# Overview of the Communication Industry

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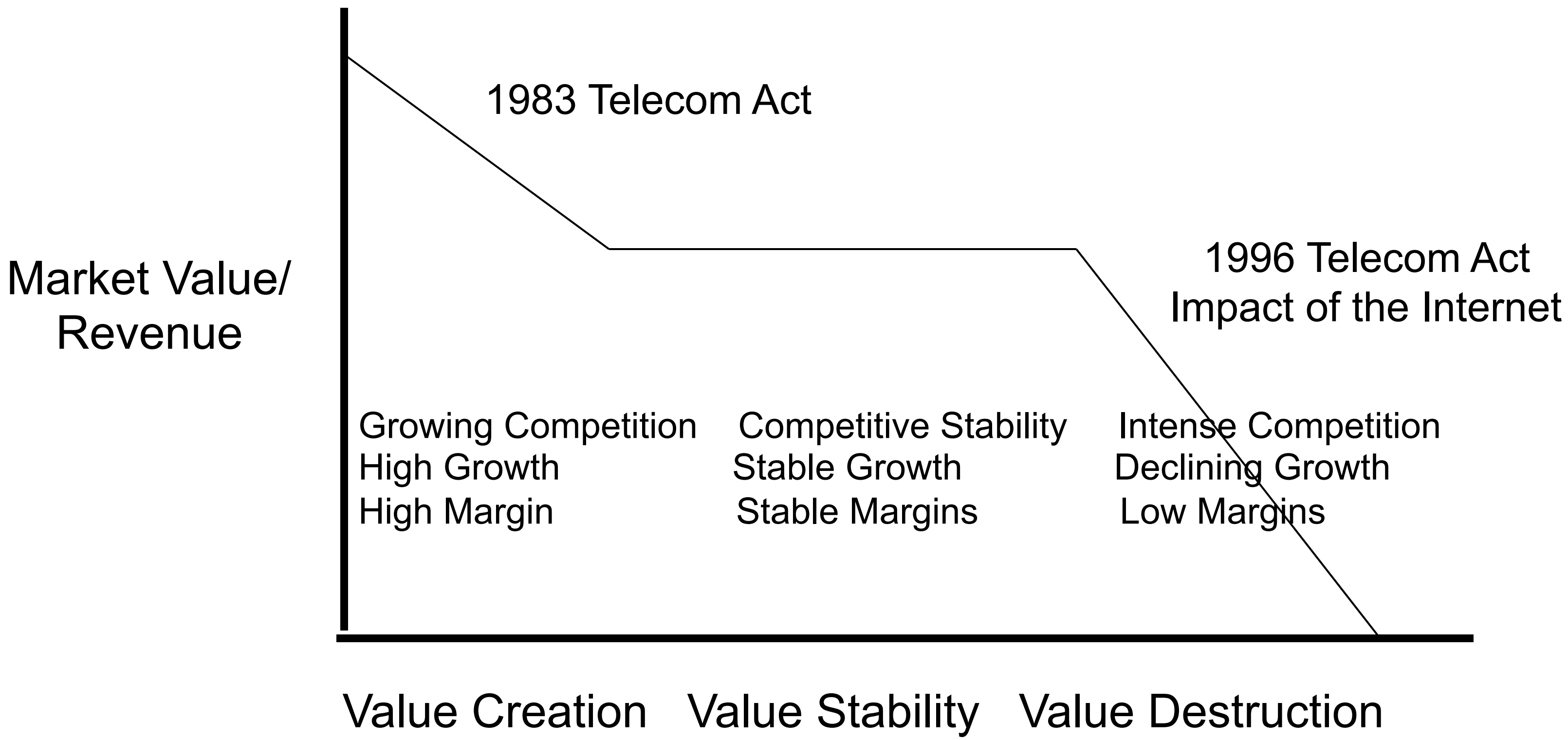
# Market Segments

- Wireline Carriers:
    - Incumbent Local Exchange Carriers (ILECs)
    - Inter-Exchange Carriers (IXCs)
    - Green-Field Carriers (GFCs)
    - Competitive Local Exchange Carriers (CLECs)
    - Utilities;
- Wireless Carriers;
- Internet Service Providers;
- Cable Operators.

