

Arbitrage through connectivity

partnering with a next generation financial
markets network to seize arbitrage opportunities
a five-step guide for independent proprietary trading firms

White paper



Executive summary

Introduction

Proprietary trading (also “prop” trading) occurs when a firm trades equities, bonds, currencies, commodities, their derivatives or other financial instruments, with the firm’s own funds, and on its own account, as opposed to the funds of its customers, so as to earn a profit for itself. As prop trading firms seek a variety of arbitrage opportunities across a wide range of asset classes in increasingly fragmented markets, shortening time to market, lowering total cost of ownership and gaining efficiencies are vital to increasing profits. Recent regulation is also dramatically altering the landscape for prop trading. Additionally, independent prop trading firms do not have the luxury of being a part of a large sell-side firm that often has the resources to quickly create and deploy profitable trading models through

technology. As a result, by leveraging the right type of connectivity, a prop trading firm increases opportunities for success in what is a hypercompetitive market.

This paper discusses how a holistic approach to connectivity can enable prop trading firms to successfully execute trades on a variety of liquidity venues, expand business to new asset classes and conduct arbitrage between execution venues. Connectivity solutions need to address the extreme demands of today’s prop trading environment. We will first examine the five key criteria that prop trading firms should employ when selecting a specialized managed network provider.

Criteria for selecting a

Managed Network Provider

1. Community of Global Liquidity Venues and Trading Partners

Fragmentation has really taken hold in the majority of the world’s markets with trading across a variety of execution venues such as multi-lateral trading facilities (MTFs), alternative trading systems (ATSs), dark pools and electronic communication networks (ECNs) leading to increased competition for the once dominant business of established exchanges.

Prop trading firms can shorten the time to market by partnering with a connectivity provider that has a vast established community of liquidity venues and trading counterparties. The vendor also should have strong partnerships with a diverse group of international, national and regional carriers providing seamless delivery and resilient connectivity. Strong business relationships not only with key liquidity venues, but also with co-location providers are also vital for eliminating lengthy ramp up periods. The best qualified vendors are those that have negotiated with and established connectivity into the exchanges of all the major economies of the world – not just into the exchanges of global financial centers like New York, London or Chicago.

Criteria for selecting a

Managed Network Provider

2. Reliable and Diverse Connectivity to Liquidity Venues, Data Centers and Trading Partners

A prop trading firm needs to select a vendor that knows the financial services industry and allocates sufficient bandwidth to meet its trading requirements. Connectivity to major liquidity venues is sensitive to packet loss and market data bursts or jitter. Burst durations can range from ten to twenty milliseconds and simply overrun the allocated bandwidth. Reliability is crucial on these circuits. A burst can lead to packet loss if circuits are over-subscribed or shared. A vendor that is aware of these issues will allocate dedicated, spare bandwidth.

Network diversity is also vital for preventing business disruption and monetary loss. Prop trading firms need a vendor that invests heavily in its network and service delivery capabilities and demonstrates commitment to providing unmatched customer support. A vendor should also guarantee diversity and protection against the simultaneous failing of primary and secondary circuits.

A diverse, reliable, secure and high performance network is mission-critical for prop trading firms.

3. Knowledge of Routes and Sources of Latency

A prop trading firm needs to have knowledge and expertise on trade routes. Within the trade lifecycle, a trade will encounter networks, pricing engines, gateways, middleware messaging, firewalls, routers and risk engines all of which increase execution latency. It is tempting to conclude that upgrading bandwidth is the panacea. The real underlying issue could be that orders are being routed through multiple intermediaries whose network and risk engines intensify latency. In order to meaningfully reduce latency, it is crucial to have direct connectivity to the liquidity venue where the trade is executed.

The ideal managed network vendor has deep knowledge of the locations of the matching engines of liquidity venues and trade routes. It is primarily focused on optimizing connectivity and its specialized knowledge is valuable. Prop trading firms can significantly reduce latency when they are in proximity to or co-located with the matching engine of a liquidity venue.

Prop trading firms must also understand the five major sources of latency and effective techniques to minimize them:

- I. **Serialization Delay or Transmission Delay** – refers to how fast a data packet is converted into an optical signal to be transmitted over a link. It is a function of packet size and transmission rate. The two primary techniques to address serialization delay are reducing packet size or increasing bandwidth.
- II. **Propagation delay** – refers to the time it takes for a signal to move from one end of a link to the other. It is a function of distance between the two end points and the speed of light in the communication medium. Firms minimize this delay by reducing the distance between the A-end & B-end or by co-locating.
- III. **Processing delay** – refers to the time it takes to act once market data is received or in executing a trade. The application's architectural characteristics are crucial to minimizing this latency.
- IV. **Layer 3 Routing delay** – Routing mechanisms add latency to a Layer 3 network. The routing requires reading the IP layer stack, stripping the data link layer frame, reassembling the IP datagram, decrementing the hop count, calculating checksum and looking up the route table. Also, in order to minimize latency in a Layer 3 network, trading application data should be prioritized over other types of data. On the other hand, a Layer 2 network operates at wire speed by only forwarding the data. It does not inspect or perform any action on the data. It is critical to understand the type of network that is being used to provide connectivity in order to minimize latency.

Criteria for selecting a

Managed Network Provider

- V. Queuing delay – is caused by the number of data packets transmitted and the router's ability to handle the volume. This delay can be minimized through the increase of network capacity or the use of separate waves for distinct data feeds.

