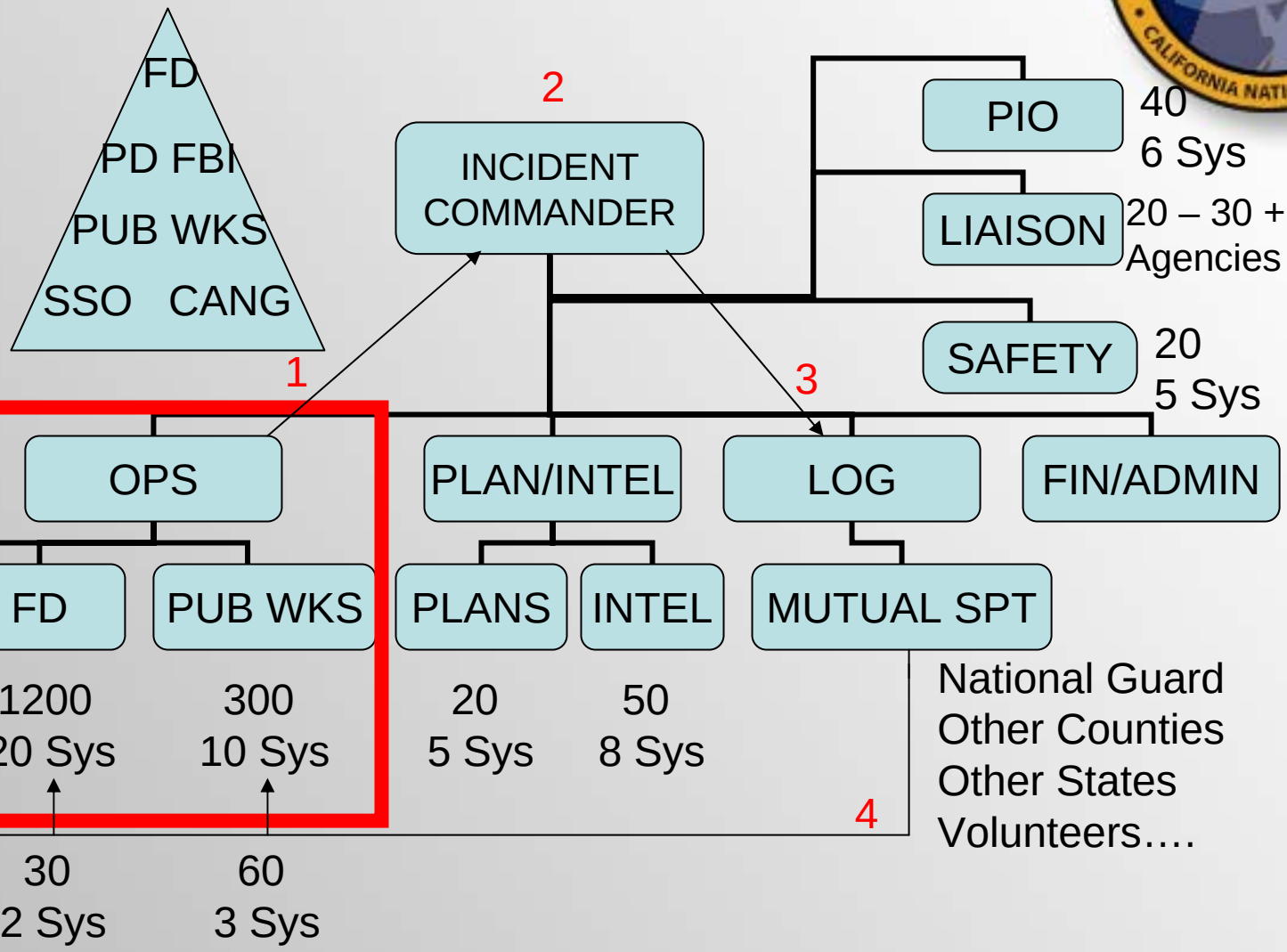
Incident Command System



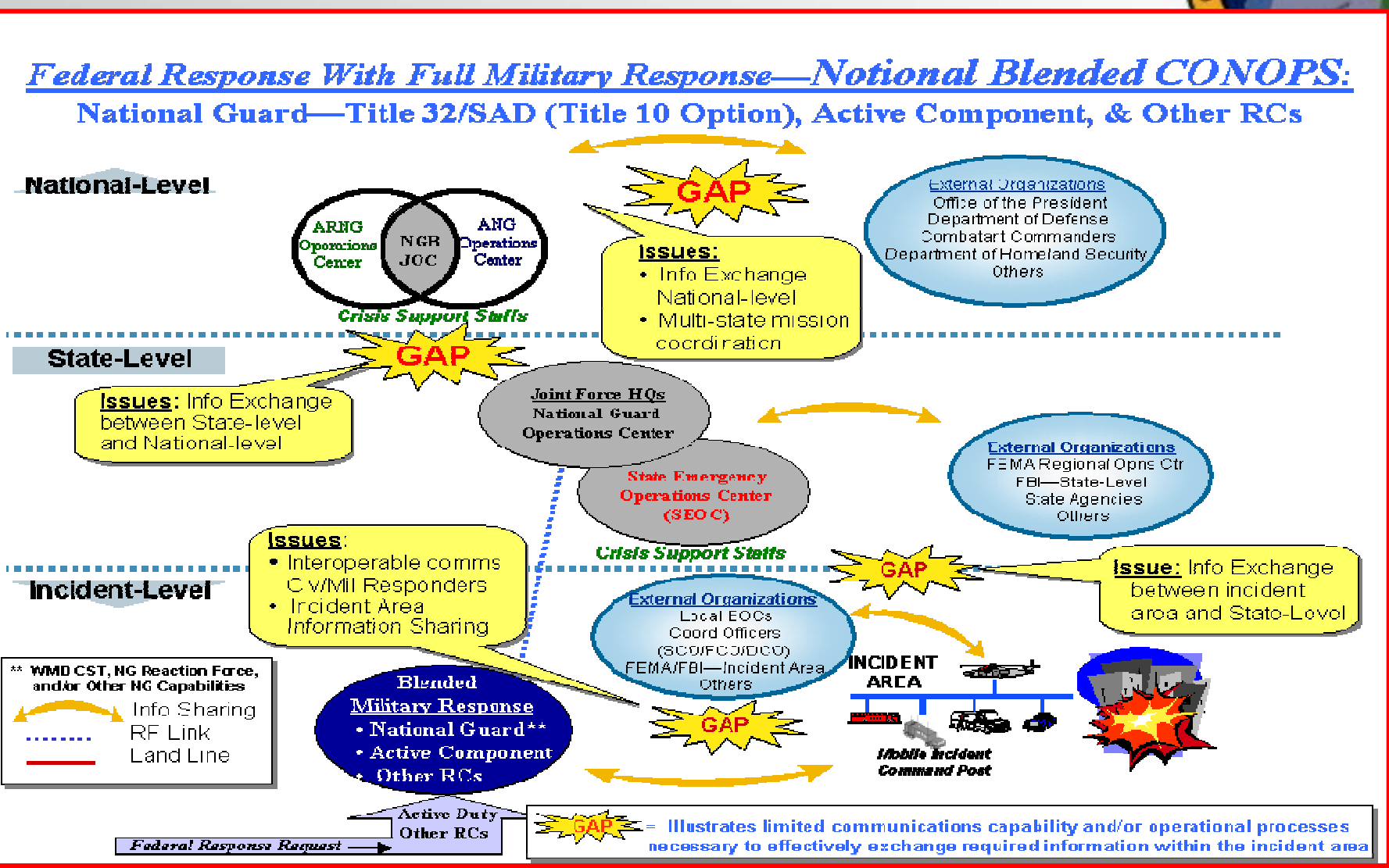
INCIDENT COMMANDER

- PIO — 40, 6 Sys
- LIAISON — **20 – 30 + Agencies**
- SAFETY — 20, 5 Sys
- OPS
  - PD — 800, 12 Sys
  - FD — 1200, 20 Sys
  - PUB WKS — 300, 10 Sys
- PLAN/INTEL
  - PLANS — 20, 5 Sys
  - INTEL — 50, 8 Sys
- LOG
  - MUTUAL SPT
- FIN/ADMIN

