Spectrum Policy for an IP World: The public safety example

Robert Pepper
Senior Managing Director
Global Advanced Technology Policy

March 1, 2006

Why Spectrum Policy Matters

- **Driving broadband**
- **Extend/complement fixed networks**
  - Telco
  - Cable
- **Serve unserved and underserved areas**
- **Mobile and nomadic broadband**
- **New capabilities**

Key Lessons

- **Flexibility → Technology**
- **Flexibility → Service Regulation**
- **Flexibility → Trading**

- **Avoid false choices**
  - Licensed v. Unlicensed
  - Voice v. Data
  - Public Safety v. Commercial

Rethinking Demand for Spectrum

- **Spectrum is simply a resource that extends our ability to communicate**
- **Broadband and IP creating demand for spectrum--more than just narrowband or voice**
  - 4.9 GHz and 700 MHz examples
- **IP complementing spectrum**
  - Enabling efficiencies
  - Pushing new features into old radios

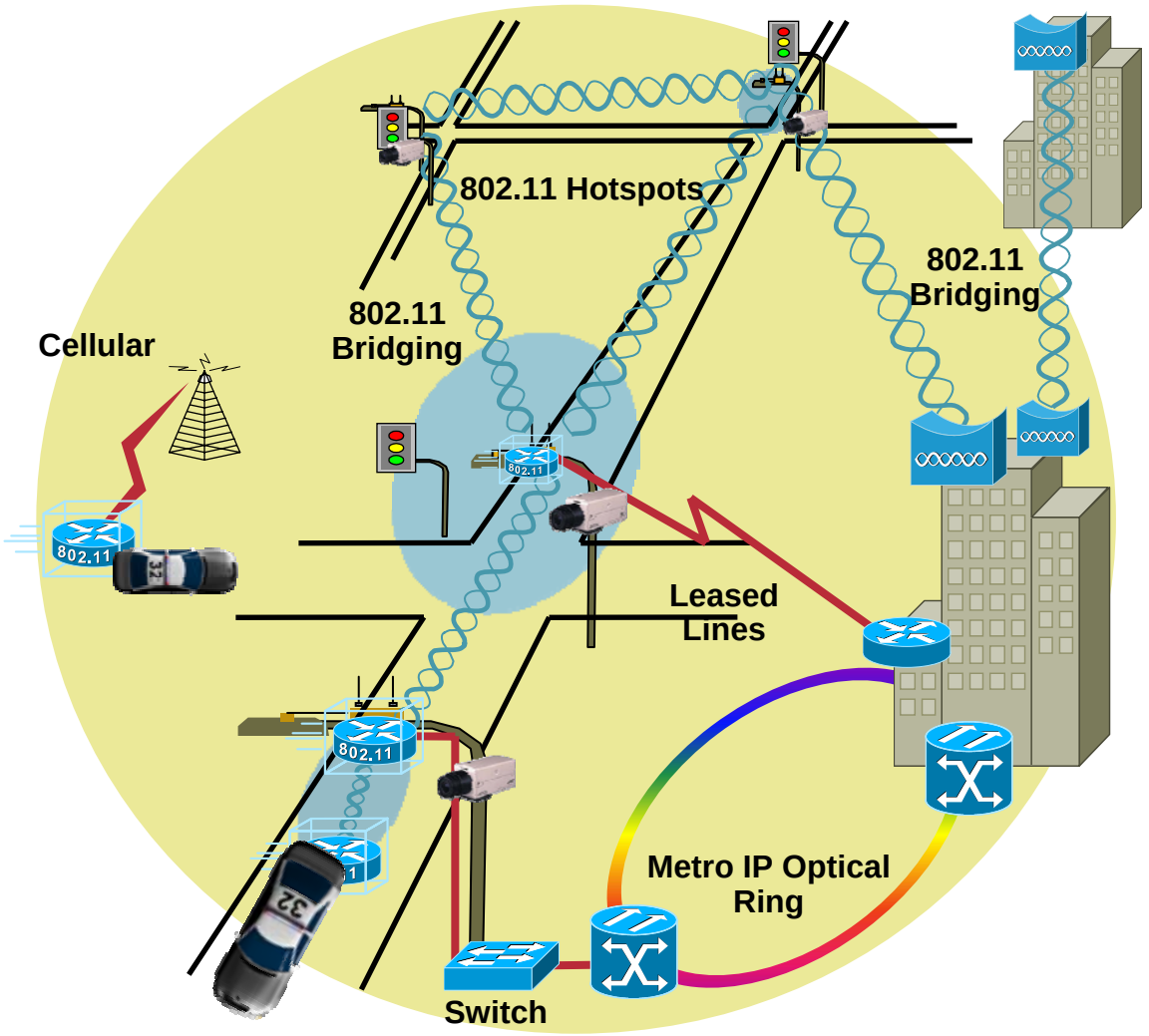
Vision for Public Safety

In-Vehicle Networks

Fixed Infrastructure/Applications

Mobility Clients

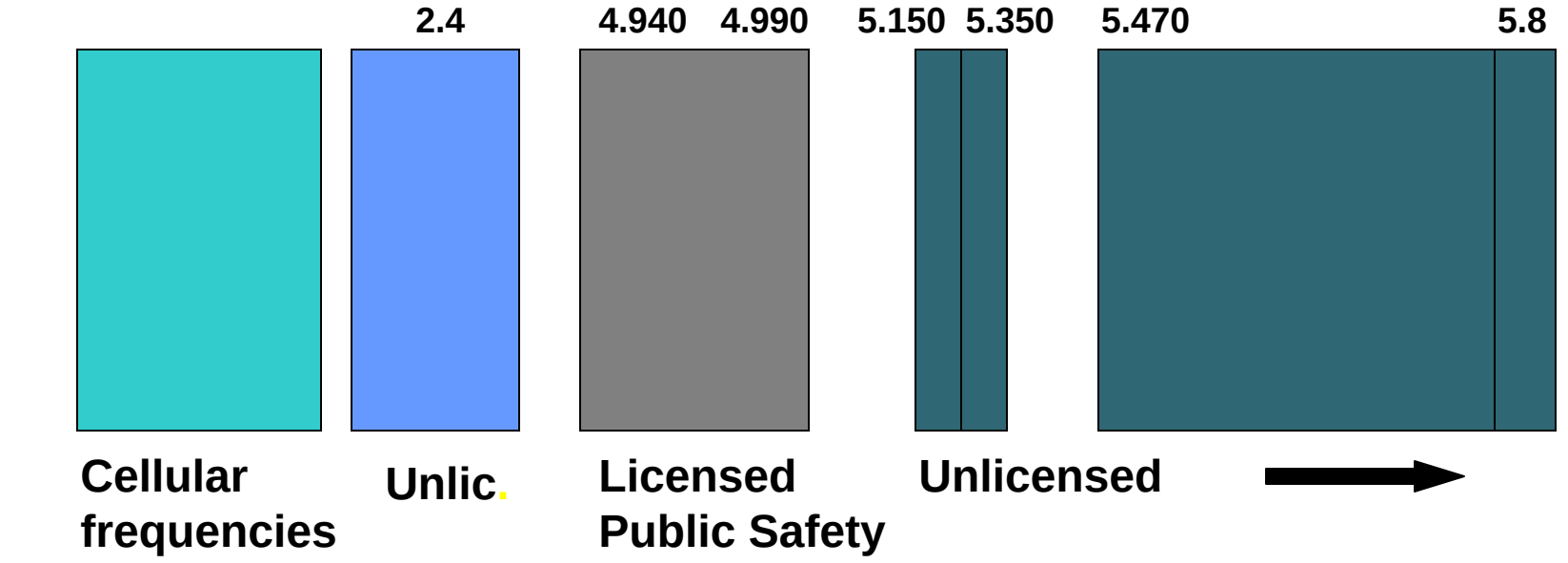
Secure, Scalable Broadband Wireless Networks



Solution: Flexible 4.9 GHz for Broadband IP

- **50 MHz spectrum allocated by FCC for public safety use**
  - Flexible broadband mobile, fixed hot spots, and mesh applications
  - Different channel widths
  - Licensed to public safety
  - Design in security—wireless (layer 2) authentication and encryption
- **Bridging with unlicensed WiFi**
  - Leverage off the shelf WiFi technology

4.9 GHz as a Flexible Licensed RF IP Platform Bridging with Unlicensed 802.11x



Interoperability Problem: Getting the Right Information to the Right People

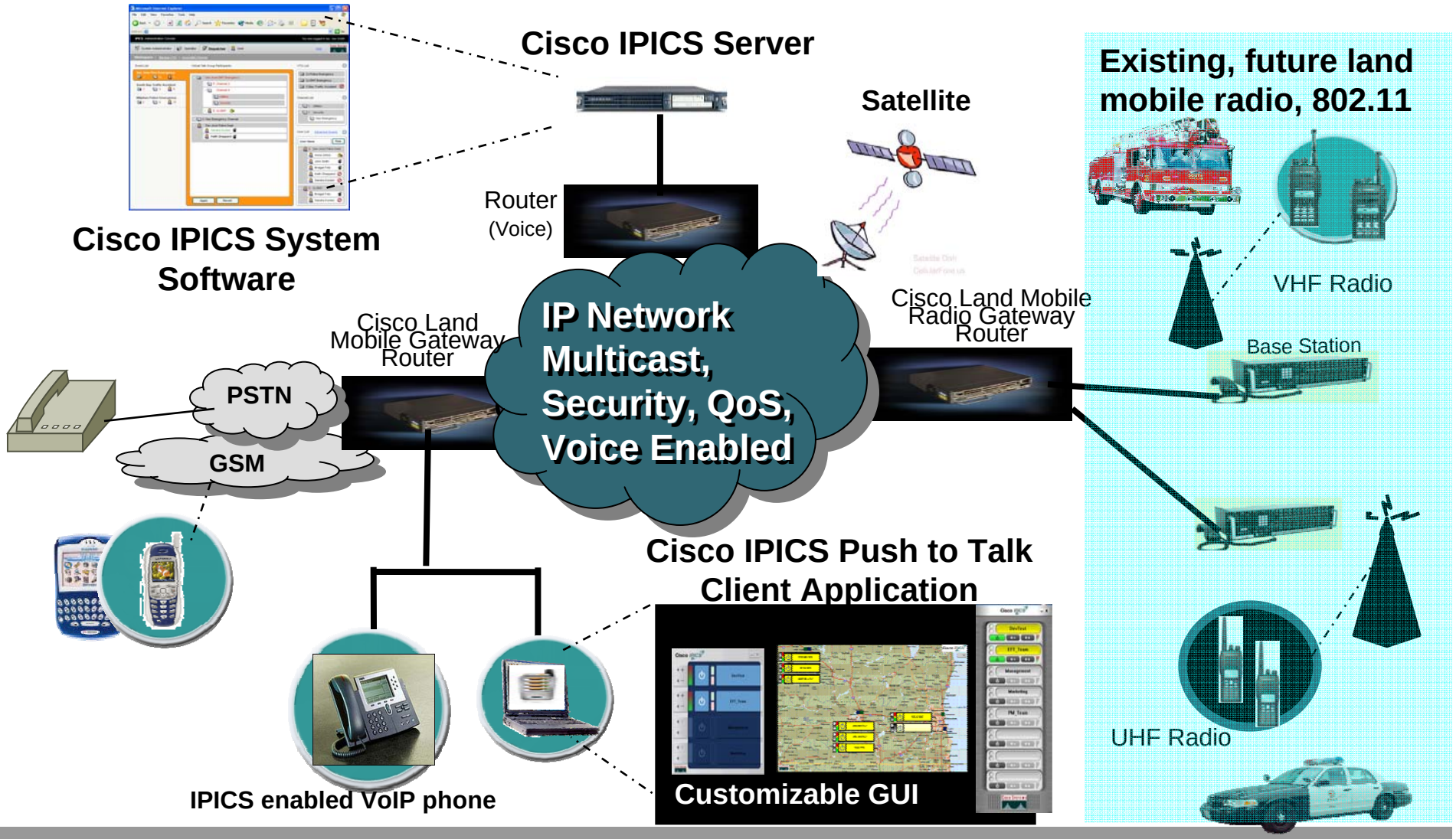
Operational silos
No interoperability
No collaboration
Expensive: Radio only
Proprietary networks

Example: Public Safety

Problem: Limited Capabilities and Costly Long Transition

- Proprietary
- Push-to-Talk voice only
- $20-30B estimated system replacement cost across state, local, and federal governments
- SAFECOM goal is 2023

Solution: Leveraging the Power of IP for Interoperability



New Lessons

- **Demand for spectrum coming from broadband and data, not just voice**
- **IP architecture and networks can complement spectrum, reducing demand, time to market, and cost**
- **Spectrum may not be the best way to solve old problems**
- **Need to understand tradeoffs between spectrum and non-spectrum based solutions**
- **Flexibility, flexibility, flexibility**