EMWIN-Denver Overview

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NOTE: These slides were modified from an April 27, 2004 presentation by Santos Rodriguez, NWS EMWIN

Ref. http://www.nws.noaa.gov/emwin/post-user-conference.htm

What is EMWIN?

- The Emergency Managers Weather Information Network is a wireless, priority-driven computer weather data broadcast system that takes advantage of minimal wireless bandwidth.
- EMWIN provides rapid Satellite, VHF Radio, and Internet dissemination of:
- Alerts / Warnings < 1 minute
- Forecasts ~ 2-5 minutes
- Graphics ~ 10-15 minutes
- Imagery ~ 10-15 minutes
- Other (as time permits)

How it works

Data are collected from a variety of sources:

1. Gateway
2. Weather Wire
3. FTP
4. Internet

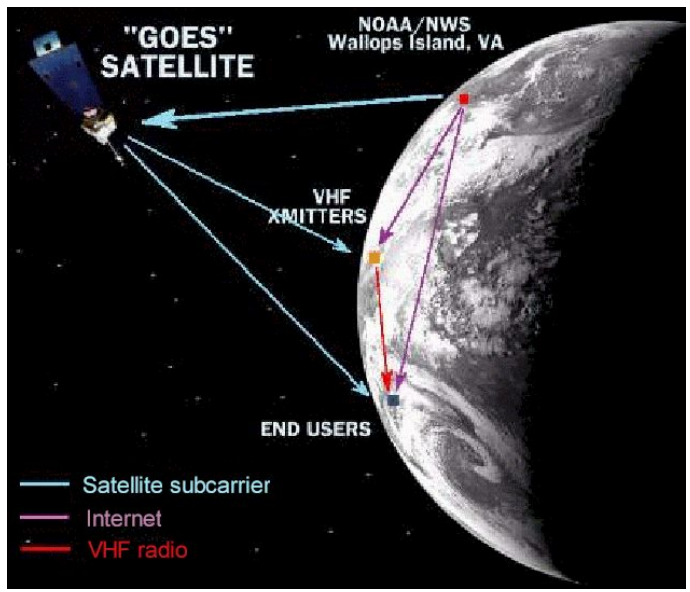
They are assembled at the EMWIN servers and:

1. Prioritized into high/mid/low priority products
2. Split into 1k packets
3. Assembled into a 9.6kbs serial datastream

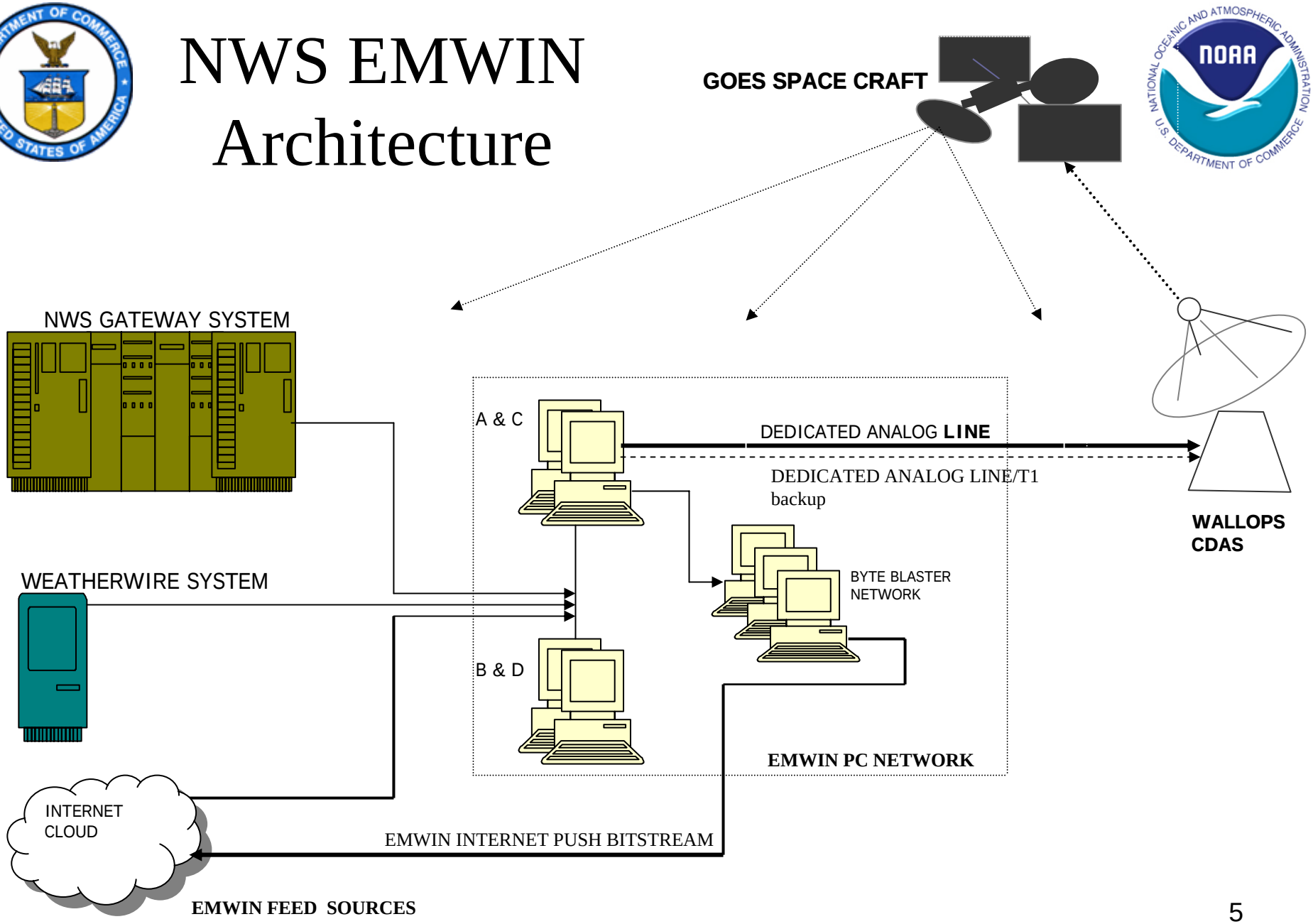
How it works cont.

- The data stream is then sent to Wallops Command and Data Acquisition Station (WCDAS), NESDIS where it is uplinked to satellites (GOES 12 and GOES 10)

- EMWIN products can be retransmitted by other methods
  - Transmitted via radio frequency (local re-broadcast)
  - Sent on the Internet (Byte Blaster)



NWS EMWIN Architecture



EMWIN Users

- National Weather Service Forecast Offices and Warning Coordination Meteorologists (WCM's)

- WCM's use EMWIN as a tool to promote the NWS to the public and for training Skywarn members, storm spotters and local and national emergency managers

- Schools , amateur meteorologists, hobbyists of all ages, storm spotters, storm chasers, Skywarn Network

EMWIN Users cont.

- Many TV Stations in the mid-west, especially tornado alley
- Police Stations, Fire Stations, Emergency Operation Centers, Emergency response personnel
- Re-broadcasters, paging networks
- Internet users via Byte Blaster network
- Weather Channel
- U.S. Air Force uses in remote areas

EMWIN Users in Houston, Texas

- Harris County Government Offices
- Galveston and Fort Bend County EOCs
- City Government Offices
- Harris County Sheriff and Constable Patrol Vehicles
- Refineries and Manufacturing Plants
- Lifeflight Dispatcher
- Six Flags Astroworld
- Skywarn Volunteers
- PBS Stations
- Independent School Districts