Incident Command System



COMMON OPERATING PICTURE IDENTIFIES CAPABILITIES GAPS



Why Are We Here

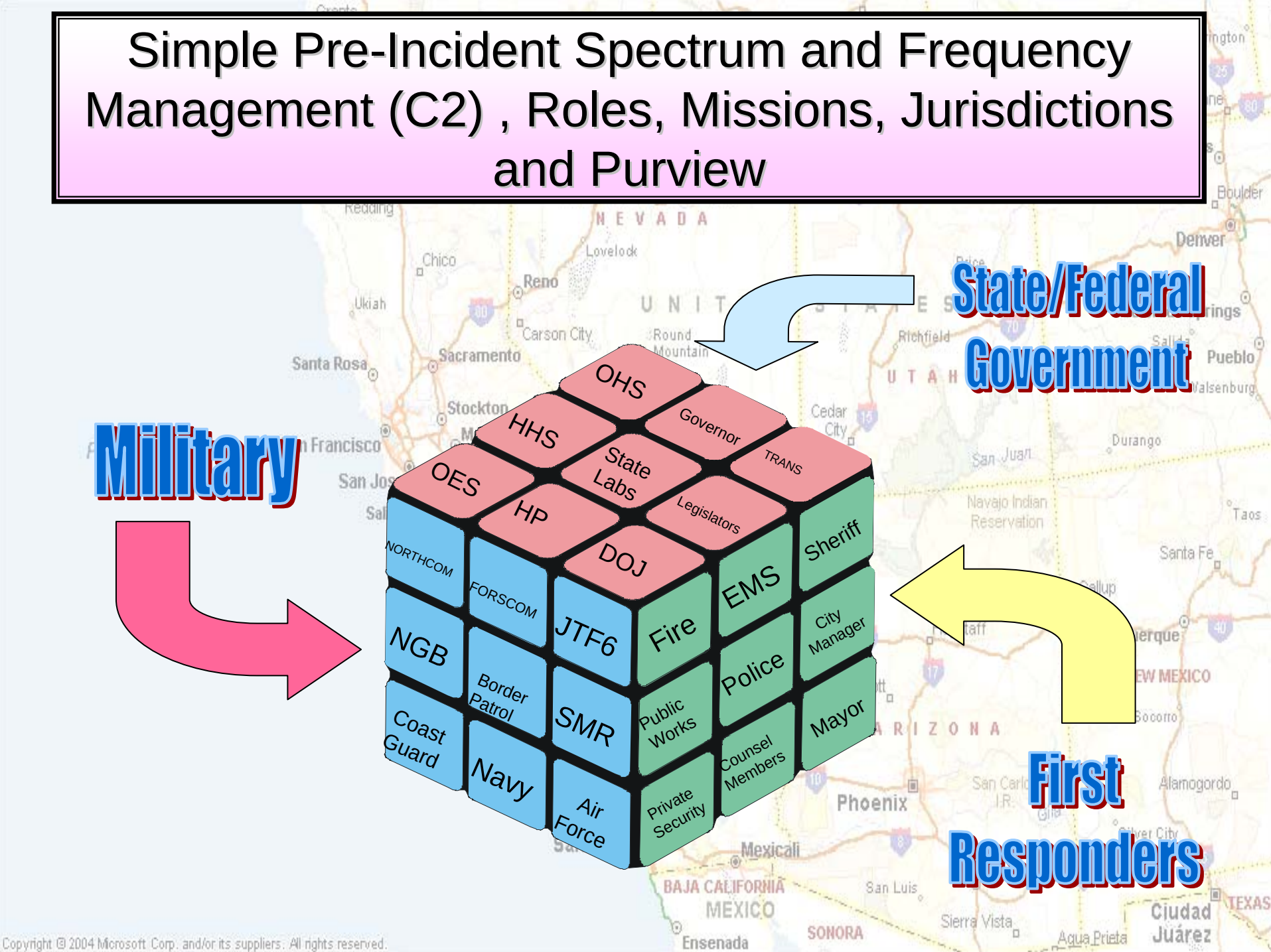
- Use Technology to our advantage!
  - ✓ Work solutions to resolve Resources and Rules (R2)
  - ✓ Whose Job is it?
  - ➢ Add additional capabilities to already fielded systems
  - ➢ Focus on SAVING LIVES
- ➢ Method
  - Roll Over –Crawl-Walk-Run – Practice, Practice, Practice

Challenge of Command and Control

- The number one problem in large-scale emergency response is communications (Command and Control C2) between Incident Commander (IC) and the responders that arrive at the scene.
- Not being able to communicate with other first responder/support agencies in the critical first hours degrades the capability to provide the maximum effort to reduce the situation.
  - Two areas to be addressed:
    - Planned C2: Responding agencies have their own communications equipment and frequencies vary from agency to agency. Much progress within local counties has been accomplished – plans established – exercise falls short.
    - Unplanned C2: Additional mutual support from outside agencies/states. IC must have equipment that is flexible to add a wide variety of C2 systems – challenge.

➢ Solution must be self sufficient - No cell phone coverage, No power, No network, No eyes on the other side of …. and No blacktop roads.

Simple Pre-Incident Spectrum and Frequency Management (C2) , Roles, Missions, Jurisdictions and Purview

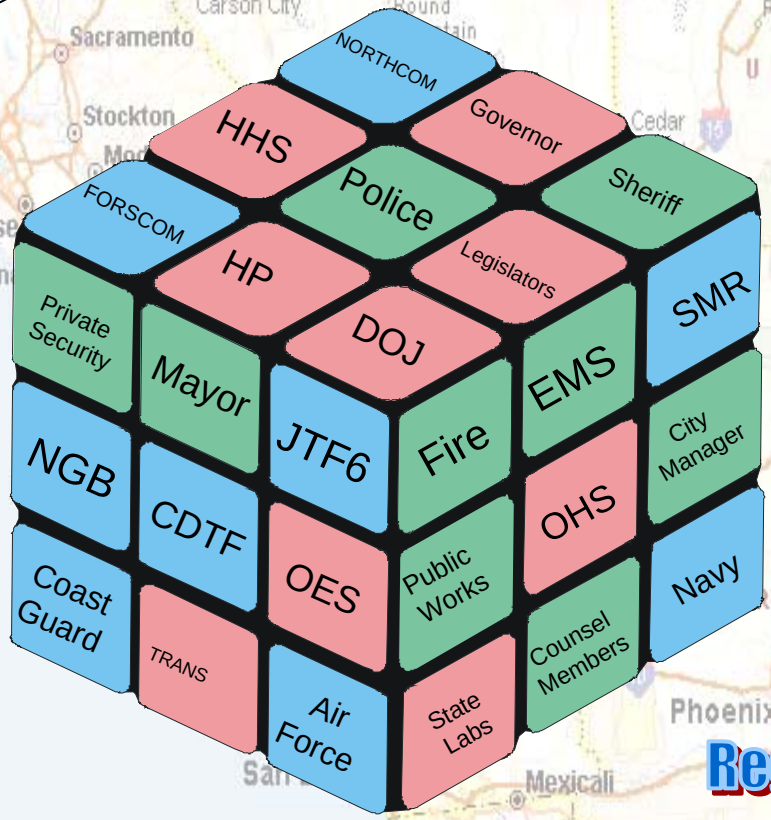


Complex Post-Incident Spectrum and Frequency Management (C2) and Multi-Agency Environment

