



Webinar will begin shortly



911



Iowa Statewide
Interoperable
Communications
System Board



Welcome to ISICS TECHNICAL Webinar

www.isicsb.iowa.gov



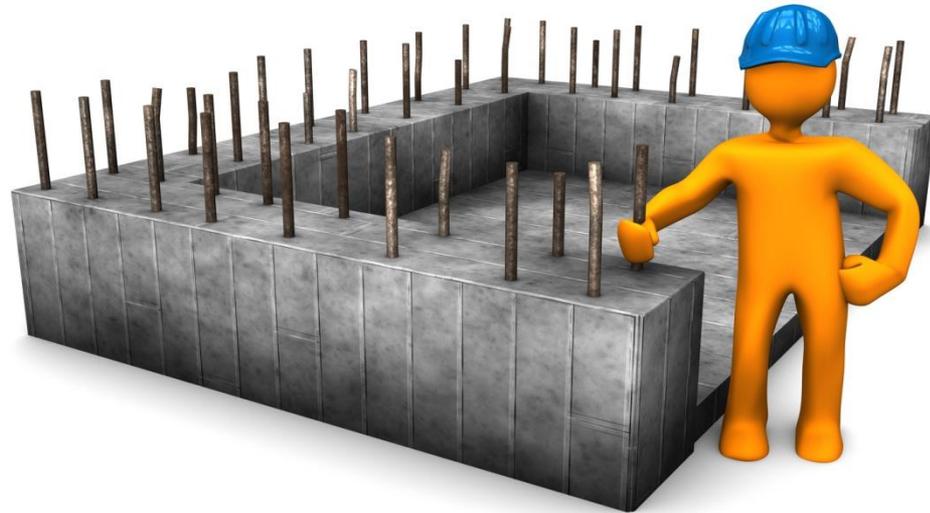
John Benson
ISICSB Outreach Committee Chairman



The **ISICS** platform Baseline Deployment



Melvin Mercado
Motorola Project Director



ISICS is a foundational public safety communications platform currently under construction.



RELIABLE

- Public Safety Grade platform
- Multiple levels of backup
- Standards based design
- Fully tested to confirm it meets the required specification

When completed, **ISICS** will be a solid baseline for future operability and interoperability throughout the state of Iowa.



OPERABILITY

- Provides a cost effective baseline as a starting point
- Provides a path for growth
- Standards based design
- Allows for local agency control and management of their assets
 - Local agency can maintain their own radios
 - Local agency can program their own radios
 - Channels/Talkgroups
 - Buttons and features

When completed, **ISICS** will be a solid baseline for future operability and interoperability throughout the state of Iowa.



INTEROPERABILITY

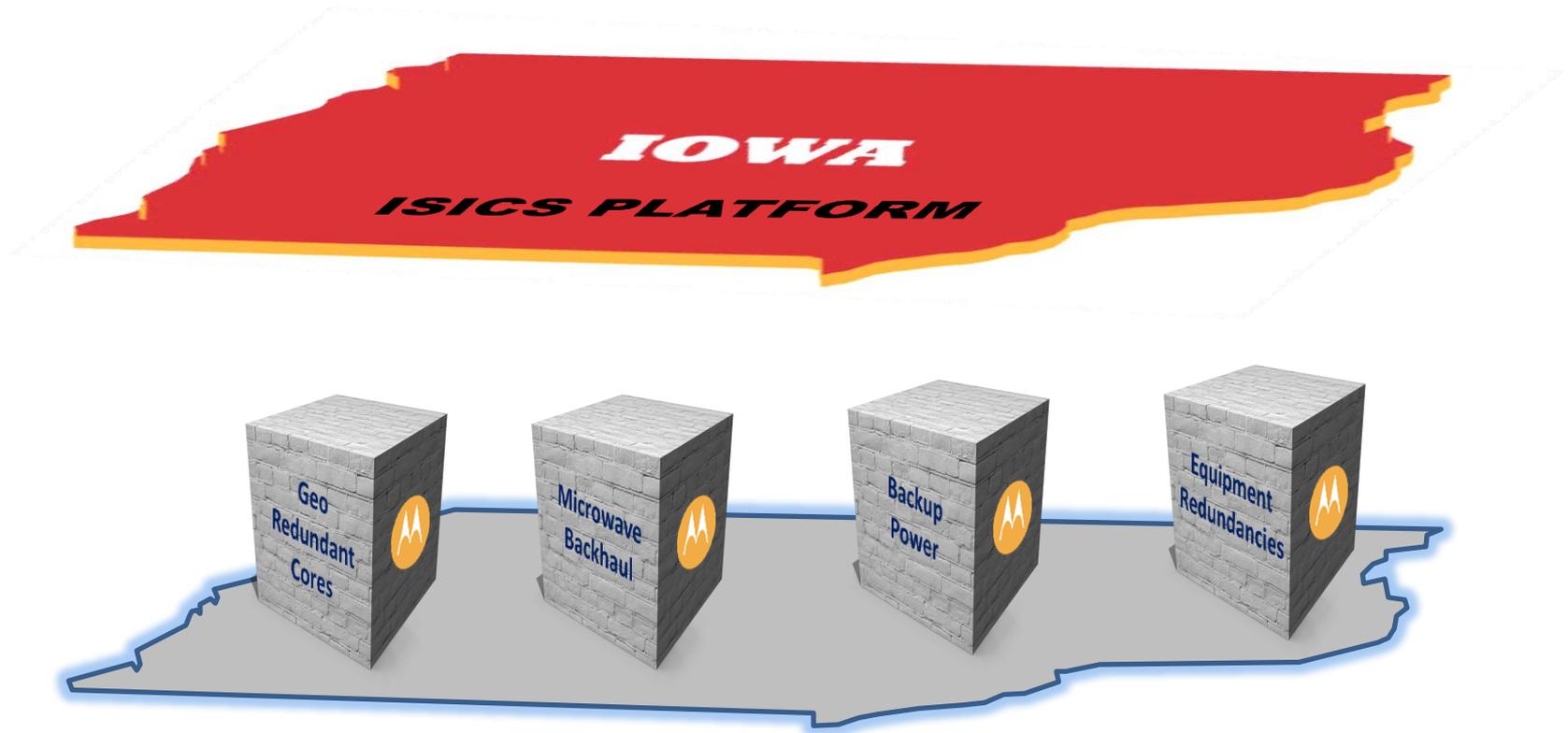
- Shared Platform
- Direct interoperability with all other agencies using the platform
- Direct access to conventional legacy channels

When completed, **ISICS** will be a solid baseline for future operability and interoperability throughout the state of Iowa.

System Availability

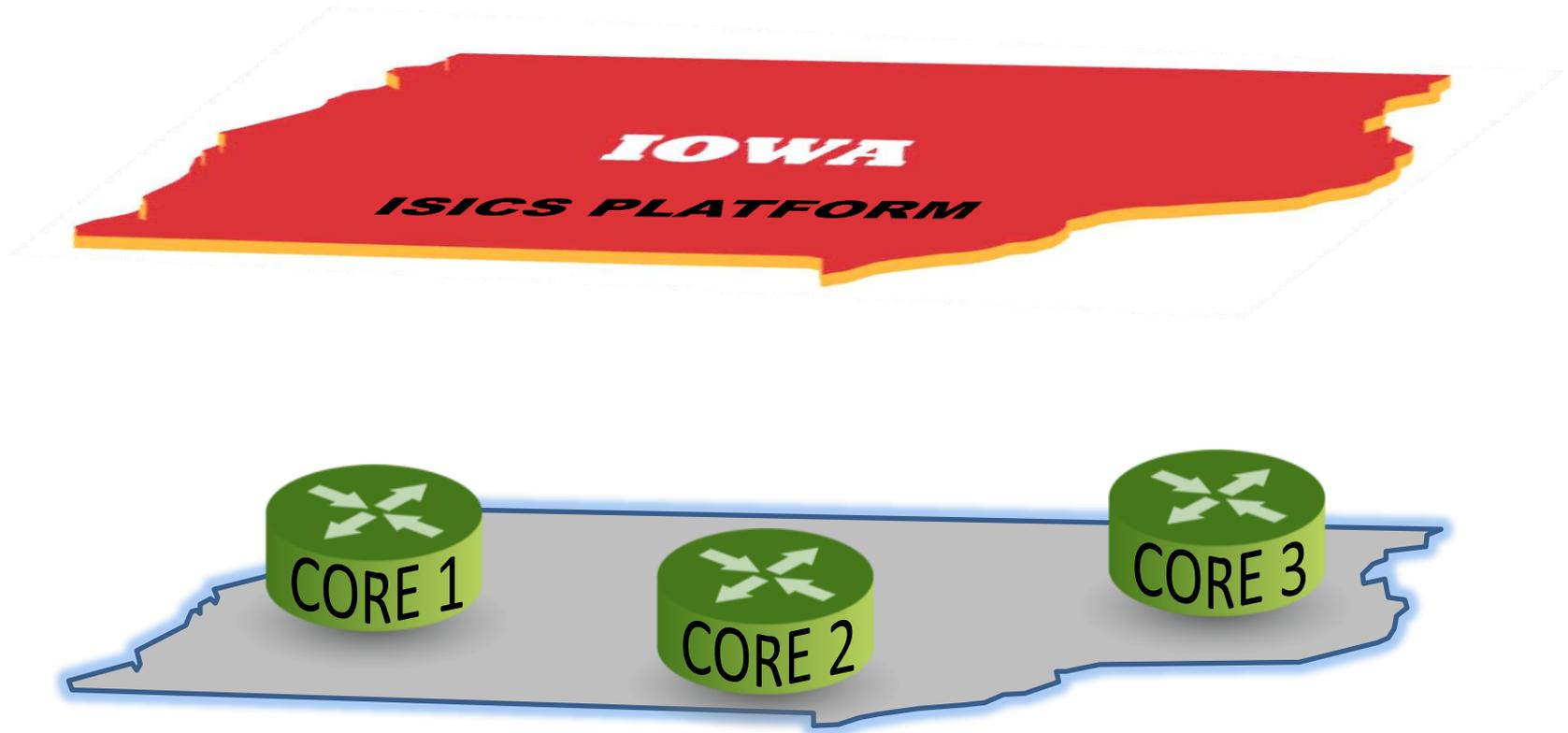


The **ISICS** platform is designed for high system availability.



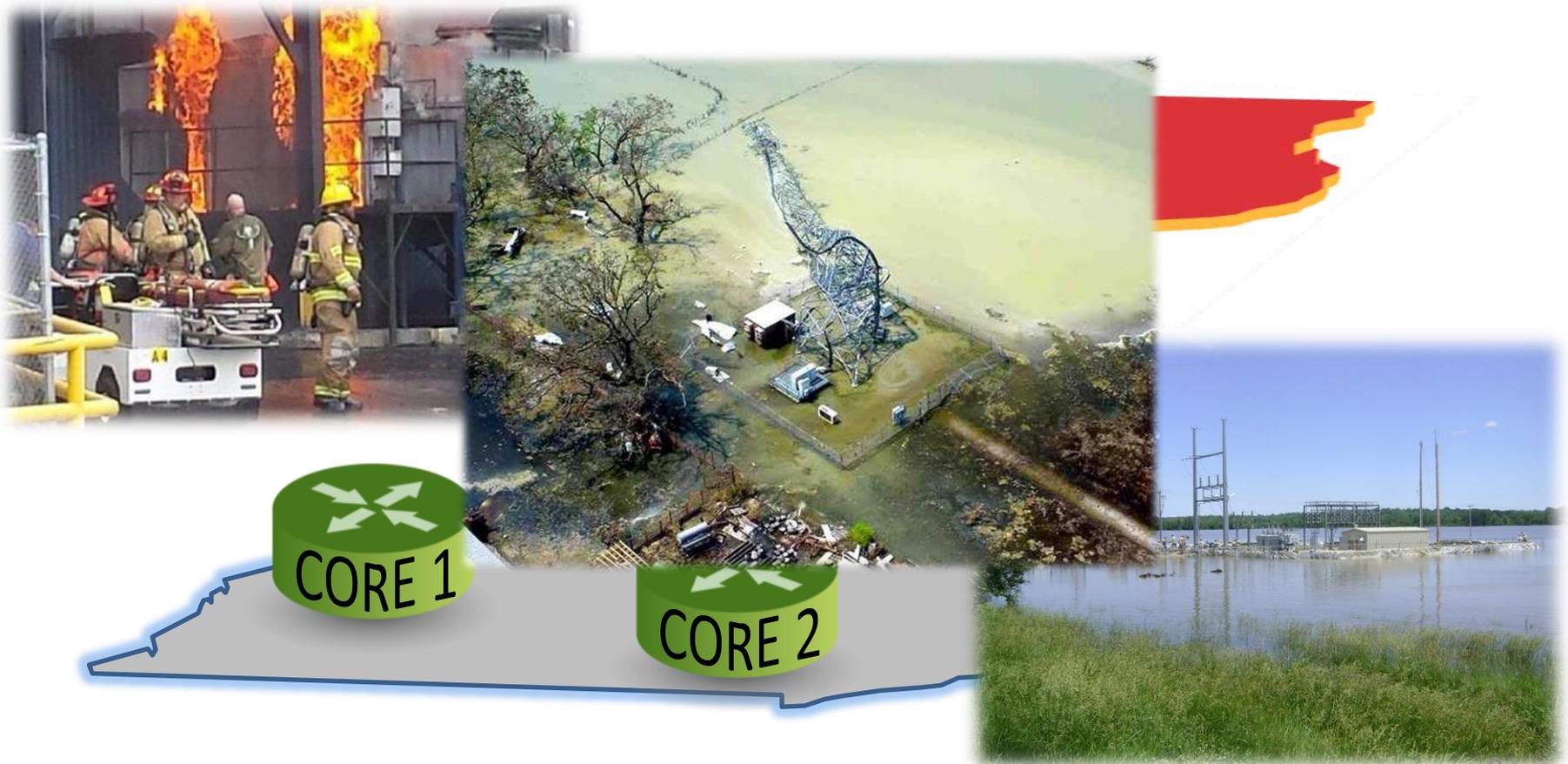


The **ISICS** platform is designed to have triple redundancy through the support of three geo-redundant cores.



