

The State of the Spectrum Debate

- All agree that the current bureaucratic/political allocation of spectrum has been a disaster we can no longer afford; FCC as GOSPLAN
- Two solutions:
 - Coasian: permit licenses to be owned by private (and public) parties, and bought/sold/leased. Property rights of licenses control interference
 - Commons: new technologies permit *dynamic* control of interference via hardware; get rid of exclusive licenses in favor of a commons plus protocols

We Agree On...

- Traditional FCC allocation has led to artificial scarcity, which both sides believe can be turned into abundance
- Both sides believe that for the moderately long run, both commons (“inclusive” use, *aka* unlicensed) and exclusive licensing will have roles and will co-exist.
- Both sides seek to encourage innovation in spectrum use, but draw on different historical experience to support their cause.
- Both agree that either regime (and today’s regime) constitute different property rights regimes; they differ in what those rights are.

We Disagree On...

- ...best legal governance structure
 - Current system of regulated exclusive licenses a failure
 - Commons advocates think exclusive licenses are the problem
 - Market advocates think regulation is the problem
 - Market advocates seek to remove the FCC from allocation and dispute resolution; let the market and the courts sort it out (as in the rest of the economy)
 - Commons advocates seek “light regulation” of the commons/unlicensed as a means of creating a market in interference-avoiding devices that anyone can use

Outstanding Issues

- Does exclusive owned licensing mean...
 - Only Private ownership?
 - No; public entities will own large swathes (e.g., military)
 - Only exclusive use?
 - No; there are business models for licensees to offer inclusive use
 - Device mfrs buy spectrum, capitalize into price of handset
 - Band manager model
 - Private park model
 - Public park model
 - Non-interfering easement for overlay/underlay uses

Outstanding Issues, Part Deux

- Governance of exclusive owned licenses
 - Transition from FCC to market:
 - Definition of property rights/restrictions
 - FCC exits, stage left
 - Licenses transact in secondary markets
 - Disputes (e.g., interference) resolved by courts
 - Inclusive use spectrum regulated by licensee
 - Private licensee sets and polices the rules (e.g., Disneyland); *private regulation*
 - Public licensee sets and polices the rules (e.g., Yosemite); *public regulation*

Outstanding Issues, Part Trois

- Governance of the commons
 - Requires adoption of common standards and protocols for different bands
 - Who decides which protocols, which standards?
 - Who enforces protocols?
 - Incentives to cheat? *YES*
 - Who decides which bands get which standard?
 - We'll have continued need for an FCC
 - Incentives of private parties to lobby for adoption of their protocols, public enforcement of their interests, etc.
 - Unlicenses/commons *requires* continued regulation

“Light” Regulation?

- Commons/unlicensed advocates suggest only light regulation is needed
 - Such as the CPE interconnection interface
- Stigler-Posner-Peltzman theory of regulation suggest this will quickly migrate to the usual pervasive regulation
 - Interested parties (competitors, suppliers, customers) will demand the regulator serve their interests
 - Regulation will expand to meet this demand
 - “Light” regulation is an oxymoron, like “jumbo shrimp”

So What is the Overarching Regime?

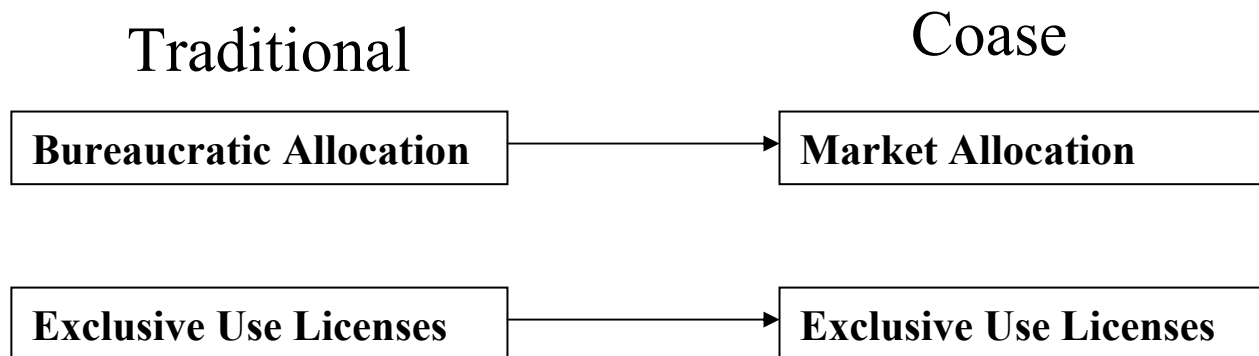
- It can't be commons, because that leaves no room for exclusive use
- If it's mixed exclusive licensed and unlicensed, then the mix (and conditions) will be regulatory, as today
- If it's property/markets, then exclusive and inclusive use can co-exist
 - Particularly with non-interfering easement