# Segment Dynamics

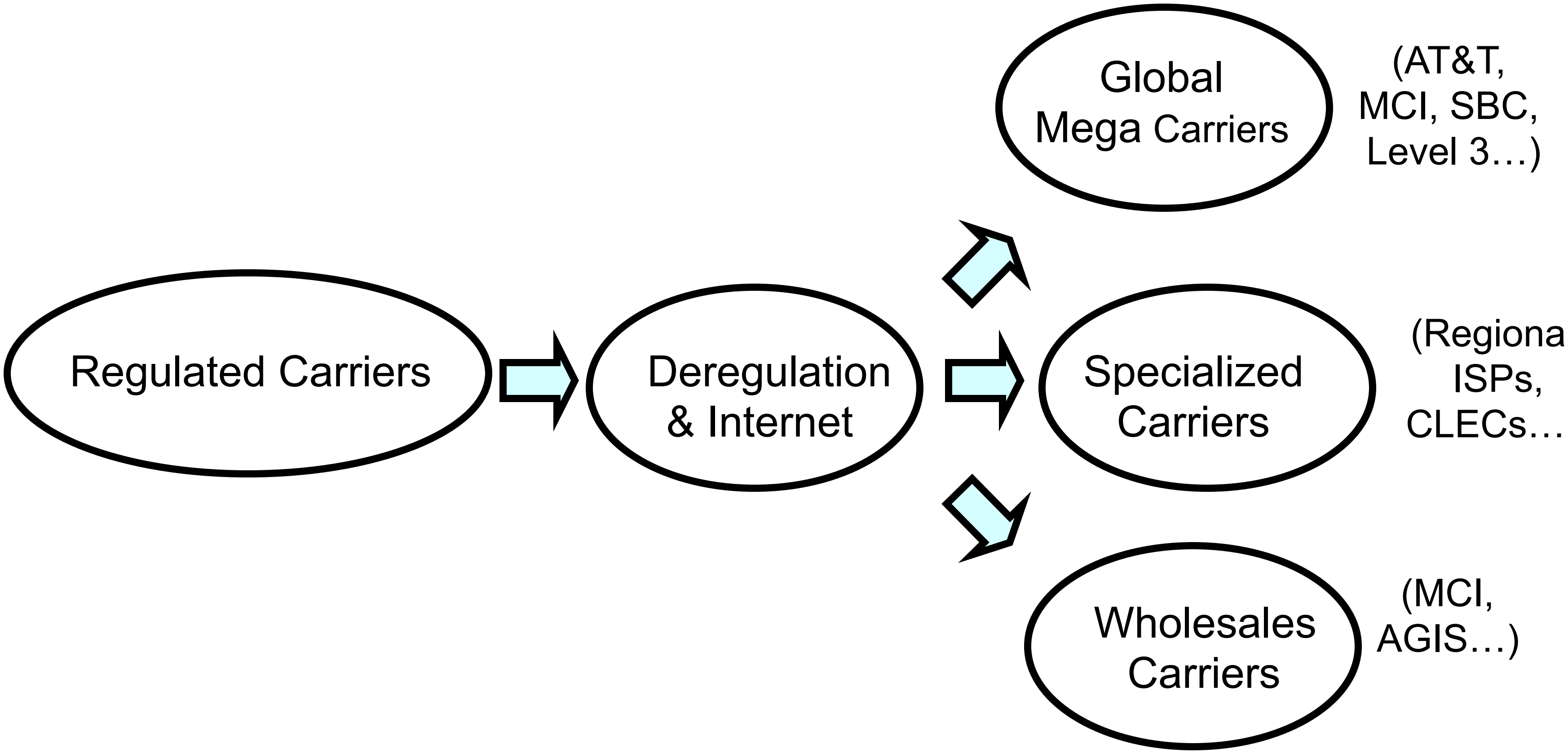
- Incumbent Carriers (ILECs, IXCs,…):
  - Long-time players re-engineering either their local or long distance services to react to industry deregulation and the impact of the Internet.
- Renegade Carriers (GFCs, ISPs, new CLECs…):
  - New entrants, most often venture capital funded, introducing new services to specific markets with competitive pricing offerings.

