Securities trading is one of the few business activities

where a one-second processing delay can cost a company

big bucks. Wachovia Corporate and Investment

Bank is addressing the growing competitive push toward instantaneous

trading with a comprehensive systems overhaul.

In a project that has cost more than $10 million so far, Wachovia

is tearing down its systems silos and replacing them

with an infrastructure that stretches seamlessly across the

firm’s many investment products and business functions.

“Competitive advantage comes from your math, your

workflow and your processes through your systems. Straight through

processing is the utopian challenge for Wall Street

firms,” says Tony Bishop, senior vice president and head of

architecture and engineering. The first step in the project, according

to Bishop, was to prepare a matrix that cross-referenced

every major function (such as research, risk management,

selling, trading, clearing, settlement, payment, and reporting)

to each major product (debt and equity products, asset-backed

finance, derivatives, and so on). The project team then had to

take a hard look at the existing systems in each cell.

“We looked at the current systems and said, ‘Where can

we build standardized frameworks, components and services

that would allow us to, instead of building it four different

times in silos, build it once and extend it into one common

sales platform, one common trading platform and so on?’”

The resulting Service Oriented Enterprise Platform is

connected to a 10,000-processor grid using Grid Server and Fabric Server from Data Synapse Inc. In its data centers, Wachovia

brought in Verari Systems Inc.’s Blade Racks with quad core

Intel processors. Bishop says he’s creating a “data center

in a box” because Verari also makes storage blades that can be tightly coupled with processing blades in the same rack. The

processing load at the bank involves a great deal of reading

and writing to temporary files, and the intimate linkage of

computing and storage nodes makes that extremely efficient.

“We now do pricing in milliseconds, not seconds, for either

revenue protection or revenue gain,” says Bishop. The

advanced infrastructure has tripled processing capacity at

one-third the cost, for a nine fold financial return, Bishop

adds. Report generation that used to take 16 hours is now

done in 15 minutes. “This is where IT becomes the enabler

to new business capabilities,” he says.

Executing complex strategies based on arcane mathematical

formulas, algorithmic trading systems generate thousands

of buy and sell orders every second, many of which are canceled

and overridden by subsequent orders, sometimes only a

few seconds apart. The goal of these computer traders is to

profit from minute, fleeting price anomalies and to mask

their intentions via “time-slicing,” or carving huge orders

into smaller batches so as not to move the market. A one-millisecond

advantage in trading applications can be worth $100

million a year to a major brokerage firm, by one estimate.

The fastest systems, running from traders’ desks to exchange

data centers, can execute transactions in a few milliseconds—

so fast, in fact, that the physical distance between

two computers processing a transaction can slow down how

fast it happens. This problem is called data latency—delays

measured in split seconds. To overcome it, many high frequency

algorithmic traders are moving their systems as

close to the Wall Street exchanges as possible.

Wall Street’s quest for speed is not only putting floor

traders out of work but also opening up space for new alternative

exchanges and e-communications networks that compete

with the established stock markets. E-trading has

reduced overall volatility in the equities markets, because

volatility is a product of herd buying or selling, and trading—

responding instantaneously to tiny price fluctuations—

tends to smooth out such mass behavior. It has also

provided established exchanges with new revenue opportunities,

such as co-location services for companies that wish to

place their servers in direct physical proximity to the exchanges’

systems. E-trading also has created opportunities for

a new class of vendors—execution services firms and systems

integrators promising the fastest possible transaction times.

At its most abstract level, the data-latency race represents

the spear point of the global movement to eradicate barriers—

geographic, technical, psychological—to fair and transparent

markets. “Any fair market is going to select the best price from

the buyer or seller who gets their [sic] order in there first,” says

Alistair Brown, founder of Lime Brokerage, one of the new school

broker-dealers, which uses customized Linux servers to

trade some 200 million shares a day. “At that point, speed definitely

becomes an issue. If everyone has access to the same information,

when the market moves, you want to be first. The

people who are too slow are going to get left behind.”