Interoperable Communications

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Interoperable Communications

- **Interoperable Communications is:**

The ability of first responders to talk across disciplines and jurisdictions via radio communications systems, exchanging voice and/or data with one another on demand, in real time, when needed, and as authorized.

- **Interoperable Communications is *not*:**

Everybody on the same channel…

Interoperable Communications

Interoperability Continuum
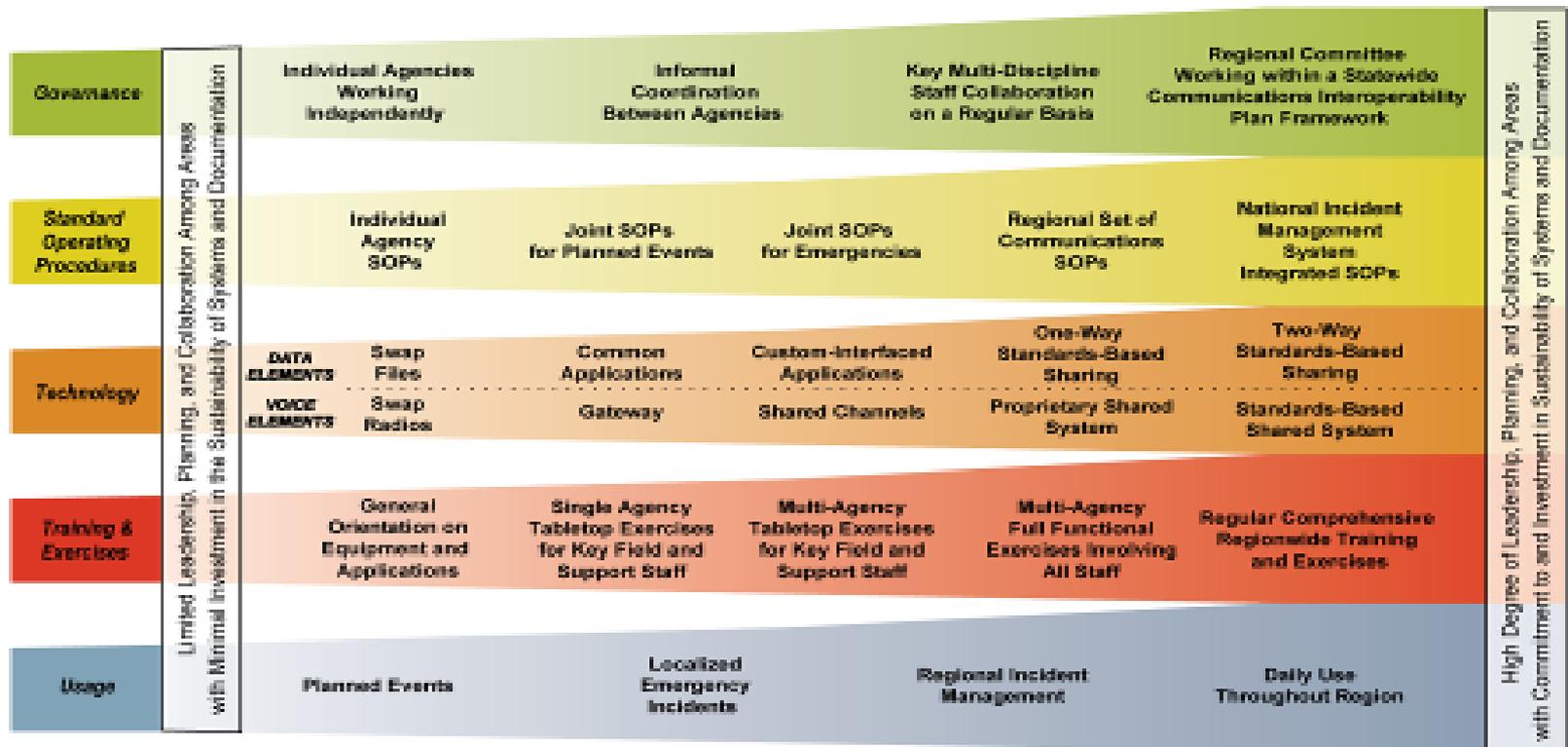
Interoperable Communications

- *A <u>system of systems</u> exists when a group of independently operating systems - comprised of people, technology and organizations - are connected, enabling emergency responders to effectively support day-to-day operations, planned events, or major incidents.*

Interoperable Communications

- **Colorado's plan is a "system of systems".**
  This is necessary because of the varied systems
  in use across the state:
  - Digital Trunked Radio (DTR) in state areas.
  - Harris EDACS radio systems in Denver, Aurora, Lakewood, Westminster, Wheat Ridge Arvada, DIA.
  - VHF/UHF systems at various FDs/PDs in smaller communities.

Interoperable Communications

Some system statistics: 88,500+ radios, 1,325+ agencies.

- **DTR System**
  - 65,000+ radios, consoles, handheld.
  - 1,000+ agencies – Local, State, Federal,
    Military, transportation, utilities.
- **Harris EDACS Systems**
  - 23,500+ radios, consoles, handheld.
  - 250+ agencies – Local, city/county.
- **Local Systems**
  - (est.) 3,000+ radios, 75-100 agencies.

Interoperable Communications

- ***How do you make systems interoperable?***

  - Swap radios.

  - Gateways (interconnections) ICRI, ACU-1000, etc.

  - Shared channels (same system).

  - Proprietary or Standards based systems.

  - Establish full "links" to other systems:

    NetworkFirst to link DTR to EDACS.

    (ISSI to provide full roaming on DTR - future)

  In Colorado, we use all the above methods.