# Shareholders' Value

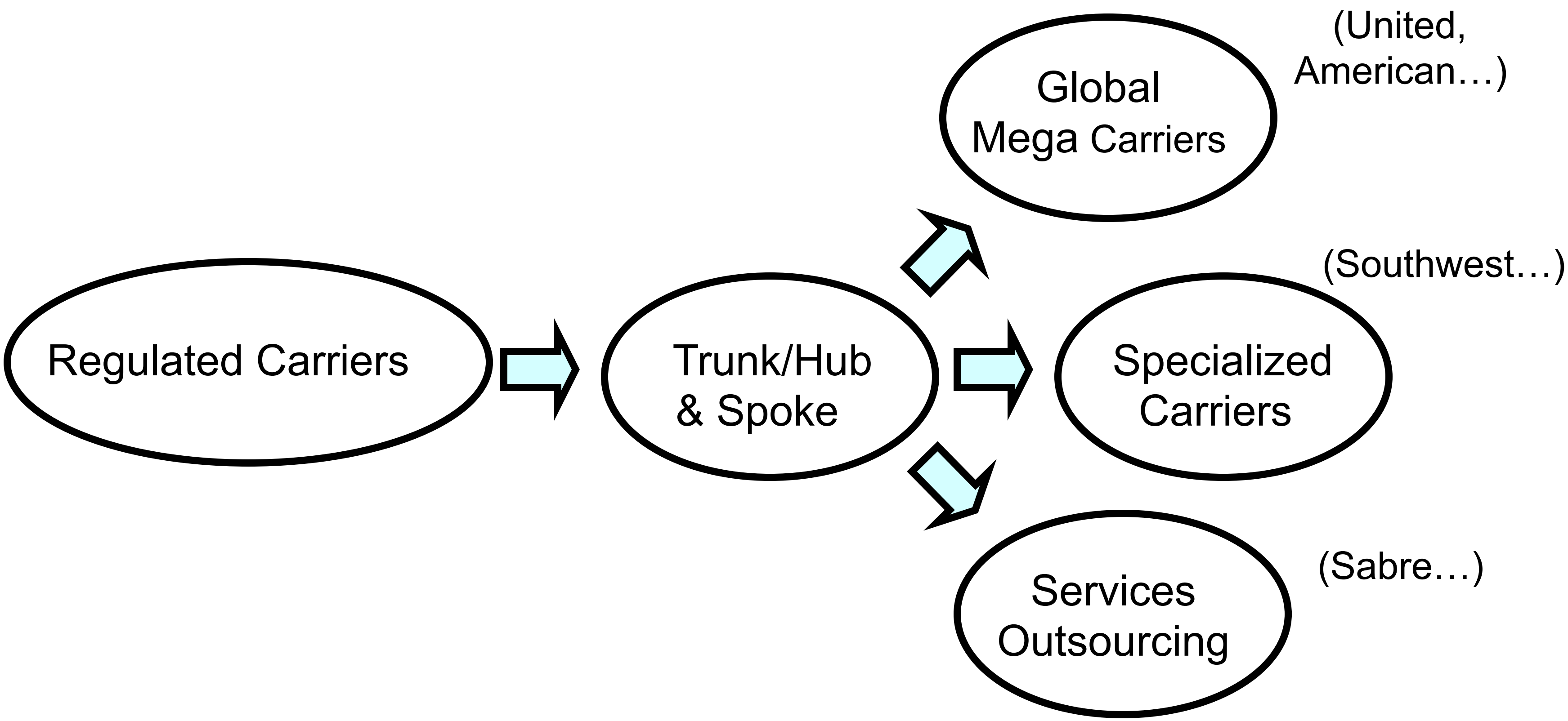



Adapted model from Adrian Slywotzky's Value Migration

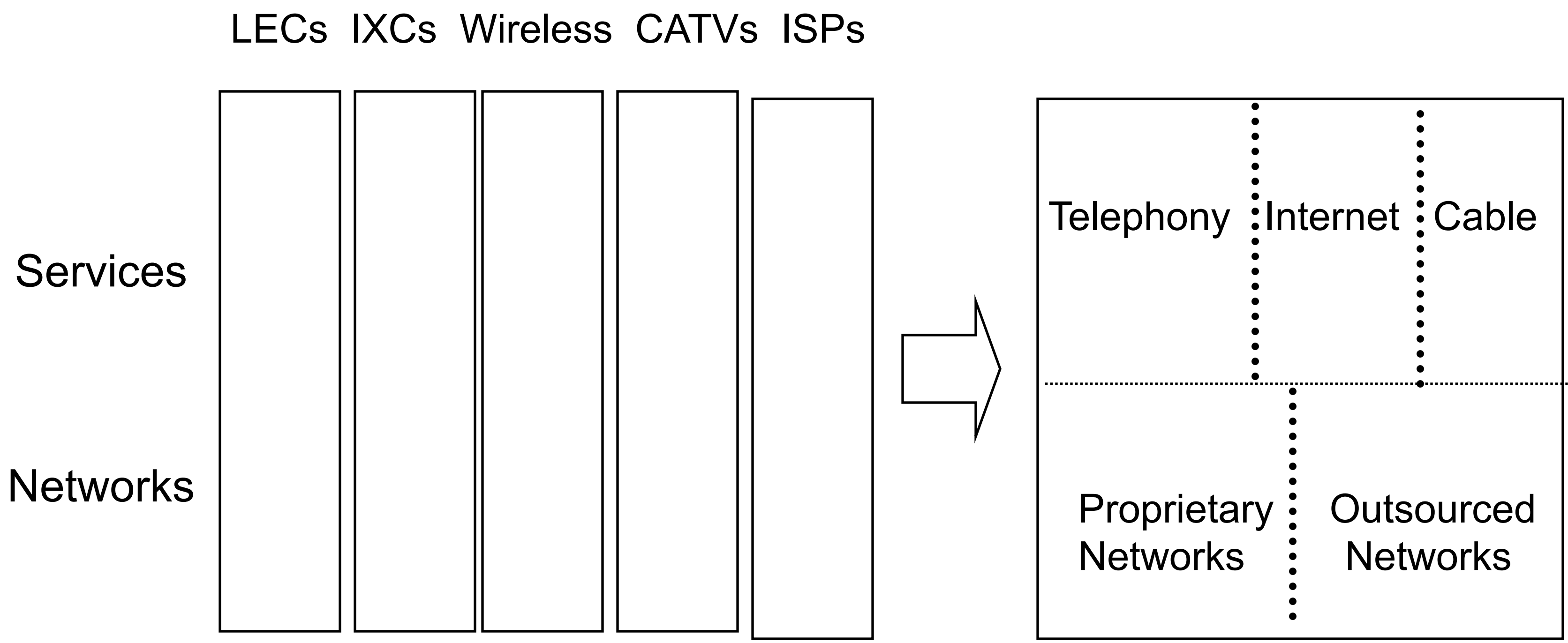
