

“Utilities’ Opportunities and Risks in Wholesale Telecommunications”

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Introduction

Orders of magnitude in change

Opportunities and Risks

Weak Links in Communications Chain

Trading

Wholesale telecommunications

Orders of magnitude in change—10 x

In nature 10^7 meters to 10^{-7} meters

Gilder suggests an order of magnitude/year in bandwidth.

Rare, especially in price. E.g., corn and cars, contrast with oil in 1970's

Telecommunications has orders of magnitude in change in:

- the number of conduits for fiber. Sprint = 0. Qwest = 2. Level 3 = 20.
- the number of fibers. 12 to 864.
- laser speed. megabits, gigabits, tens of gigabits.
- colors or wavelengths of light used. 1, 16, 120, heading for 10,000.
- Routers and switches to gigabit and terabit speed. Bit error rates to one per billion, one per trillion, one per quadrillion
- Bit error rates to one per billion, one per trillion, one per quadrillion
- number of competitors. 1984 AT&T. 1999 1000 x carriers, resellers, CLECs ILECs, CAPs, wireless, satellite, brokers
- density of networks.

The overall growth also deals in orders of magnitude.

2% national economic growth

20% telecom growth (voice + data)

200%+Internet growth (data)

Bandwidth

DARPA Internet 1980. 1.5Mbps

Now Terabit systems. 1,000,000 times

They all create opportunities and risks.

Telecom Prices

Long Distance down by 10 times. E.g., \$1.00 to \$.10/min.

T1 to DSL down by 10 times. E.g., \$2,000 to \$200/mo.

DS3 Internet, some down by 10 times. E.g., \$40,000 to \$4,000/mo.

STM1 IRU NY to London \$15,000,000 to \$1.5 million.

Modem for Internet 4800 baud to 56K baud, for about \$20/mo.

Modem to cable modem or DSL at 560K to 1500 K for about \$40 per month.

Contrast standard POTS phone line constant \$15/mo.

\$15/DS0/mi/mo. or four orders of magnitude, 10,000 times higher).

Opportunities and Risks

Order of magnitude change will often cause major disruptions.

Networks

Plus— Global Crossings \$15 M to \$5 B

Qwest \$20 M to \$Bs

Level 3

Minus--AT&T playing catch up

Iridium bankrupt

Long Distance

Plus--VOIP providers, like IDT

Neutral --AT&T's 7 cents/min

Minus—US West and Frontier

T1 to DSL—Rhythms, Covad, NorthPoint

T1 to Cable—Barclay Knapp and NTL, but AT&T

DS3—NextLink

Weak Links in the Telecommunications Chain

Last mile—or any centimeter

Lack of storage

Interconnection

- Peering for Internet

- Telephone, Internet, Cable TV, satellite, and international

- Installation time and protocols

- Time—years, months, days, minutes

Latency

- Speed of light and satellite

- Switches and protocols

Government regulation

Customs, industry attitudes, and contracts.

Trading

Negotiations and the Egyptian cat

Telecom culture vs. commodities trading culture

Standardizing contracts—proposal for brokers and traders to do that

Quality of Service

Latency

Speed

Bit error rate

Jitter

Subjective measures

Restoration time, insurance circuits

Circumvention risk

Credit risk and clearinghouse

Bidders are critical to making the market

World exchanges

Minutes v. Bandwidth and other products

Weak link and number of products

Demonstration concerning

Bandwidth

Internet connection

OC-48

Conduit and dark fiber
equipment

Bandwidth Market and other Markets

Bandwidth Market and other Internet brokerages of bandwidth, rights of way, and other telecommunications assets, can help utilities that want to perform in telecom. These markets can help in defining and standardizing products and services, deciding prices, marketing and selling products and services, reducing the cost of sales, and introducing local and small deals or large partnerships and strategies.

Pricing—the Critical Issue

Disclose opening price?

How much room for negotiation

Based on

- \$ per DS0 mile

- Individual Case Basis

- IRU—Indefeasible Right to Use, long term capital lease

- Airline pricing models

- Supply and demand

At Bandwidth Market, we have seen the price for an STM1 from New York to London for a twenty-year Indefeasible Right to Use drop from about \$6.2 million to about \$2.4 million in 3 months. The air distance is 3463 miles, the number of DS0 circuits is 2016, the months are 240.

Thus, the price per DS0/mile/mo at \$2.4 million is \$0.0014. The monthly price is \$10,000, but if you computed a price at \$.02 per DS0/mi/mo, the monthly price would be \$139,628. Paying that rate would pay for the 20 year circuit in 17 months.

Companies that hold out for the prices that were available 6 months or a year ago, can hold out forever and never gain any revenue from their assets.

Price declines with time over years

- Graphs of values

- Spreadsheet--\$1M to \$1 value

Price curve with time over days to years with and without switches or information

Anomalous prices

- T1 and DSL

- New DS3 pricing

- Dark fiber pricing

- Gigabit Ethernet and wide area networks

Forwards contracts

Biographical information for Howard Holme

Howard Holme is President of Bandwidth Market, Ltd. and of Broadband Market, Ltd. He went to Stanford University in Silicon Valley, California. He most enjoyed studying science, and chasing the "Stanford dolly" who became and remains his wife. He graduated with Honors and with Distinction, and also graduated from Yale Law School, and was on the staff at the University of Denver College of Law.

Howard is the President and CEO of Bandwidth Market. Bandwidth Market is an Internet based brokerage of wholesale telecommunications opportunities. It lists offers and bids for hundreds of thousands available circuits, the largest public listing of circuits and prices. It works with many US and international companies, from Ameritech, Qwest, Level 3, IXC and American Electric Power, to Cable and Wireless, Hong Kong Telecom, Bell Canada's Bell Nexxia, and many others. It helps market many products and services, from private lines, to Internet Access, switched minutes, satellite bandwidth, dark fiber, and whole networks. It also helps leaders of companies work with other companies to find synergies and partnerships in using major infrastructure assets to maximize profits.