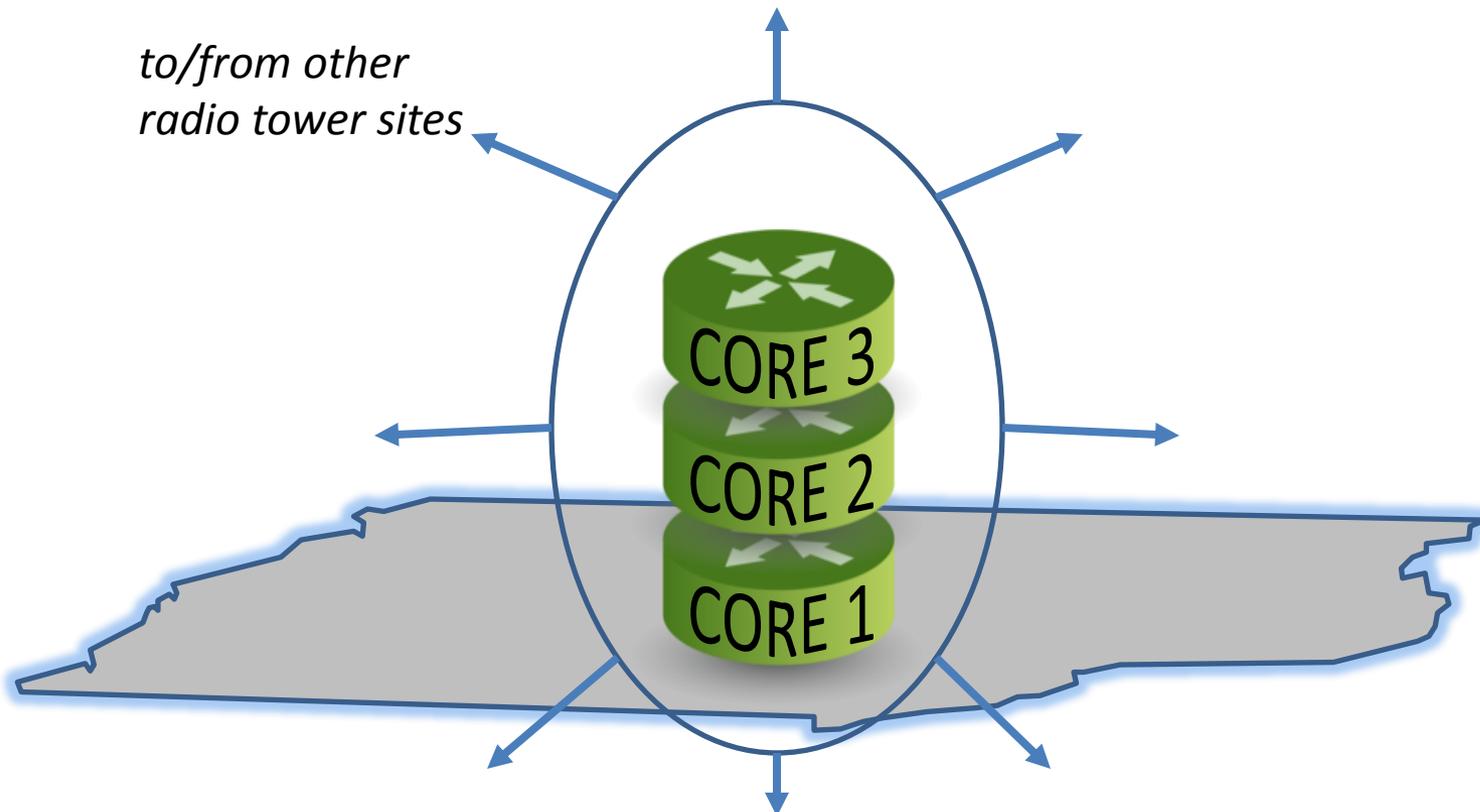


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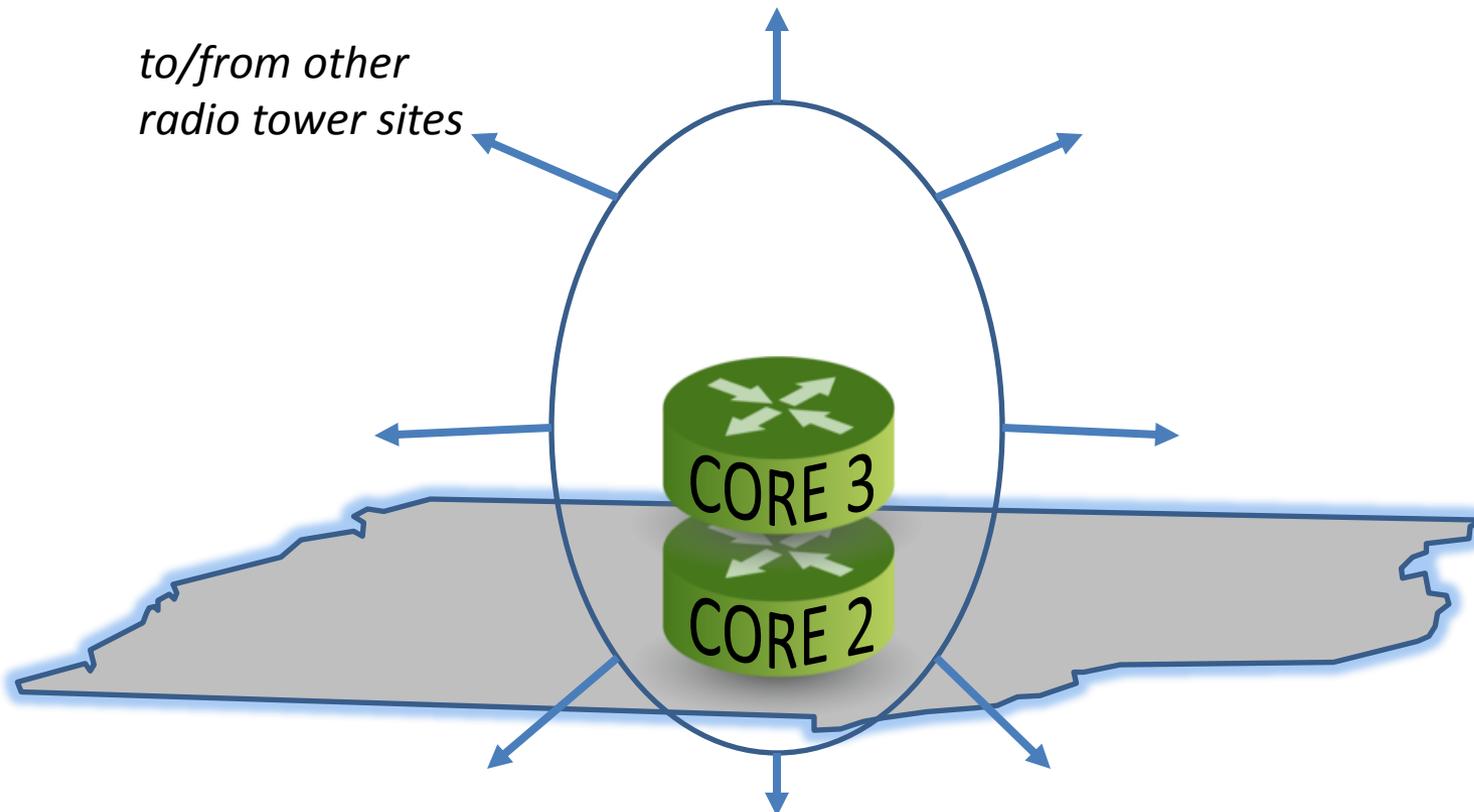


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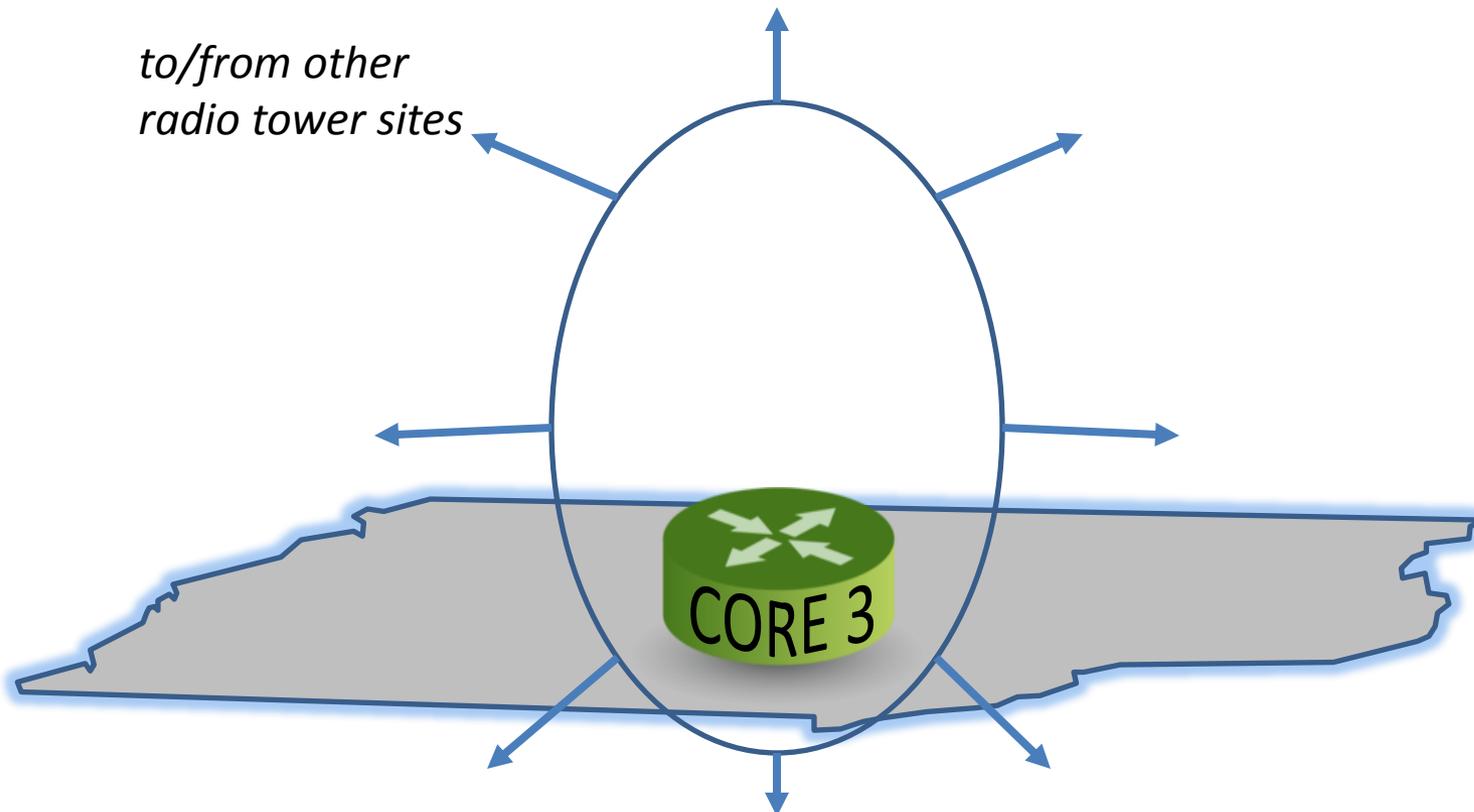