# The Communication Industry Tomorrow



# Comparison With the Airline Industry

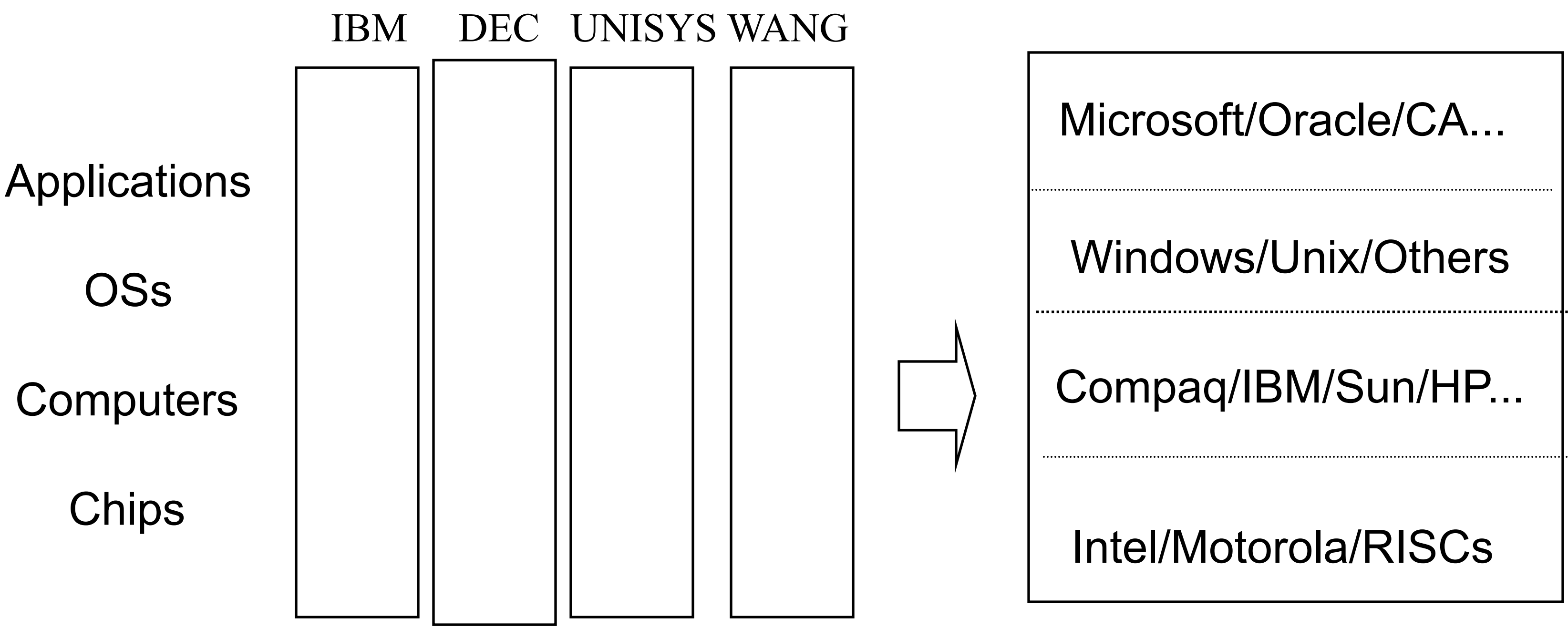


# Horizontal Integration of the Communication Industry



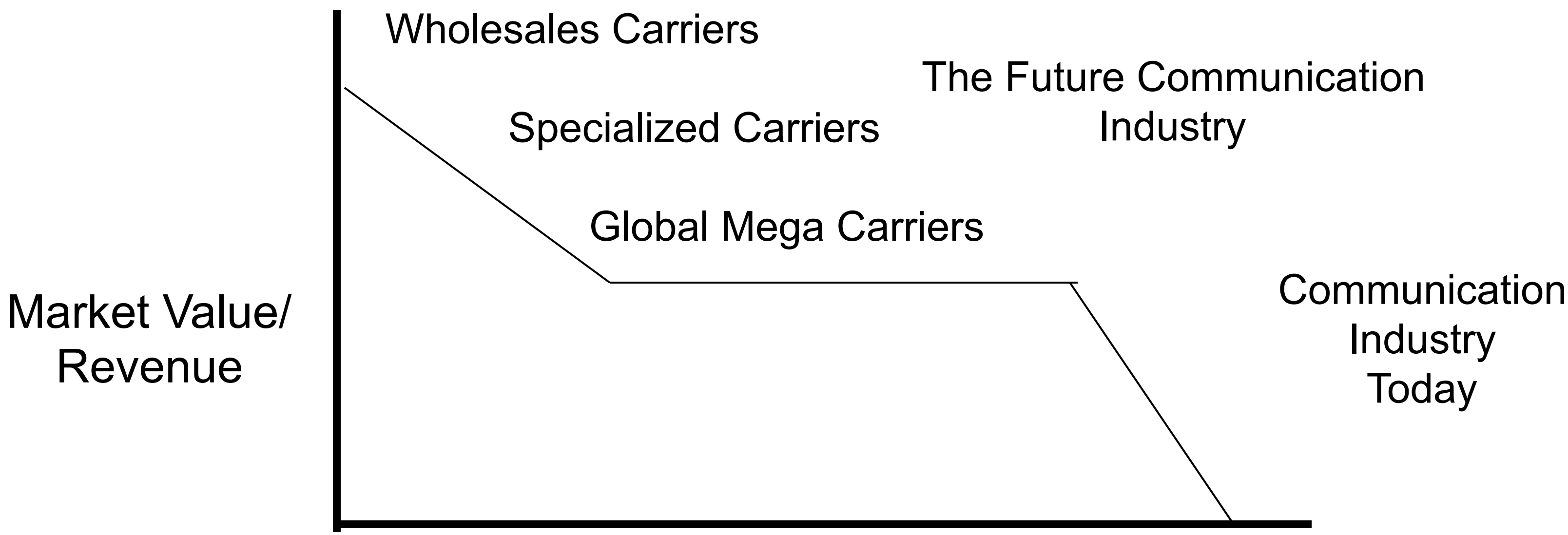

Deregulation of local services is causing the industry to shift from vertical to horizontal integration.