How to effectively Command and Control

National Support

Local Incident Site Response



Regional and Interstate Support

Alaska Airlines Flight 261

NTSB

Ventura County Sheriff VHF

Los Angeles County Sheriff UHF

Point Mugu Naval Base Military

FBI VHF

U.S. Coast Guard VHF

FAA

California Army National Guard Military

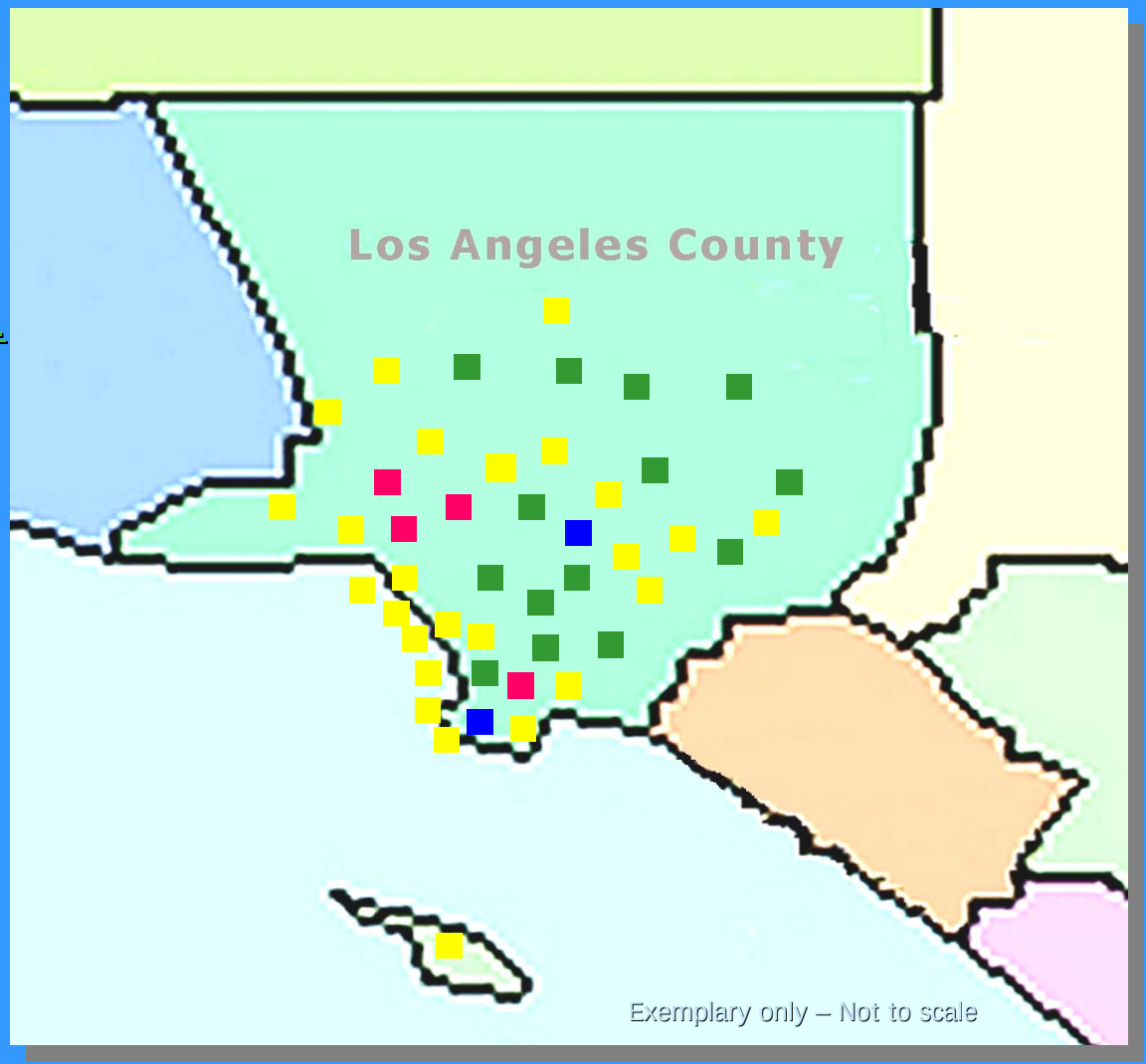
UHF 450-512 Mhz.

Alhambra PD
Arcadia PD
Baldwin Park PD
Bell Gardens PD
Beverly Hill PD
Burbank PD
Claremont PD
Culver City PD
El Monte PD
El Segundo PD
Glendale PD
Gardena PD
Hawthorne PD
Hermosa Bch PD
Inglewood PD
Irwindale PD
Long Beach PD
LA Air Port PD
LAPD
Manhattan Beach PD
Montebello PD
Pasadena PD
Redondo Bch PD
San Fernando PD
San Gabriel PD
San Marino PD
Santa Monica PD
LASD
So. Pasadena PD
Torrance PD
West Covina PD
Whittier PD
L.A. Co. Fire

Burbank Fire
Pasadena Fire
So. Pasadena Fire
State

VHF 148-174 Mhz.

Azusa PD
Bell PD
Covina PD
Downey PD
Glendora PD
Huntington Pk PD
La Verne PD
Maywood PD
Monrovia PD
Monterey Park PD
Pomona PD
Sierra Madre PD
South Gate PD
Vernon PD
Federal
State



Low-VHF 33-50 Mhz.

Avalon Fire
California Army National Guard
CHP
Palos Verdes - Estates PD

800 MHz

L.A. City Fire
Office of Public - Safety
Signal Hill PD
State

Background

- ✓ IT Perspective
  - ❑ “Reach Back,” show the “Operational Picture”
  - ❑ E-mail
  - ❑ Collaboration - Access to incident portal (Share Point Team Services)
  - ❑ Local wireless network
- ✓ Other sources of information – What the public view’s that we don’t?
  - ➢ Television reception (CNN, local news)
  - ➢ Still and Motion Photography
  - ➢ Data collection (GPS, Weather, Forms)
- 😐 CNG interoperability capabilities to communicate with other agencies or first responders?
  - 💣 Limited at best – I felt like I was holding the bag or got squeezed

Decisions to be made

- Ability to mix desperate communications into a “carrier operated relay” is vital for C2.
  - Spectrum Management within ICS !
- Types of interoperability units available include:
  - Raytheon, ACU-1000
  - SyTech, Rios
  - Trilogy, Mercury
    - Each will link frequency and mode radios together
    - Differences reside in number of inputs/outputs, number of talk groups, expandability, cost per cross point (CPC), et cetera.

Decisions to be made cont.

- Interoperability Unit – Identify requirements
- Satellite Dish/ISP – Provides reach back communications (type of area and ISP= type, size, and buck).
- Net modem – enterprise-class IP transport and traffic management over satellite networks.
- Media Converter – Device that converts data passing from one media to another.
- Transport & Support – Provides means of transportation, cases, cables, equipment, power, etc.
- Training & Sustainment – Significant Issue!
- Other components – More = Amps + Costs + Resources

A Solution

A device or system that can link several types of communications together.

- ✓Simple to **deploy, operate, and maintain**
- ✓Provides additional communications capability at the incident scene for first responders, local, state, federal agencies, and uniformed services
- ✓Cost effective (have and have knot's)

- ✓S-A-F-E: Scalability, Affordability, Flexibility, Equipment

Incident Commander's Command, Control, Communication, and Computer Unit (IC4U) Major Components