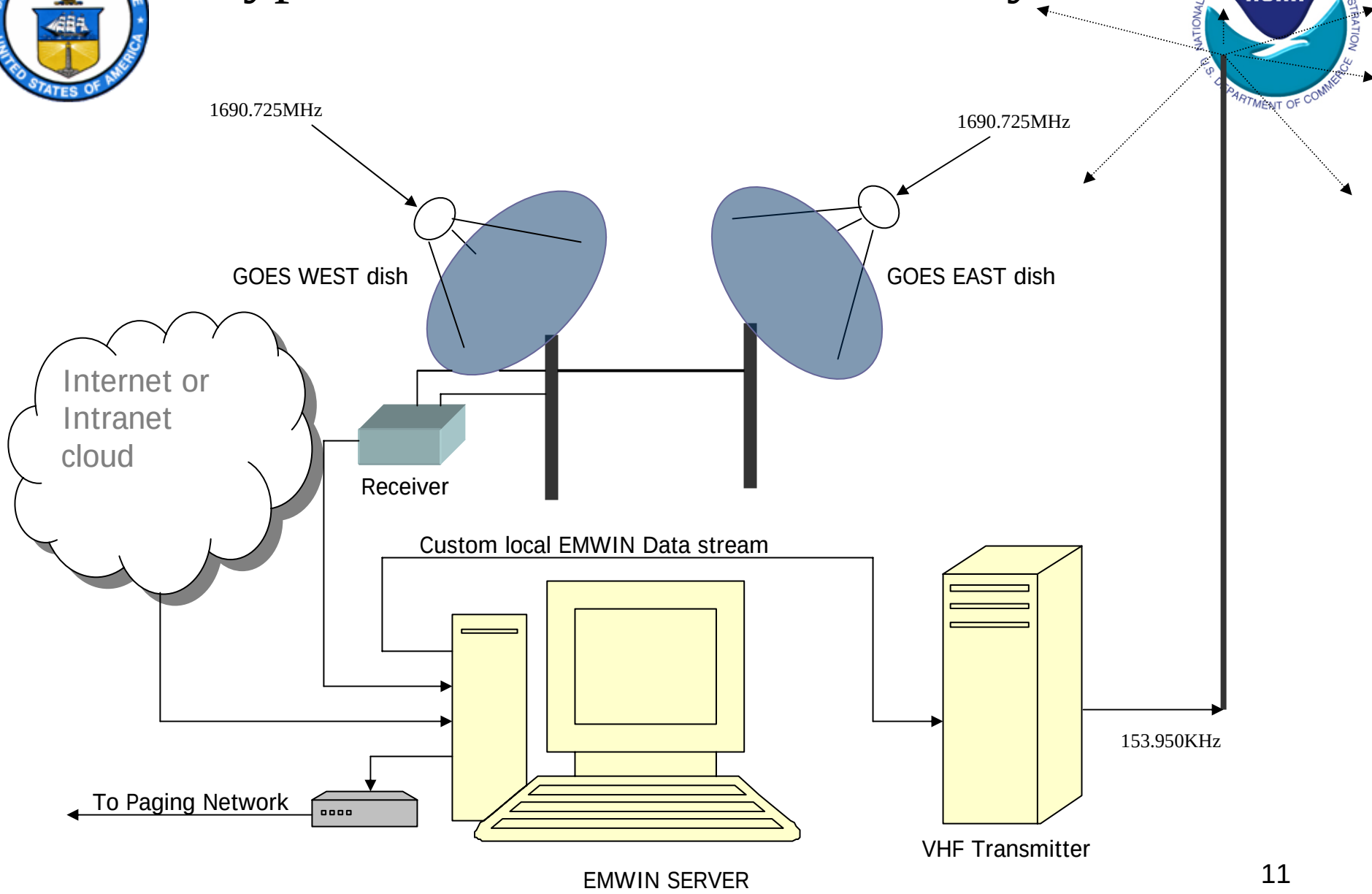
EMWIN Non-Weather Examples (Civil Emergency Messages)

- EOC activations
- Media alerts
- School closings
- Air quality warnings
- Road closures
- Amber alerts

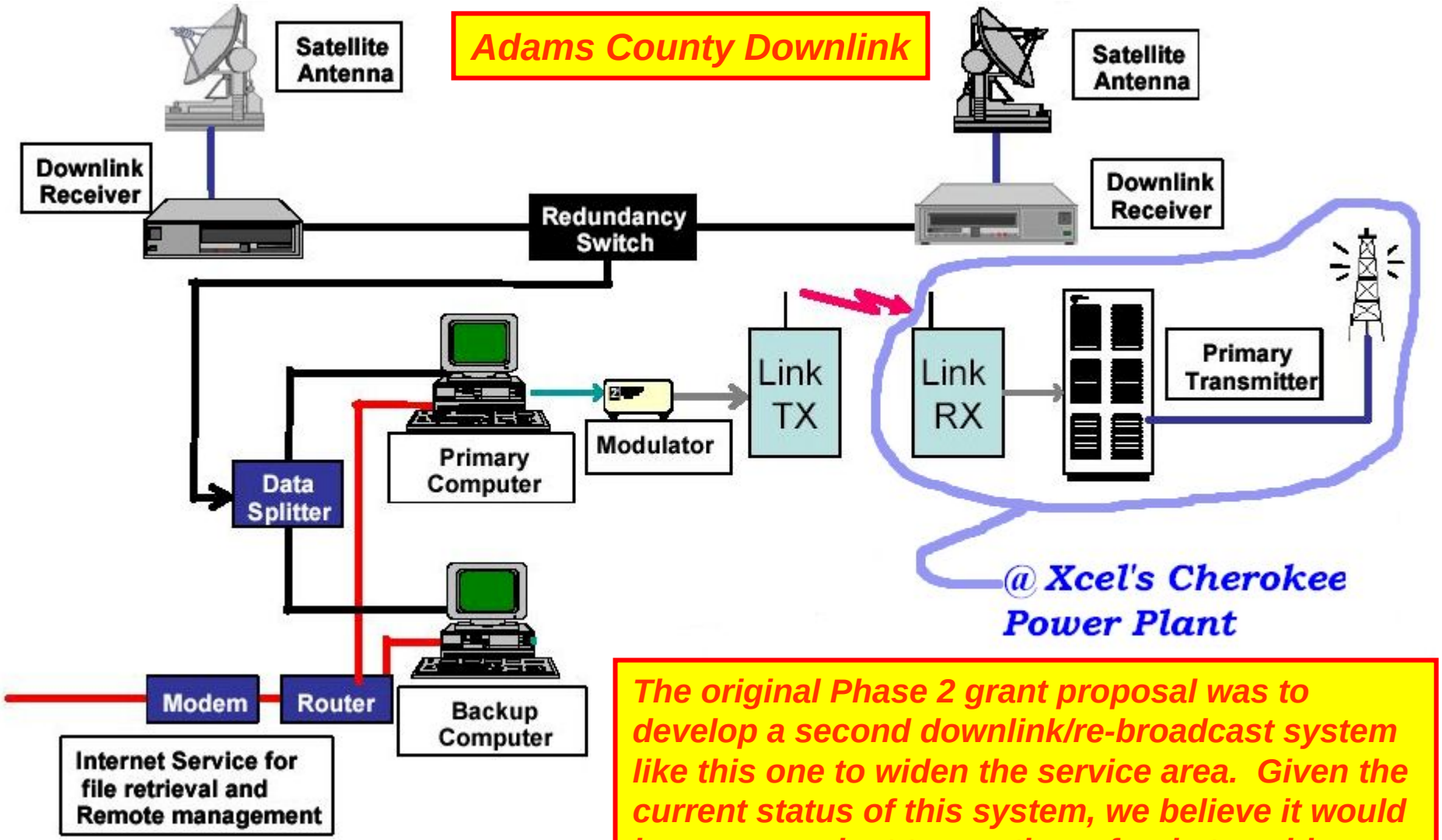
VHF Re-transmission

- The EMWIN signal is re-transmitted locally using NWS or National Guard VHF frequencies
- Re-broadcasters can filter the national data stream and insert local emergency data or relay it in its' entirety
- Texas counties use EMWIN in police cars
- Florida's network uses heavy filtering and retransmits the data statewide—a very effective network used by Emergency Managers throughout the state.