# Comparison With The Computing Industry



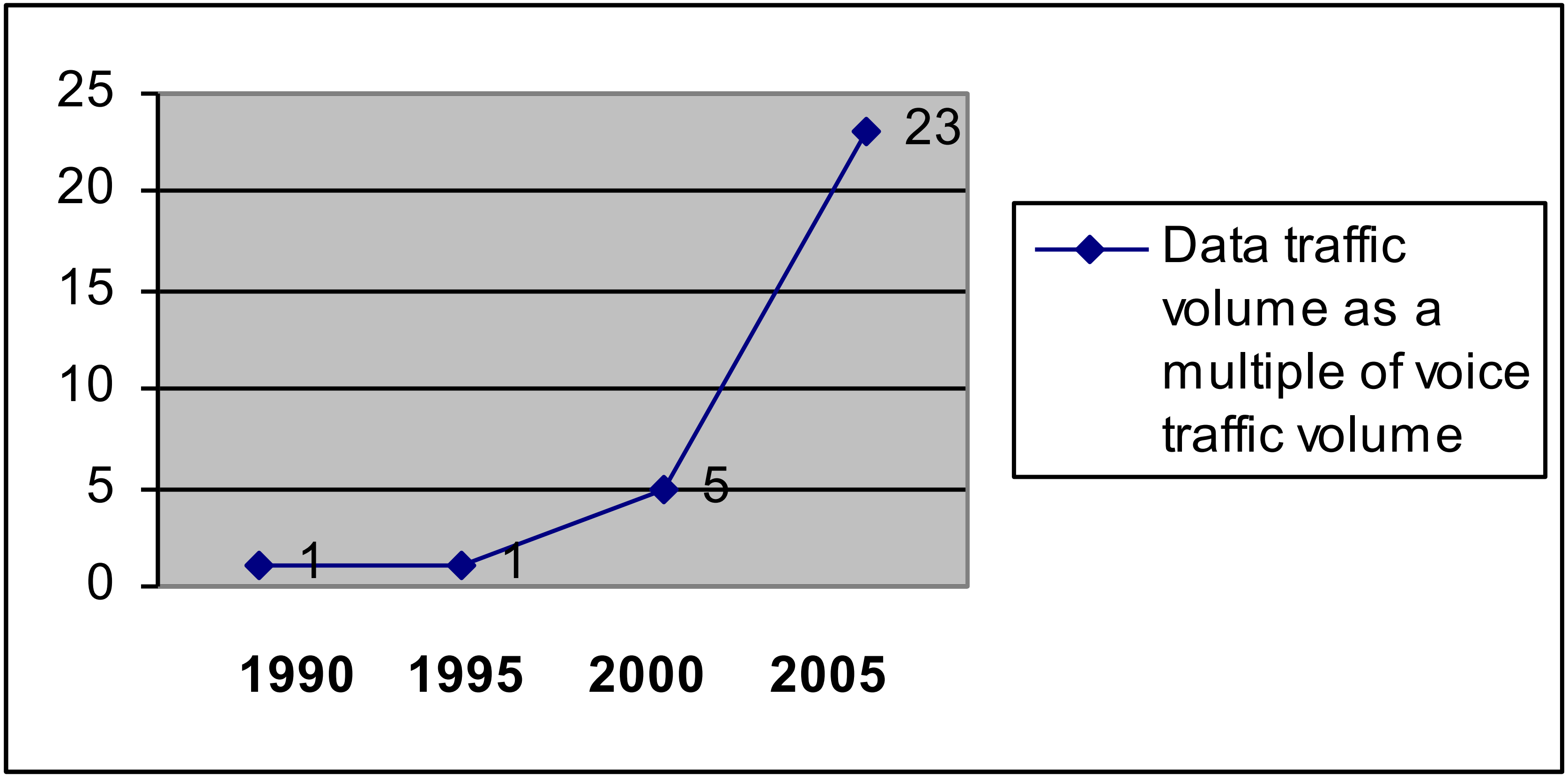

The launch of the IBM PC against Apple in 1991 caused the industry to shift from vertical to horizontal integration.

# Future Market Value Migration




**Value is shifting from voice services toward data services based on IP. However, the PSTN is still going to be the supporting infrastructure for the Internet.**

# Voice and Data Traffic




Source: SG Cowen

# Comparison Between Circuit-Switching and IP

| | Circuit Switching | IP |
|---|---|---|
| **Growth** | 5% to 10% a year | +100% a year |
| **Regulation** | Still present | None |
| **Assets** | Several Billions | Hundred millions |
| **Network** | Proprietary | Standard |
| **Time-to-Market** | Years | Months |
| **Connections** | Point-to-point | Any-to-any |
| **Applications** | Telephony, Fax<br>Intra Company Data | Web, e-mail<br>VoIP, Intra and inter Company Data |

# The Threat of the Internet on Traditional Telecom Services

- IP VPNs are increasingly substitutes for leased lines and Frame Relay circuits.
- Internet fax and phone will divert 5% of U.S. voice traffic to IP networks by year 2005 according to Forrester Research.
- Web transactions are already substituting for customer toll-free calls.
- E-mail is already substituting for voice and fax.

# Wireline Services (1)

- Businesses are increasing their demand for:
  - Worforce mobility (call management and call routing namely voice mail, one-number service and card calling…);
  - Improving customer support (single number and toll-free services..);
  - VPNs (leased lines, Frame Relay…).
- More home users are requiring second lines and Internet access.

# Wireline Services (2)

- The high cost of Intelligent Network Elements has created entry barriers for new entrants.
- The lack of equipment interoperability has slowed down the deployment of ubiquitous services such as Local Number Portability (LNP).
- Declining Wireless prices are drawing demand away from Wireline services.

# Wireless Services

- New spectrum, providers and digital networks are pushing prices down.
- Penetration is still high.
- But lack of digital coverage, incomplete roaming support, inconsistent features…have yet to be overcome.

# Network Evolution (1)

- Support to supply the demand for high bandwidth, such as T1 and T3, growing at 40% annually and stretching network provisioning times.
- The integration of Wireline, Wireless and data services requiring flexible architectures.
- The distribution of network intelligence out of the switch both in the core and at the edge of the network.

# Network Evolution (2)

- The increase in both network growth and network complexity is pushing Service Providers for Operations and Business Support Solutions with increased automation, scalability and integration.
- In a very competitive environment, customer care is more than ever critical to develop customer retention but is shifting from the call center to the enterprise with more Internet-based communication.

**Thank you for your attention**