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Gigabit Communities: Technical Strategies for Facilitating Public or Private Broadband Construction

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Strategies

- Building to demand
- Build, improve, expand assets
  - Fiber
  - Conduit
  - Real estate/interconnection sites
- Share information
- Optimize processes

Case studies

- Urbana/Champaign IL
  - Limited public investment model
- Carroll County, Westminster MD
  - Large public investment model
- Raleigh NC
 - Facilitation model

Strategy: Building to demand

- Economic basis
- The model: Google's fiberhoods
- An alternative fiberhood model: UC2B
- Challenge: low demand areas are frequently low income areas
- Role for locality and community groups
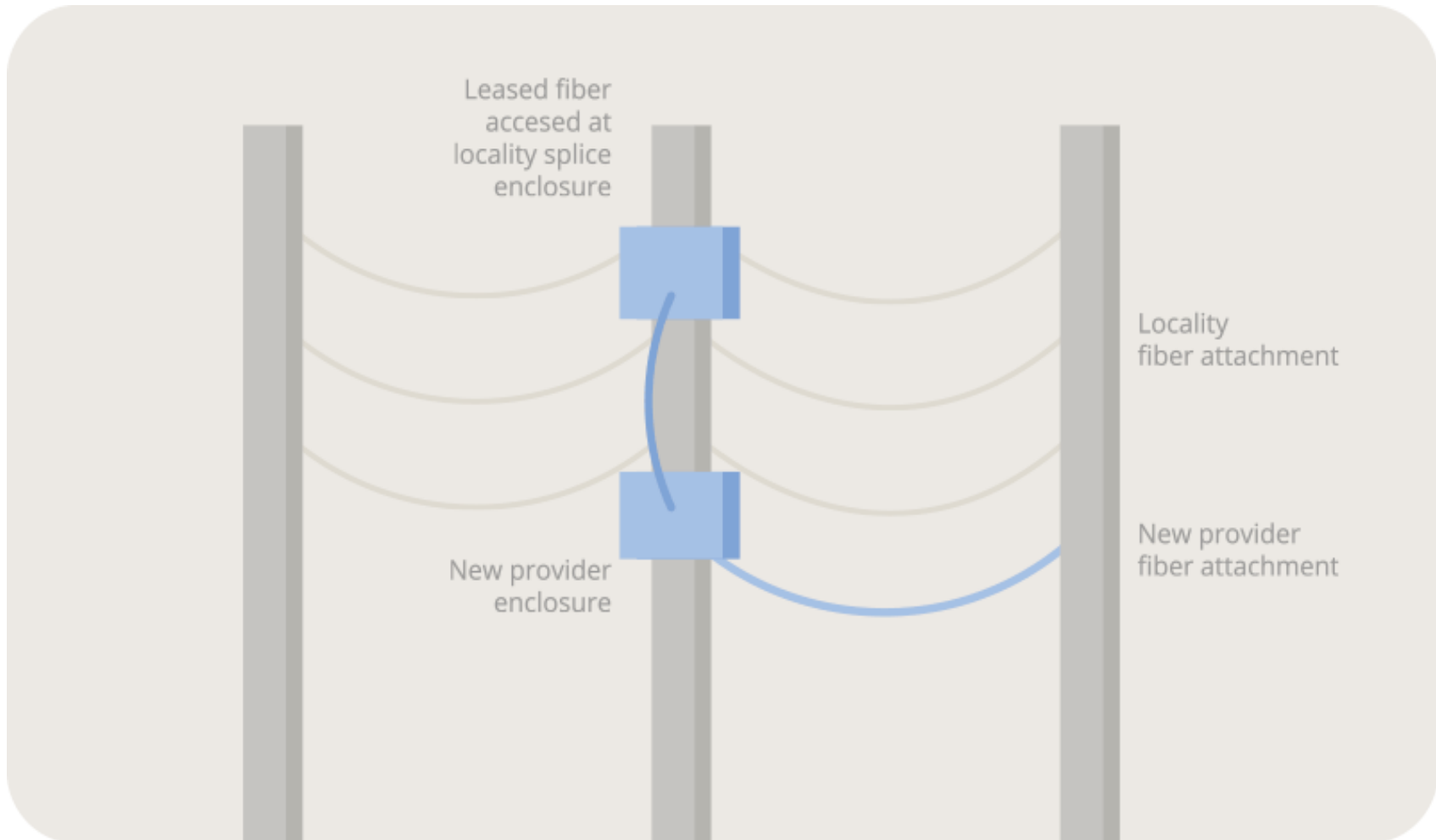
Strategies: grow your assets