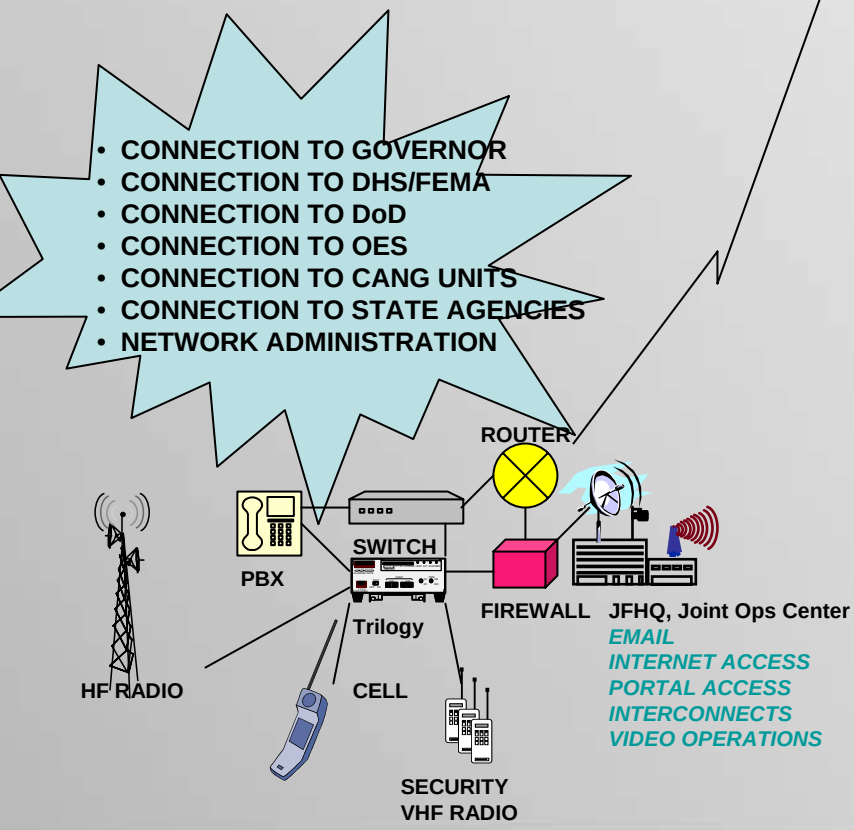
- **Satellite Connectivity back to JFHQ**
  - Automatic acquiring dish
  - 512mb up/1.5mb down
  - Added Dish TV allows Cdr real time news broadcasts
  - All information is sent back to the CNG HQ Opns Center
  - Units can talk between each other
- **Communications**
  - Most advanced Interoperability flexibility available: Add any type of communication device on the scene
  - Voice over Internet Protocol – Add phones of commercial service is not available
  - Provides LAN for other users
  - Provides pathway to the internet to use Web Portals
- **Video and Video Streaming**
  - Almost real time
  - Recording of all actions
  - Portable Camera
  - Video Surveillance Camera
  - Editing on the spot
- **Physical/Mobility/Other**
  - Transported on Military HUMMWV or commercial truck
  - Certified for C130 airlift
  - Generator powered and back-up with each unit
  - Heated/Air Conditioned enclosure
  - GPS and weather station
  - Additional workspace provided by tent age.
  - Minimal time to set-up (15-20 min)

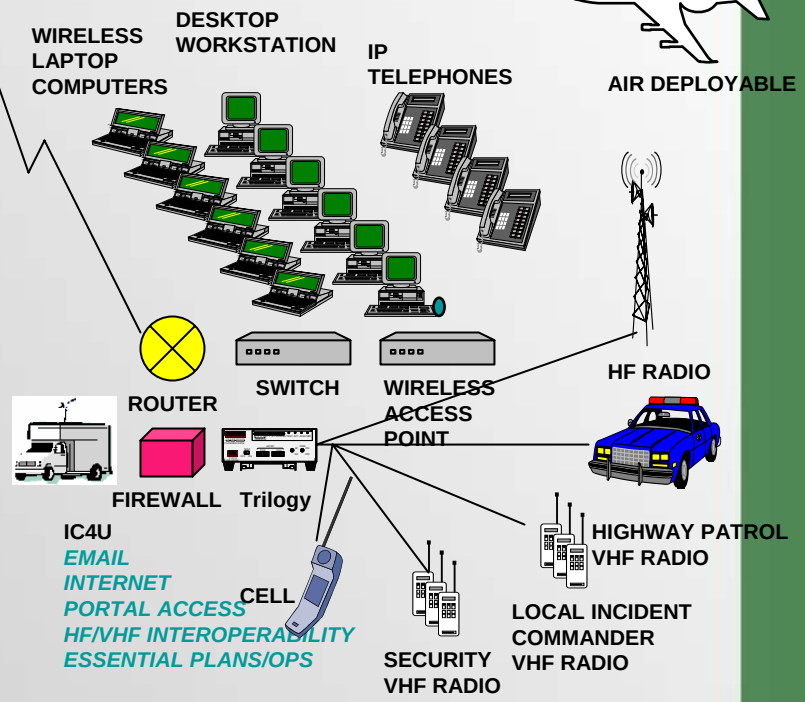
INTEROPERABLE

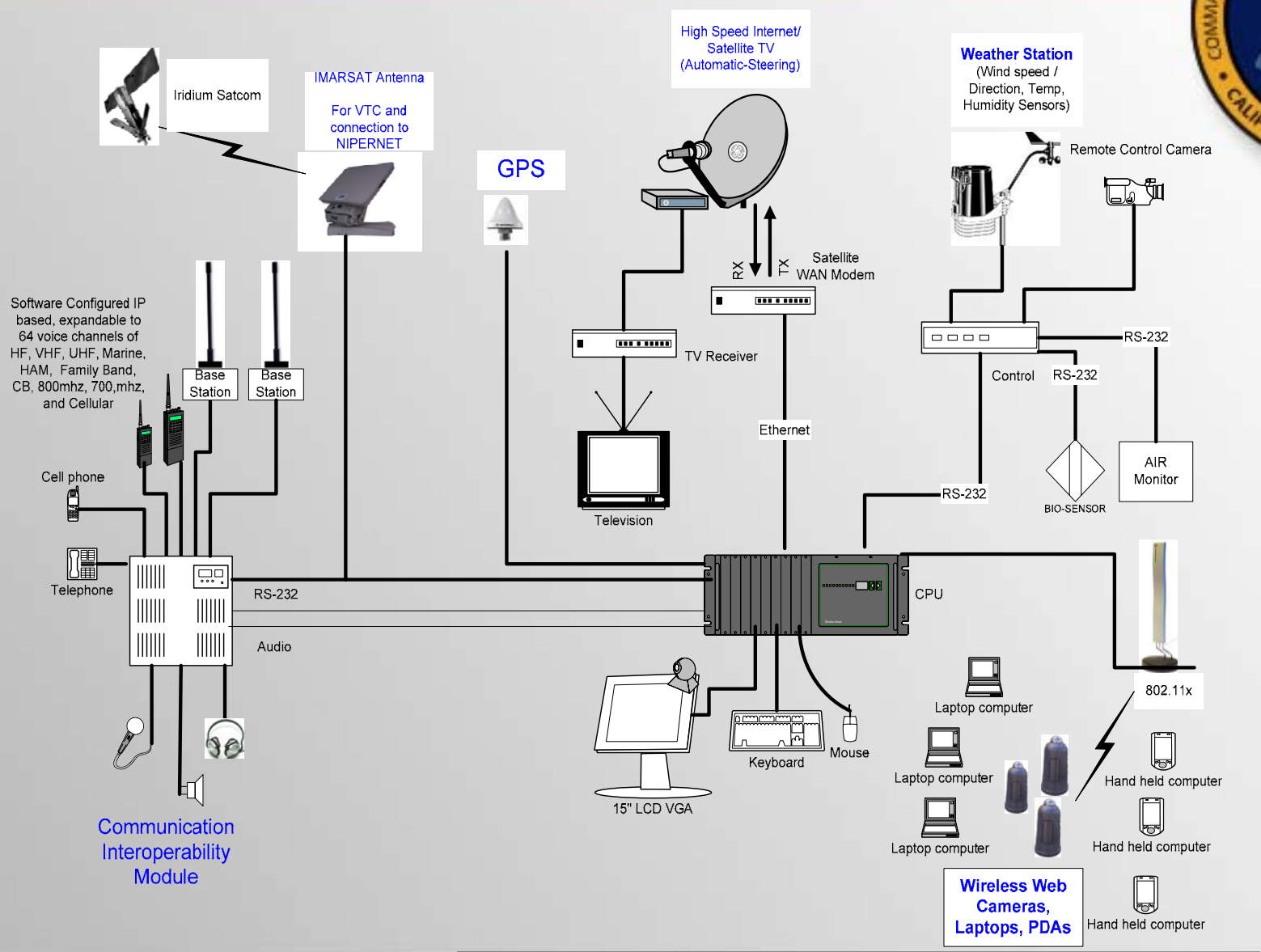
- ACCESS TO INTERNET
- ACCESS TO EMAIL
- REDUNDANT VOICE COMMUNICATIONS
- REDUNDANT DATA COMMUNICATIONS
- INTEROPERABLE COMMS, INCIDENT CDR
- ACCESS TO TELEPHONE SYSTEM FROM RADIOS
- ACCESS TO VIDEO CONFERENCING

