Can Wholesale Broadband Regulation Prevent and Eliminate Digital Discrimination?

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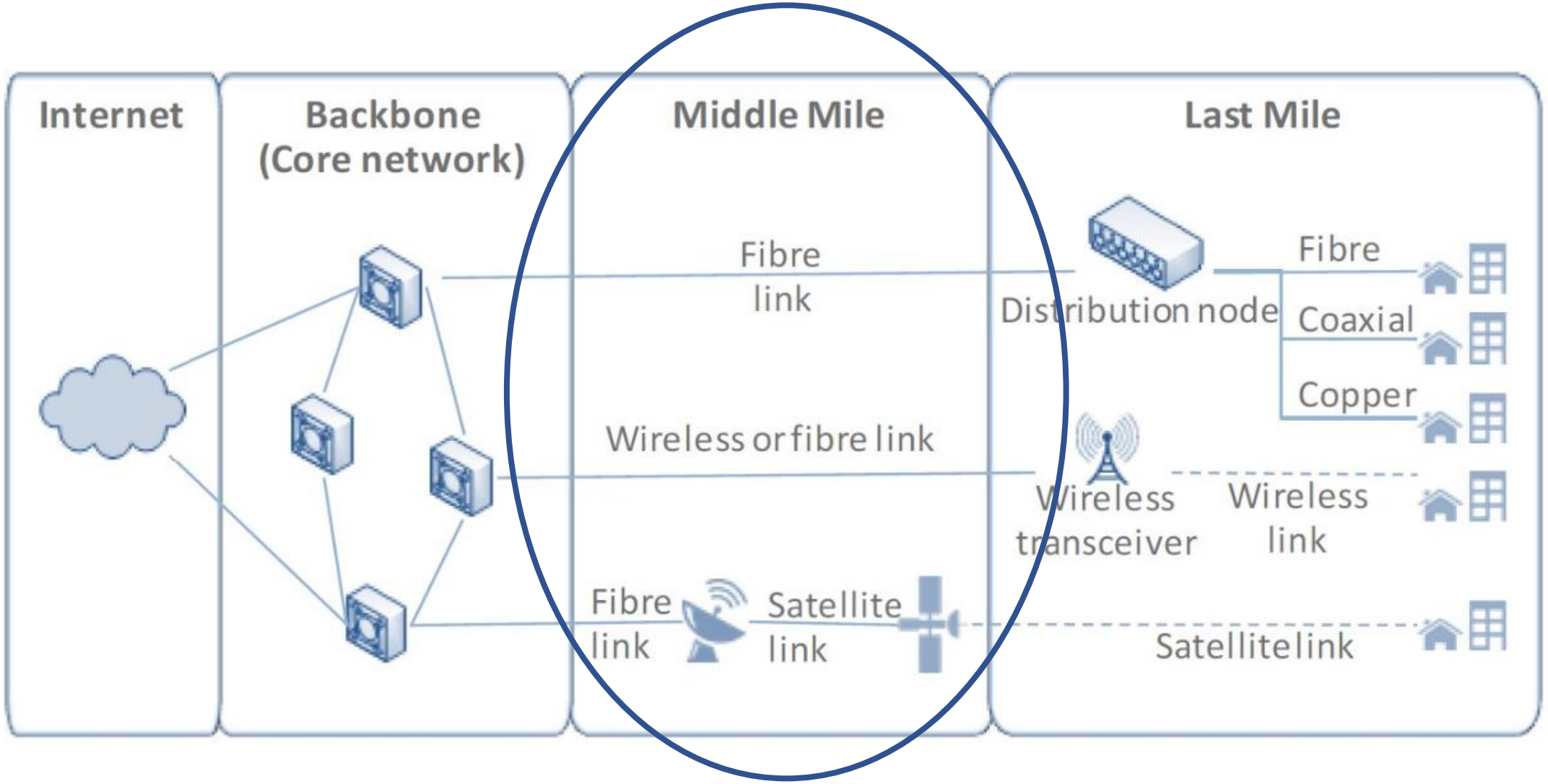
Motivation

- All-of-government, once-in-a-generation effort to deploy fast broadband to unserved and underserved locations
- Targeted goal to prevent and eliminate disparities that relate to income, race and other “covered populations”
- Bulk of funding devoted to last-mile deployment and adoption, but the potential of the middle-mile network is often overlooked
- How can middle-mile deployment expand coverage so as to remove disparities?
- How might wholesale middle-mile regulation unlock this potential?