Access to Key Assets

✓ **Lease public assets such as fiber, conduit, and real estate**
  - Lease middle-mile fiber
  - Lease fiber in hard-to-reach areas
  - Increase existing fiber capacity if insufficient fiber exists

✓ **Facilitate underground construction**
  - Develop a "dig-once" policy
  - Maintain future-proof conduit specifications
  - Enable all parties to take advantage of "dig-once"
  - Place conduit banks in congested areas

✓ **Facilitate aerial construction through access to utility poles**
  - Facilitate make-ready process to streamline pole access
  - Eliminate the need for make-ready

✓ **Facilitate in-building access for wireline infrastructure**
  - Ensure availability of conduit from street to building
  - Ensure installation of in-building pathways and cabling
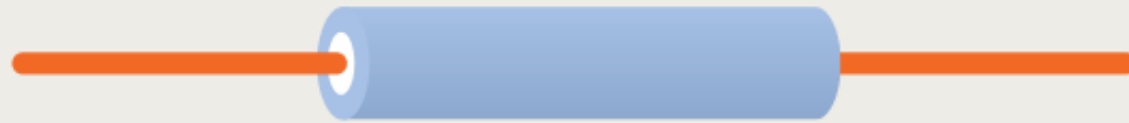
Asset: underground fiber
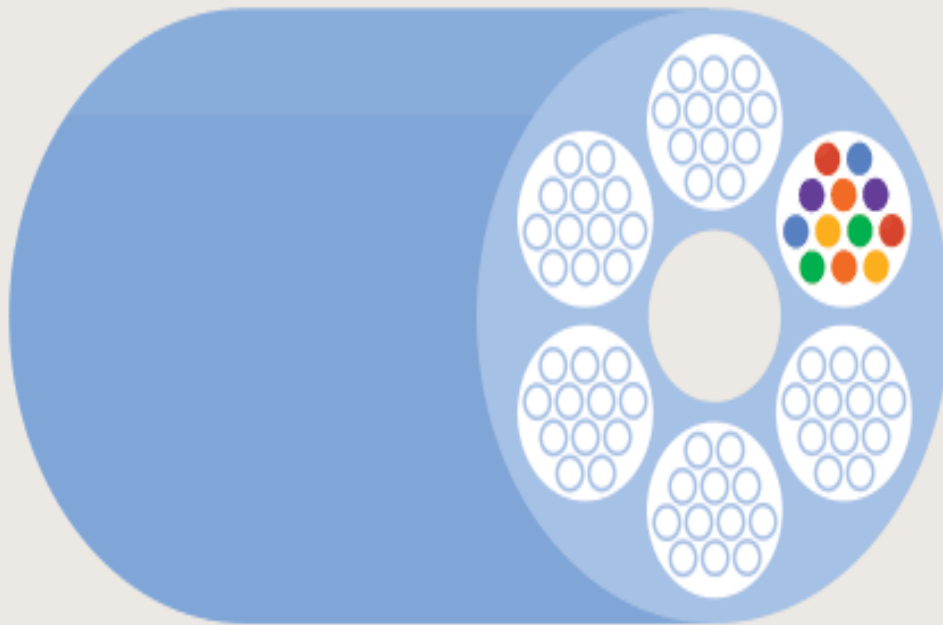
Locality leases or sells
12-count fiber tube to
broadband network providers
(shown as colored fiber
strands)