Conclusion

- This debate is really over spectrum governance:
 - Exclusive licenses with ownership rights: property rights enforced in court, dead hand of regulation removed
 - Commons/unlicensed: requires continued regulation but shifts the locus of lobbying from licenses to hardware and protocols, enforcement. Dead hand of regulation still with us
- Where you are in this debate depends upon your view of regulation

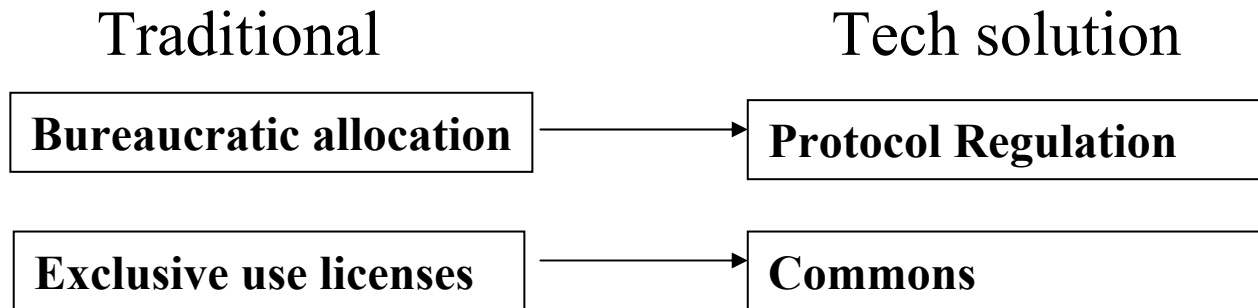
Coase's Solution

- Move from bureaucratic/political allocation of scarce resources of exclusive use licenses to a market allocation



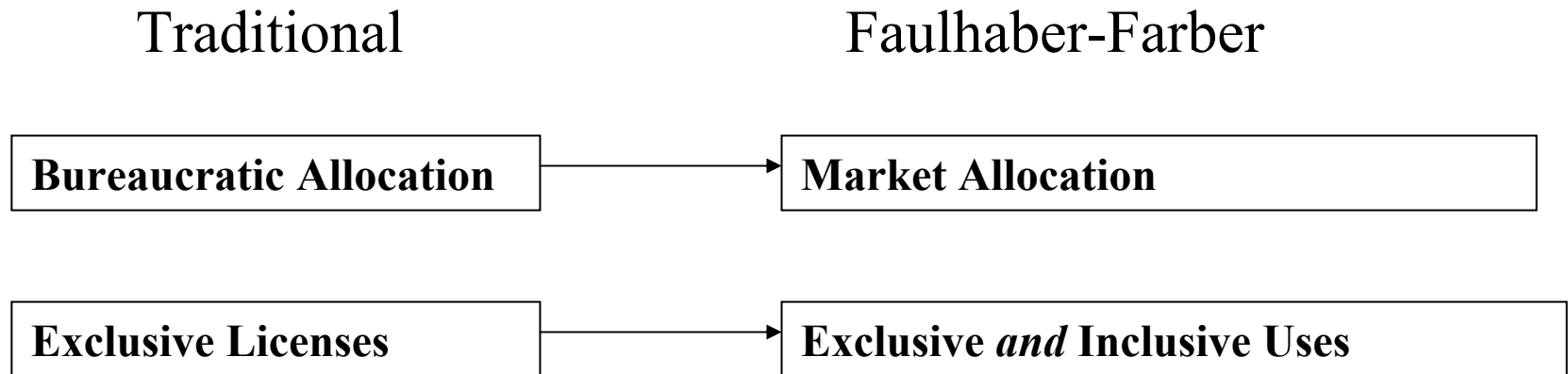
The Tech Solution

- New technologies break the exclusive use paradigm; move from exclusive use to commons



The Both/And Solution

- Implement property right with *noninterfering easement*
- Encourage public and private commons within property rights model



Overarching Regime Choice

- Overarching property rights regime accommodates public/private and exclusive use/commons

Business Model

	<i>Exclusive</i>	<i>Commons</i>
<i>Private</i>	Power 99	Motorola (e.g.) mesh networks
<i>Public</i>	Military	Part 15