International Institute of Communications Telecommunications Forum

"Rethinking Telecommunications Policy – What's So Different?"

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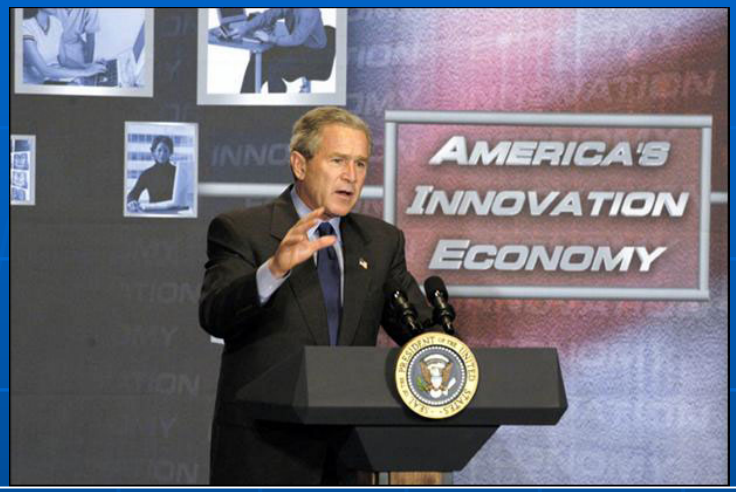
EVERYTHING!

Technology's Evolution

- **1969** → ARPANET
- **1971** → World's first microprocessor developed
- **1973** → Cell phones invented, available to the public in 1977
- **1984** → Internet named and switches to TCP/IP
- **1985** → 599 cell sites
- **1989** → WWW created
- **1992** → Digital cellular telephone system
- **1993** → 52MB additional RAM for PCs cost $1800
- **1995** → 257 million personal computers (PC) in use worldwide; average PC cost $1500 (including peripherals); 16 million Internet users worldwide
- **1999** → 375 million wireless subscribers worldwide (76 million U.S. subscribers)
- **2000** → More people watch cable television than broadcast channels
- **2002** → Wireless subscribers surpass fixed telephone line subscribers
- **2004** → Broadband subscribers surpass dial-up subscribers; more chips sold for PC use than business use
- **TODAY** →
  - Over 964 million Internet users worldwide
  - 1.4 billion wireless subscribers worldwide (194.5 million U.S. subscribers)
  - 178,025 cell sites
  - Smart phones bundled with Internet, email, text messaging, MP3 player, ring tones, digital camera, video/video messaging, and location capability
  - PDAs incorporate Wi-Fi and Bluetooth technologies (i.e. Hewlett Packard IPAQ x2000)
  - 820 million PCs in use worldwide – projected to surpass 1 billion by 2007
  - Average PC cost $841 (including peripherals) – dell.com desktops start at $379
  - RAM costs less than one-hundredth what it did in 1993

The President's Broadband Vision



President Bush speaking at the U.S. Department of Commerce June 24, 2004

"This country needs a national goal for broadband technology . . . universal, affordable access for broadband technology by 2007."

– President George W. Bush, Albuquerque, NM, March 26, 2004

"[B]roadband will not only help industry, it'll help the quality of life of our citizens." -- President George W. Bush, Dept. of Commerce, June 24, 2004

- Tele-Medicine
- Distance Learning
- Tele-Work
- National Security
- Jobs and Economic Growth

Creating Economic Conditions For Broadband Deployment

"We ought not to tax access to broadband. If you want something to flourish, don't tax it."

– President George W. Bush in Baltimore, Maryland on April 27, 2004

- Tax relief has given businesses powerful incentives to invest in broadband technology
  - Accelerated depreciation for capital-intensive equipment
  - Extension of the Internet tax moratorium until Oct. 31, 2007; support making the moratorium permanent
  - An 18-month extension of the research and experimentation tax credit; support making it permanent
  - President's FY 2006 budget requests a record $132 billion for research and development.

Removing the Regulatory Underbrush

The Administration supported the FCC's action freeing newly deployed broadband infrastructure from legacy regulation. As a result:

- The number of communities with fiber build outs has increased 83% from 217 communities to 398 communities in 43 states. The number of homes passed by fiber grew from 970,000 in October '04 to 1.6 million in April '05. Many of the communities are outside the "big cities". [FOCUS, FTTH Council and TIA, 5/10/05]
- A consortium of the country's largest cable operators -- including Comcast Corp., Time Warner Inc.'s cable division and Cox Communications Inc. (41 million customers combined) -- announced it will sell cellphone service that runs over the wireless network of Sprint Nextel Corp (45 million customers). [*Wall Street Journal* 11/2/05]
- Most of the nation's largest cable operators (Comcast, Time Warner, Cox, MediaCom, Charter, and Cablevision) are already rolling out VoIP services. Cable VoIP subscribers jumped 900% in 2004, from less than 50,000 to about 500,000. Cable companies nearly doubled their VoIP equipment spending in 2004 to $123 million from $63 million in 2003 [Source: CommDaily 2/3/05]. Comcast, for example, has announced plans to provide VoIP to 20 markets by the end of 2005 and to 40 million households by the end of 2006.

President's Spectrum Policy Initiative

"The existing legal and policy framework for spectrum management has not kept pace with the dramatic changes in technology and spectrum use."