Asset: aerial fiber

Leased fiber accesed at locality splice enclosure

Locality fiber attachment

New provider enclosure

New provider fiber attachment
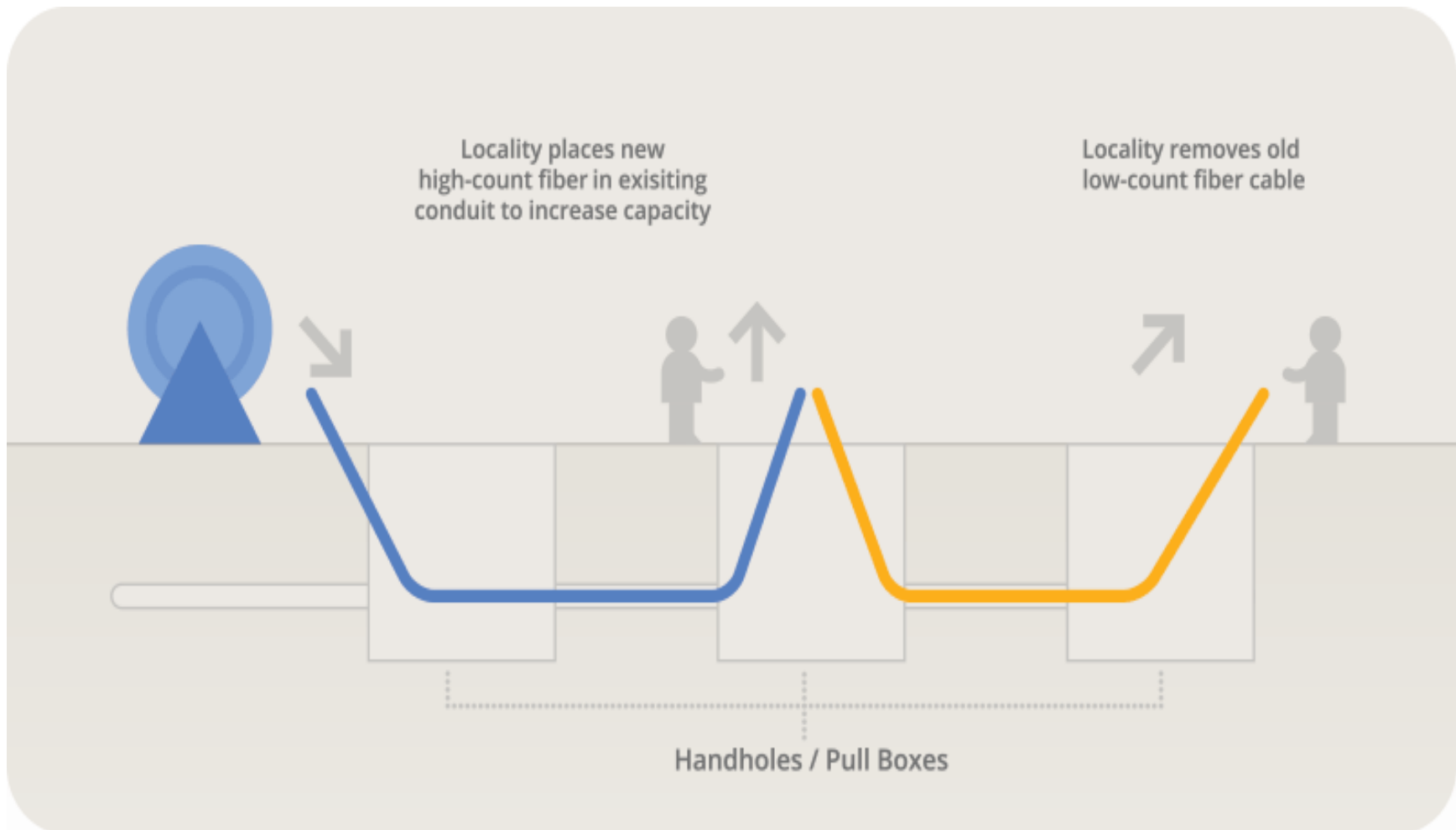
Grow your asset base: conduit