Middle mile networks



Benefits of middle mile expansion

- Lower wholesale cost due to facilities-based competition
  - Expands capacity that drives down cost to last-mile providers
  - Facilitates last-mile entry that, in turn, drives down retail prices
- Higher quality of wholesale services
  - Greater transport capacity
  - Greater redundancy and route diversity
  - Adoption of advanced technology

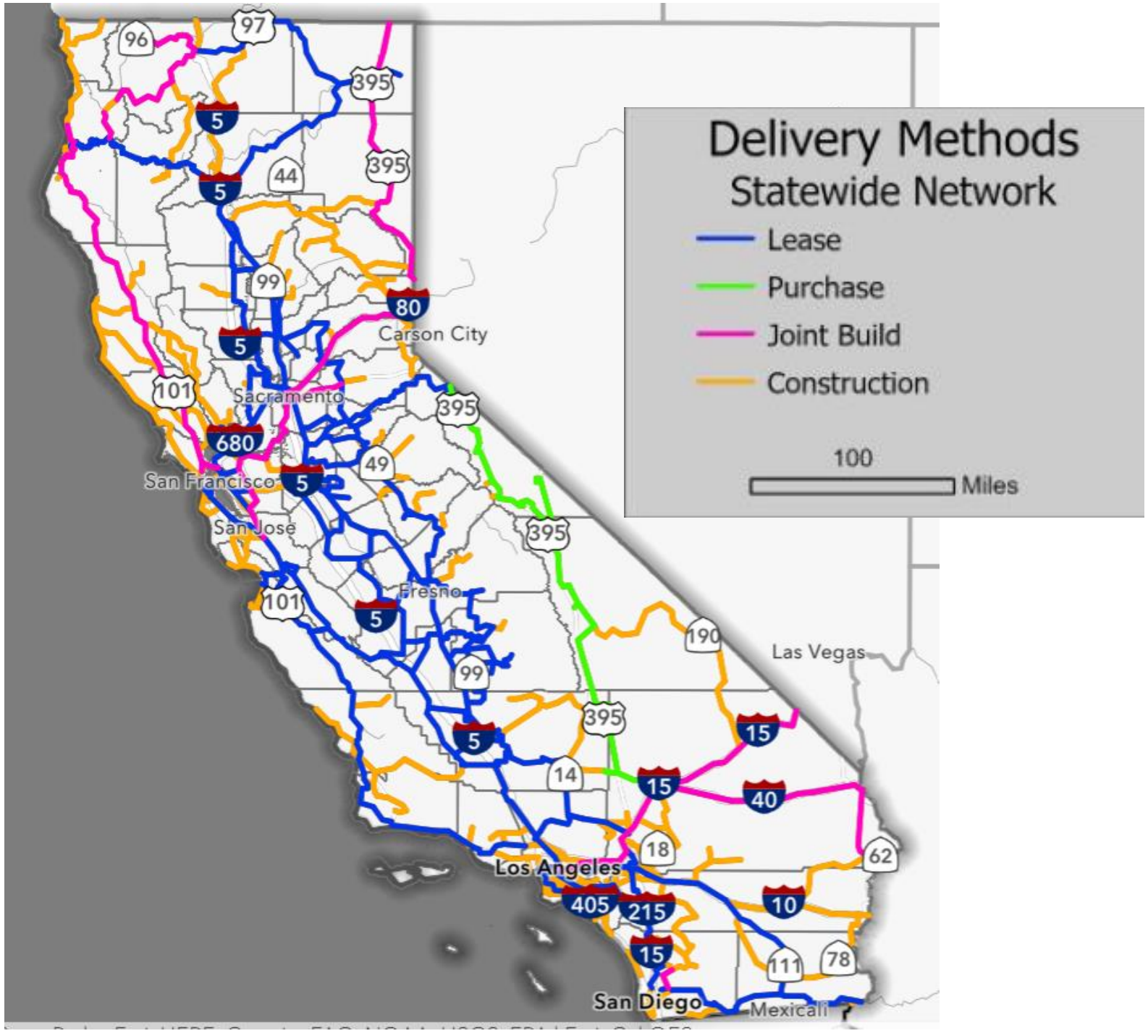
Middle mile policies in action

- Federal MM grant program
  - IIJA allocated $1B ($930M awarded to 35 projects)
    - Combined with $848M state and local match
  - Screen grantees based on financial, technical, managerial capacities
- State MM projects
  - CA, CO, DC, IL, KY, MA, MD, ME, ND, OR, VT, WA, et al. have built networks
  - Most are open access that offer service, often under negotiated rates, terms & conditions
- Last mile support
  - FCC high-cost subsidies: CAF ($4.2B/2022), RDOF ($20.4B/10 years)
  - Lifeline ($700M) and ACP ($14.2B) for broadband service and devices
  - E-Rate ($11.9B) and ECF ($7.1B) for elementary/secondary education

California MM broadband initiative

- Financing of MMBN
  - S. 156 allocates $6B for state broadband
    - $3.25B for statewide middle mile network administered by the CDT
    - $2.0B for last-mile projects selected by the CPUC
  - $73M from NTIA MM Grant Program
  - CASF Broadband Infrastructure Grants
- Design of MMBN
  - Topology follows state highway ROWs, targeting un/under-served areas
  - Deployment options: Lease, purchase, joint build, construct
- Operation of MMBN
  - Open access at stipulated interconnection points
  - Unbundled service components (vault, HVAC, power, etc.)

California Statewide Middle Mile Broadband Network



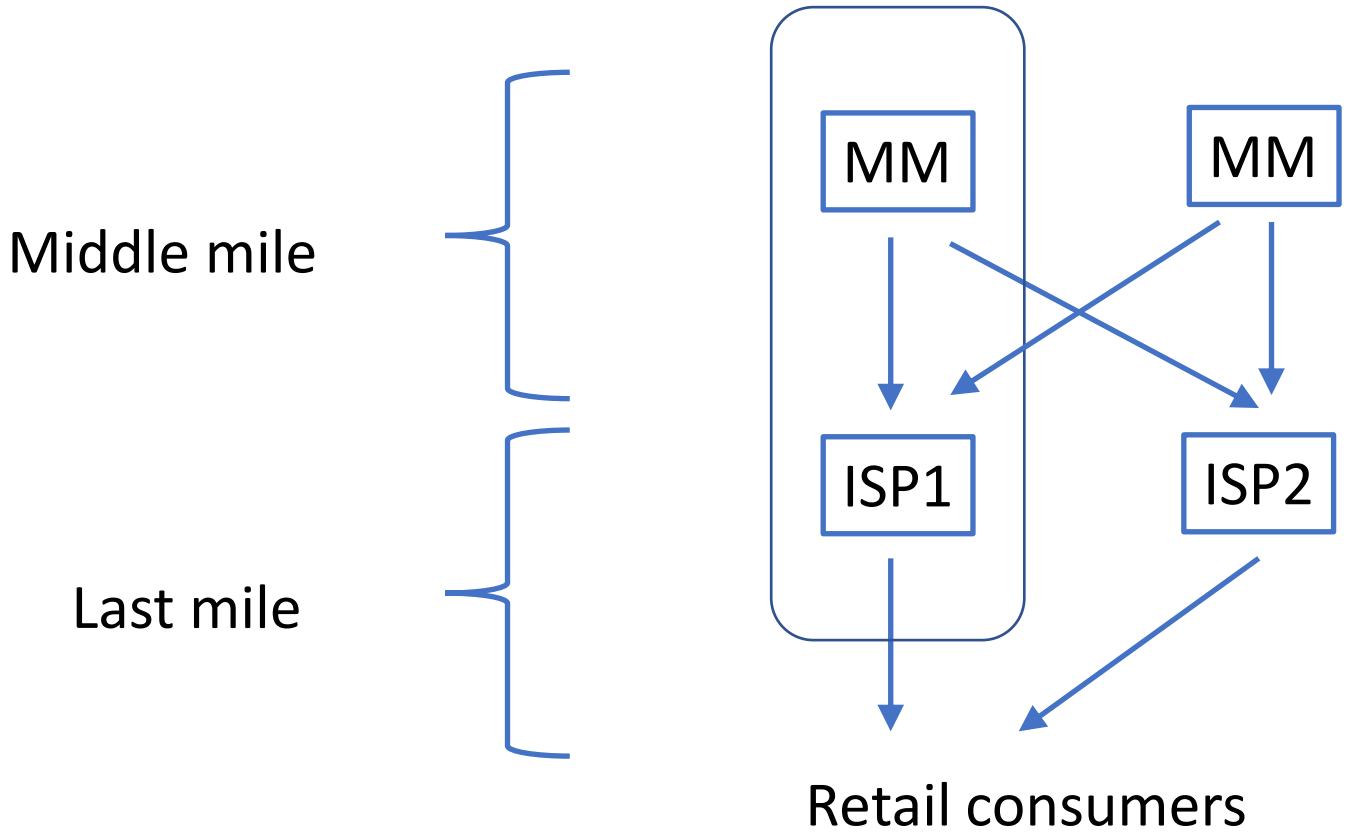
Open access provisions

- Customer eligibility
  - Financially and technically capable last-mile ISPs
  - Neutral to customer's technology, ownership structure
  - Participate in consumer subsidy programs (e.g., Lifeline)
- Interconnection points
  - Regular spaced handholes, vaults
  - Anchor institutions
  - Carrier hotels
- Wholesale services
  - Lit or dark fiber, wavelengths, colocation, SD-WAN, cloud, VoIP
  - Interconnection
  - Purchases capped at a maximum

Pricing middle mile services

- Rate setting methodologies
  - Engineering cost model (e.g., HCPM/TELRIC)
  - Accounting cost model
  - Retail-minus methodology
  - Yardstick regulation, price benchmarks
  - Bilateral commercial negotiations
- Regulated pricing principles
  - Just, reasonable and non-discriminatory
  - Competitively neutral

Wholesale regulation of middle mile



Summing up

- Middle mile is an essential, but often overlooked, element of broadband infrastructure
- Middle mile deployment can help close the digital divide and address digital discrimination
- Middle mile deployment can be promoted by a variety of direct and indirect subsidies and policies
- Middle mile wholesale regulation can foster last-mile competition, but net effects on consumers are unclear

Thank you. Questions?