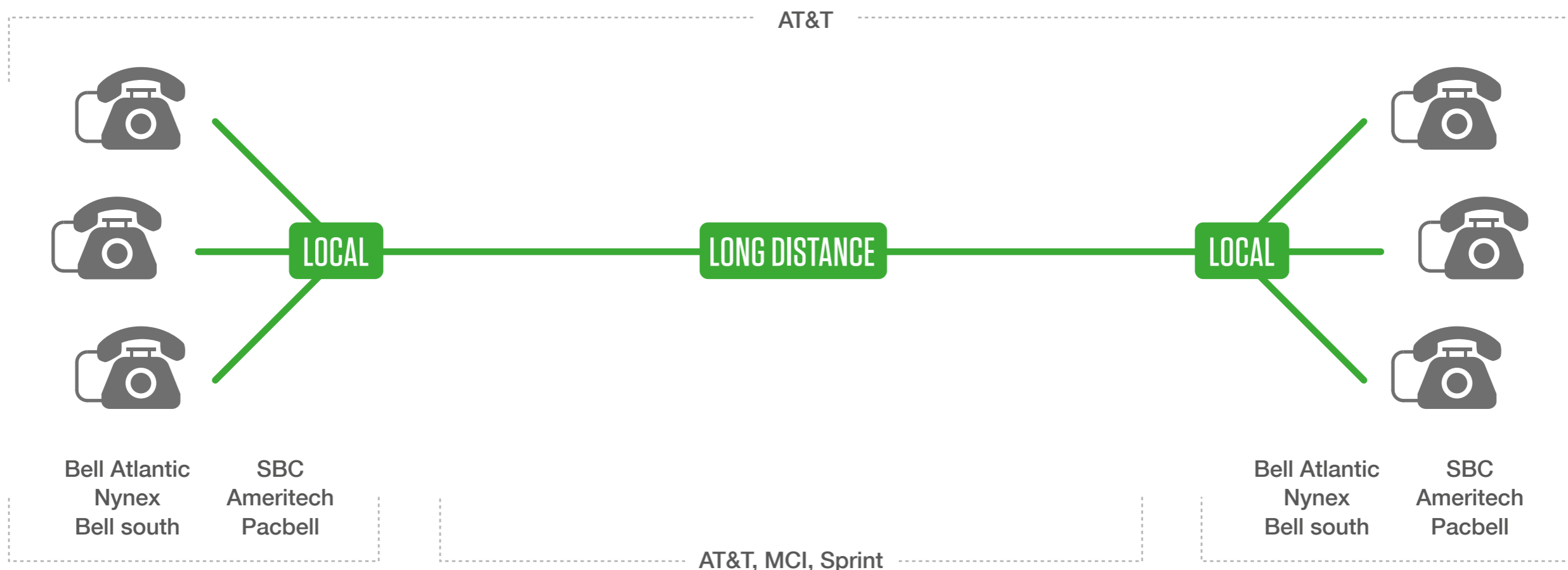


VERTICALLY INTEGRATED VOICE NETWORK

The communications network is designed, built, and operated mostly by one firm. The network does one thing. The content is supplied by the end users.