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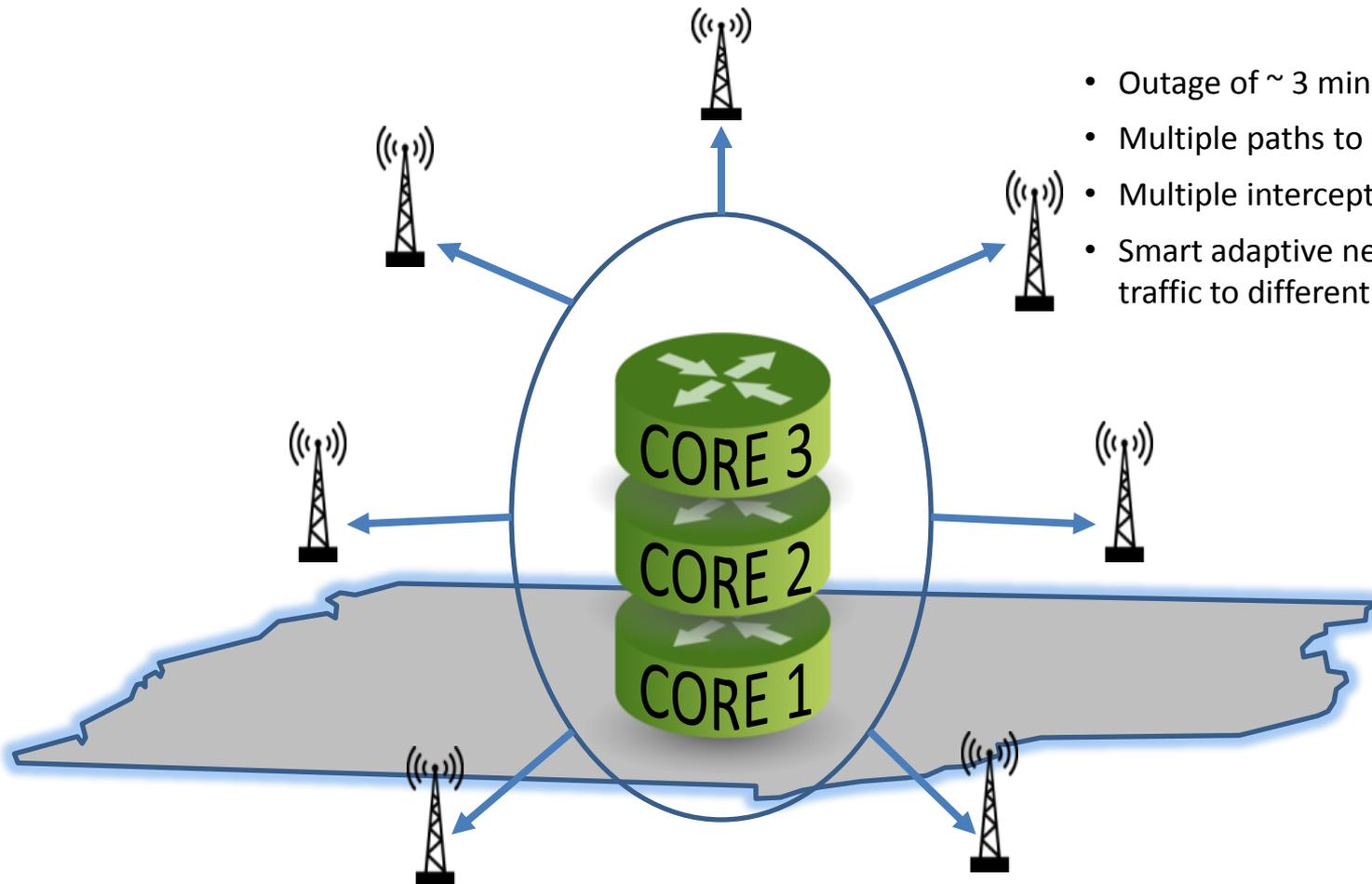


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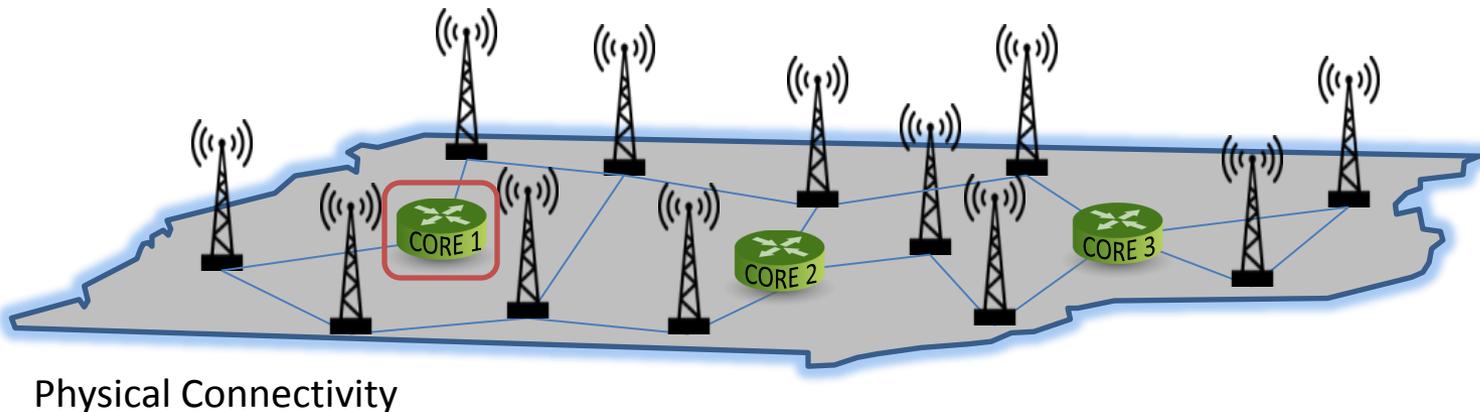
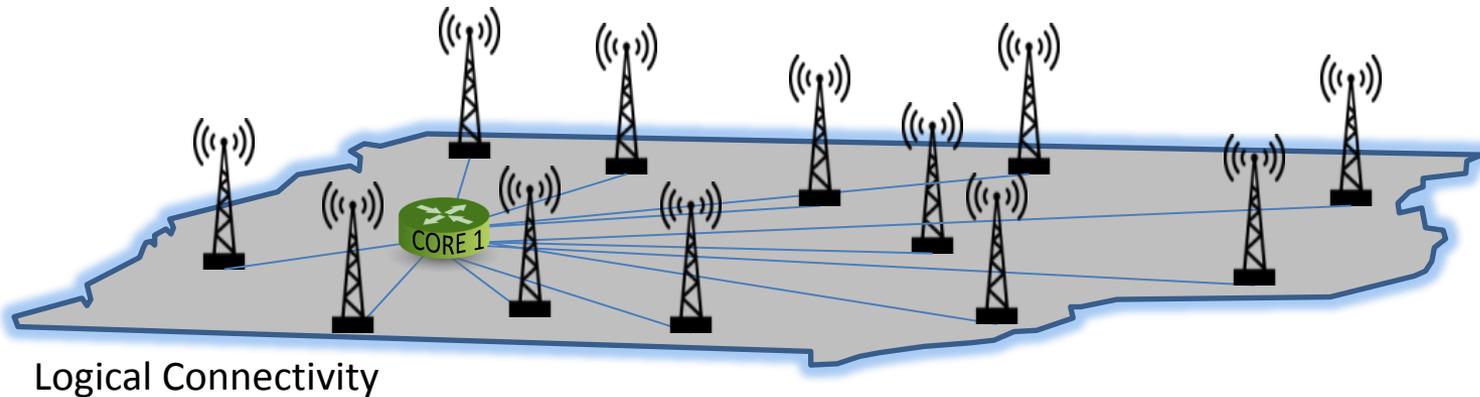
The **ISICS** platform is designed to have high reliability (99.9995%) microwave backhaul with an integrated layer 3 MPLS network.



- Outage of ~ 3 minutes per year
- Multiple paths to reach sites
- Multiple intercepting rings
- Smart adaptive network routes traffic to different cores

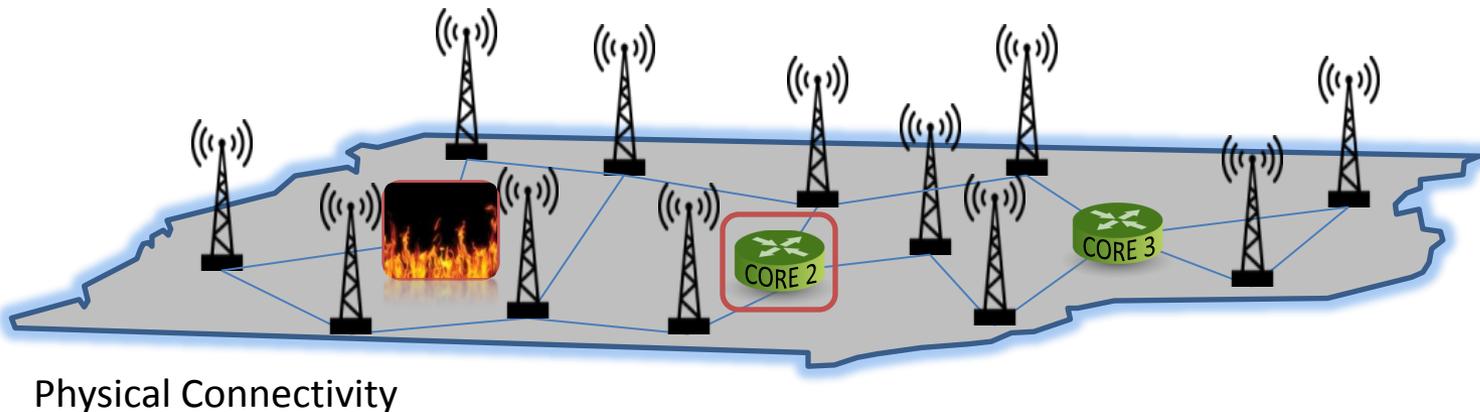
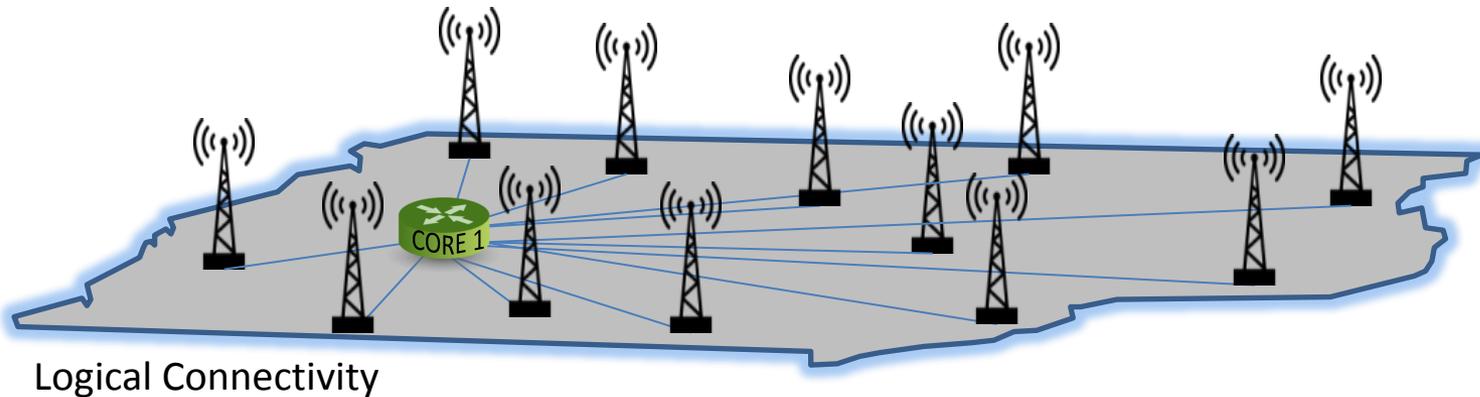


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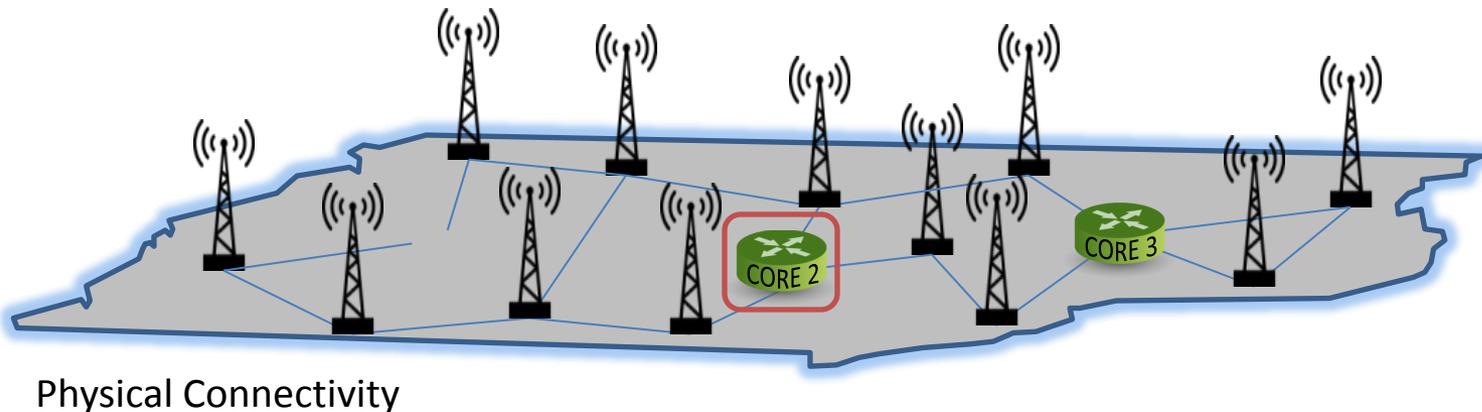
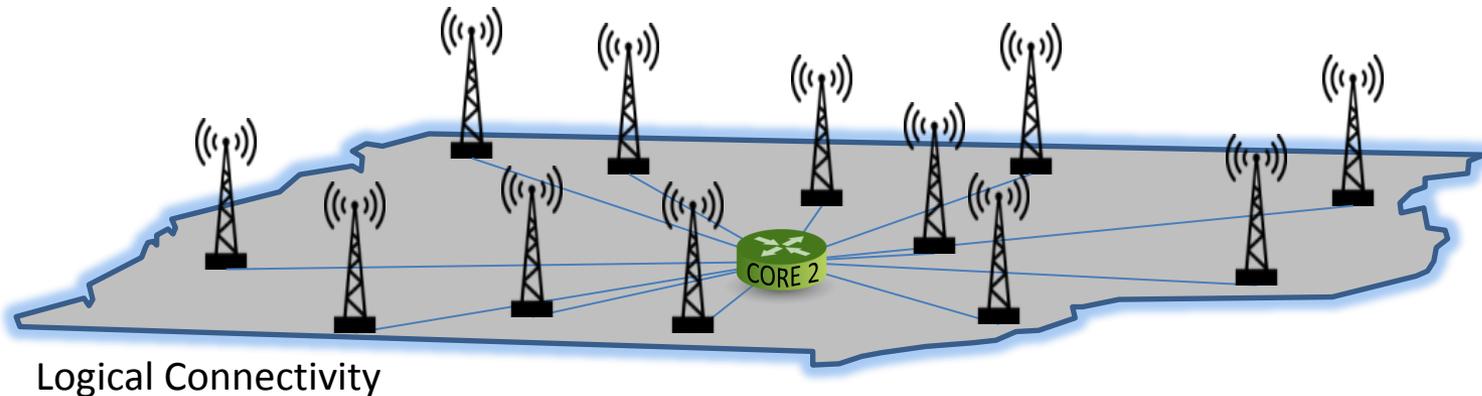


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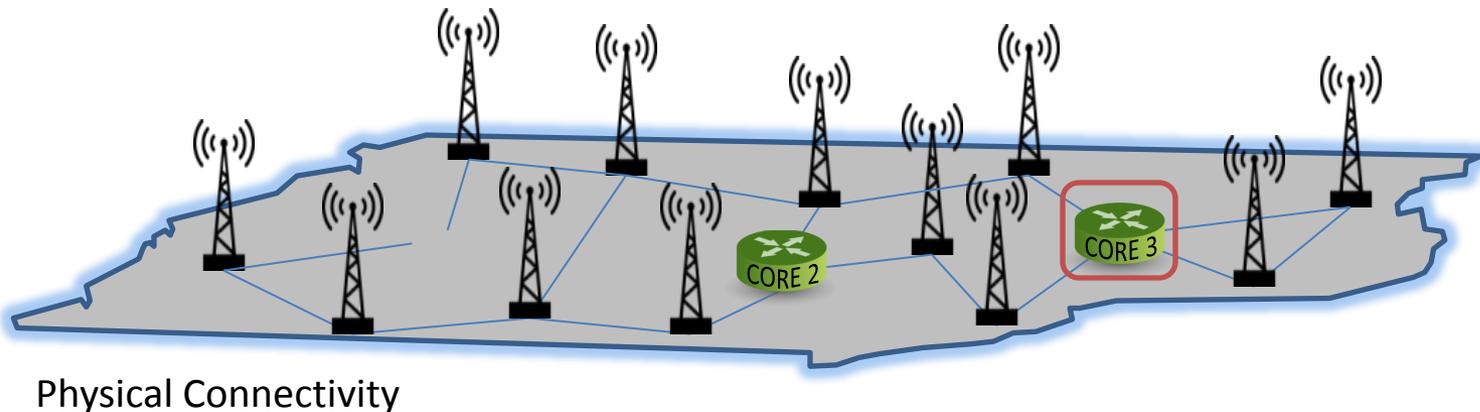
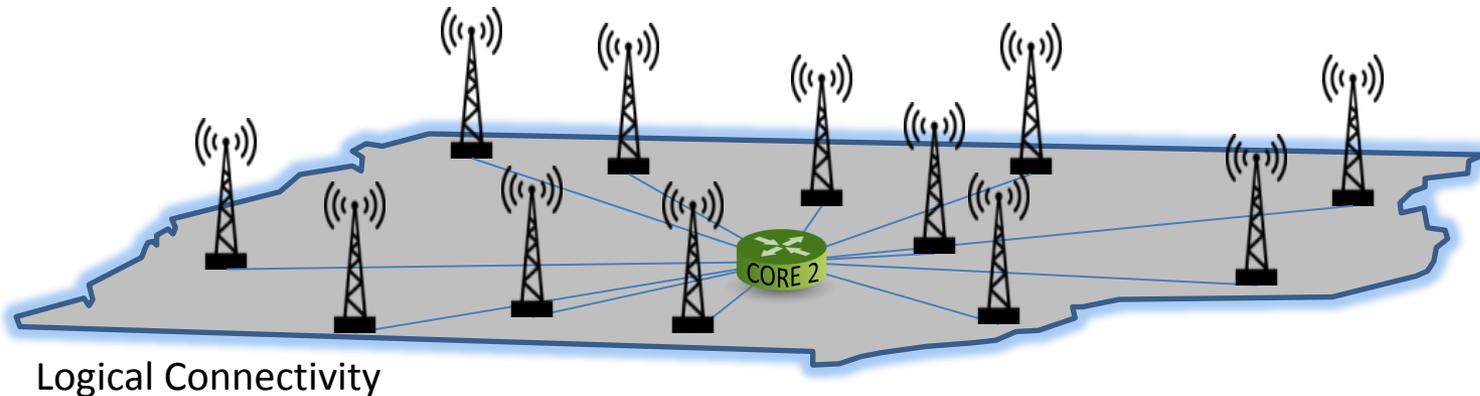


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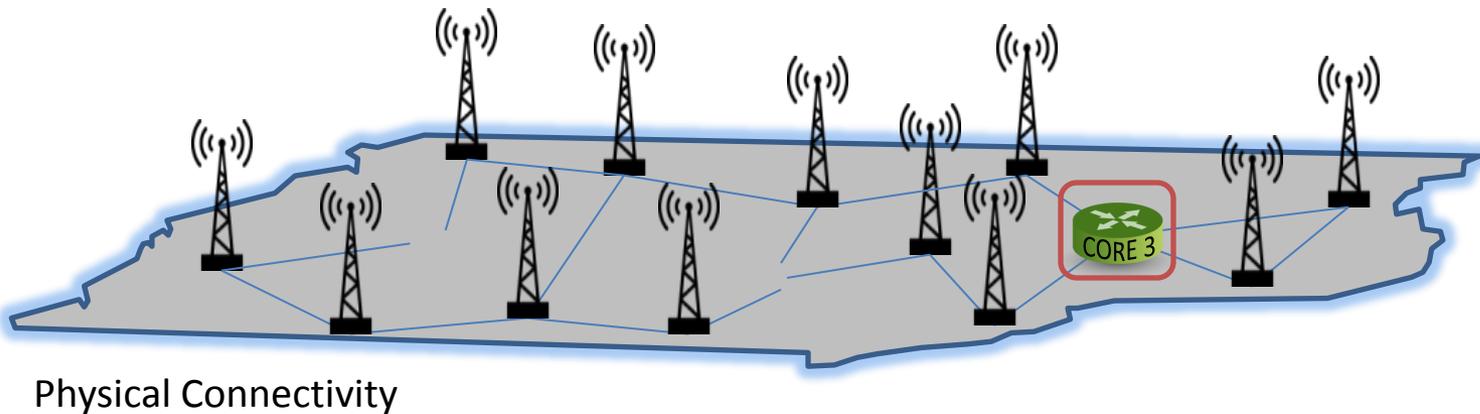
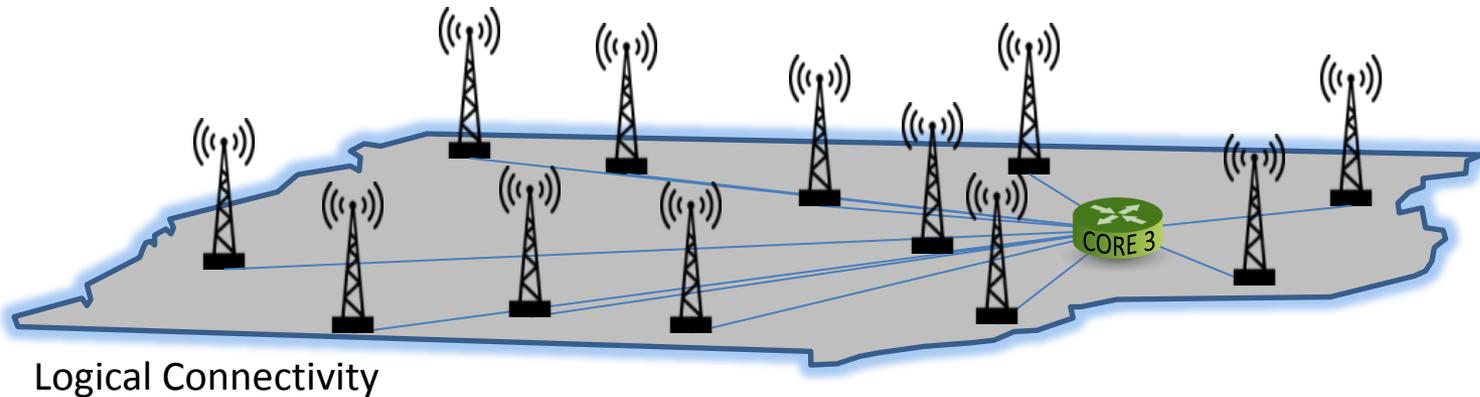


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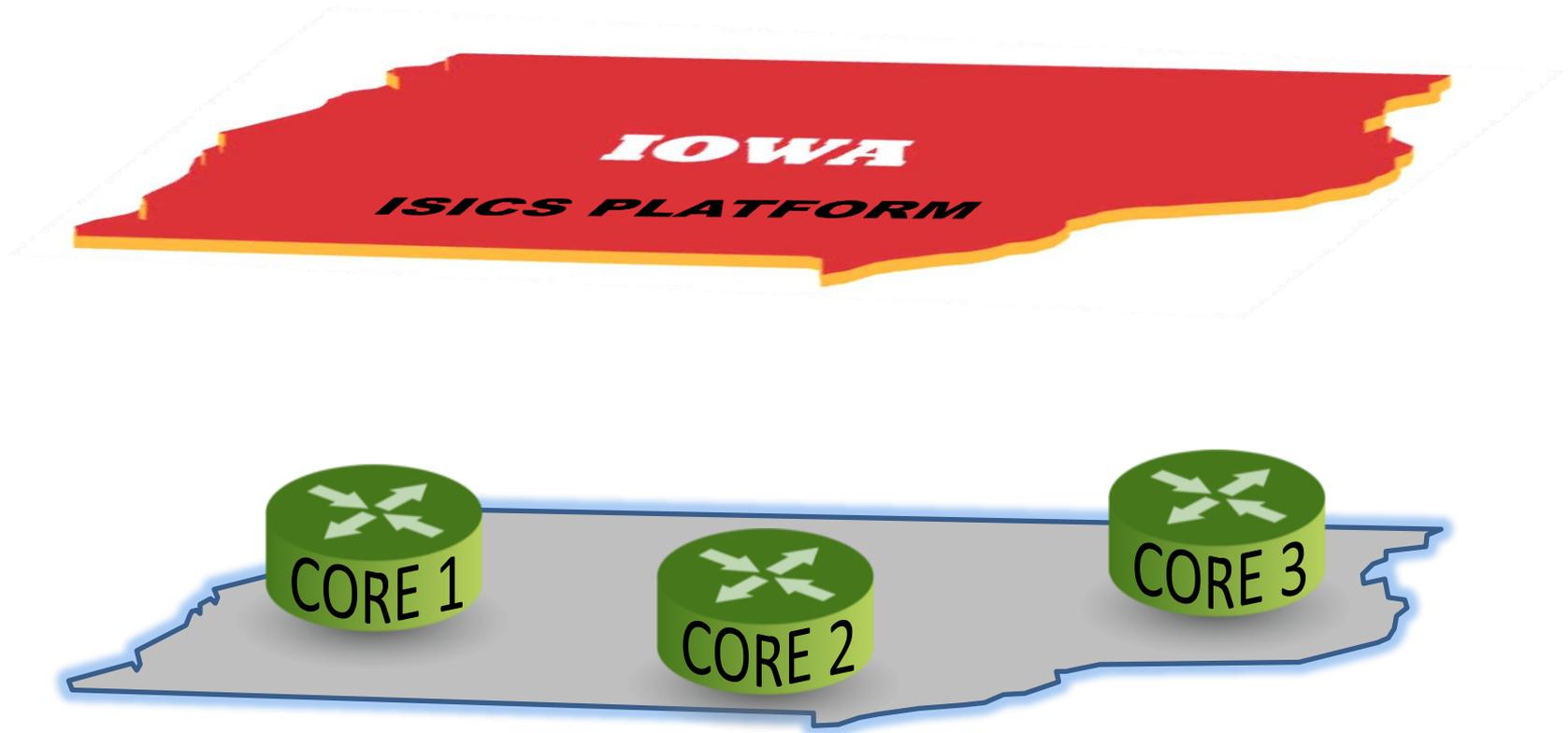
Baseline **ISICS** platform sites incorporate backup power:

- Generators
- 8 hours of battery backup



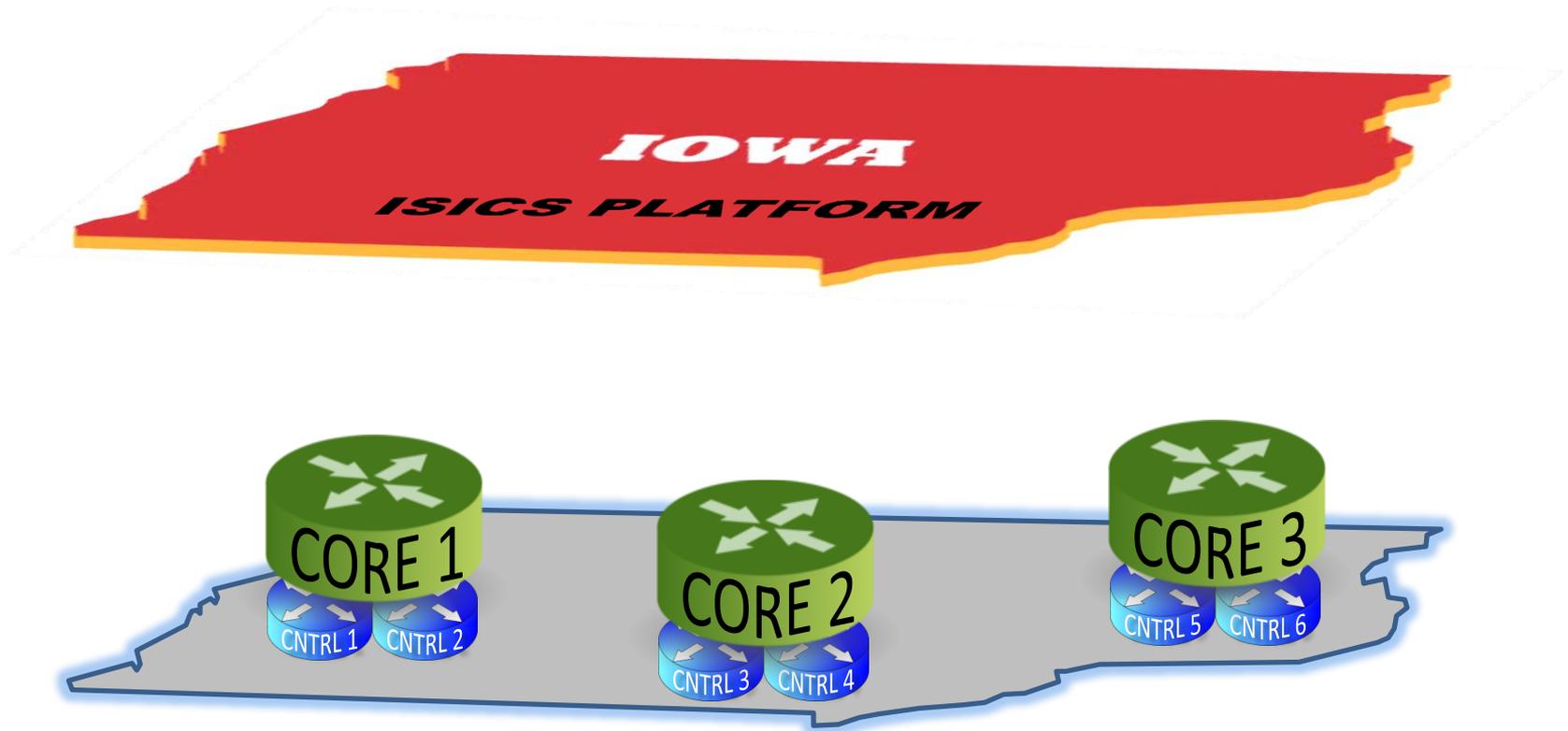


Each **ISICS** site incorporates backup equipment to protect against equipment failure within a site.





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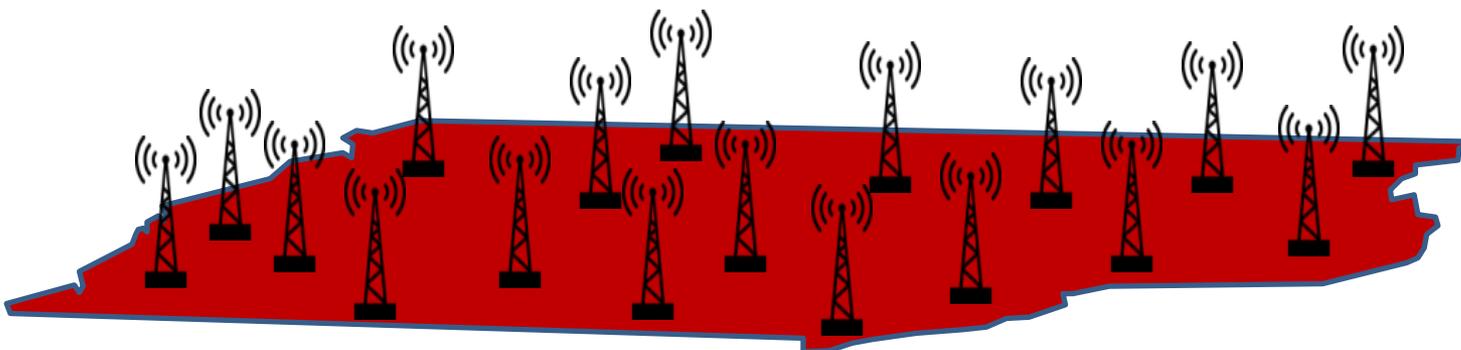




The **ISICS** platform provides a cost effective starting point for local and state operability.

Various state agencies contributed infrastructure to support the platform build-out:

- Initial cost of physical infrastructure (i.e., towers, buildings, generators, electrical, etc.)
- Initial cost of radio network equipment (i.e., base stations, routers, switches, microwave, antennas, etc.)
- Initial cost of licensing and frequency coordination
- Maintenance of the baseline system



Physical tower sites for 95% mobile coverage



Physical tower sites for 95% mobile coverage

BASELINE



MOBILE

- Higher output power
- Fixed antenna placement
- Less antenna loss
- On-street use



LOCAL ENHANCEMENT

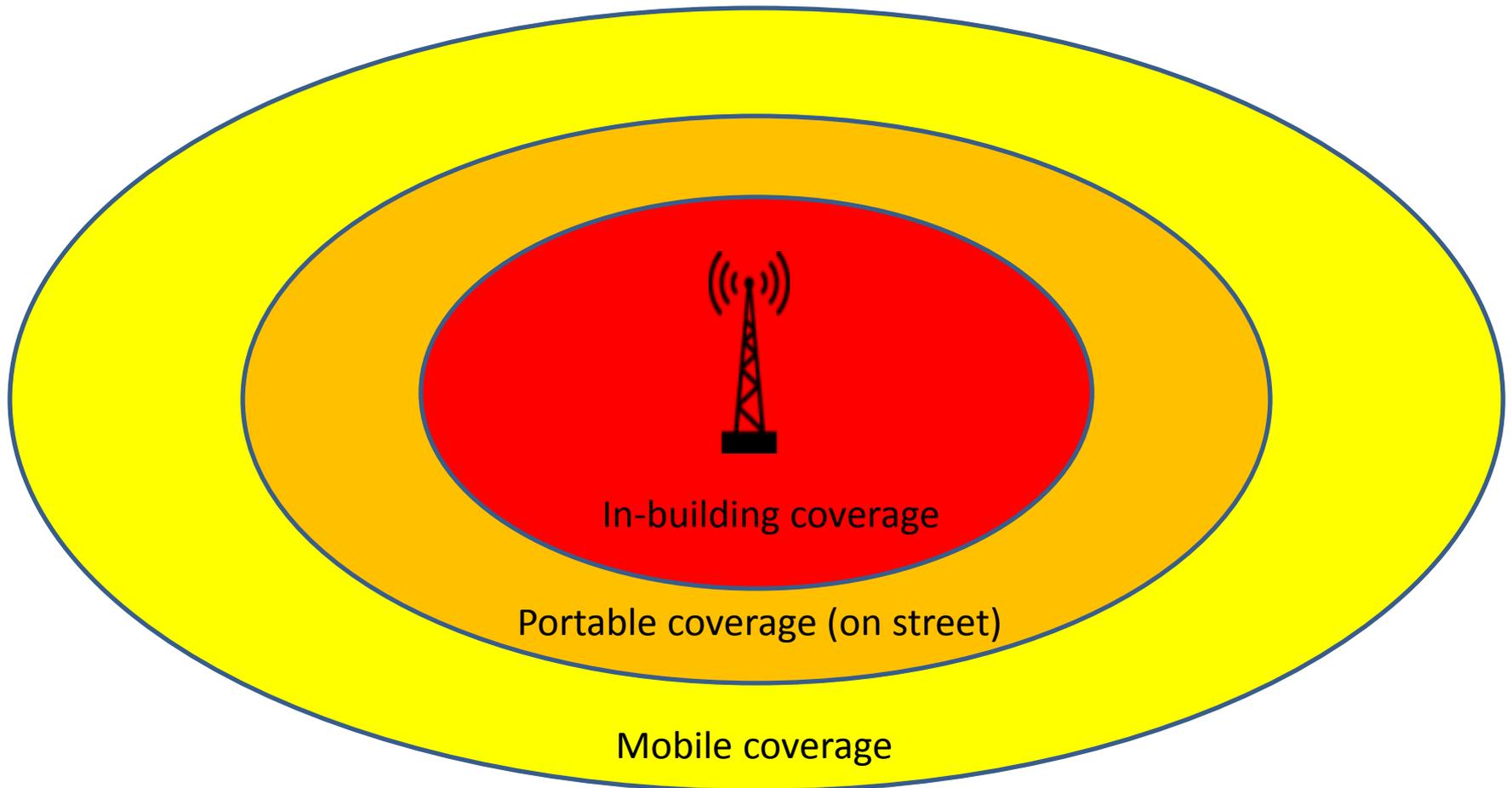
PORTABLE

- Lower output power
- More antenna loss due to body absorption
- On-street use
- In-building use
- Different density buildings

Operability



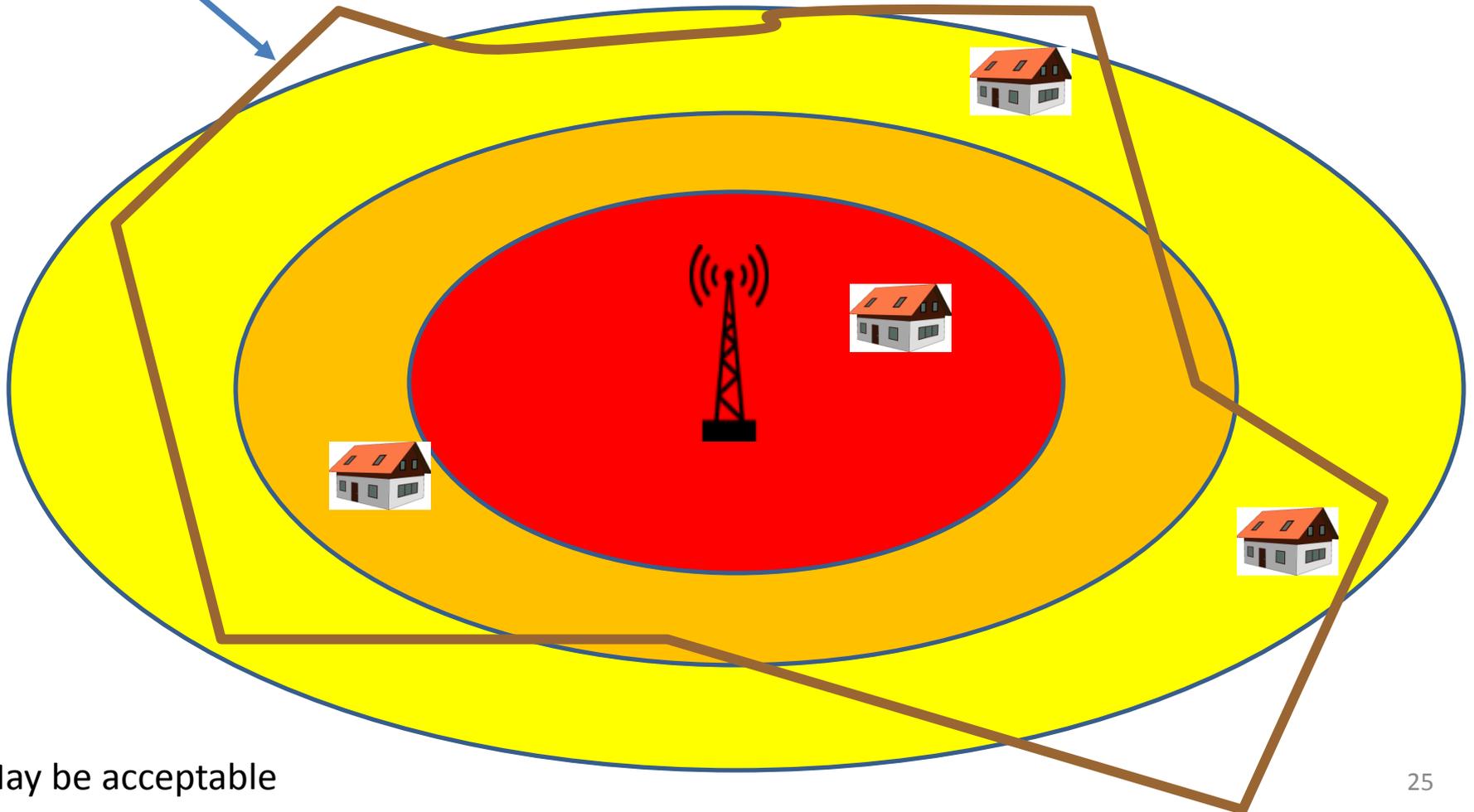
Physical tower sites for 95% mobile coverage





