

Wall Street's Speed War

Southerners backed by Netscape's Jim Barksdale have pulled New York and Chicago closer by building the ultimate trading weapon. By Christopher Steiner

TWO YEARS AGO A HOTSHOT trader approached James Barksdale looking for money for a rather quixotic venture: to dig, from scratch, a superfast fiber-cable route for sending trades between Chicago and New York. It would be nearly as straight as the crow flies and create a new critical link for speed-obsessed traders. Barksdale, now 67, was familiar with high-concept ideas from his days as chief executive of Internet browser Netscape and AT&T

Wireless. But this was a bit much.

"At first I said, Come on, you're pulling my leg," he recalls, wondering how you would plunge through mountains at a reasonable cost. But as he pondered it he realized, "If it wasn't a tough problem, somebody else would have already done it."

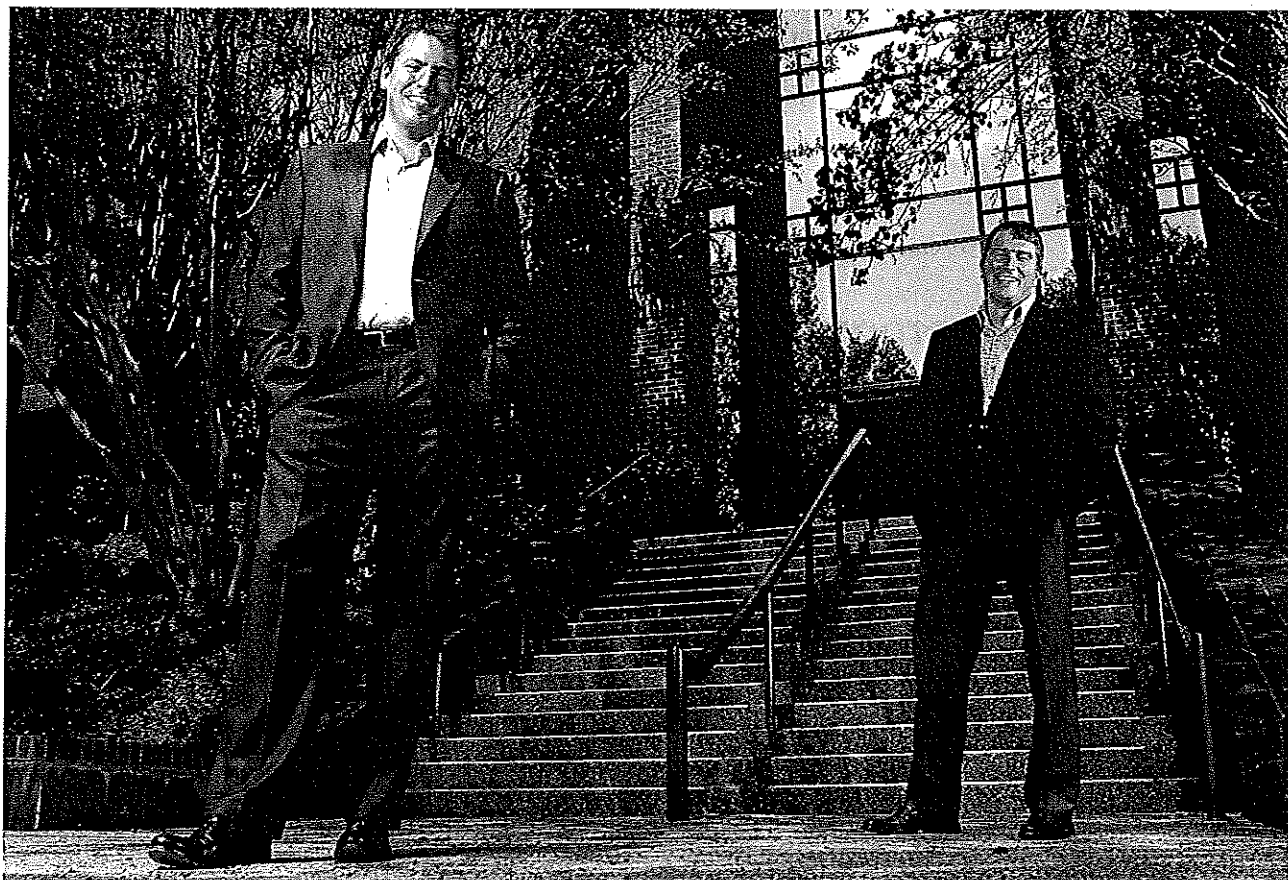
Barksdale helped finance the company, the brainchild of trader Daniel Spivey, 40, and became chairman. Barksdale's son, David,

a mergers-and-acquisitions lawyer, became chief executive. The result was Spread Networks of Ridgeland, Miss., which spent the last two years secretly digging a gopher hole from Chicago to New York, usurping the erstwhile fastest paths.

Spread's one-inch cable is the latest weapon in the technology arms race among Wall Street



Jim Barksdale helped launch a firm to build a fast cable route, headed by son David (left) and Daniel Spivey.



SEAN GARDNER / GETTY IMAGES FOR FORBES

houses that use algorithms to make lightning-fast trades. Every day these outfits control bigger stakes of the markets—up to 70% now. “Anybody pinging both markets has to be on this line, or they’re dead,” says Jon A. Najarian, cofounder of OptionMonster, which tracks high-frequency trading.