Typical VHF Re-transmission System

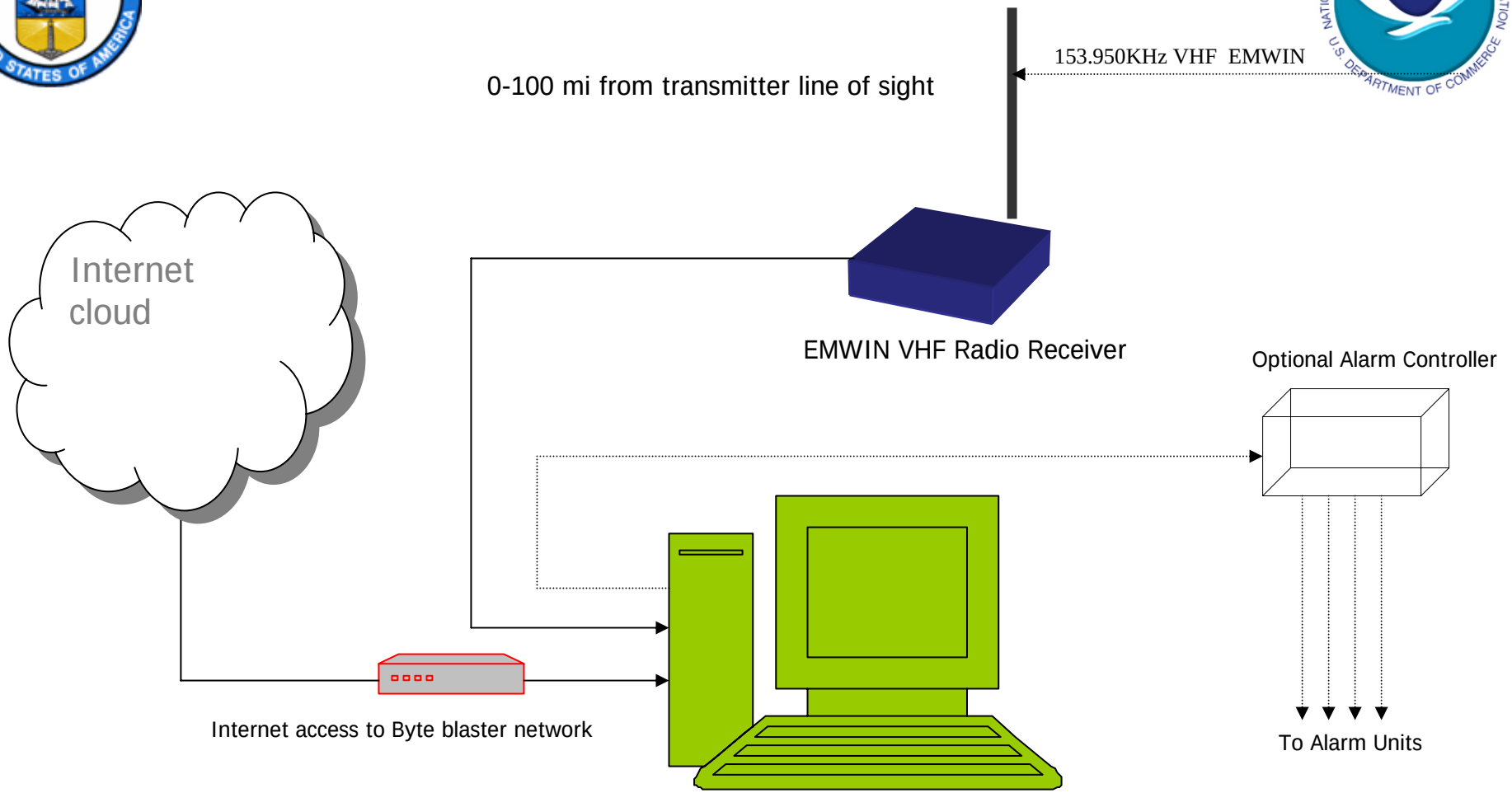


2006 EMWIN-Denver Re-transmission System



The original Phase 2 grant proposal was to develop a second downlink/re-broadcast system like this one to widen the service area. Given the current status of this system, we believe it would be more prudent to use these funds to achieve widespread use of the existing system before expanding VHF radio coverage.

Typical Radio Re-broadcast User



Phase 1 DHS grant funds were used to acquire and distribute 31 units. Phase 2 modified proposal is designed to achieve maximum use of these units.

Why EMWIN makes sense

- Equipment is inexpensive.
- System needs minimal infrastructure and therefore, annual maintenance costs are low.
- EMWIN can run on a laptop.
- User equipment is relatively compact and very rugged.
- The data stream is free, repeatable and can be customized for local retransmission.
- EMWIN is non-proprietary.
- Multiple inexpensive software display packages are available.
- A large and knowledgeable user community exists to help monitor performance and answer questions.
- Provides low cost alternative means for interoperable communications between jurisdictions.