- President George W. Bush, Presidential Memorandum, May 29, 2003

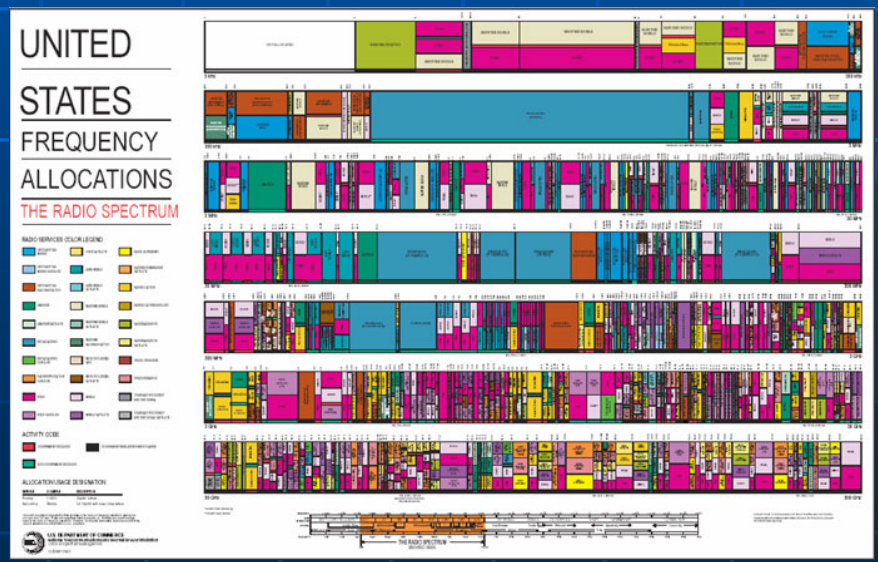
- Committed the Administration to develop a comprehensive U.S. spectrum policy for the 21st century.
- The Secretary of Commerce was charged to lead this initiative.
- Established a Federal Government Spectrum Task Force – membership includes the Departments of State, Treasury, Defense, Justice, Interior, Agriculture, Transportation, Energy, Homeland Security, and NASA, OMB, OSTP and Project SAFECOM.

Moore Meets Marconi: Wireless Broadband and New Technologies

"The other promising new broadband technology is wireless. The spectrum that allows for wireless technology is a limited resource . . . [a]nd a wise use of that spectrum is to help our economy grow, and help with the quality of life of our people." -- President George W. Bush, June 24, 2004

The Administration has made more radio spectrum available for wireless broadband technologies:

- **Advanced Wireless Services ("3G")** – WiMAX, HSDPA, CDMA2000 1xEV-DO Revision A
- **Ultra-wideband**
- **5 GHz Spectrum** – Wi-Fi
- **70/80/90 GHz**



Broadband Over Power Lines: The Third Wire

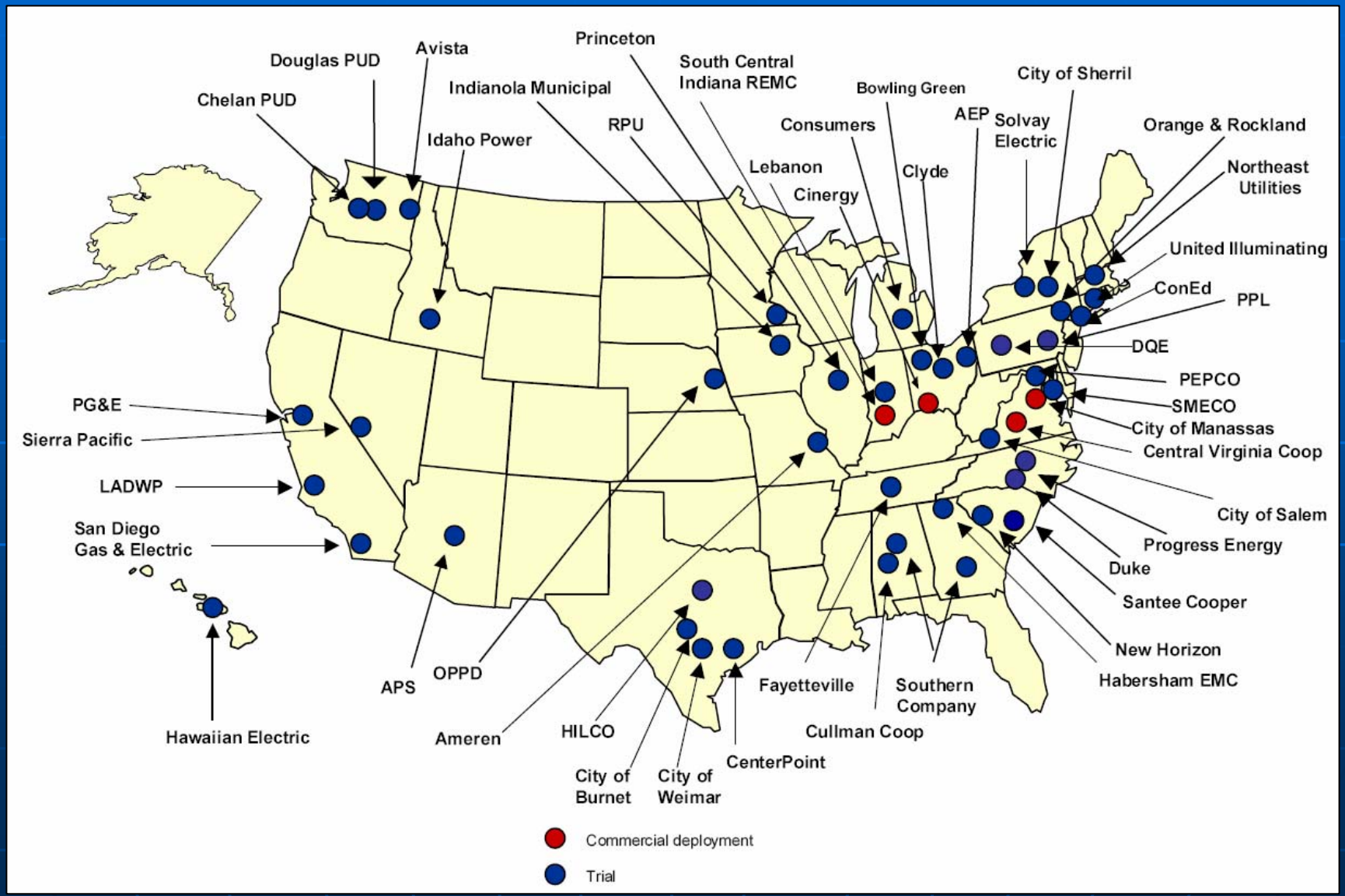
"We need to get broadband to more Americans . . . one great opportunity is to spread broadband throughout America via our power lines."

