

HIGH-FIBER DIET

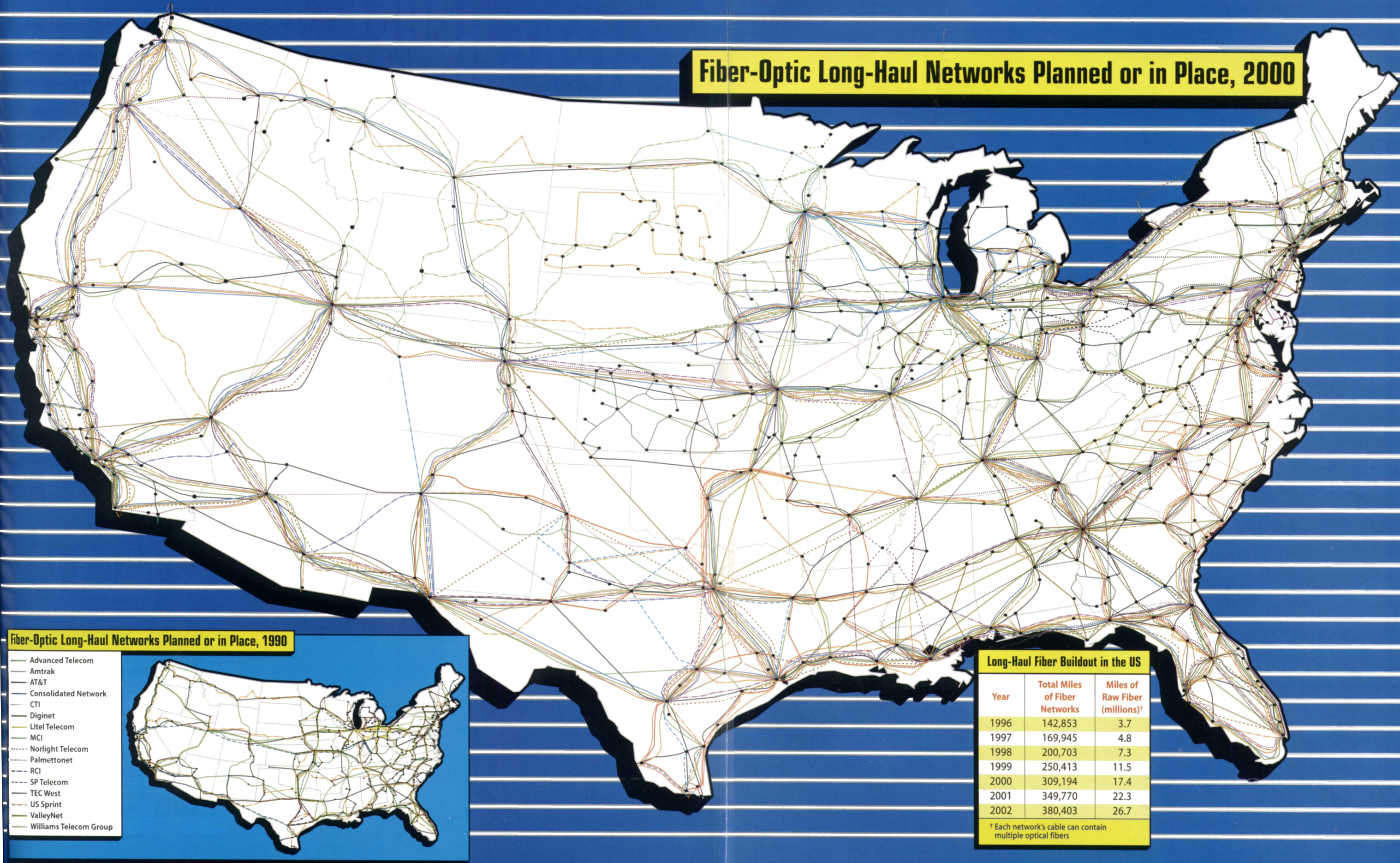
Growth of US Optical Networks

The last mile may be DSL, TV cable, wireless broadband, even laser beam, but the long-haul network backbone has a glowing heart of glass. The pace of fiber-optic buildout started accelerating in 1990. At that time, there were only four nationwide nets, operated by AT&T, MCI, Sprint, and Williams Telecom, plus a dozen regional carriers. Underground fiber totaled 2.8 million miles. What a difference the Web makes: Since 1995, the number of people online has jumped from 18 million to more than 120 million, and bandwidth is being siphoned off by an explosion of more and faster connections, handheld devices, and multimedia apps. Today there are 17.4 million miles of fiber beneath American soil, and experts don't see growth slowing much – especially with Qwest, Level 3, and their ilk laying surplus fiber from here to Schenectady. Good thing, too: Within five years, according to Forrester Research, 92 percent of US online users will communicate via pipe-hogging “personal rich media” – voice-, image-, and video-based messaging. Note to nationalists: Since 1995, Europe's annual installations of long-haul fiber networks have shot up nearly 700 percent. – *Michael Behar*

| Company Name | Ticker | Market Cap* | Founded | Key |
|-----------------------------|----------------|-----------------|-------------------|-------|
| AEP Communications | Privately held | N/A | 1996 | ----- |
| Alltel | AT | \$19.9 billion | 1983 | ***** |
| AT&T | T | \$179.9 billion | 1885 | ----- |
| Broadwing | BRW | \$7.5 billion | 1999 | ***** |
| BTI Communications Group | Privately held | N/A | 1983 | ----- |
| CapRock Communications | CPRK | \$1.6 billion | 1998 | ----- |
| Columbia Energy Group | CG | \$4.8 billion | 1929 | ----- |
| Conectiv | CIV | \$1.6 billion | 1997 | ----- |
| C3 Communications | CSR | \$3.6 billion | 1994 | ***** |