Physical tower sites for 95% mobile coverage

Service Area

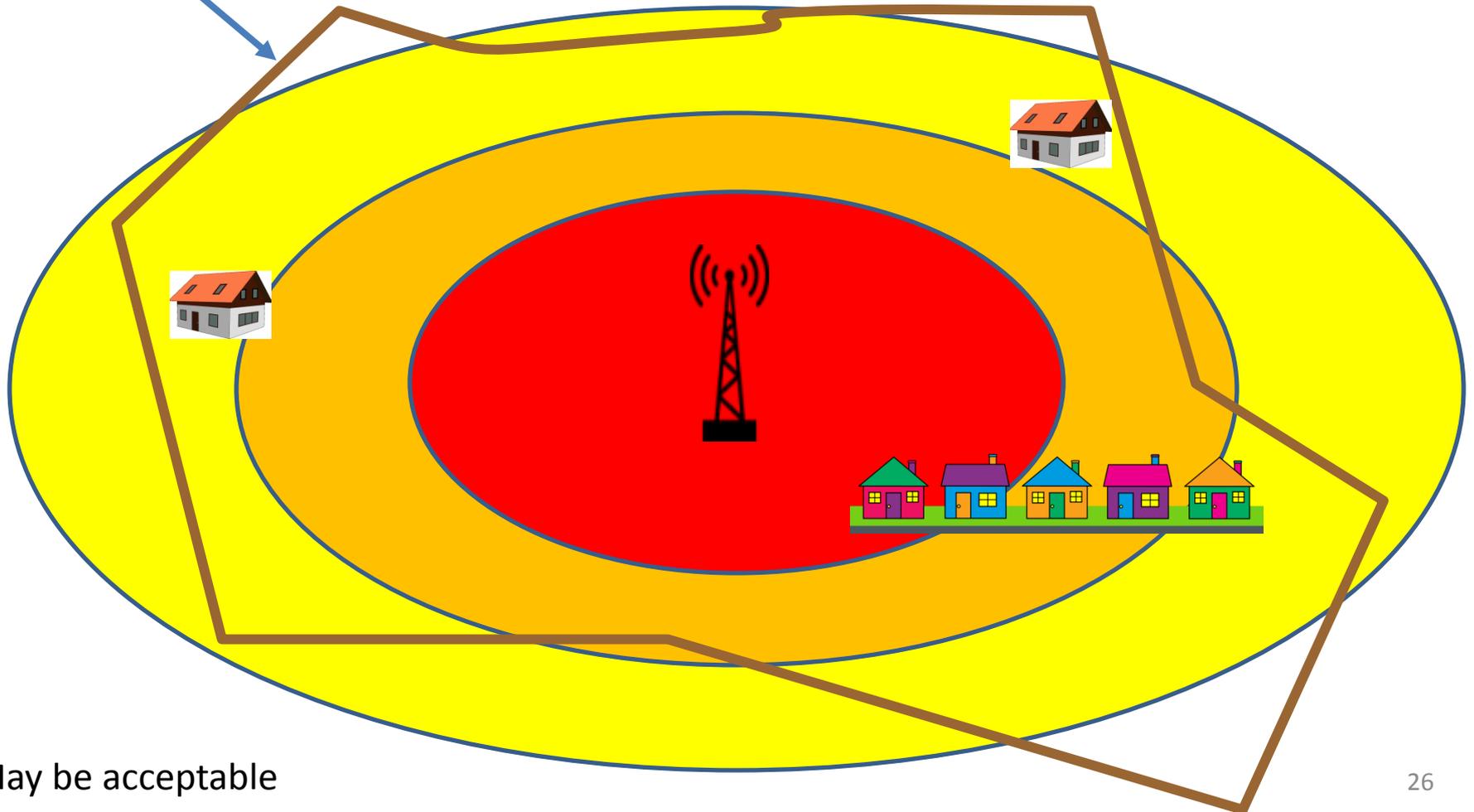


May be acceptable



Physical tower sites for 95% mobile coverage

Service Area

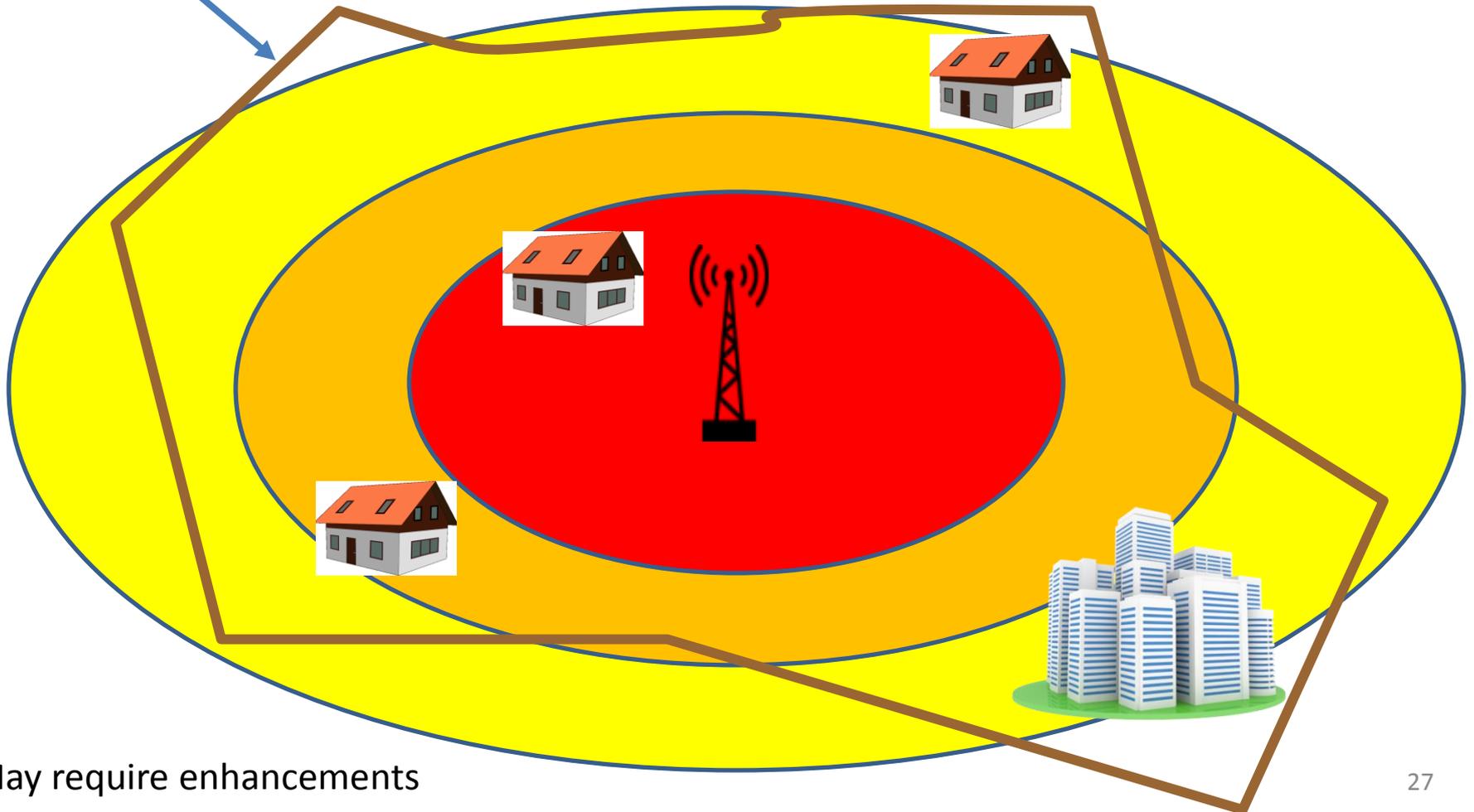


May be acceptable



Physical tower sites for 95% mobile coverage

Service Area

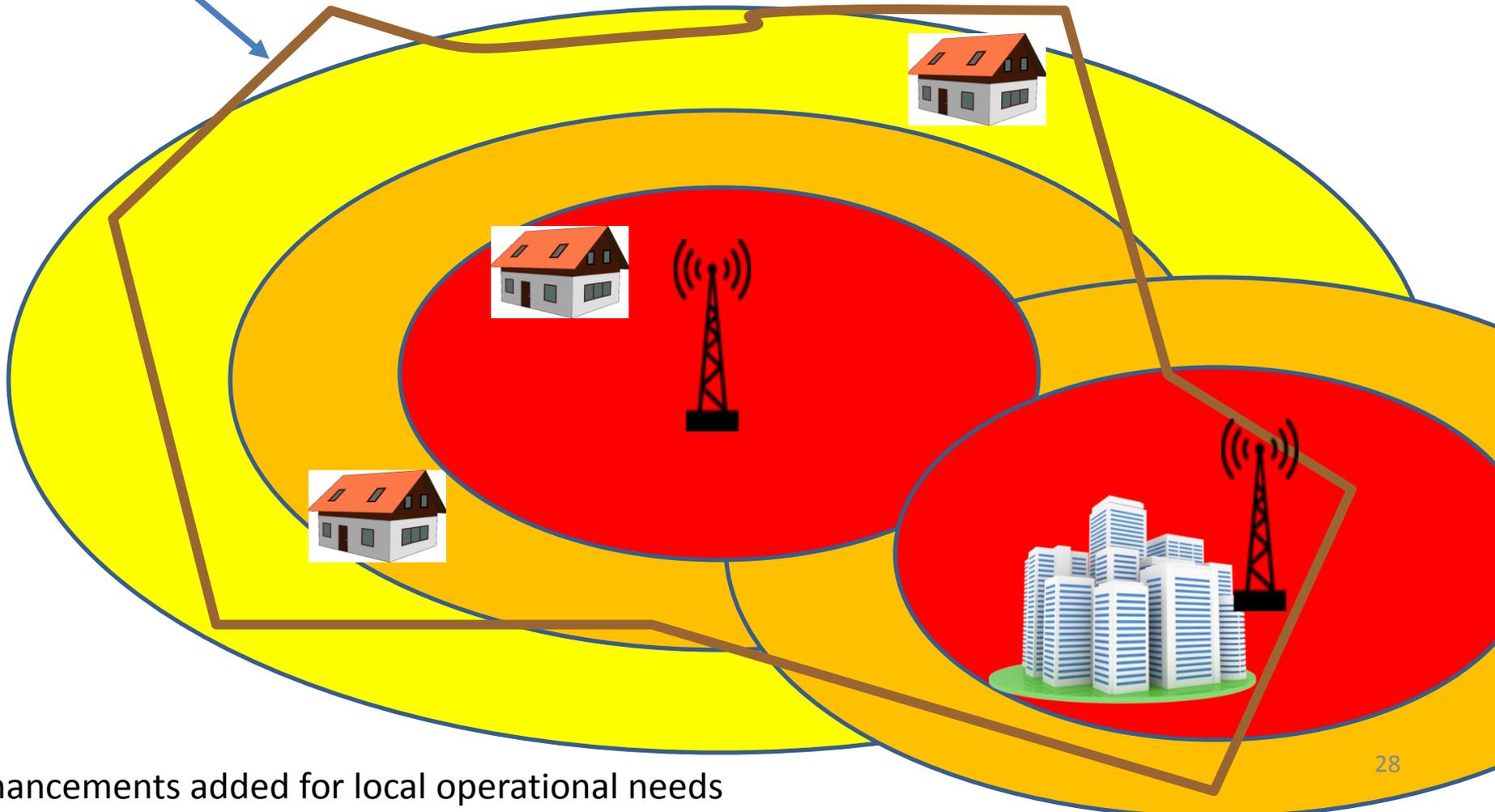


May require enhancements



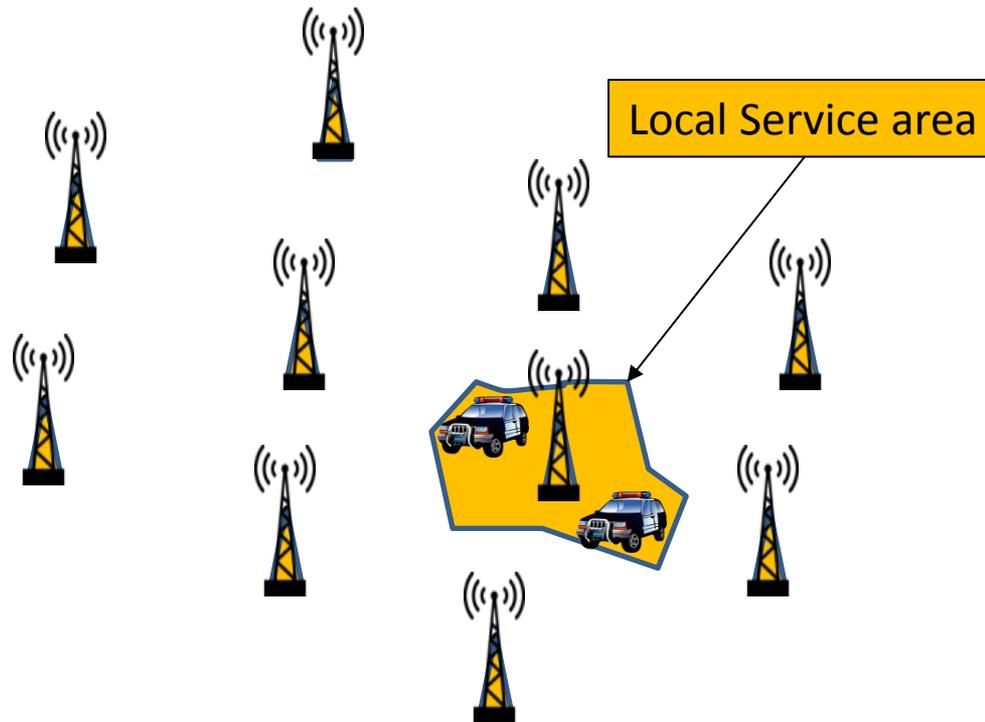
Physical tower sites for 95% mobile coverage