— President George W. Bush, US Department of Commerce, June 24, 2004

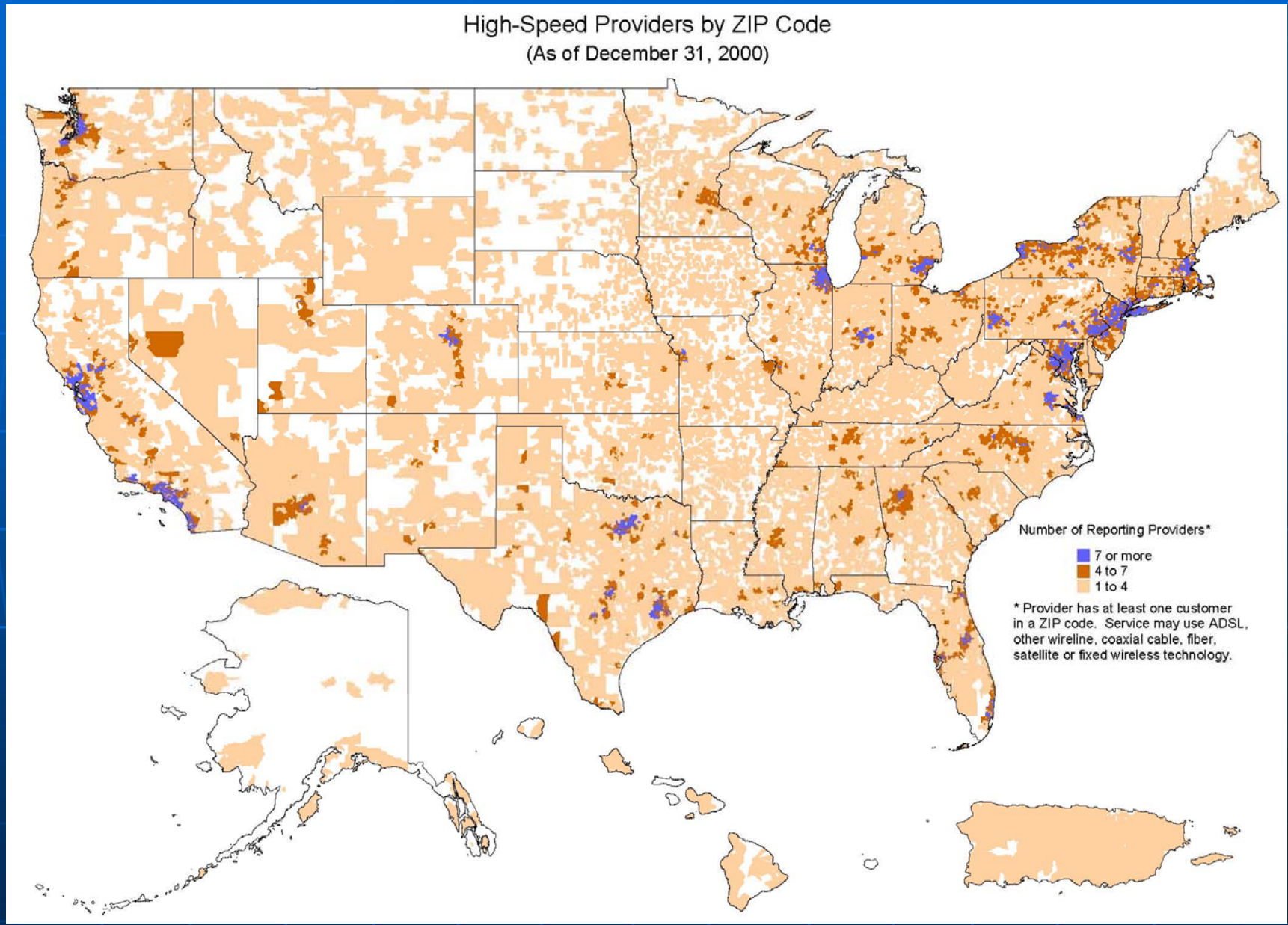
- The FCC began a BPL rulemaking on February 12, 2004.
- Principal concern was the risk that BPL systems might interfere with radio communications.
- NTIA submitted to the FCC a Phase 1 study that defined interference risks and potential mitigations (April 2004).
- Based on additional analyses, NTIA recommended several supplements to the FCC proposed BPL rules to reduce risk of BPL interference (June 2004)
- The FCC adopted rules incorporating most NTIA recommendations on October 14, 2004.
- Today, many utilities, hotel operators and others are deploying experimental and operational BPL systems.

HomePlug Modem can turn an electrical outlet into an Internet connection.