Narrow Conduit = Limited Capacity

Large Conduit = Spare Duct for Additional Capacity

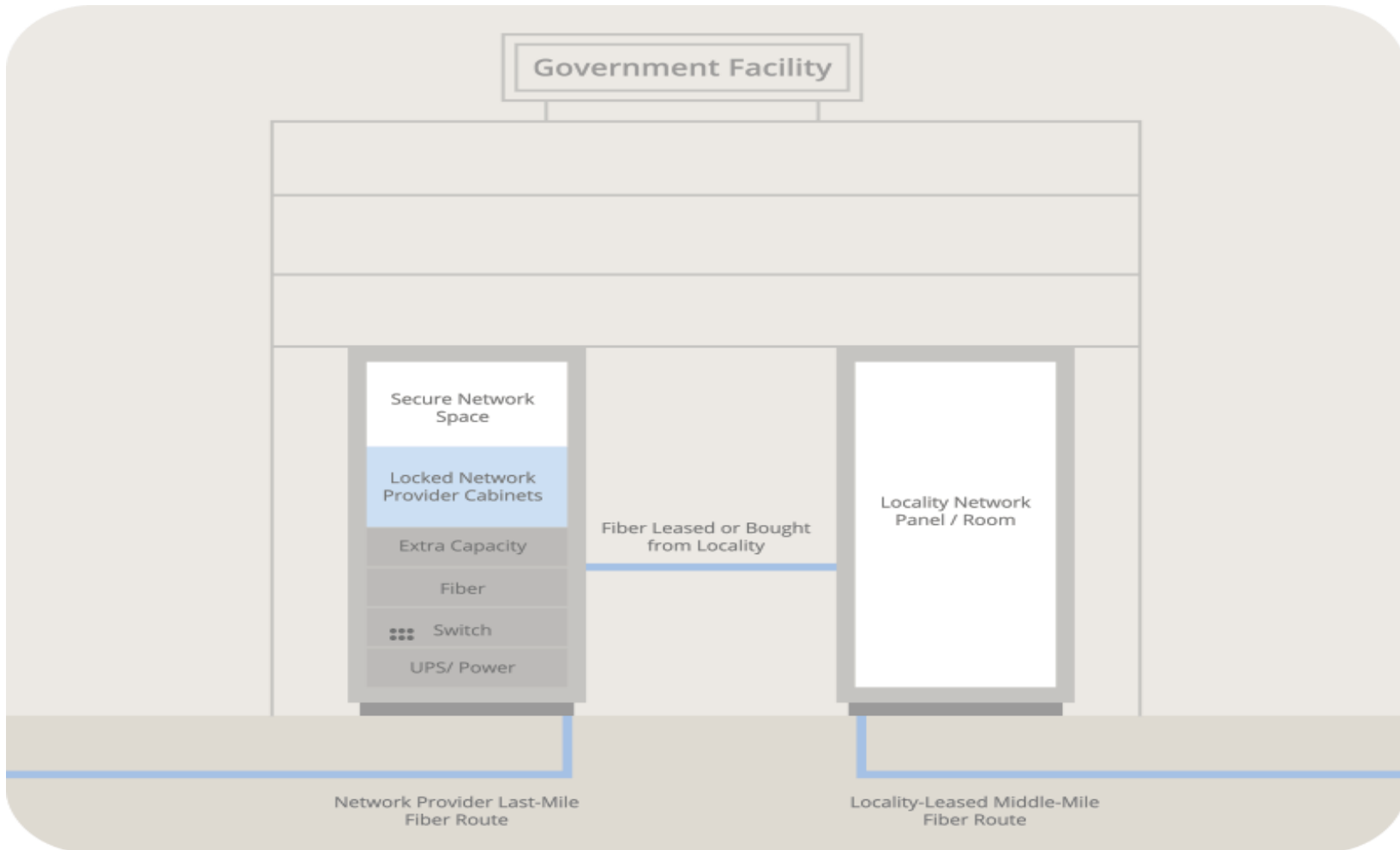# Grow your asset base: fiber

Locality places new high-count fiber in exisiting conduit to increase capacity

Locality removes old low-count fiber cable

Handholes / Pull Boxes

Grow your asset base: fiber

Locality overlashes new cable to its existing cable to add capacity
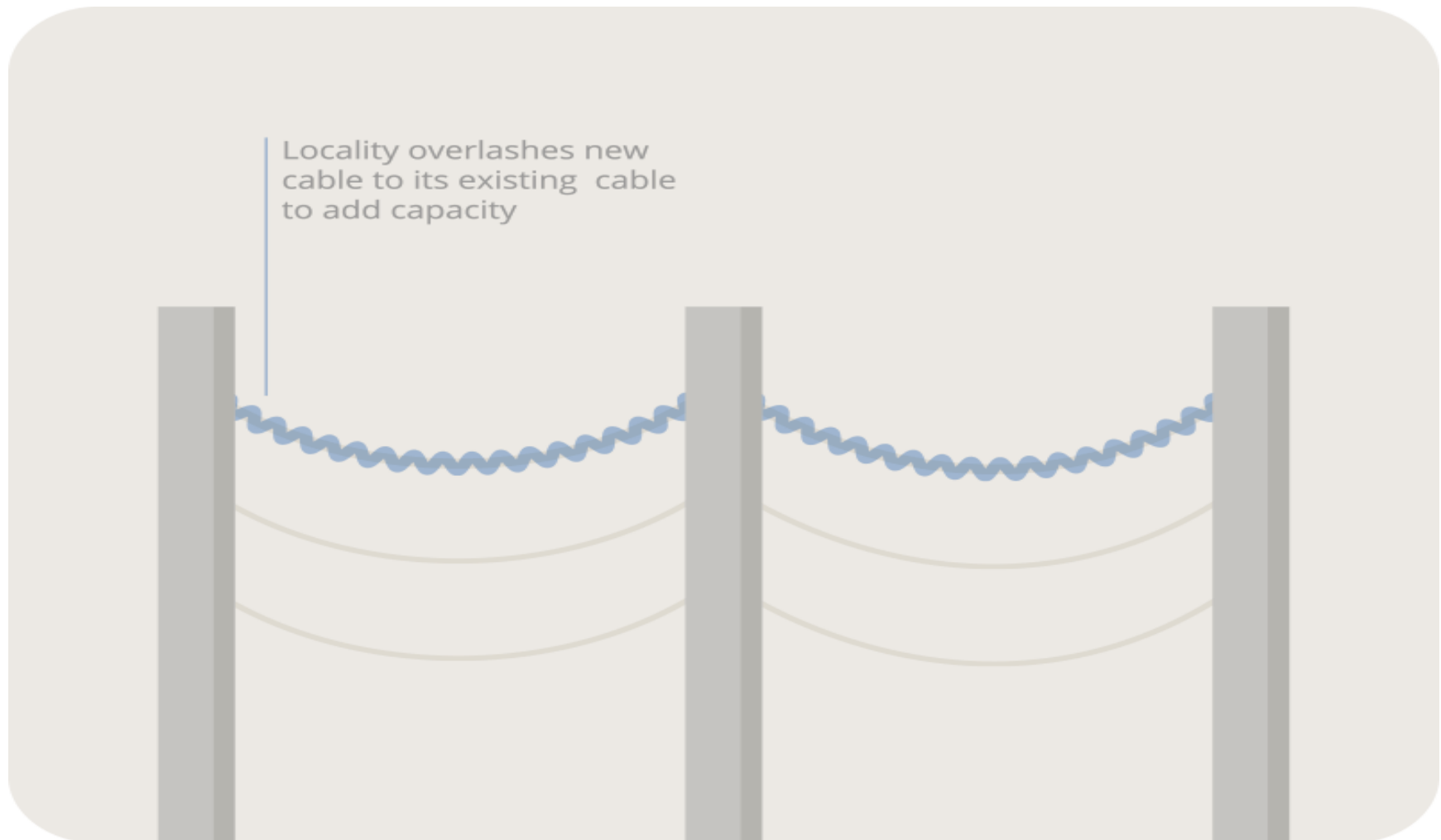
Asset: interconnection facility

Asset: interconnection facility

Government Facility

Secure Network Space

Locked Network Provider Cabinets

Extra Capacity

Fiber

Switch

UPS/ Power

Generator (Locality / Provider)

Two Racks (300 sq ft)
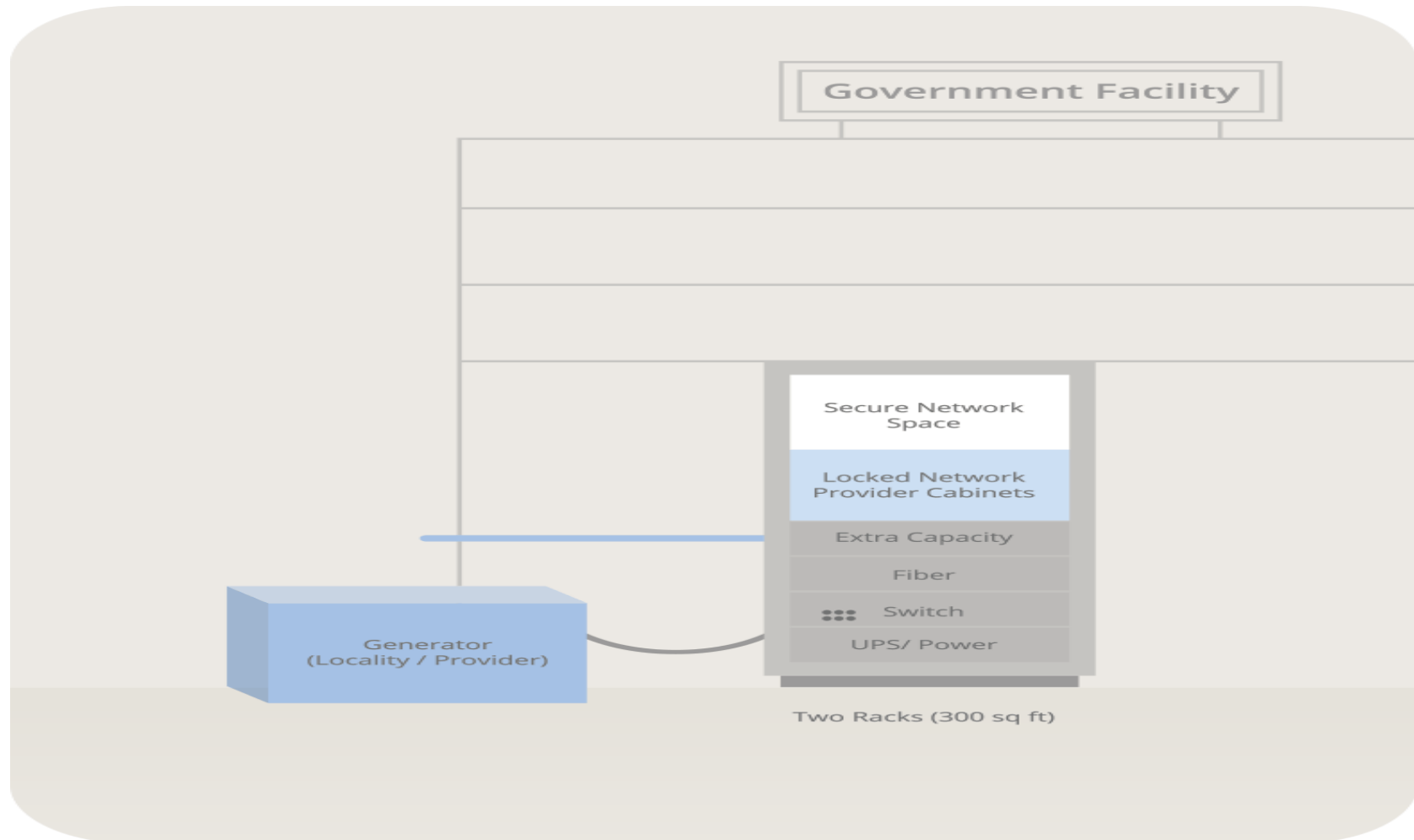
Your fiber reaches neighborhoods