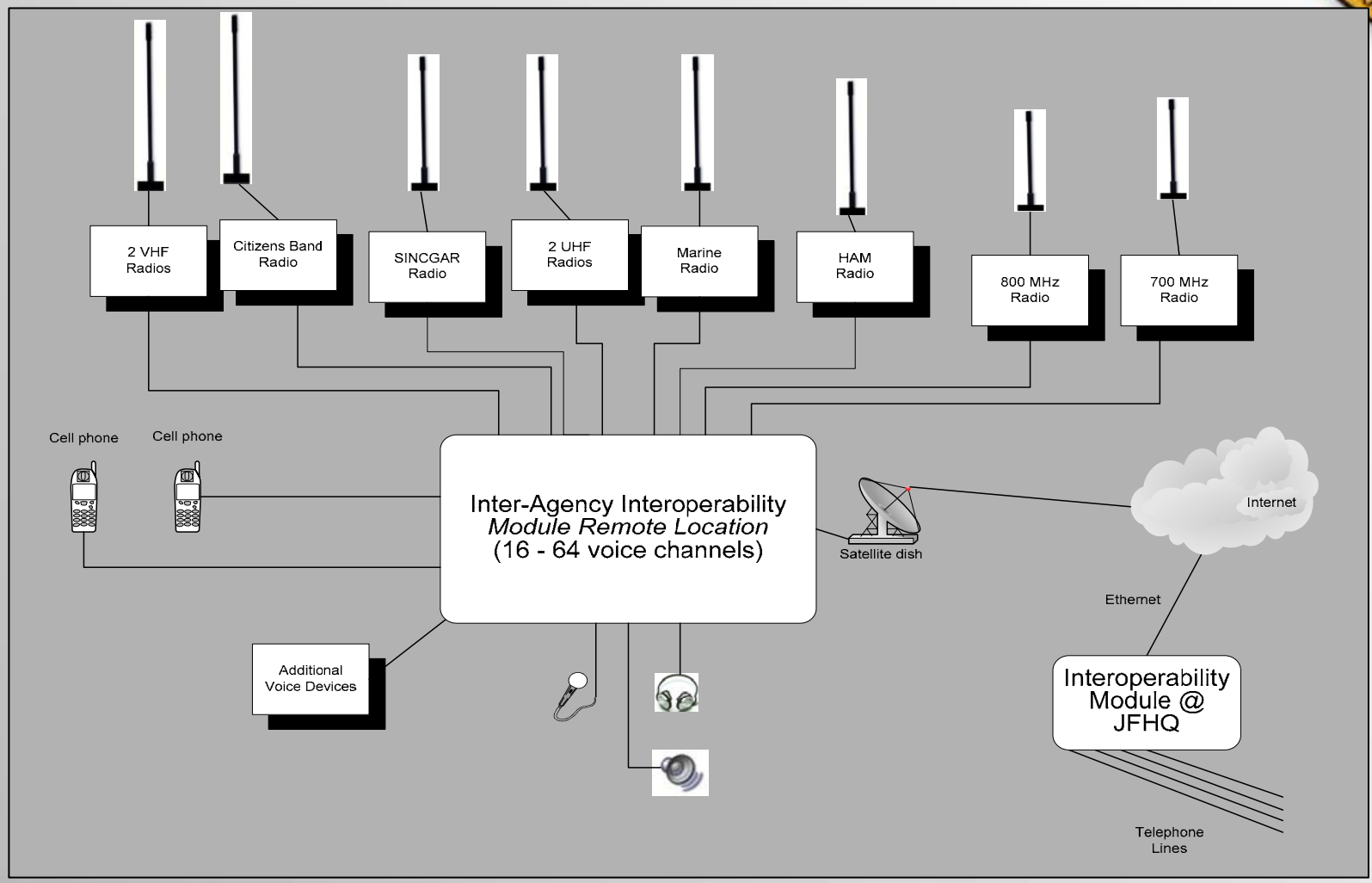
NOTE: ANY STATE AGENCY MOBILE COMMAND POST COULD BE OUTFITTED WITH THIS CAPABILITY

- CONNECTION TO GOVERNOR
- CONNECTION TO DHS/FEMA
- CONNECTION TO DoD
- CONNECTION TO OES
- CONNECTION TO CANG UNITS
- CONNECTION TO STATE AGENCIES
- NETWORK ADMINISTRATION

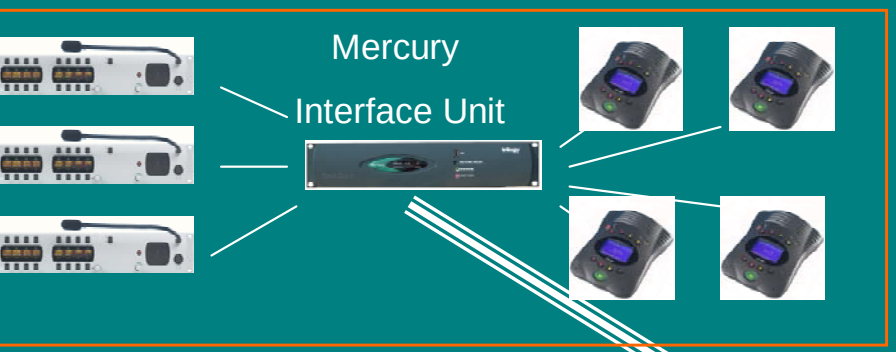




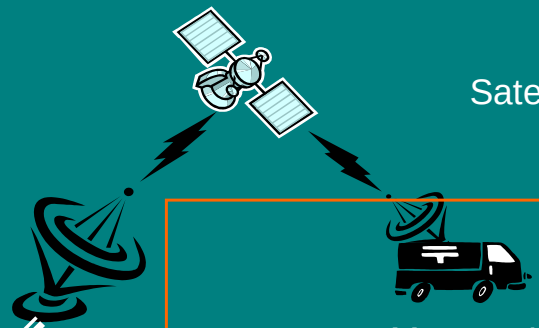

Iridium Satcom
IMARSAT Antenna
For VTC and connection to NIPERNET
GPS
High Speed Internet/ Satellite TV (Automatic-Steering)
Weather Station
(Wind speed / Direction, Temp, Humidity Sensors)
Remote Control Camera
RX
TX
Satellite WAN Modem
TV Receiver
Television
Ethernet
RS-232
Control
RS-232
RS-232
BIO-SENSOR
AIR Monitor
Software Configured IP based, expandable to 64 voice channels of HF, VHF, UHF, Marine, HAM, Family Band, CB, 800mhz, 700,mhz, and Cellular
Base Station
Base Station
Cell phone
Telephone
RS-232
Audio
CPU
802.11x
Laptop computer
Laptop computer
Laptop computer
Hand held computer
Hand held computer
Hand held computer
Keyboard
Mouse
15" LCD VGA
Communication Interoperability Module
Wireless Web Cameras, Laptops, PDAs


2 VHF Radios
Citizens Band Radio
SINCGAR Radio
2 UHF Radios
Marine Radio
HAM Radio
800 MHz Radio
700 MHz Radio
Cell phone
Cell phone
Inter-Agency Interoperability
Module Remote Location
(16 - 64 voice channels)
Satellite dish
Internet
Ethernet
Additional Voice Devices
Interoperability Module @ JFHQ
Telephone Lines