Service Area





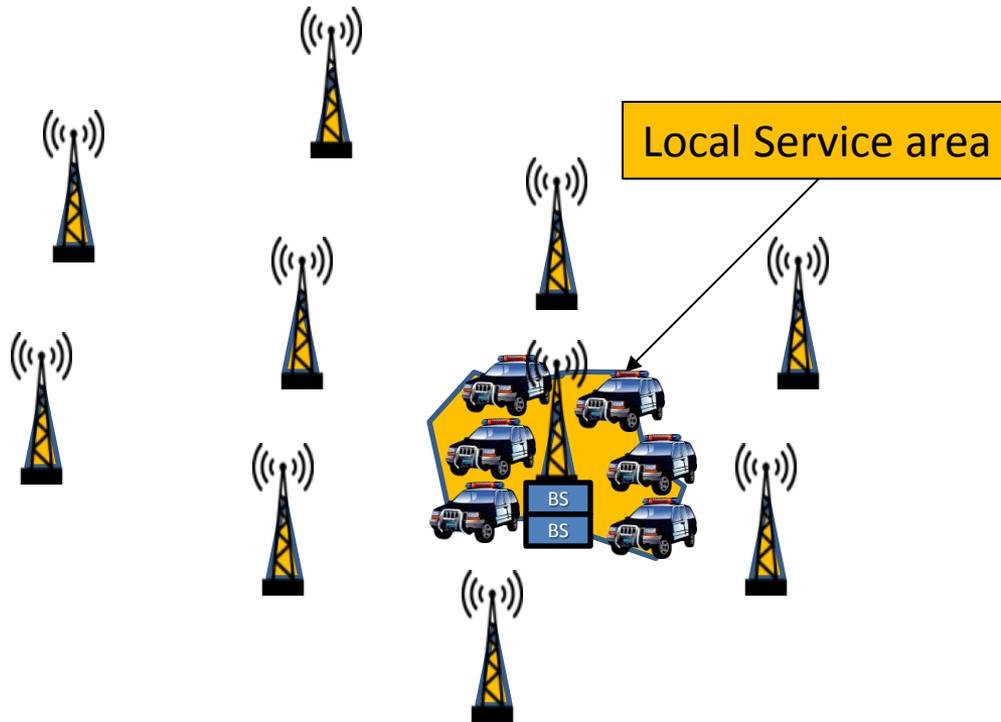
Level - 1



- No significant loading on site resources
- Acquire subscriber radios
- Add radios to system database and enable access to the platform



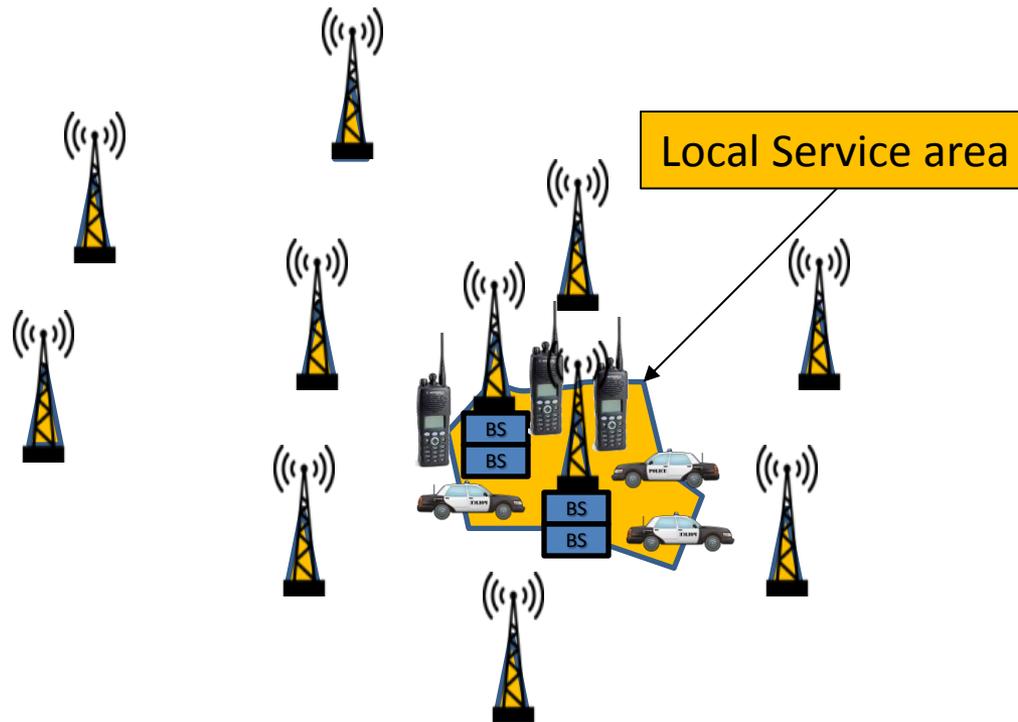
Level - 2



- Loading expected on site due to increase in user count
- Add channels to the site



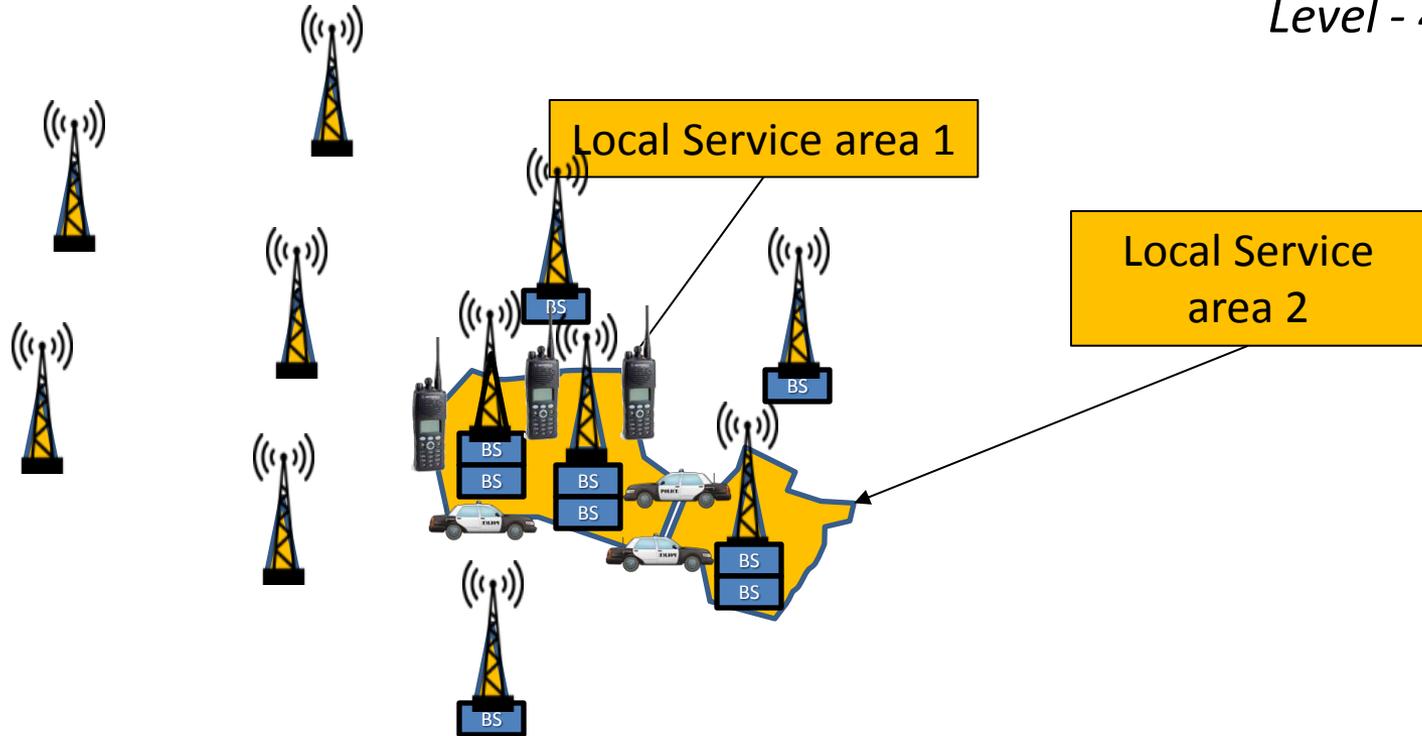
Level - 3



- Add another site to satisfy coverage needs

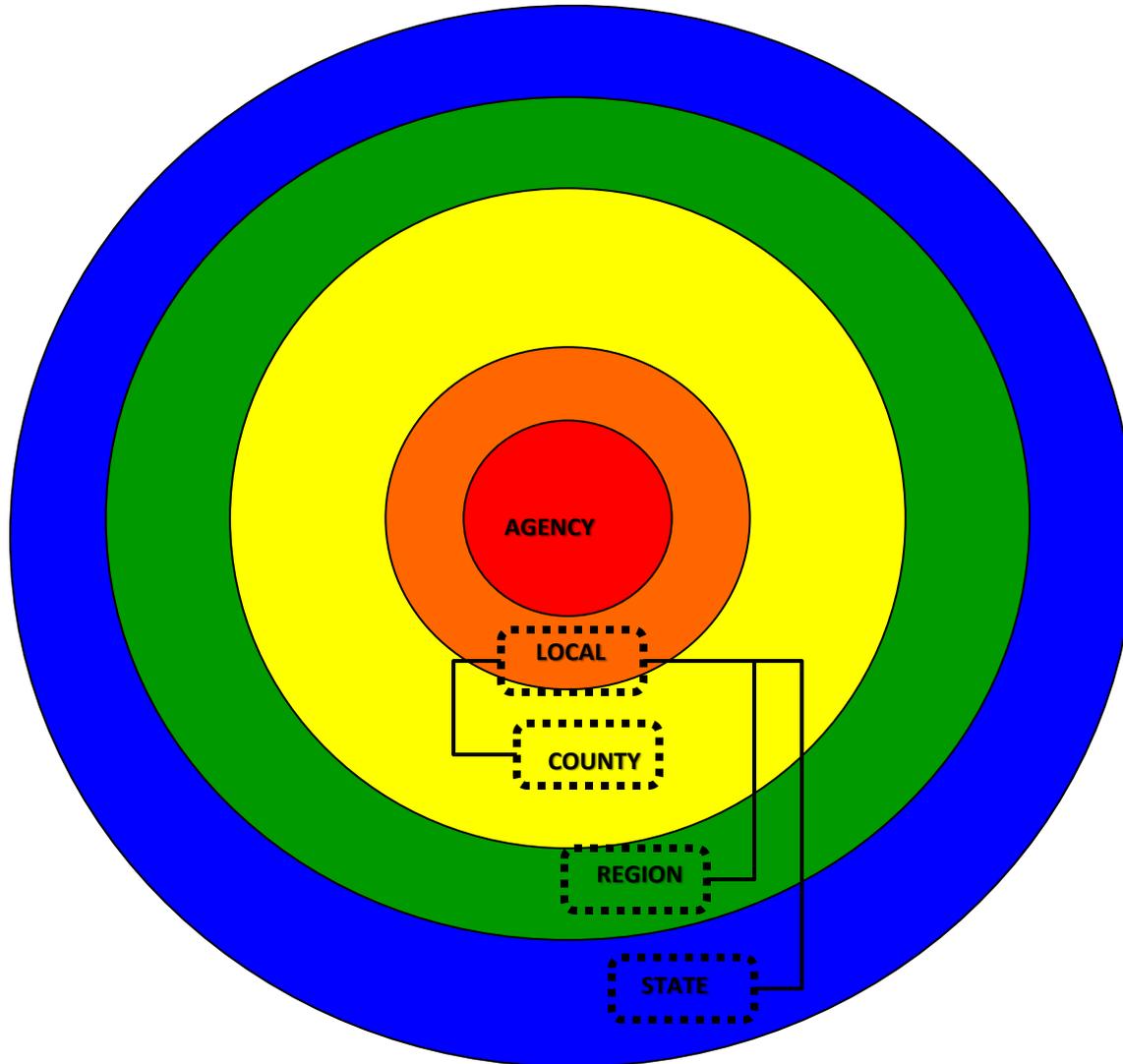


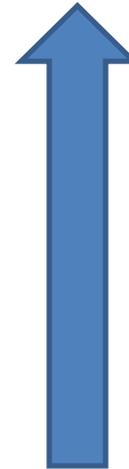
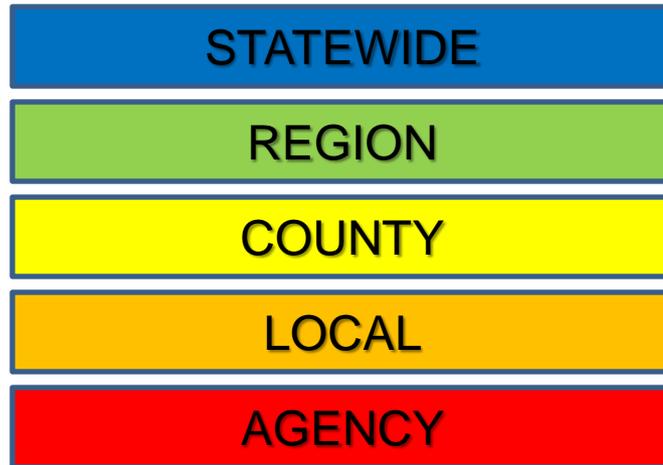
Level - 4



- Loading expected on site due to larger user count
- Add channels to the existing site
- Add another site to satisfy coverage needs
- May need to add channels to adjacent sites due to complex operational needs

Interoperability





Increase service level as dictated by operational needs!



