Residential access: cable modems

- HFC: hybrid fiber coax
  - asymmetric: up to 30Mbps downstream, 2 Mbps upstream
- network of cable and fiber attaches homes to ISP router
  - homes share access to router
- deployment: available via cable TV companies
Residential access: cable modems

Diagram: http://www.cabledatacomnews.com/cmic/diagram.html
Cable Network Architecture: Overview

Typically 500 to 5,000 homes

- Cable headend
- Cable distribution network (simplified)
- Home
Cable Network Architecture: Overview

- Server(s)
- Cable headend
- Cable distribution network
- Home
Cable Network Architecture: Overview

FDM (more simply):

Channels

Cable headend
Cable distribution network
Home
Company access: local area networks

- company/univ local area network (LAN) connects end system to edge router
- Ethernet:
  - 10 Mbs, 100Mbps, 1Gbps, 10Gbps Ethernet
  - modern configuration: end systems connect into Ethernet switch
Wireless access networks

- shared *wireless* access network connects end system to router
  - via base station aka “access point”
- wireless LANs:
  - 802.11b/g (WiFi): 11 or 54 Mbps
- wider-area wireless access
  - ~1Mbps over cellular system (EVDO, HSDPA)
  - WiMAX (up to 100 Mbps) over wide area
Home networks

Typical home network components:

- DSL or cable modem
- router/firewall/NAT
- Ethernet
- wireless access point

Diagram:
- DSL or cable modem
- router/firewall/NAT
- Ethernet
- wireless access point
- to/from cable headend

Wireless laptops

Network overview: