

The Utah Communications Agency Network

Established 1997

What is UCAN

- State, Local and some Federal Government Partners in a Public Safety Communications System
- Managed by a Quasi-state Agency formed by the Legislature: Utah Code 63C-7-107
- We have shared governance with user input
- We make decisions—with Board Approval
- Planned growth, management, expansion
- Set Policies and Procedures—established by users

History and Background

- Governor TF 1993
- Build 800Mhz system
- Legislative Bill 96 & 97 passed in 1997
- Agency Input !!!
- Management Board
- RFP Process
- Promote with Users
- First Staff 1999
- Contract for System construction
- 36 Months to Build
- 43 UCAN/20 Olympic sites
- 22 E-9-1-1 Centers interconnected
- 95% In-building Portable

1994 Task Force Findings

- 200 Separate Radio Systems
- 4 Different Frequency Bands
- 25 Year Old Technology
- Various Levels of Management & Maintenance
- System Reliability Questionable
- Heavy Channel Loading
- No New Channels—Refarming close at hand
- Site Interference Issues
- Little Interoperability between systems

Task Force Recommendations

- Upgrade the Radio System using 800 MHz Technology
- Migrate all users to a common band
- Utilize Trunking Technology
- Plan for future Mobile Data Technology
- Investigate possible Commercial Services
- Formulate a “Cooperative” Approach
- Phased approach—start with Urban and Migrate to Rural
- Educate the users with a video and seminars
- Develop a Maintenance and Training Plan

Original Costs—Statewide system

• Radio Equipment	28.5	to	30.9
• Microwave Equipment	27.0	to	32.4
• Consoles	3.3	to	4.0
• Site Development	22.6	to	28.4
• Misc	17.6	to	21.4
• Contingency	14.5	to	17.6
• Radio	111.0	to	134.9
• Data Equipment	17.3	to	20.8
• Misc and Contingency	7.6	to	9.3
• Total	136.3	to	165.2 Million

Actual Cost for 10 Counties: 35 Million for infrastructure

25 Million for User Devices

Challenges to Meet

- Turf Issues, Wait and See, What are the costs?
- Shared Vision: What will it look like?
- Timing: How to build and provide service at the same time
- Technology Obsolescence: build or wait
- How to Communicate with those who don't participate—interoperability
- Enough Capacity for those who come after?

Funding Options

- 911 Surcharge
- Add to the Bonding cost of Highways
- Fee on Registrations
- Cost Recovery: per unit per month
- State Pay for all
- Federal Grants
- Contributions by Agencies in kind

UCAN Funding--Actual

- Bonded for the infrastructure/ collect a user fee
- Several Federal Grants—Purchased Equipment added for support Of the 2002 Winter Olympics
- Olympic Equipment procured under contract with the Defense Department
- Operational costs 3.8 M annually at current system size
- We have added several sites for better coverage
- We are using the Olympic equipment to build out the network
- OMNILINK and 4.1 System Upgrade 3 zones done
- Traded contributions with users

System Status Today

- Sites: Simulcast, IR = 58
- 26 Stand-alone Repeater Sites
- Repeaters in Service 419— using 200 plus frequencies
- Users on the system 15,545
- Coverage: 11 Counties/85% of the Population of Utah
- Merger completed with Salt Lake County System
- Mixed Mode Backbone—Analog and Digital
- 95% in building with a Portable Coverage
- 22 Dispatch Centers using 800 MHz

Radio System Call Volumes/Olympics

- Call Volumes: (includes PS and Venue Calls/17 days)
- Highest Day total Calls (24 Hours) 580,000
- Average Day total Calls 503,974
- Total SLOC Venue Calls 2,823,290
- Total PS Calls 5,744,281

- Total System Calls Processed 8,567,571
- Total busies 38,595
- Percent busies (1 second or less) ½ of 1%

Radio System Call Volumes/Paralympics

- Call Volumes (includes PS and Venues 9 days)
- Highest Day Total Calls (24 hours) 212,500
- Average Day total Calls 179,000
- Total SLOC Venue Calls 240,000

- Total PS Calls 1,750,300
- Total Busies (1 Sec or less) 479
- Percent Busies 2/1000 of 1%