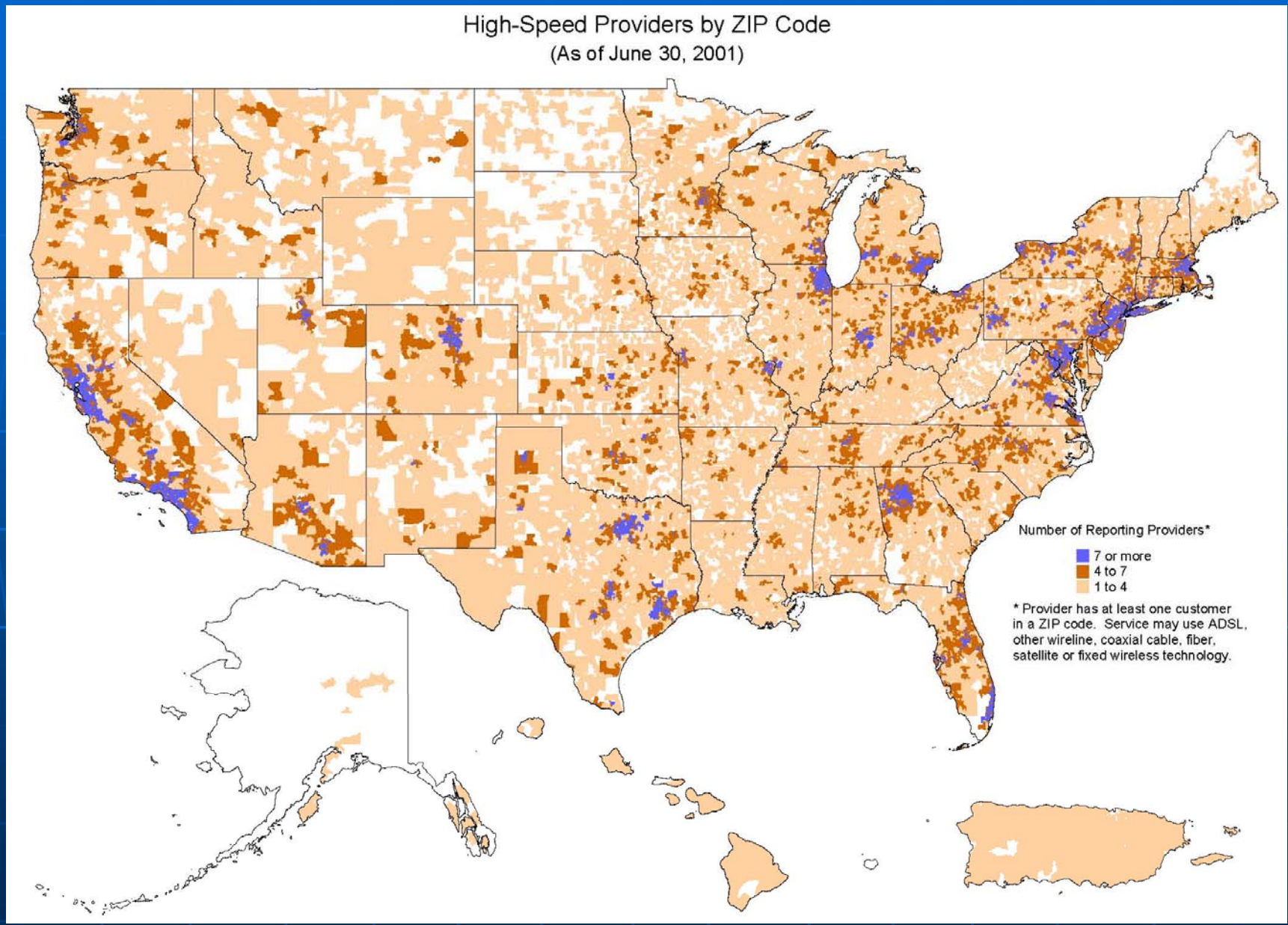
Broadband Over Power Lines: Current Deployments



Source: UPLC 2005


High-Speed Providers by ZIP Code
(As of December 31, 2000)
Number of Reporting Providers*
7 or more
4 to 7
1 to 4
* Provider has at least one customer in a ZIP code. Service may use ADSL, other wireline, coaxial cable, fiber, satellite or fixed wireless technology.