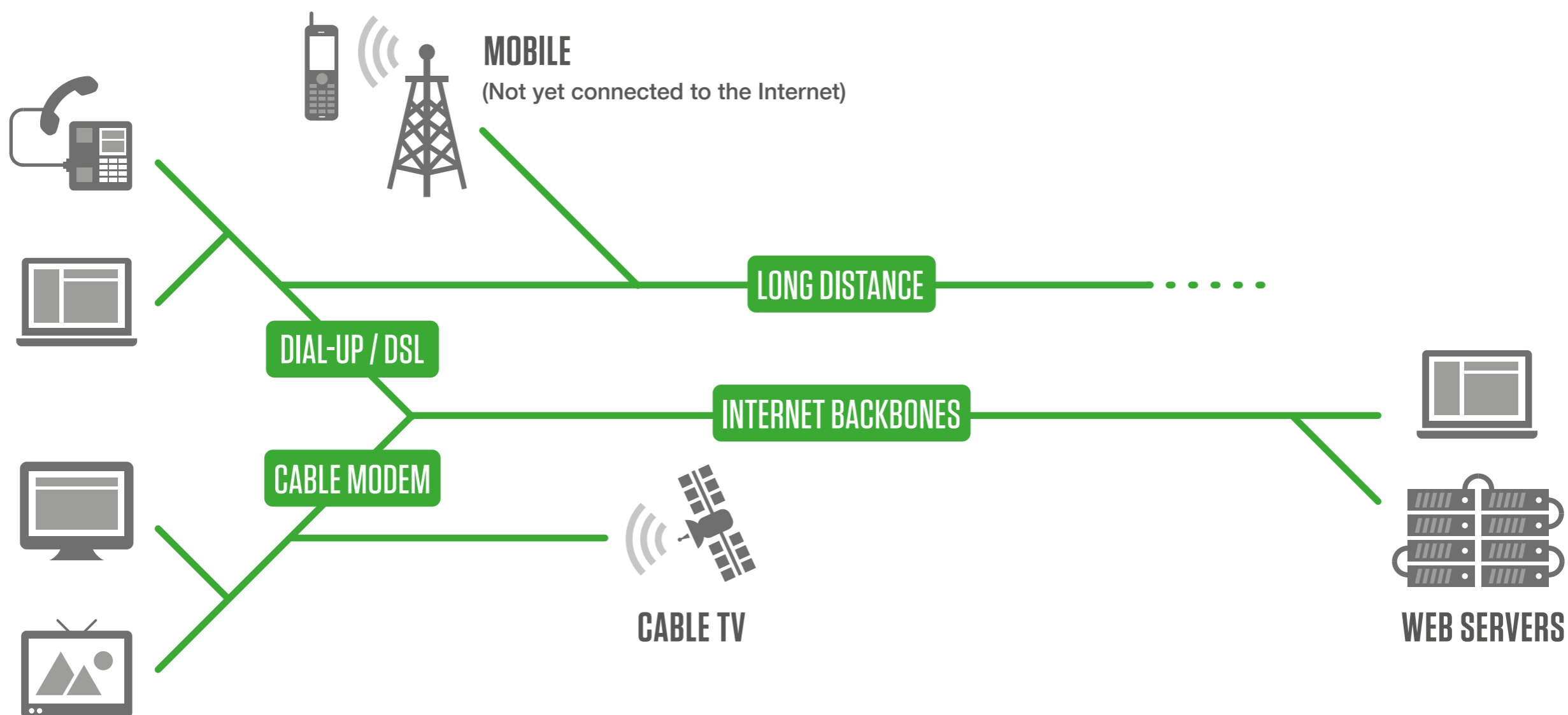


THE POST-1984 NETWORK

Same network, new names. The network breaks apart into long distance carriers (AT&T, MCI, Sprint) and local phone companies – the “Baby Bells.” The biggest technological innovation is fiber optics for long distance. Dial up modems offer limited access to the early Internet.

EARLY CONVERGENCE / DIVERGENCE

More communications networks begin offering more choices. With cable modems and DSL lines, respectively, cable TV and telecom firms offer broadband access to a common, public Internet, which yields early convergence of data-based services and content. Mobile begins rapid growth.



TODAY'S HYPERCONNECTED NETWORK

Five modes of broadband access are supplied by five types of communications service providers. Software, hardware, content, and retail companies become major Internet infrastructure providers, with massive networks and cloud computing capacity, often disrupting older services and media. Mobile devices and the App Economy achieve hypergrowth.

302,000
Cell Towers



MOBILE

Video - Data - Phone

37 MILLION
Broadband
Telecom
Subscribers



TELECOM DSL / FIBER

Video - Data - Phone

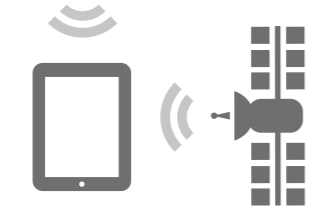
51 MILLION
Broadband
Cable
Subscribers



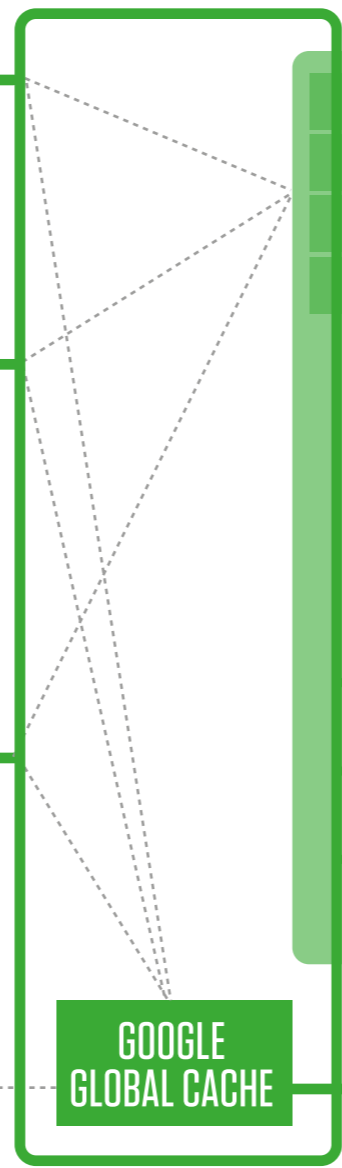
CABLE DOCSIS 3.0

Video - Data - Phone

34 MILLION
Satellite Video
Subscribers



SATELLITE



- AKAMAI
- LIMELIGHT
- LEVEL 3
- NETFLIX
- EQUINIX PEERING CENTER
- GOOGLE CDN

Other



CDNs

Google

- TWITTER
- MICROSOFT CLOUD
- FACEBOOK
- AMAZON CLOUD
- APPLE iCloud

PUBLIC BACKBONES

PRIVATE BACKBONES

GOOGLE BACKBONE



GOOGLE DATA CENTERS

..... Direct CDN / Cache Connections with Broadband Service Providers