Emergency Management and Defense Topology

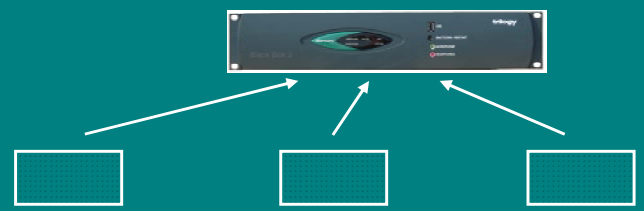


Operations Center



Incident vehicle

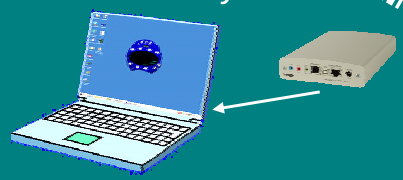
Mercury Interface Unit



IP Network

WAN or Internet

Mercury USB box

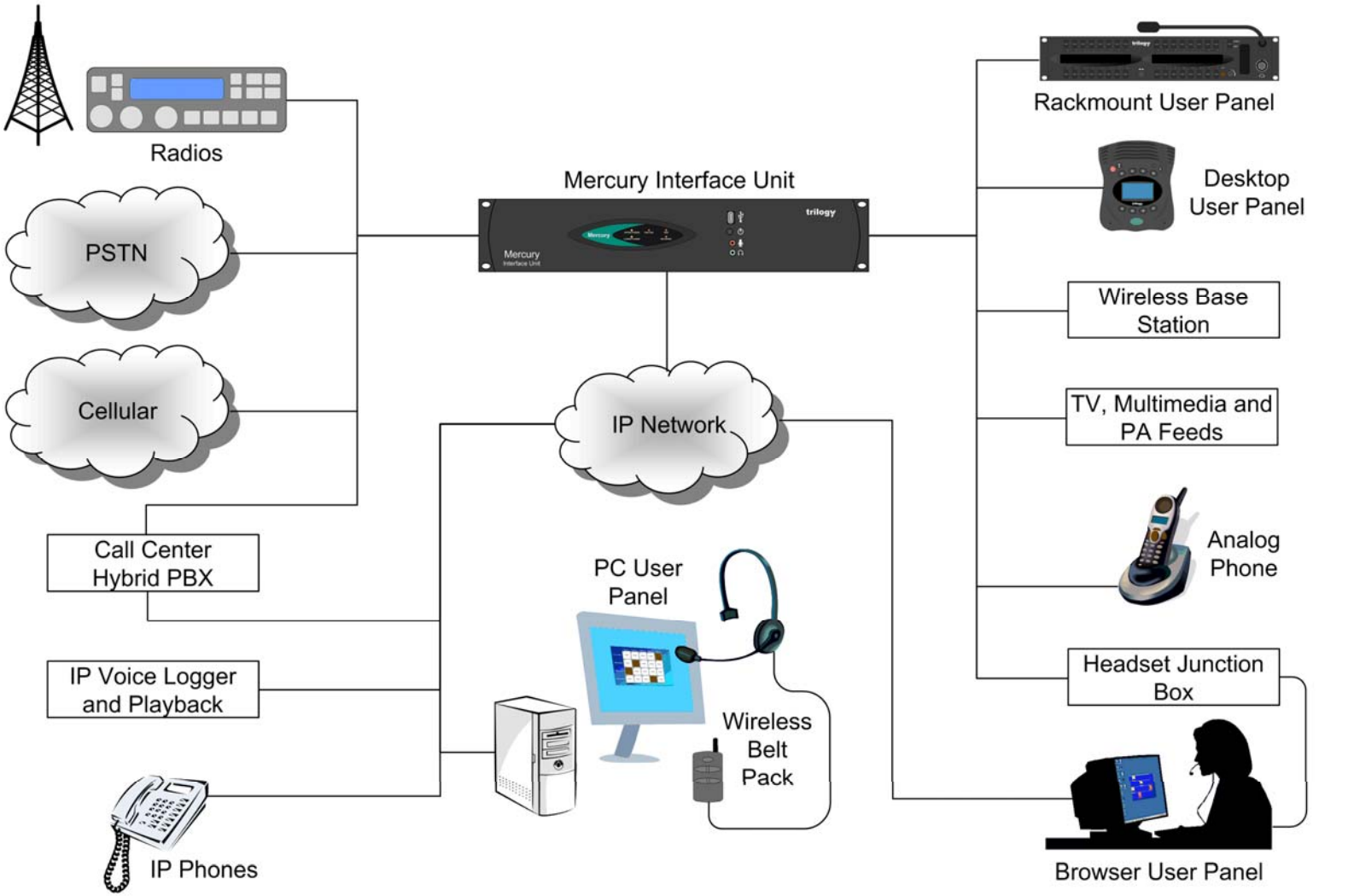


Remote user

Disparate radio systems

trilogy

Common Operating System

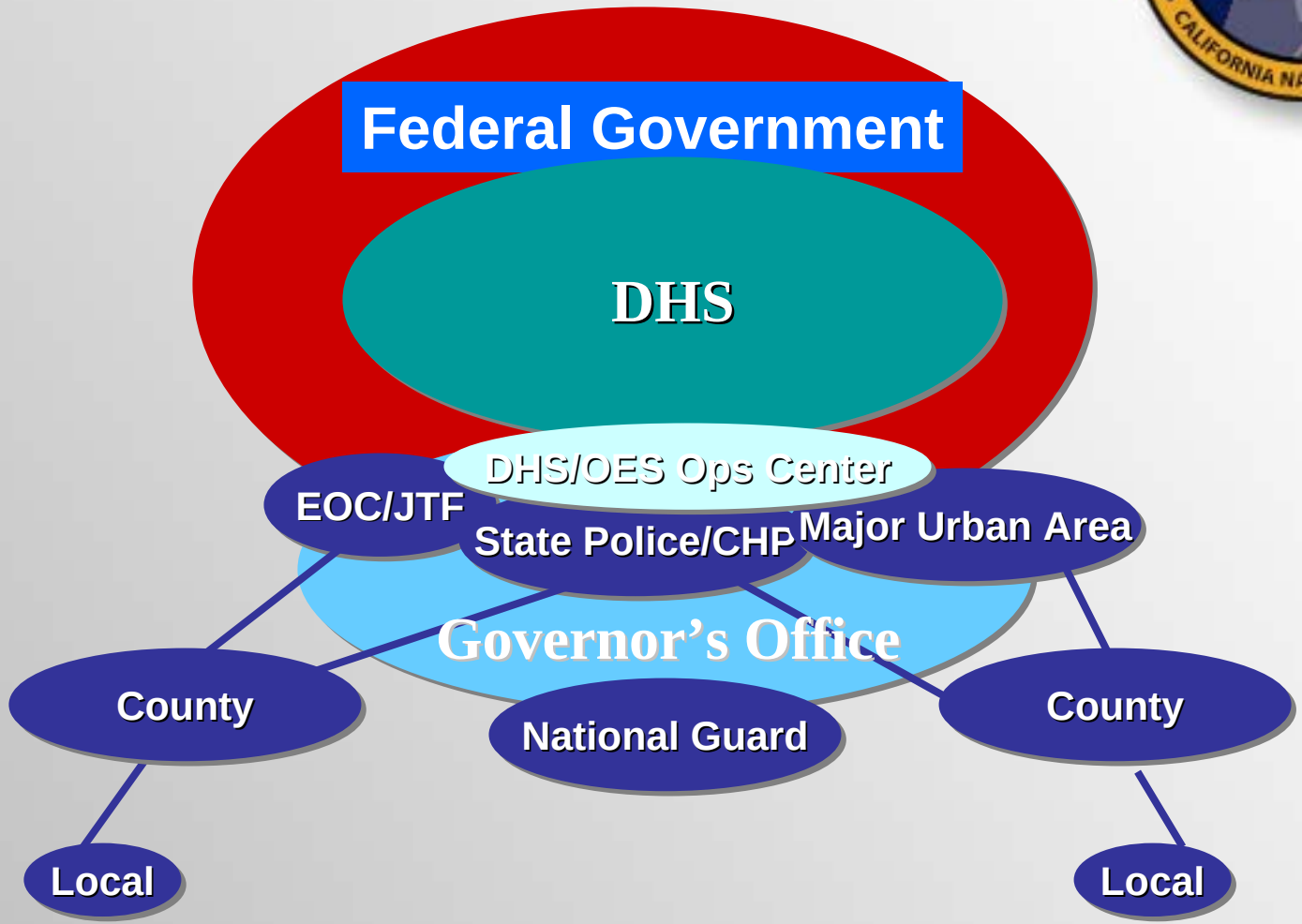


Best Practices

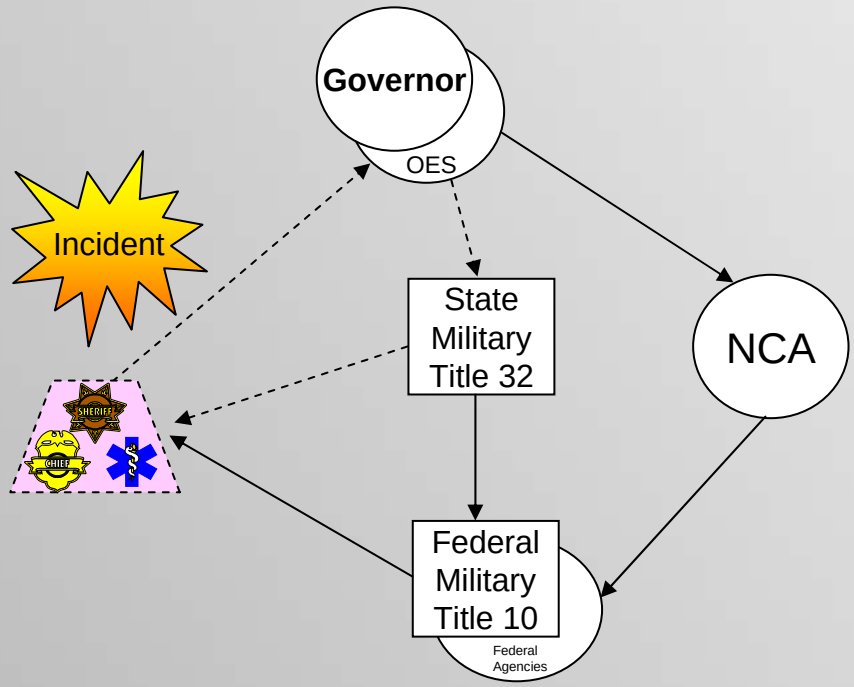
- Base Unit must be engineered to support the wide variety of equipment that is of interest to the agency.
- Equipment components should be standard COTS when ever possible.
- Vehicle: Commercial Truck or Military HUMMV – Logistical Tail must be kept to a minimum (repairs/services).
- Keep focused on the priority – Improved C2 and situational awareness.

Initial Entry Forces Framework

GUARD COMMAND ARCHITECTURE



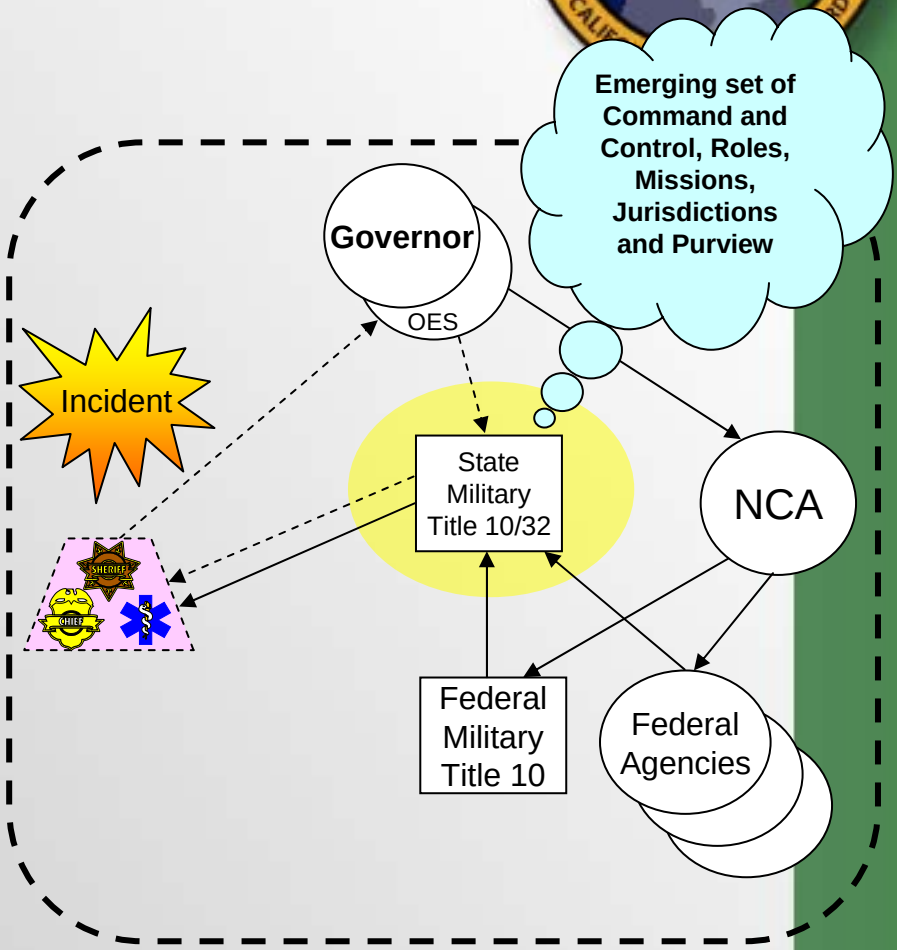
Traditional Military Support Response



State Support Process

Federal Support Process

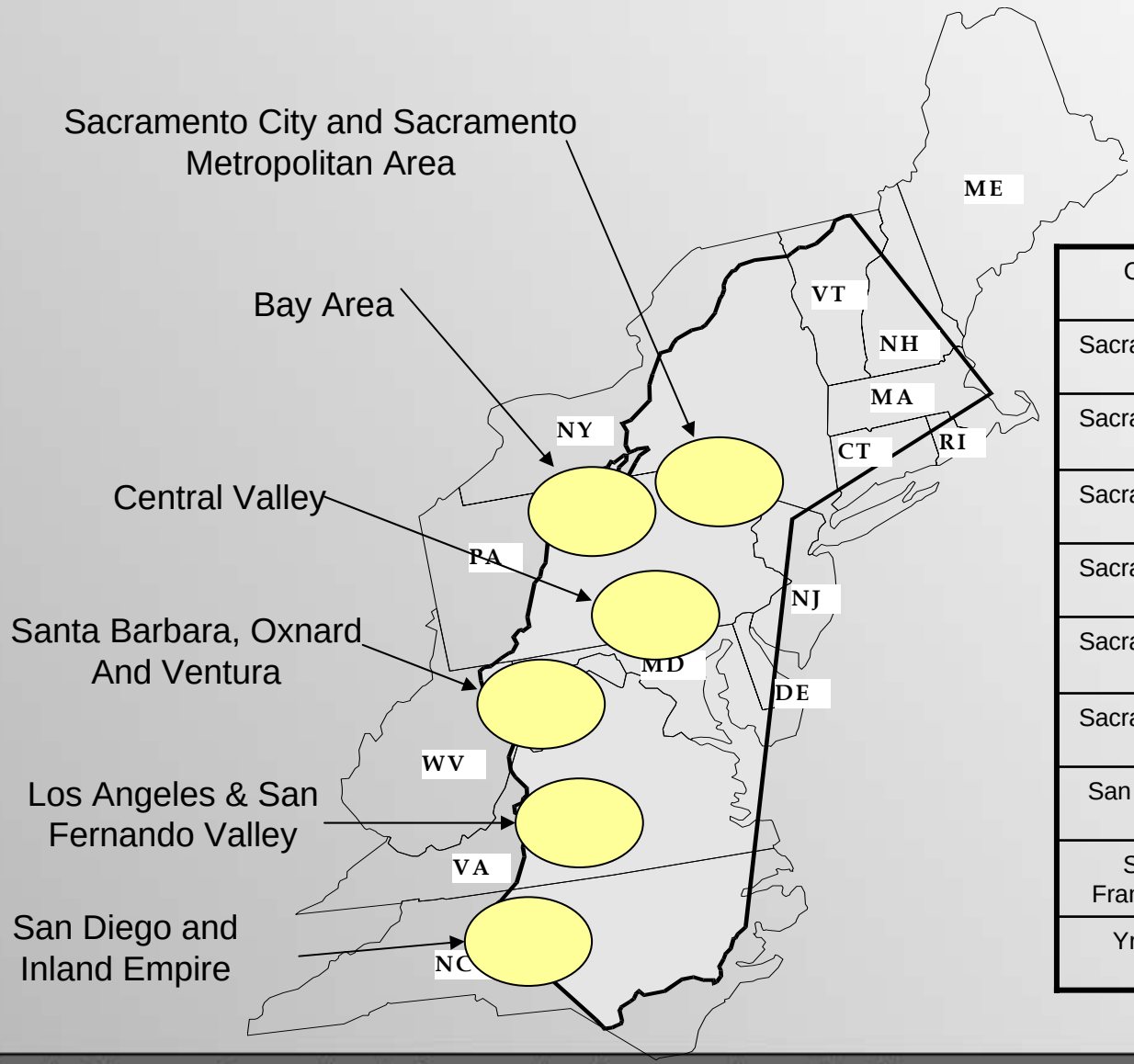
Emerging State and Federal Response (G8 Model)