NOC / Core Facility

Hubs colocated with government facilities

Neighborhood Fiber
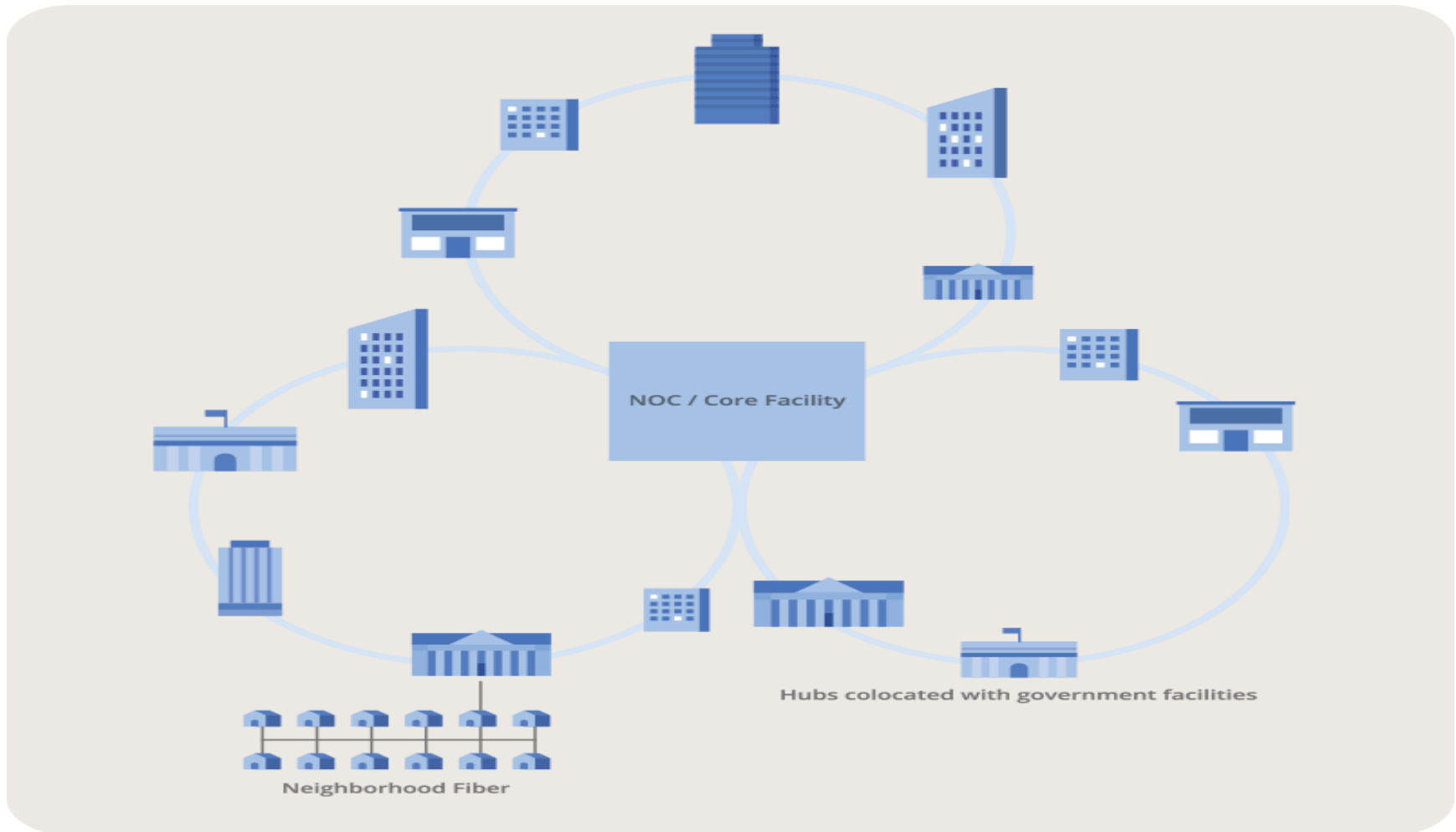
Assets: fiber and real estate