Radio System Call Statistics after the games

- Average calls for 7 days 239,000
- Highest call level (24 hrs) 300,000
- Lowest Call Level (24hrs) 91,000
- System busies Average 100 or less

Lessons Learned

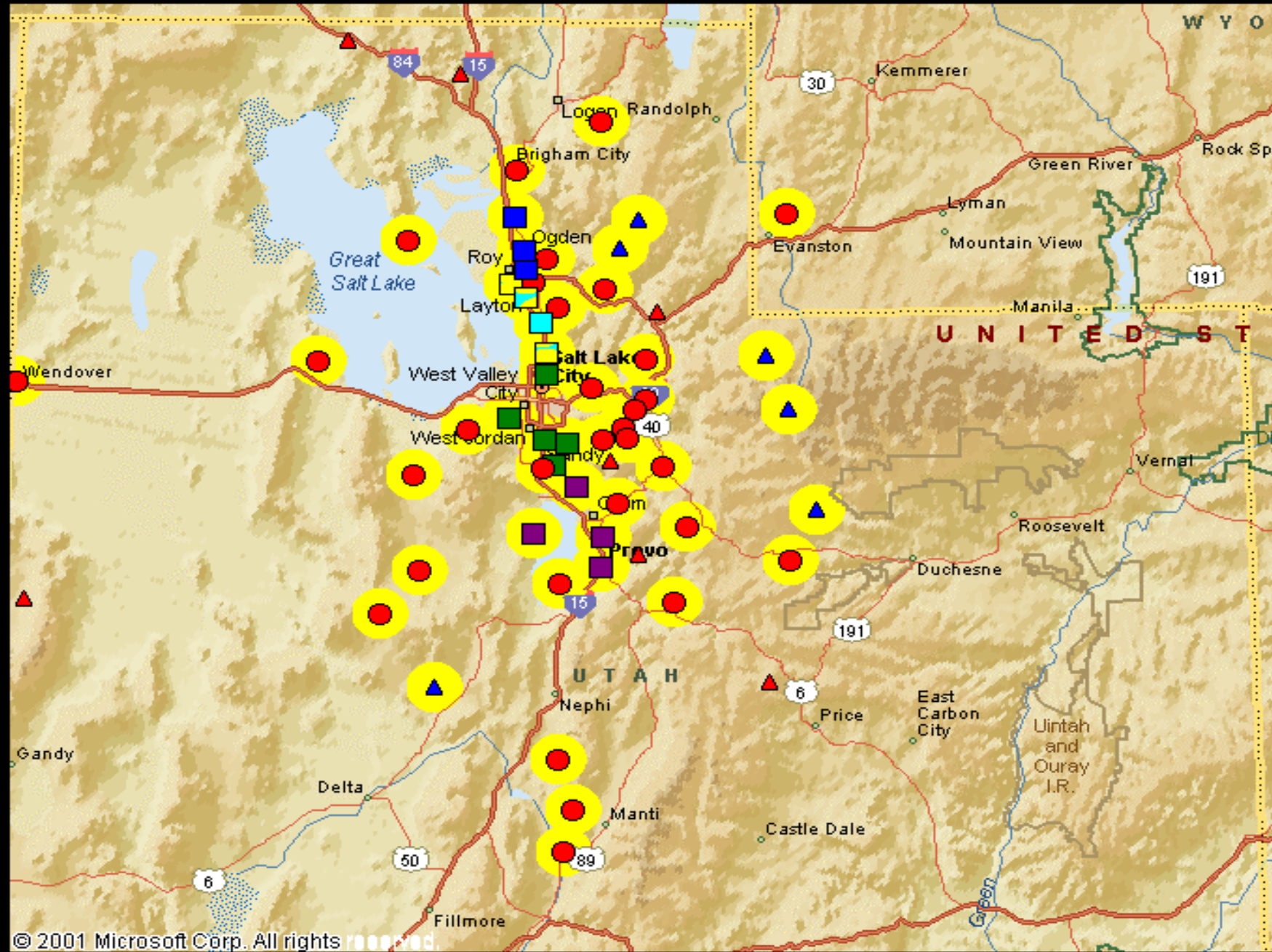
- The hard work and planning paid dividends
- Site preparation, Back-up power, generators and UPS were worth the expense
- The coverage was equal to the design
- The BIM to BIM patches provided the interconnect between agencies and Federal Govt. on other systems
- Manage the Talk groups to distribute system loading
- This system will handle large scale events—sometimes the people can't remember how to use it