State Support Process

State Response with Federal Support

Centers of Influence and Time/Distance Issue/Challenge



City	City	Miles
Sacramento	San Diego	506
Sacramento	San Francisco	87
Sacramento	Fresno	172
Sacramento	Los Angeles	386
Sacramento	Santa Barbara	393
Sacramento	Eureka	290
San Diego	Eureka	766
San Francisco	South Lake Tahoe	186
Yreka	El Centro	868

California National Guard Facilities

Army Guard has 109 Facilities
Air Guard has 10 Facilities

CNG Communication Capabilities

- Civil Support Teams:
  - 9th & 95th CST
  - Unified Command Suite
  - North and Southern CA
  - Mobile platform and self-sufficient
  - **Limited** operability with Federal, State, and Local Emergency Response Personnel
  - Complex training and equipment

- Army Guard
  - 240th Signal Bn
  - Mobile Subscriber Equipment (MSE)
    - Must connect to source (LAN/WAN or satellite) then they can provide bandwidth that supports:
      - Commercial phone lines
      - Internet
      - Voice over Internet Protocol (VoIP)
    - **No interoperability capabilities**
    - See spreadsheet attached for details

CNG Communication Capabilities

- Air Guard
  - 162nd Combat Comm
    - Five Squadrons
    - Must connect to source (LAN/WAN or satellite) then they can provide bandwidth that supports:
      - Commercial phone lines
      - Internet
      - Voice over Internet Protocol (VoIP)
    - **No interoperability capabilities ?**
    - See spreadsheet attached for details
    - INFO PENDING

- State Area Communications Network (SACNET)
  - 18 Army and 6 Air units have this capability.
    - Test conducted on 20 Oct 05: 9/18 positive communications
  - Re-establish monthly Monday morning calls
  - Prioritize and re-distribute existing capabilities
  - Upgrade all Battalion level and higher units with this capability
  - Purchase of 18 units waiting approval at DGS
  - Pending purchase of 15 remaining units with Federal funds

HF Radio Distribution Plan

Legend

- Current HF Site (Bde Hqs)
- Current HF Site (Other)
- Proposed HF Site (Bde Hqs)
- Proposed HF Site (Other)

J-3 Will Resume Conducting Monthly HF Radio Tests

Each CST Has Organic HF Radio Capability

CNG Communication Capabilities

- Multi-Purpose Distributed Learning Classrooms
  - Fourteen (14) high-tech Distributed Learning Classrooms
    - Used as an command post or operations center to support any local, regional, or statewide crisis or Homeland Security/Defense operations or training exercises.
    - Each have a minimum of twelve (12) workstations, internet, video / audio conferencing capabilities.

“Example” LMR Distribution Plan

(100 BK / 60 Datron PR 50s)

JFHQ

CERFPs – 77 Motorola Handhelds

FSIVA Tm – 4 Motorola Handhelds

JOC – 14 Motorola Handhelds

HHD – 13 Handhelds

JOC Managed DSCA Support

40 BK and 30 Datron P25 Radios Cached at Each Site

20 BK Retained at JOC

223d Inf Regt - CSLO

8 Motorola Handheld VHF

Camp Roberts

ISU - 100 Motorola Handheld VHF

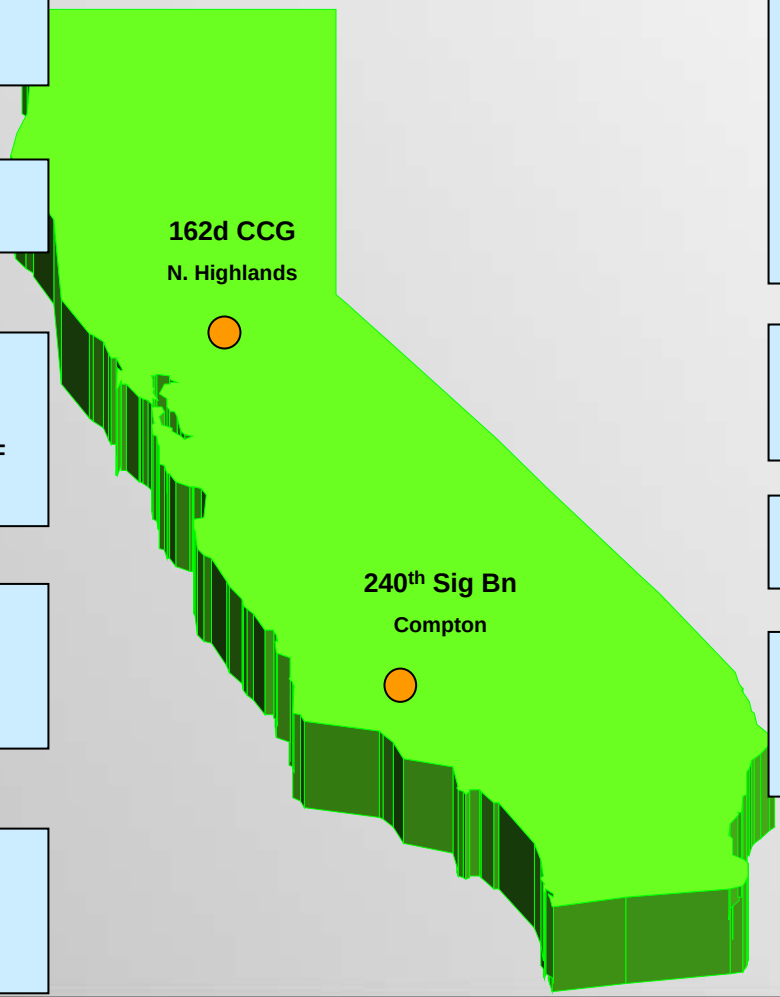
MATES - 50 Motorola Handheld VHF

AASFs

Mather - 42 Handheld VHF
Stockton - 5 Motorola UHF

JFTB Airfield Ops

116 Handheld VHF



115th ASG

HHD – 27 Handheld VHF

128th QM Co – 4 Handheld VHF

746th QM Bn – 22 Handheld VHF

185th QM Bn – 26 Handheld VHF

749th MN Bn – 8 Handheld VHF

1113th Trans Co – 4 Handheld VHF

118th MN Bn – 6 Handheld VHF

297th Spt Bn – 8 Handheld VHF

Counter-Drug TF

203 Motorola Handheld VHF

100th Troop Command (5/19th SF)

6 Motorola Handheld VHF

Civil Support Teams (Ea)

23 Motorola Handheld VHF
2 Motorola UHF

Existing O/H Radios

New DSCA Spt Radios

How to request the Guard

- OES mission
- J3 notifies appropriate Command by OPORD or Frago
- It is a PROCESS of escalation

- H + 4 - 24 hours: CST or IC4U deploys
- H + 24 - 48 hours: 240th Signal Bn deploys
- H + 48 hours: Combat Comms Unit deploys

Concept of Operations

- CA has seven (7) IC4Us each stationed strategic locations
- Units are assigned to the Northern Air Guard Command and Southern Army Command
- J6 facilitates training to designated SMR, Army and Air guard personnel who become subject matter experts: Personnel become train-the-trainer cadre

- Commands responsible for
  - Maintenance
  - Repair parts
  - Assignment of personnel
  - Exercise and training of personnel in coordination with J3
- SMR train-the-trainers are assigned to each of the 7 locations and monthly provide technical assistance and training
- J6 will push out new upgrades and equipment to commands with assistance from SMR.

IC4U Distribution Plan

IC4U	LOC	CMD
A	North Highlands	Air Guard
B	JFHQ Sacramento	Army Guard
C	Moffet Field	Air Guard
D	Fresno	Air Guard
E	Van Nuys	Air Guard
F	Compton	Army Guard
G	San Diego	Air Guard

Agenda

- Video of Hero's
- Challenge of Command and Control (C2)
- Background
- IC4U Overview
- Best Practices
- Hands on 15 – 20 min
- (12:50) Video of IC4U in action

IC4U POC's

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