



Agenda

- I. Welcome and desired outcomes for today's webinar
- II. Telecommunications/Technology Primer re: 2-1-1
- III. Translations for Landlines, Wireless and Emerging Technologies
- IV. Routing Solutions
- V. List for every 2-1-1 System/Center
- VI. Q & A
- VII. Conclusion



2-1-1 Translations and Technology: What every 2-1-1 System/Center Manager needs to know in an ever-changing environment

Aligning Local United Ways on National Initiatives
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Desired Outcomes

- Participants understand how technology requires 2-1-1s to work as a system, not just call center “silos”
- Participants understand how 2-1-1 system design affects telecommunications and technology
- Participants understand the basics of 2-1-1 translations and various routing solutions
 - Getting the 2-1-1 call to the Center
 - Handling 2-1-1 calls once at the Center
 - Managing options within the Center/System
- Participants understand the importance of documentation from a Risk Management perspective



2-1-1: System vs. Call Center

A 2-1-1 Service (or Call Center) is the operational base for delivery of information & referral services, resource data coordination, outreach, and other direct activities

A 2-1-1 System consists of multiple components required for comprehensive, coordinated, sustainable & quality 2-1-1 coverage of a broad region (e.g., multi-county, state, country)



What happens when....

- *You dial 2-1-1 and hear “dead air” or a “not-in-service” message?*
- *Your 2-1-1 Center receives a call from an out-of-area caller who dialed 2-1-1?*
- *Your local news reporter plays a recording of a 2-1-1 call experience?*



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Excerpt from FCC Order

We therefore assign 211 to be used to provide access to community information and referral services... [describe similarity for 311 Order]... we direct that, when a provider of telecommunications services receives a request from an entity (e.g., the United Way) to use 211 for access to community information and referral services, the telecommunications provider must: (1) ensure that any entities that were using 211 at the local level prior to the effective date of this Order relinquish use of the code for non-compliant services, and (2) take any steps necessary (such as reprogramming switch software) to complete 211 calls from its subscribers to the requesting entity in its service area [2]... [discussion of Atlanta, CT and expansion]. We expect community service organizations to work cooperatively to ensure the greatest public use of this scarce resource. Finally, we will reexamine deployment of community information and referral services using 211 five years after the effective date of this Order to determine whether this resource is being utilized in the manner and to the extent anticipated by the Information and Referral Petitioners. As with 511, if 211 is not being used on a widespread basis for access to community information and referral services, we may consider designating the 211 code for other uses, or removing the exclusive assignment for community information and referral services. - FCC 00-256, Section 21, pages 14-15



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Need for System Coordination

- Consumers and funders desire complete access
- Marketing 2-1-1 is easier when universal
- Telecommunications options for consumers
 - “Landlines” with traditional companies and competitors
 - Wireless (now surpass landlines in many regions)
 - Emerging technologies
- Disaster preparedness and response



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Service Models

- Centralized Administration with Single Call Center
- Centralized Administration with Multiple Centers
- Decentralized Administration with Multiple Centers



- Call Handling
- Resource Database
- 24-hour Access
- Coordination
- Costs
- Communications
- Scalability




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Telecommunications Primer






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Alphabet Soup

POTS - Plain Old Telephone Service
 ILEC - Incumbent Local Exchange Carrier
 CLEC - Competitive Local Exchange Carrier
 ACD - Automatic Call Distributor
 PUC/PSC – Public Utility / Service Commission
 PBX - Private Branch eXchange
 8YY – toll-free 800-number (800, 866, 877, 888)
 AIN - Advanced Intelligence Networking
 VoIP - Voice over Internet Protocol
 IVR – Interactive Voice Response
 ANI/ALI – Automatic Number/Location Identification
 NPA/NXX – Area Code and Exchange

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Helpful Resources

“Telecommunications and 211—A Primer” (2002) and “211 State By State” (2001), “Implementing VoIP in 2-1-1” (2003), and others prepared by the Telecommunications and Information Policy Institute of University of Texas at Austin,
<http://www.utexas.edu/research/tipi/research.htm>

“Telecommunications Challenges of 2-1-1” in *AIRS Journal*, Volume 25, 2003 Edition

NANPA – North American Number Plan Association (www.nanpa.org) – to download NPA-NXX tables

Online glossaries (NTIA, FCC, and other industry-specific)



Getting the Call

Options for Translations

- Request for Translation - Tariff, Contract, or Simple quote and order
- Type of Translation – switch-based, AIN, cell-tower

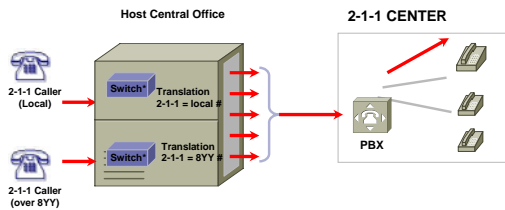
Variables

- PUC/PSC requirements and interest
- Company requirements and interest
- Center geographic area
- 2-1-1 service delivery model



The “Translation”

2-1-1 = some number





Types of Translation

Switch-based

“hard-wired” at a switch, often for multiple exchanges

Less complex

Little ongoing maintenance

History of service (911 and other N-1-1s)

AIN

Through network based on “if, then” statements

NPA-NXX, Zip code or cell tower specific

Requires table maintenance with new numbers

Sometimes more costly

Not always available



FCC perspective

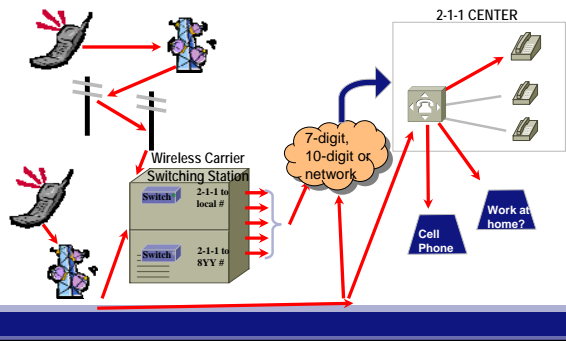
Telecom Act of 1996 prohibited state governments from regulating rates of cellular/wireless unless demonstrated replacement for LEC.

Federal Communications Commission (FCC) the only official regulator for wireless and emerging options

- Not regulated by State Public Utility/Service Commissions (PUC/PSC), although some have ordered implementation
- Currently taking a “hands off” approach (“let the market operate freely”) with wireless and IP telephony
- Takes complaints on roaming, dropped calls, fraud and billing disputes



Wireless Translations





Assumptions

- Single 8YY routing to one center assumes
 - Center can serve any caller (through absorption of 8YY cost, referral database, capacity and/or re-routing) OR
 - Okay to tell caller to hang up and dial 10-digit number for other Center
- Switch-based routing for area incongruent with service area assumes
 - Center/System is willing to serve “non-service” area or make collaborative arrangements with other Centers
 - Other Centers/Systems accept that Center’s/System’s use of code
- AIN 8YY NPA-NXX routing assumes
 - AIN 8YY is managed with routing numbers
 - Caller wants information about his “home” area
- Tower- or site-based translations assumes
 - Caller wants information about the “local” area of the Cell Tower
 - Center/System is willing to serve “non-service area” or make collaborative arrangements with other Centers, although not as much as with Switch-based routing

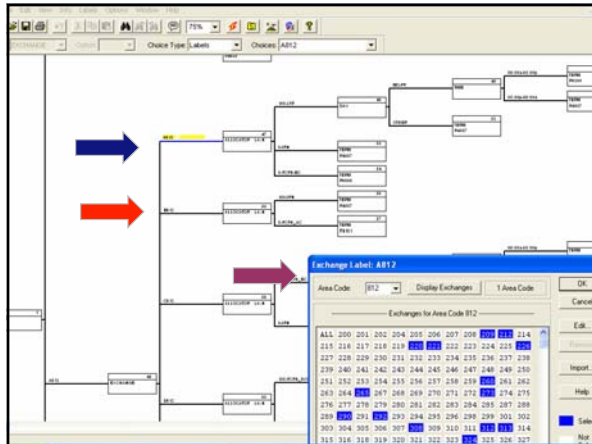


A few models

- VoIP – Texas links 25 AINs over statewide IP platform with many features
- AIN 8YY with NPA-NXX
 - IN links 14 Centers with time-of-day and disaster routing
 - IN-OH-Northern KY for 32 Centers with time-of-day and disaster
 - WA – NPA-NXX with call-recording and other features
- AIN Postal Zip –routing solution for Vonage, IP telephony
- Emerging opportunities– look to E911 as example



Samples of Routing





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“Phantoms” or “Ghosts”

•A call that arrives at the Center/System but has no “real person” making the call. Switching equipment misinterprets “2-1-1 pulses.” Experienced as rings only, “clicks,” silent call, busy signal, static

- “Solutions” to manage phantoms create other issues,
 - Delay may cause callers to believe disconnected
 - IVR or autoattendant may eliminate calls from rotary phones or TTYs
 - May require more sophisticated ACD, additional lines, ports, telephones, longer hold times, etc.



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Routing Issues

- Existing uses of 2-1-1, including commercial uses, telephone extensions, internal service numbers
- Digits in 7-digit number misrouted (i.e. 260-862-11XX, or 812-376-211X), allowing the 2-1-1 Center to hear the one or both parties on the intended call
- 8YY routes based on “charge number” in place of the ANI of the originating caller
- Calls automatically ringing to individual's homes
- Calls automatically ring into 2-1-1 Center when the residential customer picks up the phone
- “Looping” pattern (e.g., a fax line on repeat dialing)



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Handling the 2-1-1 Call

- Assessment of current and future utilization and capacity
 - Lines (voice, fax, TTY, data)
 - Phones, headsets
 - Computers, server, network
 - I&R software, TTY software, voice mail
- IVR or autoattendant
- Reporting capabilities
- Call tracking software (process measures)



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Making Projections

- Understand current state
 - Call volume, content, funder requirements
 - Technology
 - Staffing
- Calculate "Call Saturation" – annual call volume divided by population in area
- Calculate minimum staffing
 - Erlang plus experience
 - Note differences between rural vs. urban, specialized vs. comprehensive, outcomes



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Options for Linkages

- "Older" technology solutions
 - print and electronic directories
 - call-transfer and 3-way calls
 - after-hours call forwarding
- "Newer" technology solutions
 - AIN based on NPA-NXX, Zip code or other geographic routing
 - IVR or autoattendant requiring consumer action
 - LAN, WAN, VPN, frame relay platforms
 - IP (Internet Protocol) solutions, like VoIP



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A decision to integrate

<p>Traditional phone <i>(based on 8YY routing)</i></p> <ul style="list-style-type: none"> AIN reporting function LD between Centers Travel for training Maintenance Voice mail Proprietary PBX at each Center No option for integrated DB Separate e-mail and internet 	<p>VoIP</p> <ul style="list-style-type: none"> Converged access, management and administration Integrated e-mail and voice mail Call monitoring and recording Internet access XML phone messaging Faster, easier reporting statewide Scalable E-learning options Migration path to IP
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Importance of Documentation



The translations

Do you know where your records are?

- All contracts, orders, billings
- Communications with telcos, regulators, PBX managers
- Periodic checks, especially with company mergers and 2-1-1 activation in neighboring states/systems
- Mark calendar for future



Routing

- Master routing table
 - Type of routing (NPA-NXX, Zip, Time-of-day, disaster)
 - Types of termination numbers
 - Terminations may vary with type of routing
- 24/7 contact info for people at each Center/System
- Contact information for routing Vendor
- 24/7 access and Disaster changes
- Date and descriptors for changes



Internal

- 24/7 contact info for people in event of disaster, with backup person
 - *What is your emergency operations plan?*
- Contact information for Vendors
- 24/7 access and disaster
- Date and descriptors for changes



Helpful Resources

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“**Telecommunications Challenges of 2-1-1**” in *AIRS Journal*, Volume 25, 2003 Edition

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Other Resources

- Federal Standard for Glossary Terms - <http://www.its.bldrdoc.gov/fs-1037/>
- Your state PUC/PSC or utility consumer counselor
- Erlang calculators - <http://www.erlang.com/calculator/>
- ICMI – Incoming Call Management Institute “QueueTips,” a free online resource - <http://www.incoming.com/WebModules/QueueTips/index.aspx>
- Federal Citizen Service Levels Interagency Committee (CSLIC) Report: Proposed Performance Measures, Practices and Approaches For Government-wide Citizen Contact Activities** - <http://www.usaservices.gov/cslic.htm>

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Q&A

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