Lessons Cont'd

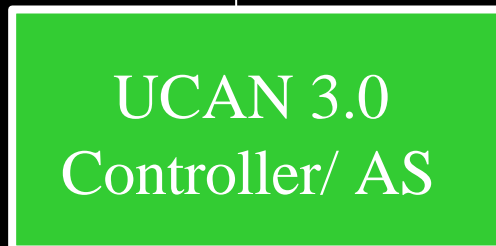
- Event Channels provided necessary agency interoperability
- UCAN was surprised all radios did not have interoperability channels
- ON GOING TRAINING is a MUST
- System watch, alarms were vital to system management
- UCAN provided not only “outside the fence but inside the fence communications”

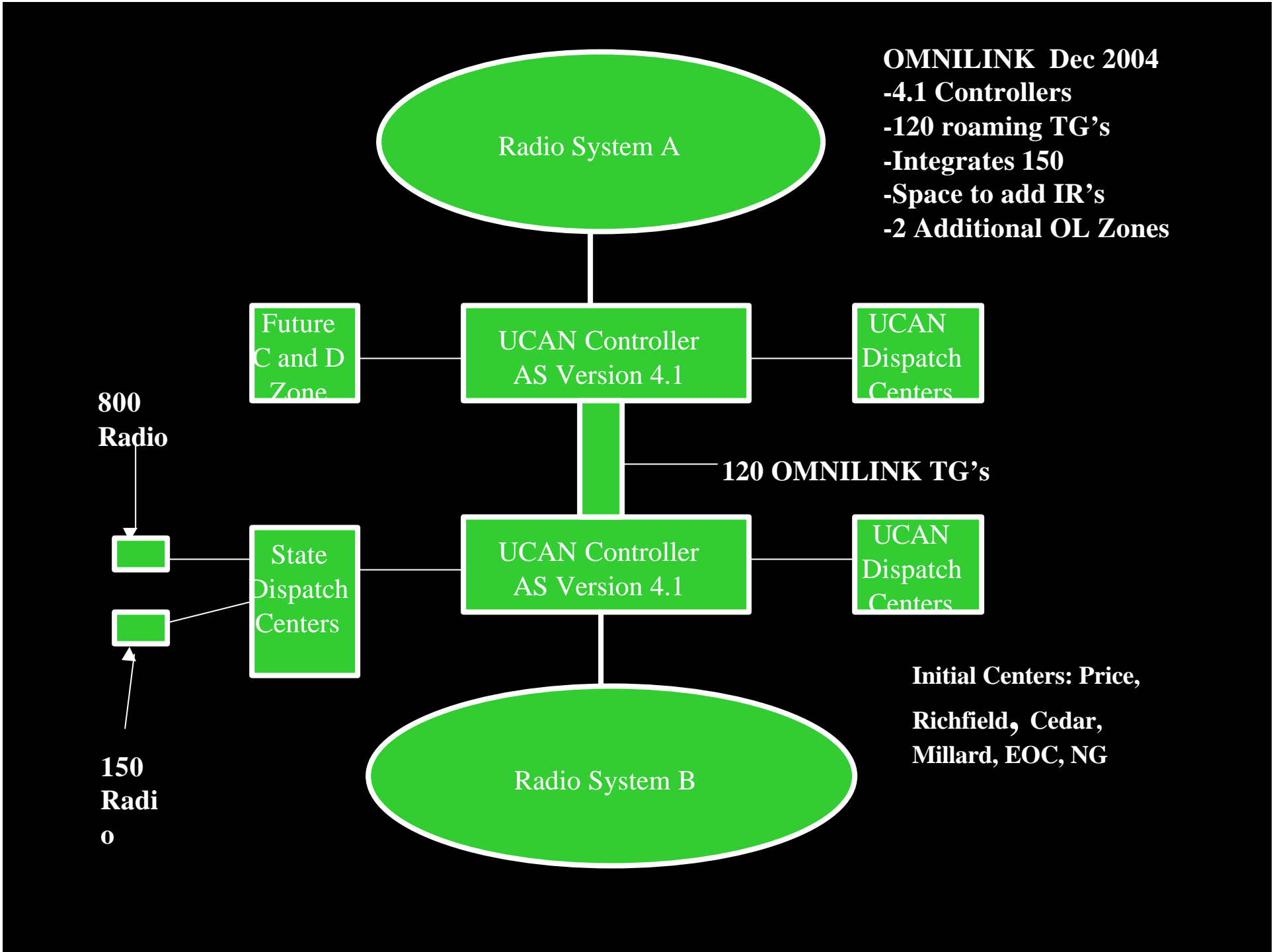