Locality provides space

Regional Internet Point-of-Presence (POP)

Locality leases fiber

Provider focuses on contructing last mile and reaches customers months earlier

Backbone

Middle Mile

Last Mile
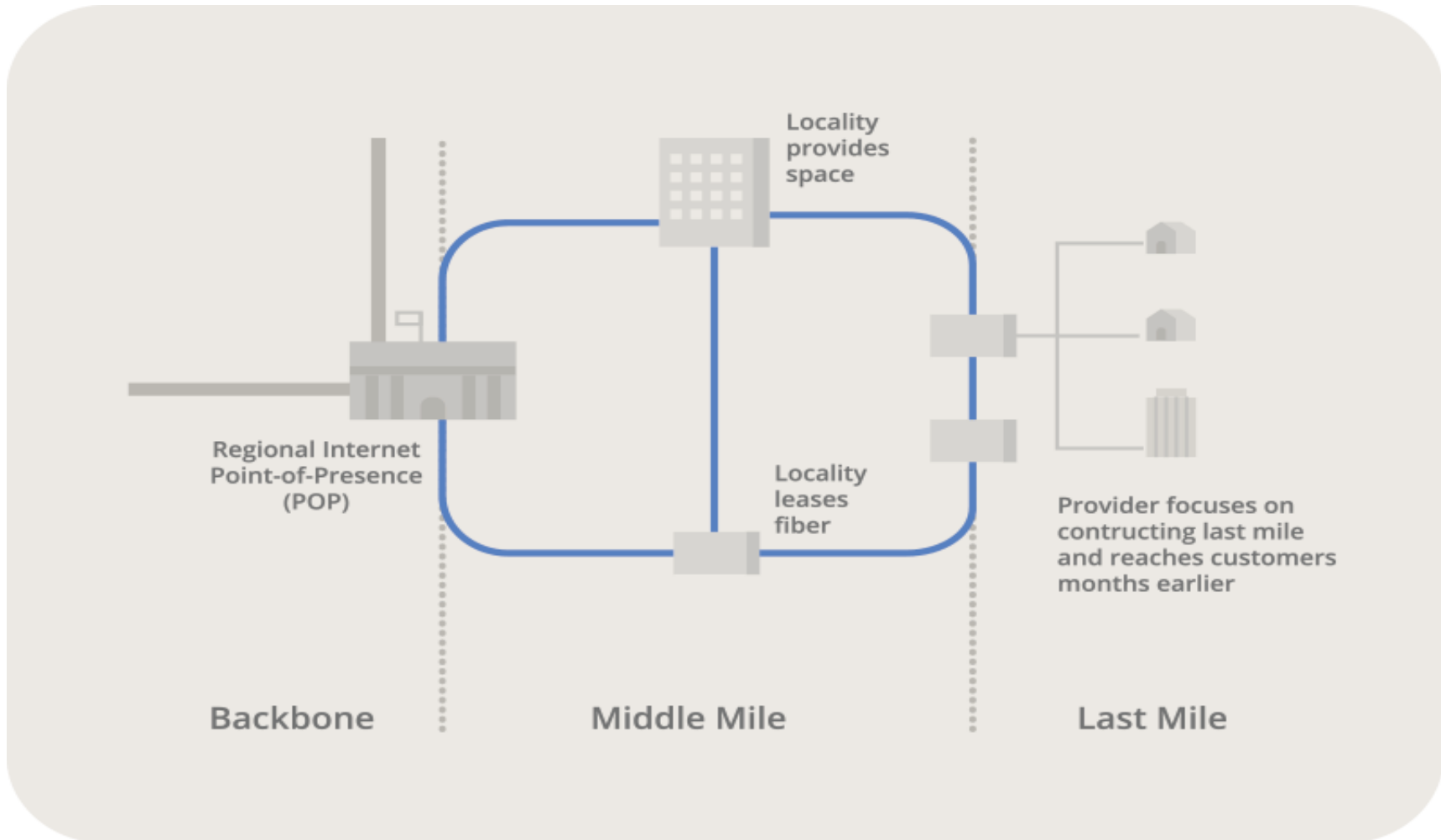
Your assets make a difference

Provider purchases / leases hub

Regional Internet Point-of-Presence (POP)