| Electric Lightwave | ELIX | \$1.2 billion | 1990 | ----- |
| Enron | ENE | \$54.3 billion | 1996 | ----- |
| Entergy | ETR | \$4.8 billion | 1949 | ----- |
| FiberNet Telecom Group | FTGX | \$466.8 million | 1994 | ----- |
| Frontier | GBLX | \$31.9 billion | 1997 ¹ | ----- |
| GST Telecommunications | GSTX | \$231.0 million | 1994 | ----- |
| Iowa Network Services | Privately held | N/A | 1986 | ***** |
| ITC DeltaCom | ITCD | \$2.1 billion | 1996 | ----- |
| Level 3 Communications | LVL3 | \$36.1 billion | 1998 | ----- |
| MCI WorldCom | WCOM | \$129.4 billion | 1997 | ----- |
| McLeodUSA | MCLD | \$13.6 billion | 1991 | ----- |
| Minnesota Power | MPL | \$1.2 billion | 1924 | ----- |
| Norlight Telecommunications | Privately held | N/A | 1972 | ----- |
| NorthEast Optic Network | NOPT | \$1.4 billion | 1989 | ***** |
| NTS Communications | Privately held | N/A | 1981 | ----- |
| Onvoy | Privately held | N/A | 1999 | ***** |
| Pathnet | Privately held | N/A | 1995 | ----- |
| Qwest Communications | Q | \$36.1 billion | 1995 | ----- |
| South Dakota Network | Privately held | N/A | 1989 | ----- |
| Sprint | FON | \$55.2 billion | 1899 | ----- |
| Touch America | MTP | \$6.8 billion | 1983 ² | ***** |
| ValleyNet | Privately held | N/A | 1989 | ----- |
| Williams Communications | WCG | \$24.1 billion | 1985 | ***** |

* As of March 31
¹ As Global Crossing ² As Montana Power Company
Source: KMI Corporation (www.kmicorp.com); Wired research

Fiber-Optic Long-Haul Networks Planned or in Place, 2000



| Long-Haul Fiber Buildout in the US | | |
|------------------------------------|-------------------------------|--------------------------------|
| Year | Total Miles of Fiber Networks | Miles of Raw Fiber (millions)* |
| 1996 | 142,853 | 3.7 |
| 1997 | 169,945 | 4.8 |
| 1998 | 200,703 | 7.3 |
| 1999 | 250,413 | 11.5 |
| 2000 | 309,194 | 17.4 |
| 2001 | 349,770 | 22.3 |
| 2002 | 380,403 | 26.7 |

* Each network's cable can contain multiple optical fibers