Source: FCC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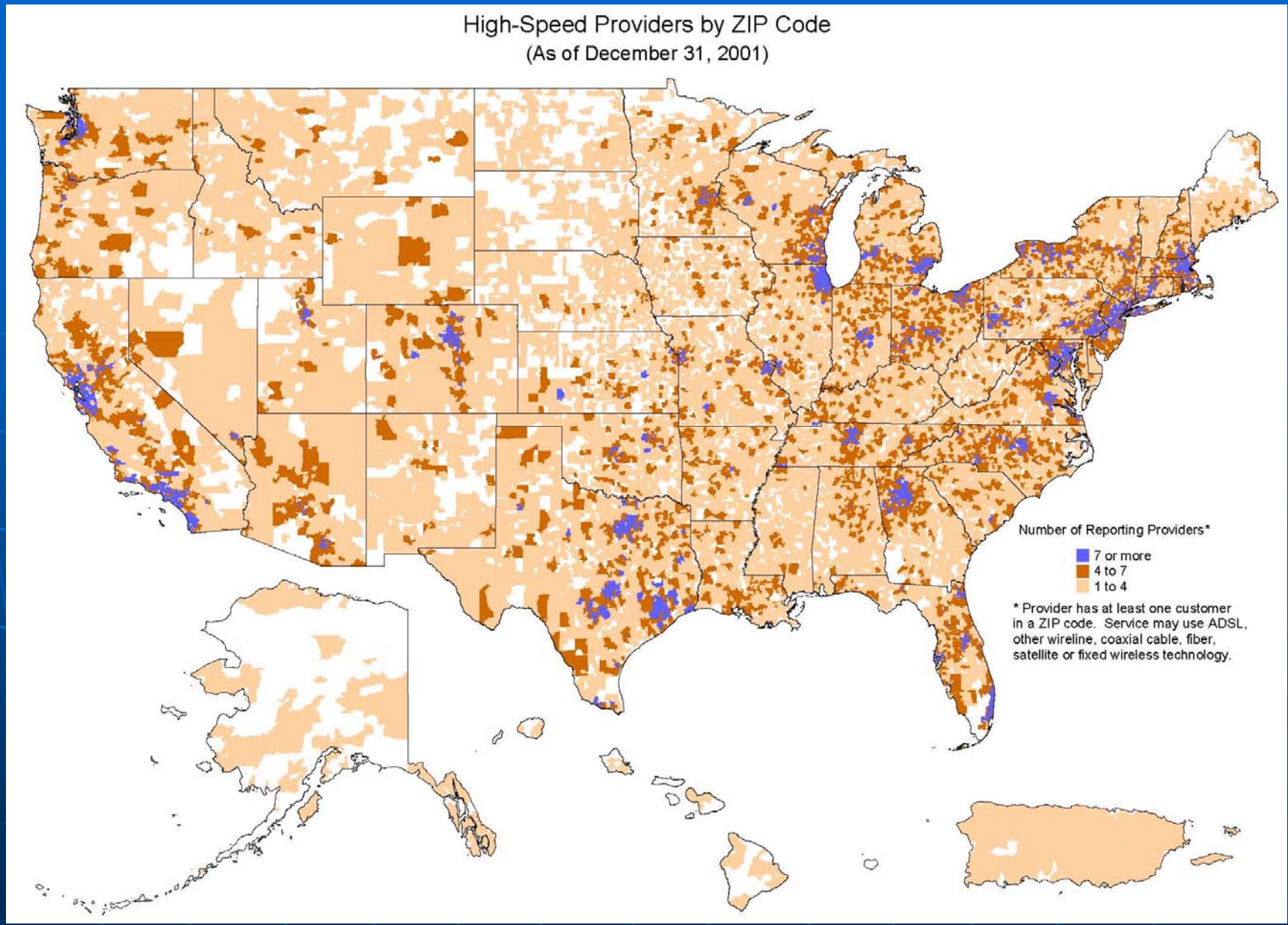
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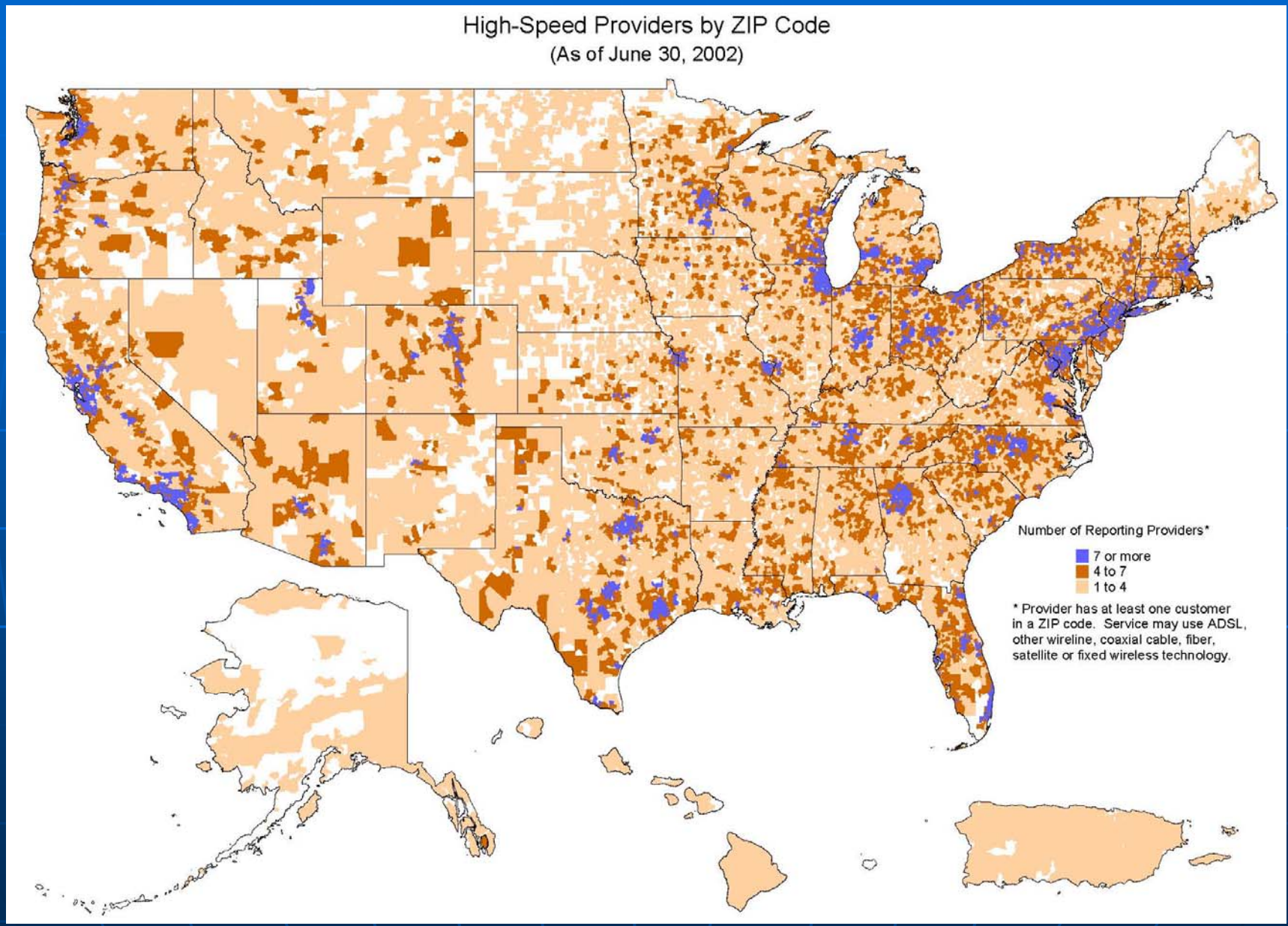
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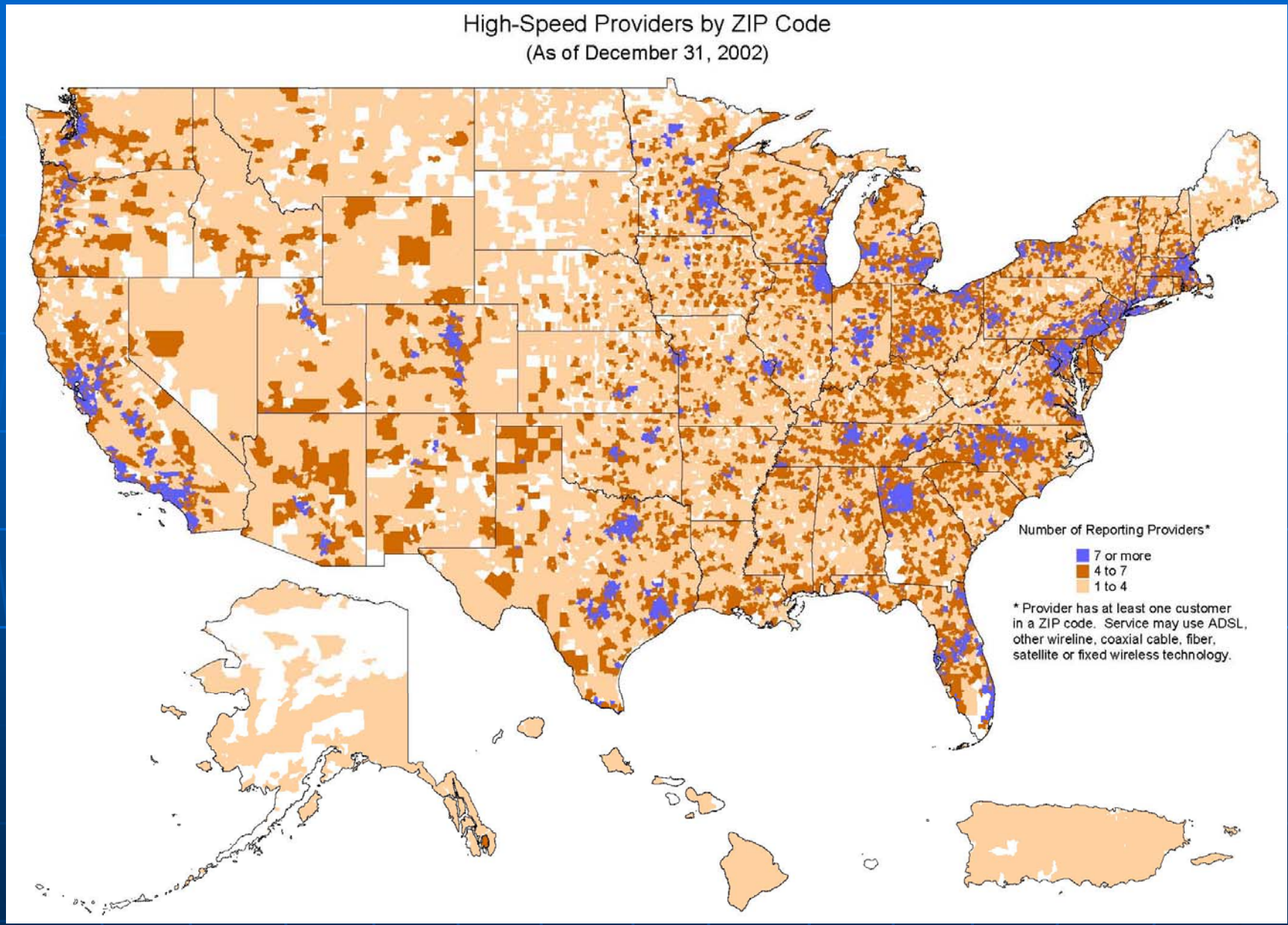