Provider builds fiber

Provider cannot offer services until last mile is built

Backbone   Middle Mile   Last Mile
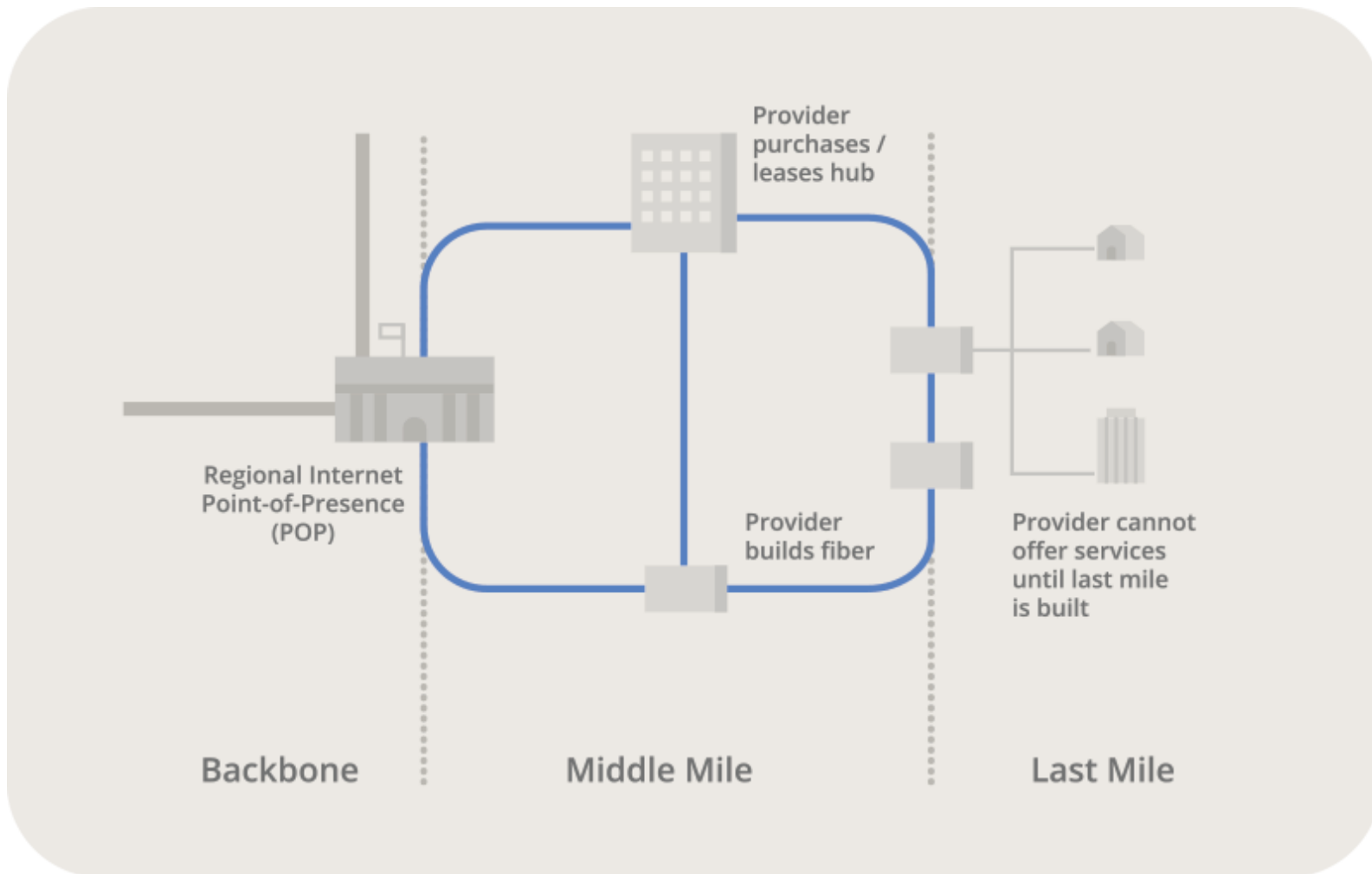
Strategies: access to information

Information Access

✓ **Make data available wherever possible**
- Make GIS data sets available

✓ **Document and publish data regarding available conduit, fiber, and other assets**
- Document your fiber assets
- Document your conduit assets

Strategies: maximize processes

Process Efficiency

✓ Build broadband into planning and staffing of all relevant agencies

✓ Streamline and publicize procedures and timeframes for permitting and inspections

✓ Allow network operators to contract pre-approved third-party inspectors to speed processes and reduce local burdens