Interoperable Communications

The Digital Trunked Radio System (DTR) is comprised of multiple repeater sites (towers) networked together to form a wide area coverage communications system.

- **FIELD UNITS** INCLUDE MOBILES, PORTABLES AND CONTROL STATIONS

- MUST MEET APCO P25 <u>TRUNKING</u> STANDARDS & MULTI-ZONE ROAMING

- PREFERRED RADIO IS CAPABLE OF 700/800 MHZ OPERATION

- ANALOG CONVENTIONAL OPERATION ON ITAC MUTUAL AID CHANNELS

- MULTIPLE MANUFACTURES FOR RADIOS, CURRENTLY MOTOROLA, EF JOHNSON, KENWOOD, AND TAIT RADIOS ON SYSTEM. HARRIS (EDACS) HAS ANNOUNCED P25 TRUNKING COMPLIANT RADIOS.
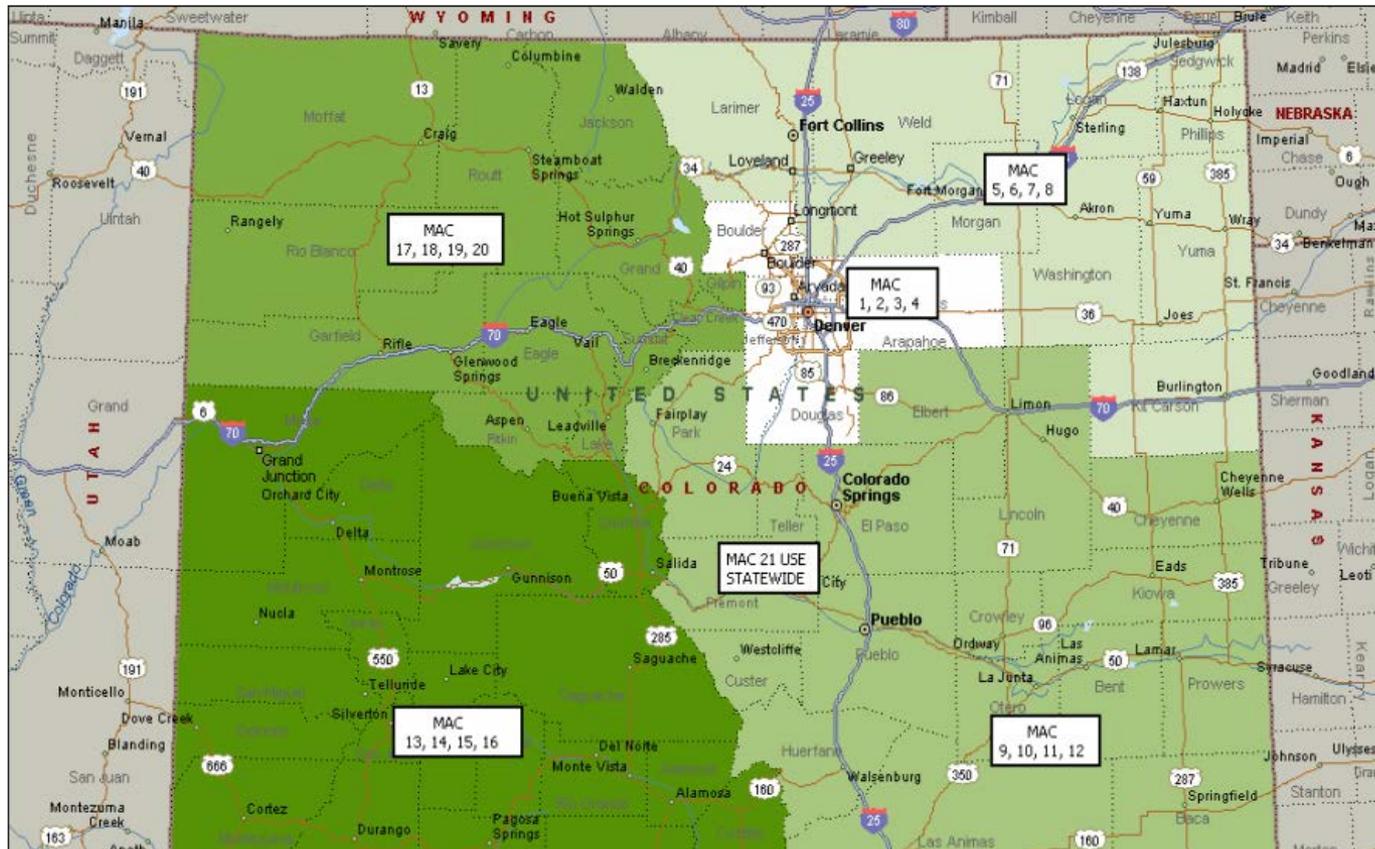
Interoperable Communications

THE DTR SYSTEM IS SIMILAR TO A CELL PHONE SYSTEM

- FIELD UNITS TALK INTO A SITE
- SITES ARE NETWORKED INTO A ZONE
- ZONES ARE NETWORKED INTO THE SYSTEM

MULTIPLE ZONE CONTROLLERS CAN BE NETWORKED TOGETHER INTO A MULTI-ZONE **SYSTEM** TO EXPAND THE NUMBER OF TOWERS AND INCREASE COVERAGE. FIELD UNITS CAN TALK TO EACH OTHER THROUGHOUT THE SYSTEM

Interoperable Communications

DIGITAL TRUNKED RADIO SYSTEM

MUTUAL AID CHANNEL REGIONS

Interoperable Communications

- **Interoperable Communications issues:**
  - *Training* – personnel turnover, lack of opportunities.
  - *Equipment* – upgrades, budgets, failures/maintenance.
  - *Exercises* – competing activities, "real-life", budgets.