Interoperability

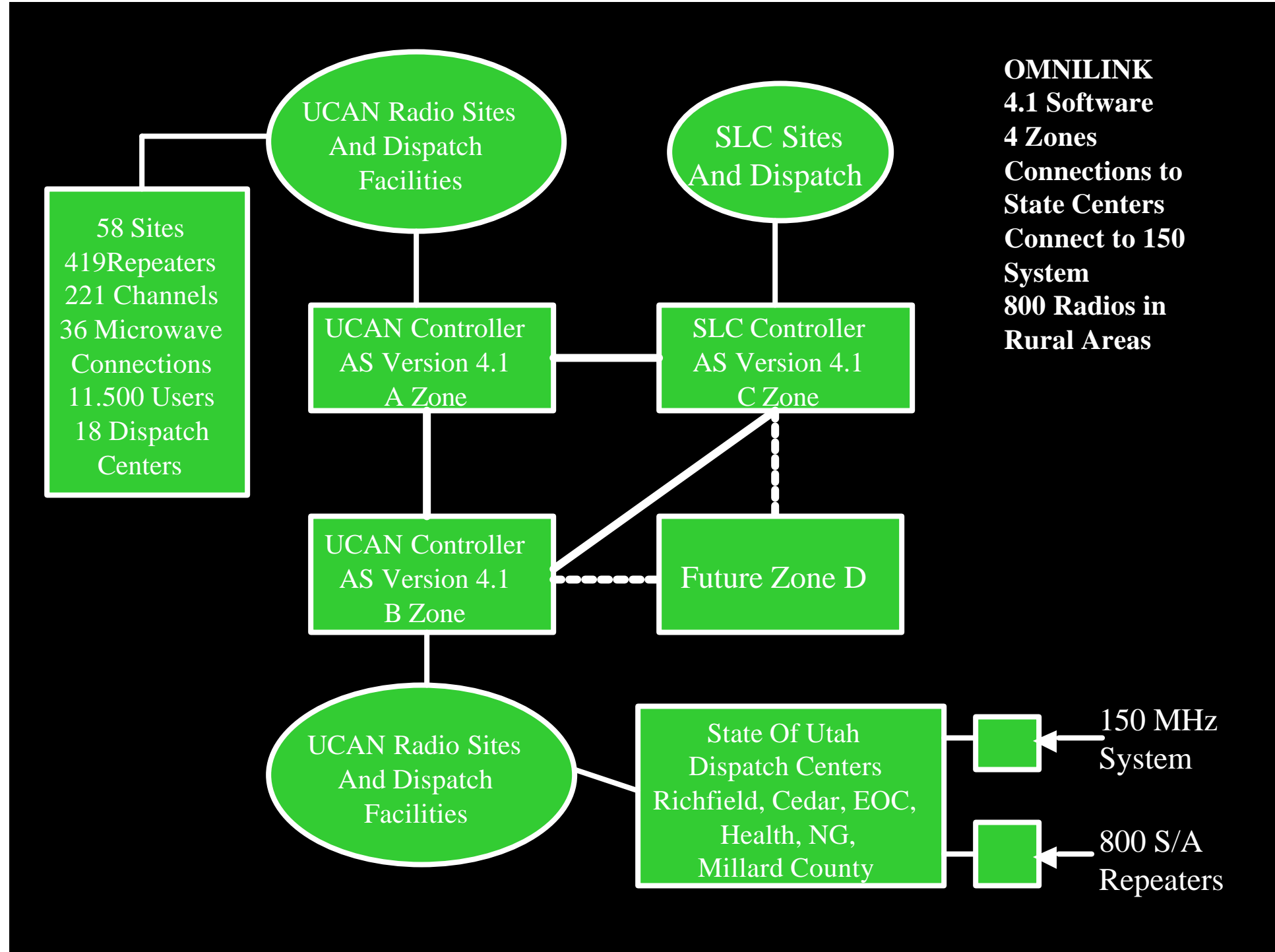
- System to System patch thru consoles
- Console to Console patch: FED/State/Local Interoperability
- Unit to Unit Simplex—State and National
- Stand-alone Repeaters
- Operations TG's--Trunked
- Regional TG's--Trunked (county wide)
- Events TG's--Trunked (system wide)
- OMNILINK to Regional 150 Dispatch Centers