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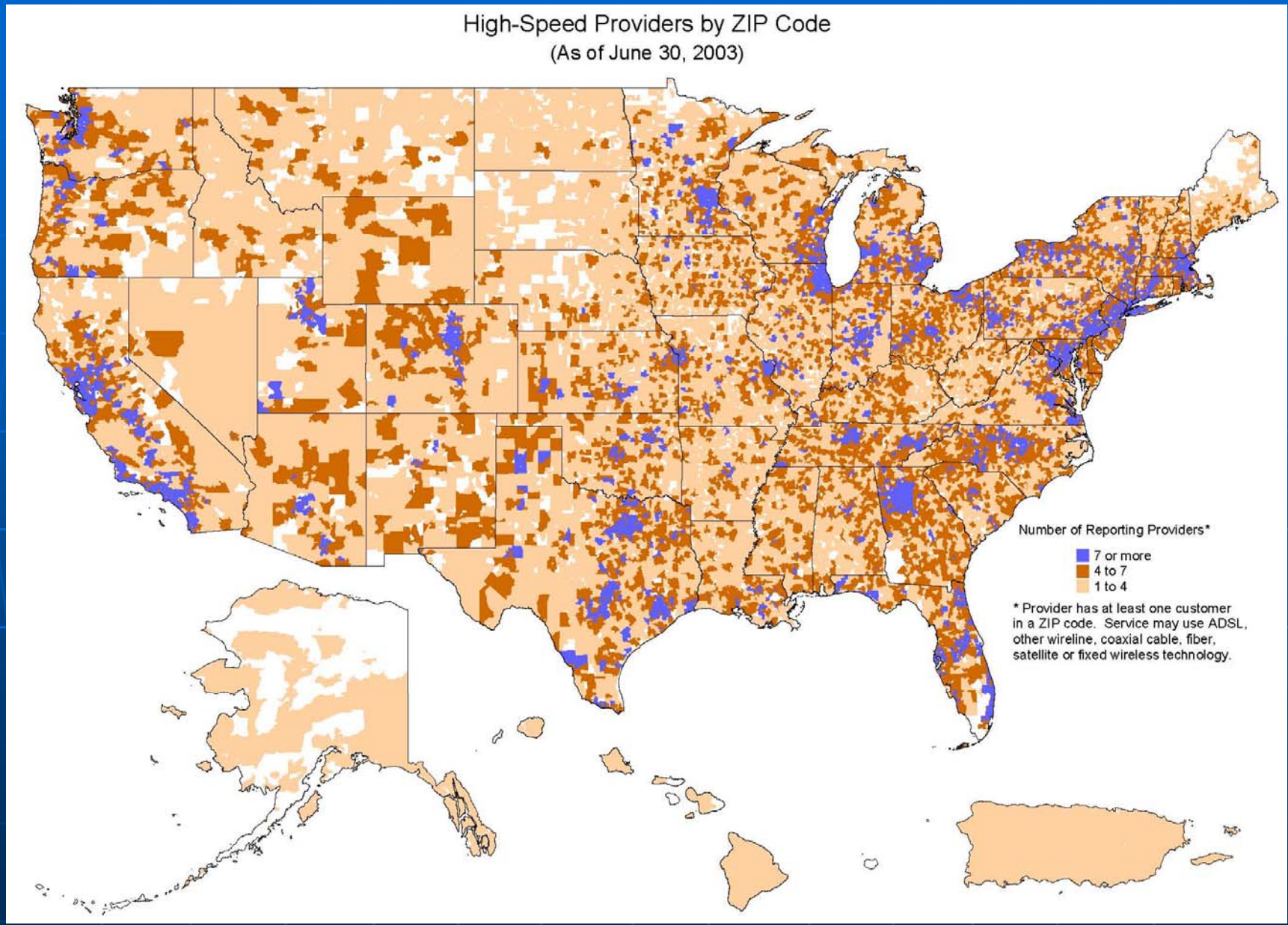
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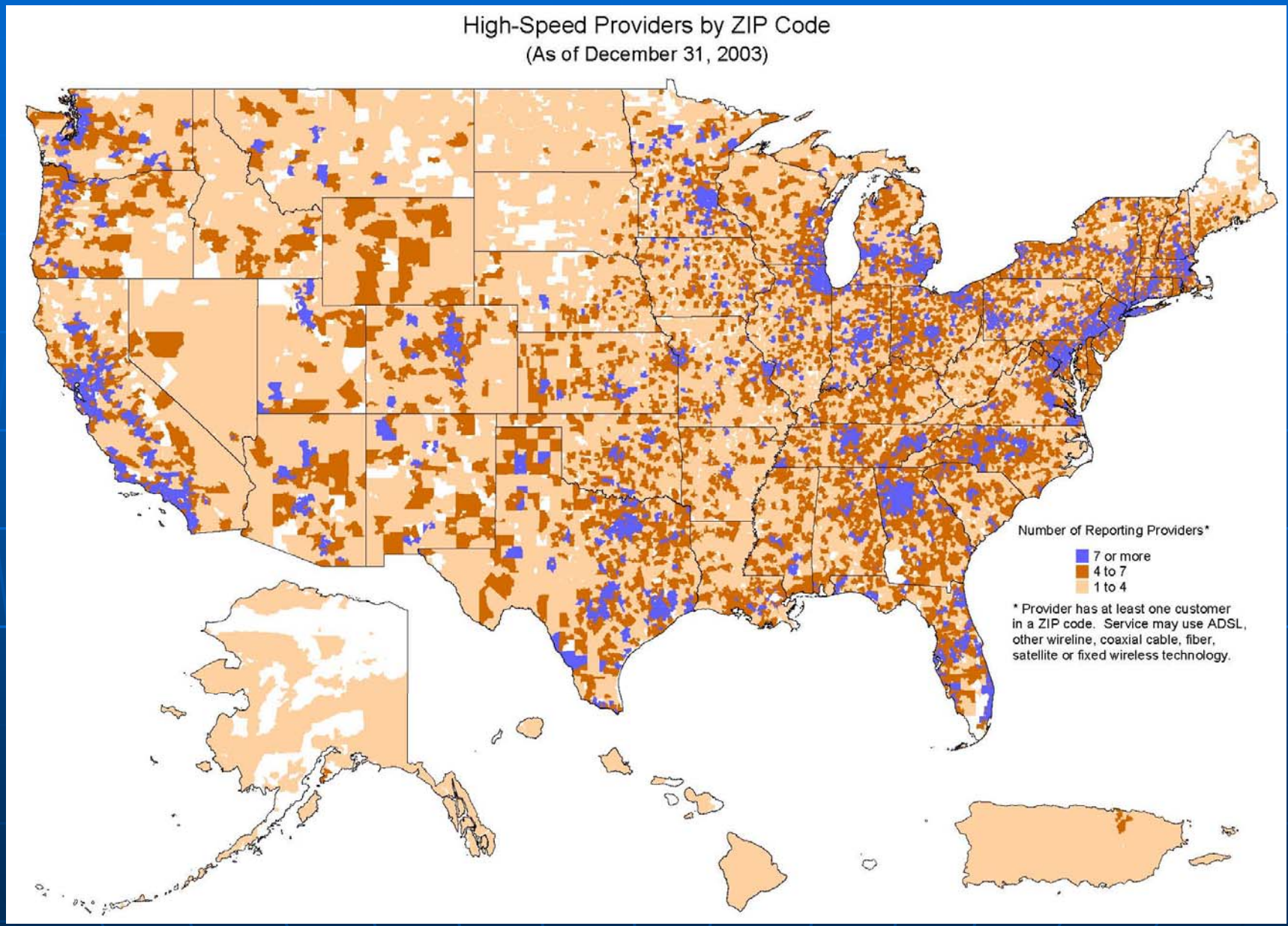
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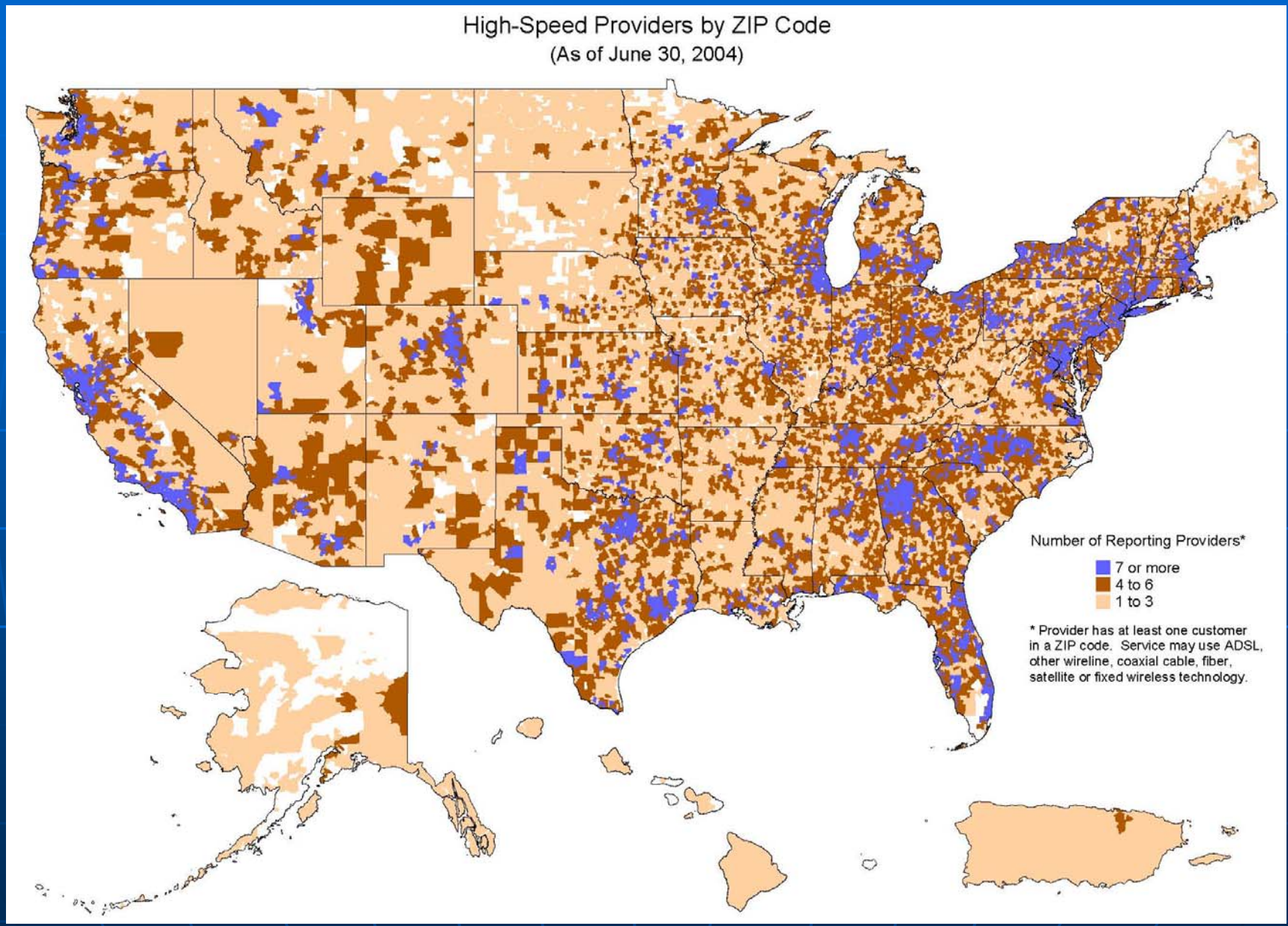