SERVICE LEVEL BANK ↑ ↓	← Mode Switch Selector Position (Talkgroups/Channels) →															
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
STATE	[Blue]															
REGION	[Light Green]															
COUNTY	[Yellow]															
LOCAL	[Orange]															
AGENCY	[Red]															



Portable Radio Front View

Portable Radio Top View





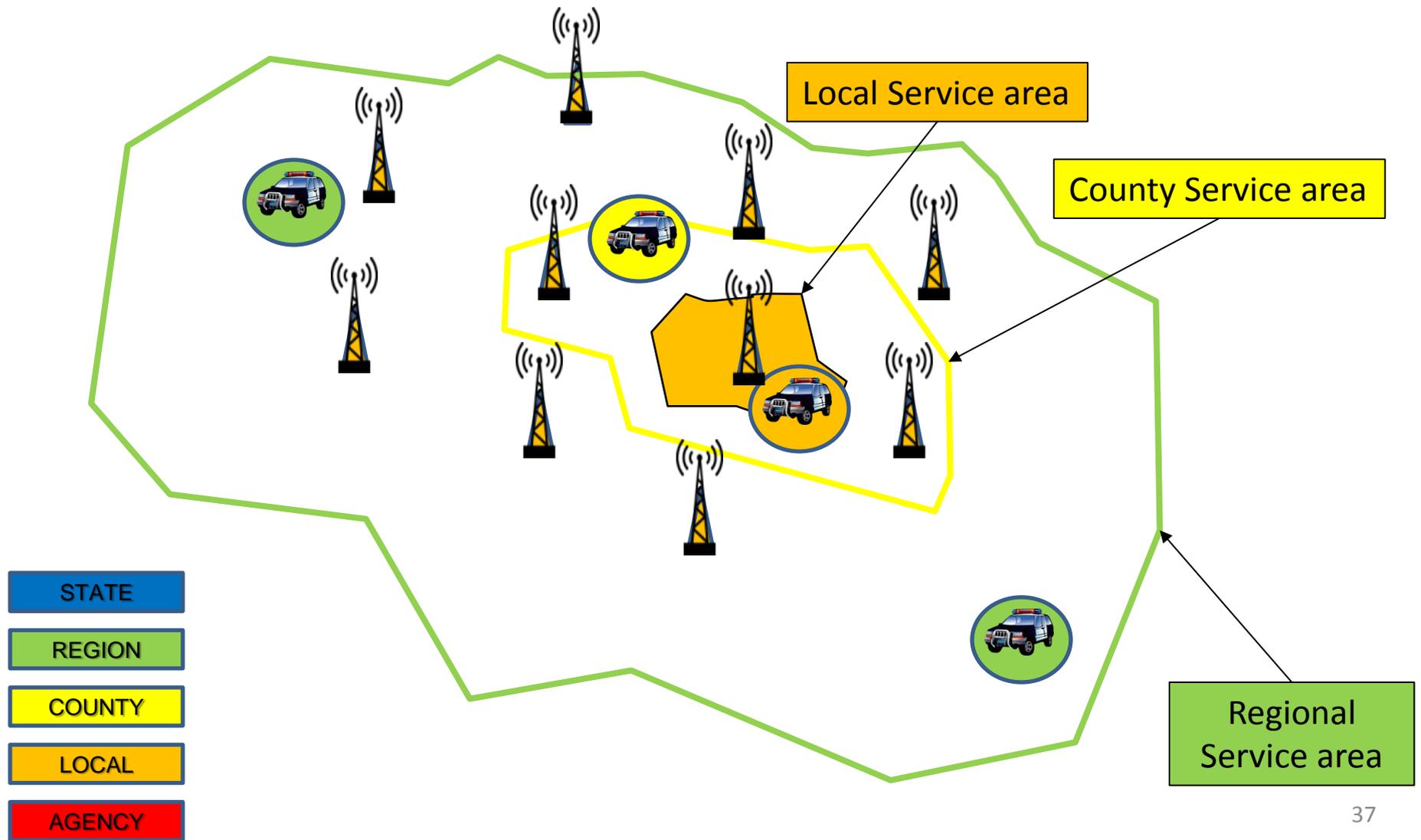
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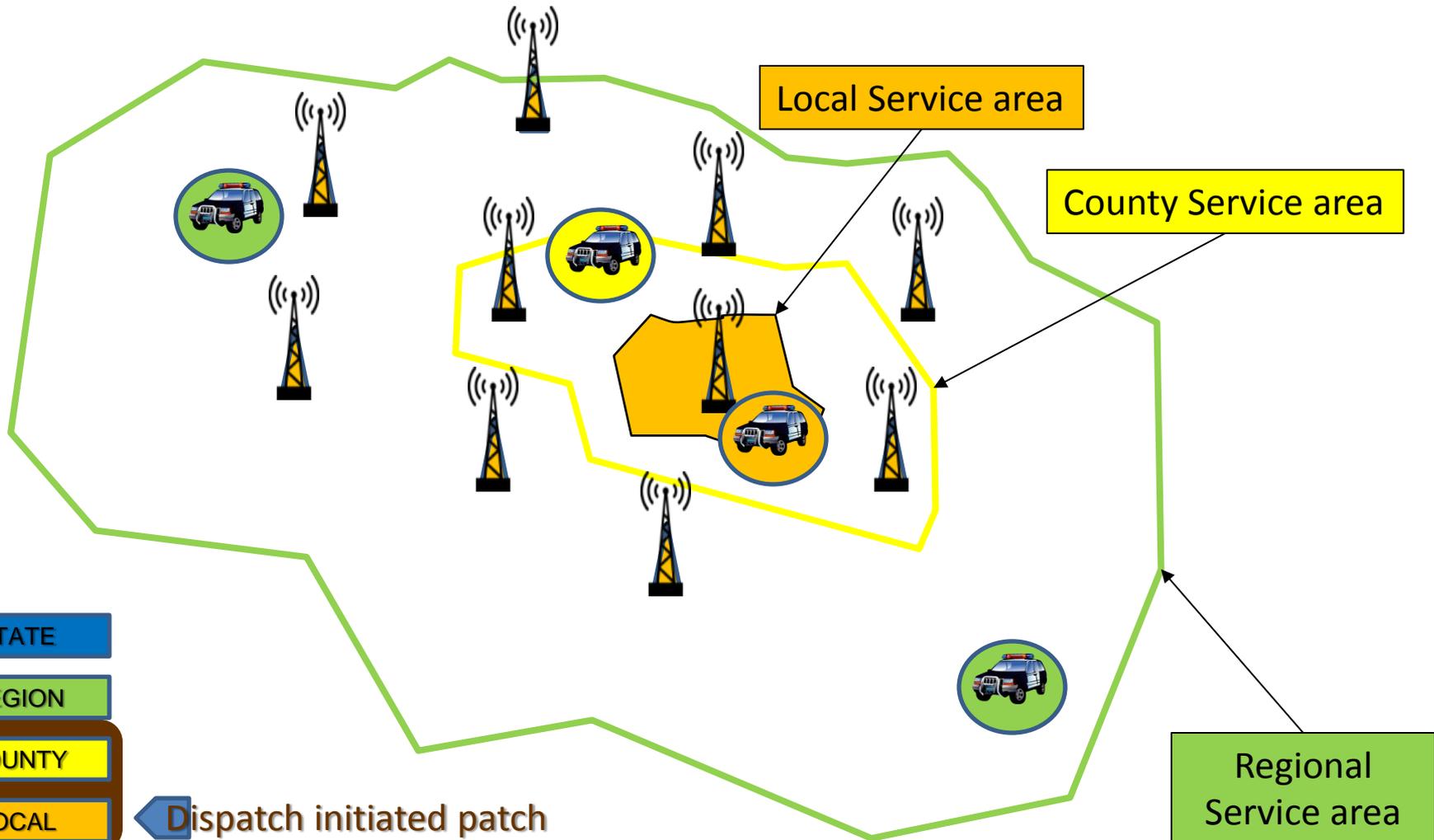


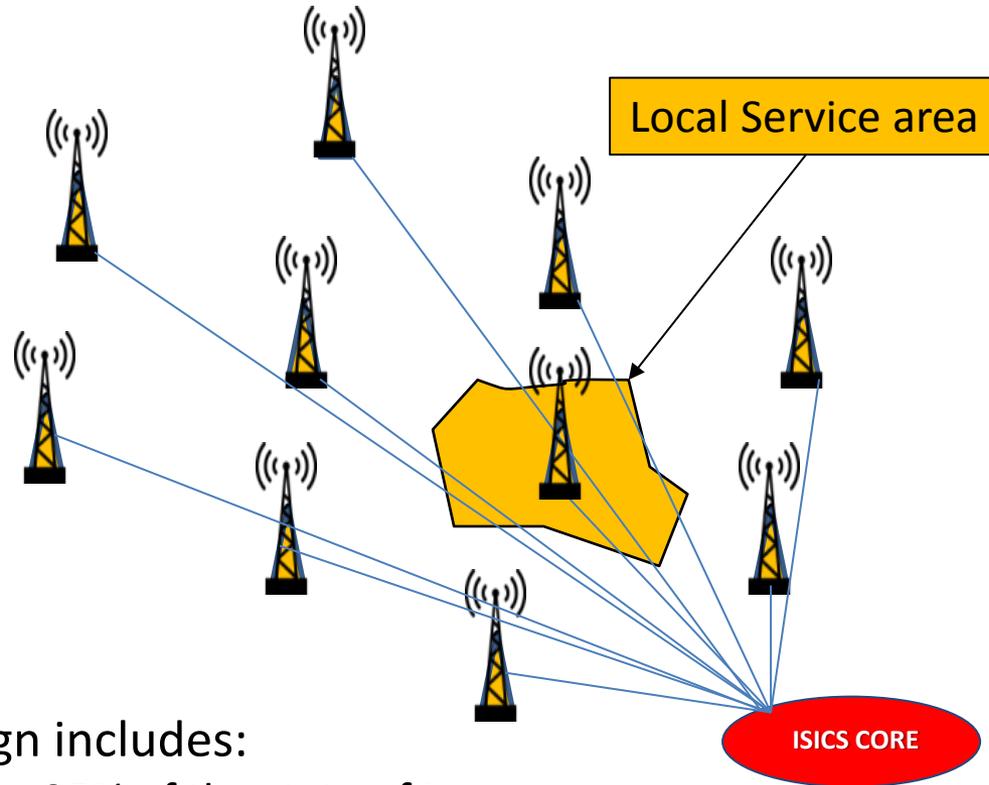
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Portable Radio Top View







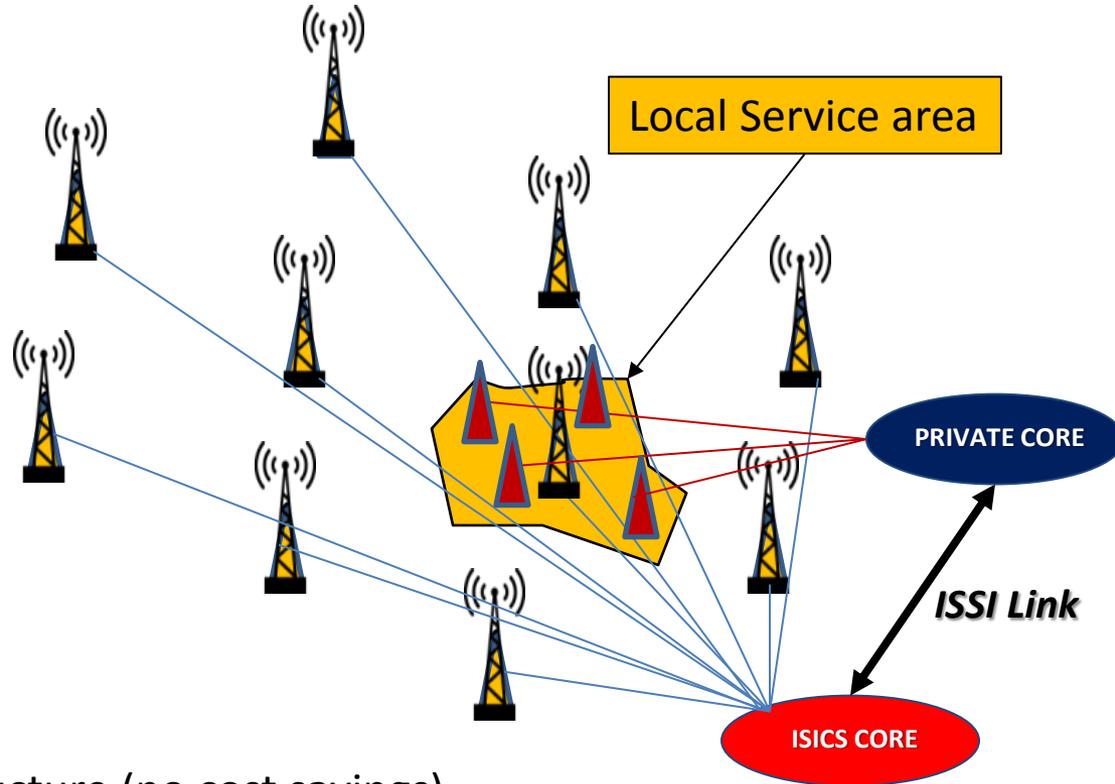


ISICS baseline design includes:

- Mobile coverage for 95% of the state of Iowa
- Encryption
- Basic data services
 - Over the air re-keying (OTAR)
 - Over the air programming (OTAP)
 - GPS location



Without integration



- Acquire all infrastructure (no cost savings)
 - Build another layer of infrastructure
 - Build and operate another core
 - Build and maintain another backhaul layer
- Only baseline ISSI features
- Establish agreements to allow traffic across platforms



ISICS Design Summary

- Statewide platform for operability and interoperability
 - Day to day usage
 - Establishes multiple statewide interoperability channels for small to larger scale operations
- Baseline statewide 95% mobile coverage
 - Portable coverage can be increased based on local need
- Scalable public safety grade platform for local agency needs
- Basic Data services
- Operate in 700Mhz public safety spectrum (dedicated spectrum)
- Open source, open standard, P25 Compliant
 - Non-proprietary solution allows user to select radio vendor
 - User must either reprogram existing 700Mhz P25 capable radios or acquire P25 compatible radios to access the platform
- No fees to access and utilize the platform



Contacts

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- **Motorola Deployment Manager**
Melvin Mercado, Project Director
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Web Resources

- ISICS Web Site
<https://isicsb.iowa.gov/isics-radio-platform>
- ISICSB Web Site
<https://isicsb.iowa.gov/>
- P25 Standard
<http://www.project25.org/>
- Motorola Website
<https://www.motorolasolutions.com/>



Questions





Thank you for joining ISICS Technical Webinar

- **State Deployment Manager**
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