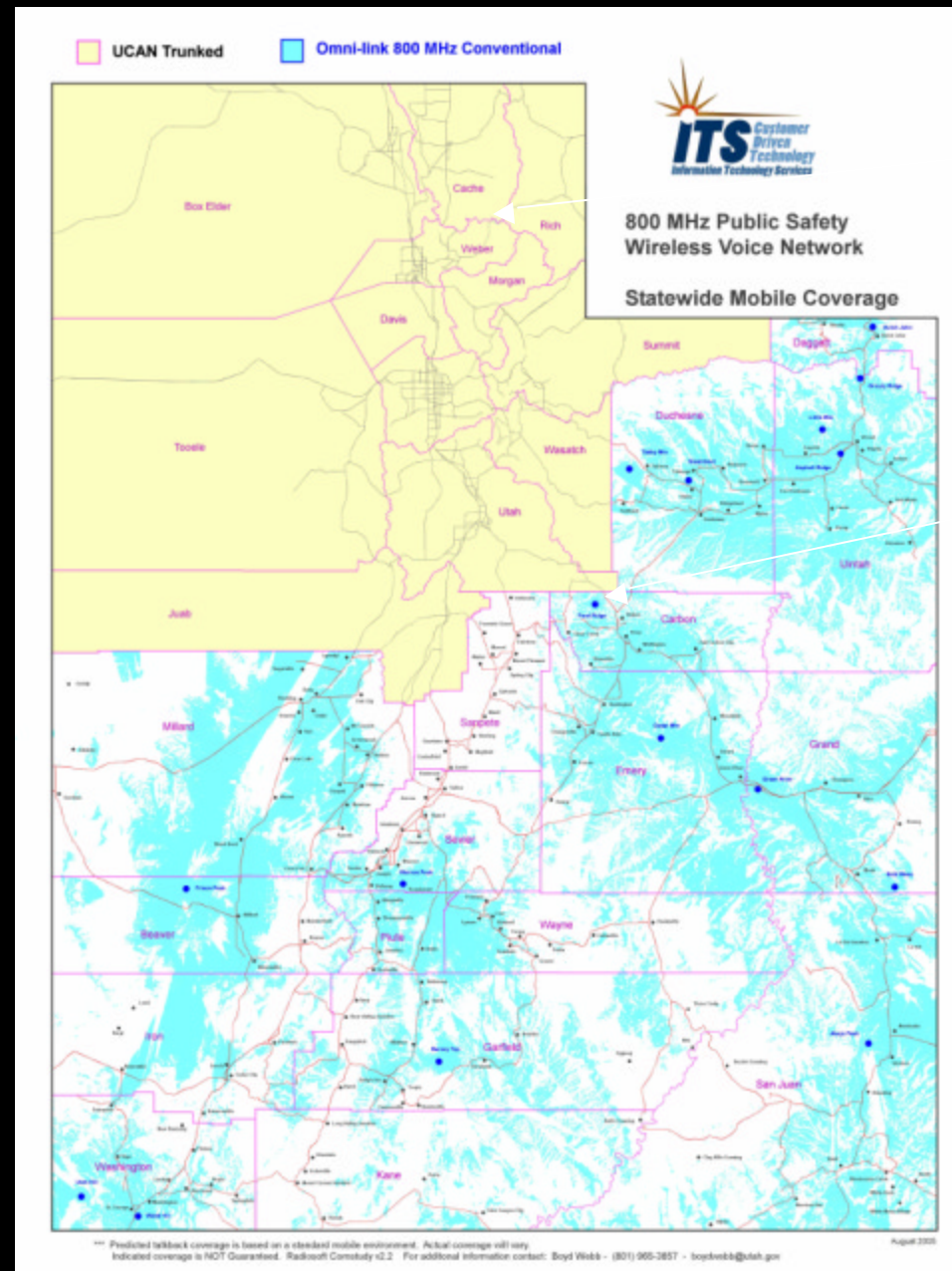


UCAN System
Configuration
1999-2004







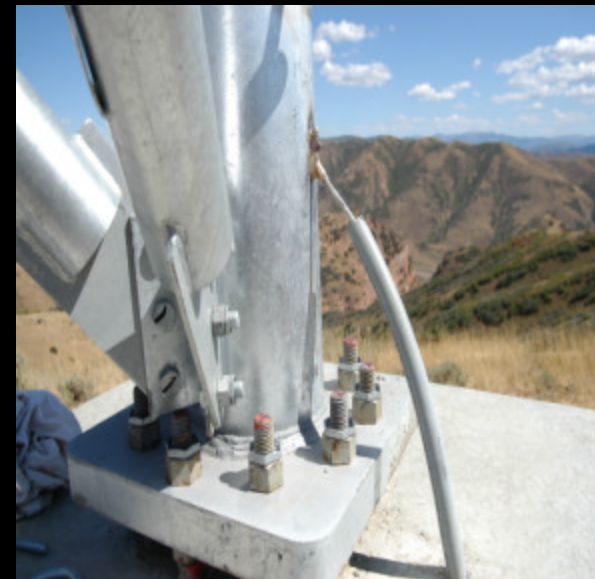
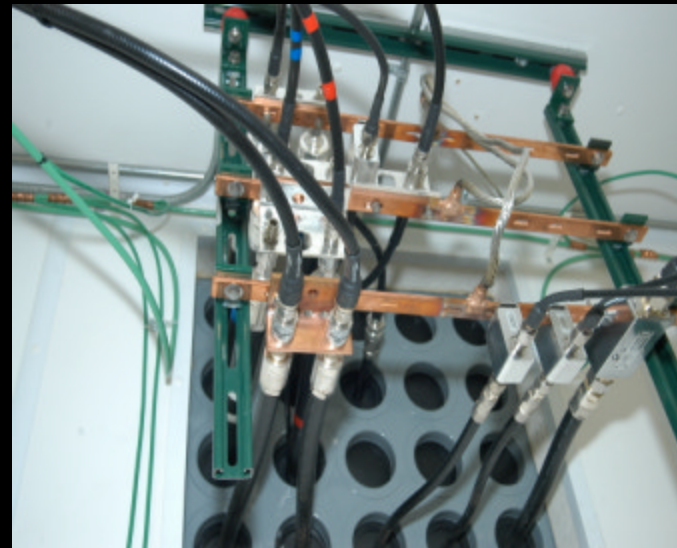


800 MHz Trunked Coverage

800 MHz Stand-Alone Repeaters









Site Costs

Building 70K

Tower 60K

Generator 15K

Microwave 80K/hop

Construction 165K

UPS 10K

800 Rptrs 250K

Site Cost \$730K



Other Considerations

- Have a good Accountant/Financial Planner
- Have a good Lawyer
- Develop good contractual arrangements
- Be Creative
- Be proactive
- Be innovative
- Sometimes you have to trust your gut
- Never give up

Comments from Users

- “I love this system—I can talk from Summit County to Tooele County”—EMS regional Coordinator
- “The regional Talk Groups and the ability to talk interagency is excellent”—UHP Sergeant
- “The portable coverage is tremendous”—UHP Captain
- “I can talk to my troops from my office on a portable and monitor activities”—UHP Lt.
- “We had some busies—but usually only for one second and then you were into the system (500,000 calls that day)” –Traffic officer at Opening Ceremonies
- “The system talks well in our county” Sheriff’s officer Utah County
- “They are to be commended, the system is awesome”—Mike Moffat Gold Cross
- “THANKS FOR THE GREAT SYSTEM” Fire Chief Steve Foote

Questions ??