High-Speed Providers by ZIP Code
(As of June 30, 2004)
Number of Reporting Providers*
7 or more
4 to 6
1 to 3
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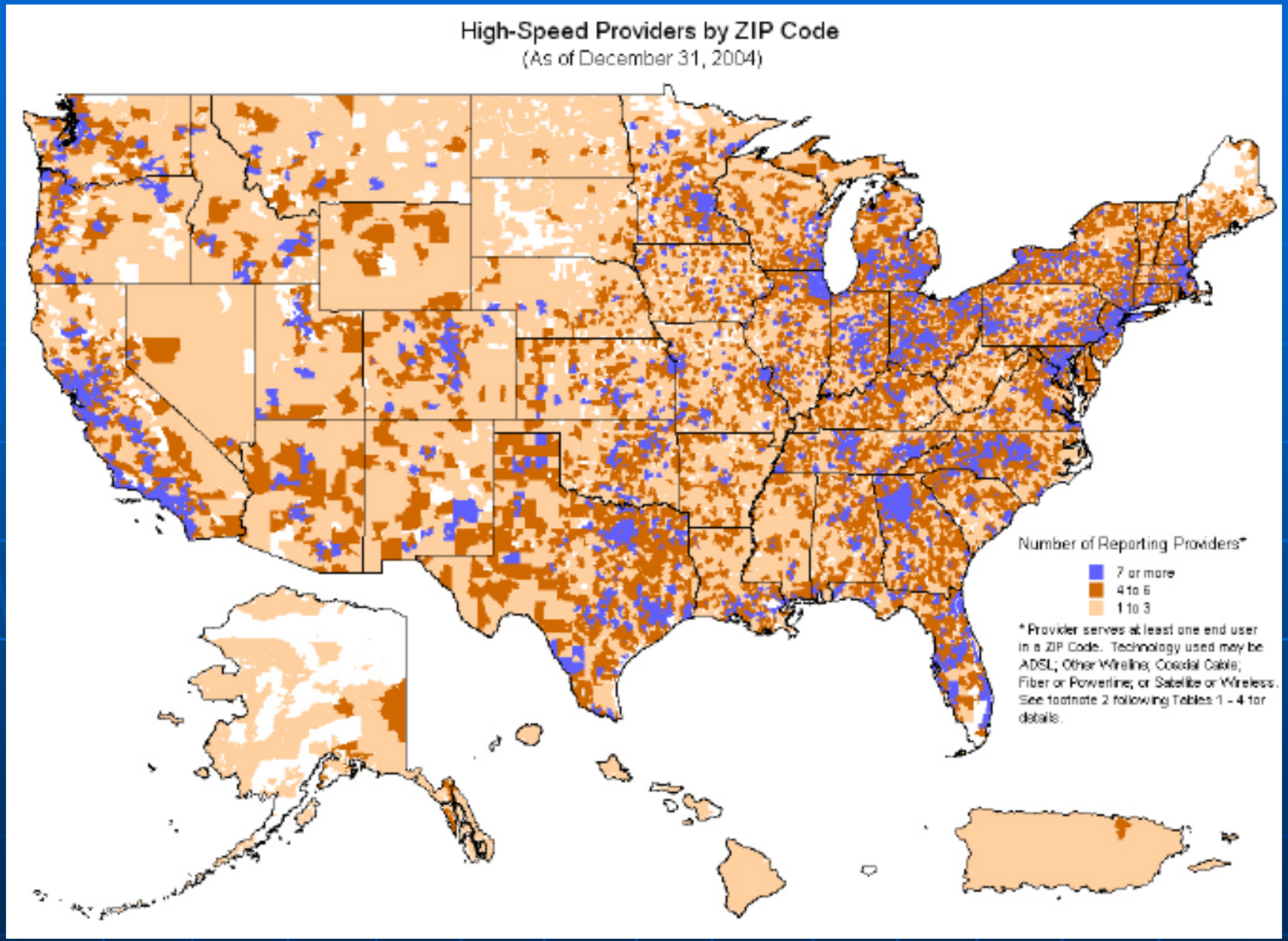
Source: FCC


High-Speed Providers by ZIP Code
(As of December 31, 2004)
Number of Reporting Providers*
7 or more
4 to 6
1 to 3
* Provider serves at least one end user in a ZIP Code. Technology used may be ADSL; Other Wireline; Coaxial Cable; Fiber or Powerline; or Satellite or Wireless. See footnote 2 following Tables 1 - 4 for details.

Source: FCC