Spread’s advantage lies in its route, which makes nearly a straight line from a data center in Chicago’s South Loop to a building across the street from Nasdaq’s servers in Carteret, N.J. Older routes largely follow railroad rights-of-way through Indiana, Ohio and Pennsylvania.

At 825 miles and 13.3 milliseconds, Spread’s circuit shaves 100 miles and 3 milliseconds off of the previous route of low-latency, engineer-talk for length of delay.

Three milliseconds is three one-thousandths of a second. Does that really matter? “That’s close to an eternity in automated trading,” says Ben Van Vliet, a professor at the Illinois Institute of Technology. “This is all about picking gold coins up off the floor—only the fastest person is going to get the coins.”

That’s a far cry from what used to be considered the ultimate in low latency—an open phone line from a trading floor in New York to one in Chicago. Later came fiber-optic networks routing information at the speed of light between the country’s two financial hubs (see *timeline*).

Daniel Spivey earned his trading chops at the Chicago Board Options Exchange. He became one of the exchange’s first remote marketmakers in 2005 when he set up shop in his hometown of Jackson, Miss. to trade options for the S&P 500 index. In 2007 Spivey contracted with a New York hedge fund to devise a low-latency arbitrage strategy, wherein the fund would search out tiny discrepancies between futures contracts in Chicago and their underlying equities in New York.

Such popular arbitrage strategies demand screaming speed between Chicago and New York on what’s called dark fiber, the industry term for unused fiber-optic strands that can be sold or leased. The entirety of the strand’s bandwidth belongs to the leaser, who supplies his own lasers, which can cost more than \$5 million, to light the line and transmit information.

Spivey composed the program for the

Great Moments In Transmission

Financiers have been investing in faster technology for centuries to get the edge on competitors. Consultant Roy S. Freedman, in *Introduction to Financial Technology*, describes some of the biggest breakthroughs. —Daniel Fisher

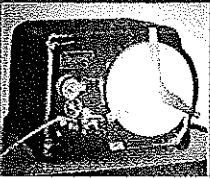
1815: Rothschild bank in London uses carrier pigeons to learn of Napoleon’s loss at Waterloo, makes killing shorting French bonds.

1845: German immigrant Paul Julius Reuter starts carrier pigeon network in London. By 1850 Reuters has fastest reports of Paris stock prices.



1865: American financier Jim Fisk charts fast schooners to outrun mail ships with news of Union victory in Civil War, makes killing shorting Confederate bonds.

1930: After existing tickers overwhelmed by stock market crash, Western Union unveils 500-character-per-minute “black box” that can process up to 8 million trades a day.



1964: New York Stock Exchange installs IBM computer system; automated quotations appear in 1965.

1978: Intermarket Trading System established, starting a technology arms race as traders install computers to speed up electronic trading.

1990: Ditek introduces “the Watcher,” a PC-based program that capitalizes on split-second discrepancies in the big exchanges’ small-order trading systems. A nation of day traders is born.

1999: Liquidnet introduces electronic exchange for trading large blocks of shares; by 2006 off-exchange trading threatens dominance of NYSE and Nasdaq.



hedge fund, but he couldn’t execute it. He needed the market’s lowest latency path, on which no space was available. Piqued, Spivey spent ten months researching the feasibility of building a new and faster line before he approached Jim Barksdale, who was born in Jackson, Miss. and still resides there.

Spivey and David Barksdale immediately set out on a series of road trips, meeting with

county boards, state highway commissions and private landowners. “It’s not always an easy pitch; some people don’t want fiber optics in rural Ohio,” says Spivey, who scrawls calculations on a paper pad and ponders things like the refractive index of particular fiber-optic lines.

By March 2009 Spread was moving dirt. Soon it had 125 construction crews working at once. Some dug ditches next to state roads while others bore tiny tunnels beneath streams and rivers. In the Allegheny Mountains of Pennsylvania, crews ran rock saws until they glowed white in the winter air. In farm country, workers would make 3 miles a day. In the granite and schist of the mountains, a good day was 100 feet.

Worried that competitors might build their own version, Spread ran on stealth until near completion. “We kept a lid on things by staying away from the big investment banks until late,” says David Barksdale.

The last splice came in July. Spread won’t disclose cost, but Jason Cohen, the chief operating officer of Allied Fiber, which is building a nationwide network, says laying cable through easy terrain runs \$200,000 per mile. Half of Spread’s route, however, is through tough virgin terrain, pushing FORBES’ estimate of its cost toward \$300 million. Jim Barksdale put up all of the capital other than \$75 million financed by outside investors.

Spread Networks won’t talk about its pricing or clients, except to say it hasn’t sold out yet. But its title as low-latency king means it can charge eight to ten times the going rate, says Donna Jaegers, a telecom analyst at D.A. Davidson & Co. Allied Fiber charges \$1.2 million for a 20-year Chicago-to-New York lease plus \$235,000 a year for server space and maintenance.

Big algorithmic traders have to ante up, no matter the cost, says Najarian. Chicago proprietary houses such as Getco, Wolverine and Citadel, he says, are undoubtedly up and running already. So, too, he reckons, are New York banks with their own algorithmic trading desks, such as UBS, Goldman Sachs and Morgan Stanley.

One Web hoax has a path even faster than Spread’s: boring through the earth from Chicago to New York, avoiding the planet’s pesky curvature. Spivey laughs, “They’re probably working on that already.” **F**

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