Prop trading firms gain efficiencies and optimize connectivity by partnering with a connectivity provider that has expertise on the sources of latency and direct access to the locations of the matching engines of liquidity venues.

4. Deliver Low Total Cost of Ownership

Prop trading firms need connectivity solutions that will scale, enable business agility and display excellent price-performance characteristics to lower total cost of ownership. These firms desire to take electronic trading to a new level. This can be accomplished by leveraging a next generation managed network. In spite of this, due to the never ending quest for low latency, some prop trading firms have been acquiring circuits from a wide variety of carriers. The result is a smorgasbord of circuits that is difficult to manage with long delays in ordering access circuits from local telecommunications providers. Usually the cost of access to connectivity accounts for only a quarter of the total cost of ownership. Capital and operational expenses account for the bulk of expenditures. Managed network vendors are in the business of building and maintaining robust networks. Prop trading firms can significantly reduce technology costs by leveraging a managed network vendor rather than attempting to build their own network.

5. Agility to Adapt to the Ever-Changing Regulatory Landscape

Recent regulation will have a profound impact not only on prop trading firms but also on the capital markets as a whole. The Dodd-Frank Act, which was passed as a

response to the recent recession, is the most sweeping change to financial regulation in the United States since the Great Depression and represents a paradigm shift in the American financial regulatory environment.

The government has proposed 'mandated intermediation' for trading over-the-counter (OTC) derivatives, primarily swaps. OTC derivatives selected by the Commodity Futures Trading Commission (CFTC) and the Securities and Exchange Commission (SEC) may be centrally cleared. It is expected that the CFTC and the SEC will require the central clearing of standardized derivative contracts. All transactions involving OTC derivatives that are subject to central clearing requirements have to trade on a 'swap execution facility' or SEF defined by the CFTC and SEC. This new law has wide ranging implications for the OTC derivatives market which is currently valued at \$615 trillion. Regulatory reporting requirements will result in the exponential increase of market and trade data. New venues registering as SEFs will create higher levels of transparency and competition resulting in more liquidity. Electronic trading will accelerate and the OTC derivatives market will become increasingly fragmented much like the equities market is today. SEFs may also need to connect to each other and to clearinghouses. An innovative connectivity vendor enables prop trading firms to effectively access liquidity venues and trade a variety of derivative products.

In addition, the proposed Volcker rules on prop trading will also have significant impact on the competitive landscape and go-to-market strategy of prop trading firms. The rules prohibit certain banking institutions from having an internal prop trading group. Volcker's proposal is almost like a return to the Glass-Steagall Act of 1933 that established the Federal Deposit Insurance Corporation (FDIC) and introduced banking reforms, some of which were designed to control speculation. An expected consequence is that prop trading groups may spin out of the big banks, move offshore or traders themselves leave and start their own firms resulting in an increase in the number of prop trading firms and more competition. Differentiation through technology will be critical in order to sustain competitive advantage.

Criteria for selecting a

Managed Network Provider

Prop trading firms gain tremendous efficiencies by partnering with a managed network vendor that is well-positioned to leverage these major regulatory changes. The connectivity vendor needs to understand

the impact of these regulations on the financial services community and be in a position to service the ever changing needs of its customers.

Partnering with IPC in the quest for

Arbitrage Opportunities

Choosing the right connectivity vendor with the appropriate attributes can make the difference between winning and losing. Faced with an array of options, prop trading firms use the criteria discussed above when choosing their connectivity vendor.

IPC® is a vendor that satisfies the exacting demands of prop trading firms with knowledge of the requirements of the capital markets. Over the past four decades, the company has been a leading provider of mission-critical trading communications solutions and is exclusively focused on the financial services industry. Its Direct Connect solution provides:

- One of the industry's fastest growing networks, with an 88% increase year over year in the number of end points
- Connectivity to over 50 exchanges, ECNs, MTFs, ATSS and dark pools
- A global network that includes buy-side firms, sell-side firms, inter-dealer brokers, independent software vendors and market data providers
- A latency-sensitive network and guaranteed high bandwidth to meet the demands of advanced trading applications

The Direct Connect solution recently delivered high-speed, dedicated high bandwidth electronic connectivity for a prop trading firm based in the heart of Chicago's financial district. Direct Connect also provided this prop trading firm with built-in capacity for future expansion. Prior to deploying Direct Connect, this firm was experiencing unacceptably high latency. The firm initially thought that this was a result of insufficient bandwidth and focused on bandwidth expansion. This approach did not solve their problem and they turned to a local technology consulting expert to find a solution. The consultant recommended the evaluation of IPC's Direct Connect solution, as he had extensive experience with the veteran trading communication solutions provider.

Taking on the role of a trusted advisor, IPC's network operations experts evaluated the proprietary firm's environment and reached some key conclusions. Bandwidth was not the dilemma. The real underlying issue was that market data feeds from Options Price Reporting Authority (OPRA) that were assumed to be coming from a location in Chicago were actually coming from New York – causing latencies that were creating a destructive business impact. Layer 3 routing delays were also causing latencies to snowball. IPC's deep knowledge on the locations of the matching engines of liquidity venues, sources of latency and trade routes eliminated the pain points of this prop trading firm.

Conclusion

Prop trading firms need to maximize profitability and performance through an optimized approach to their connectivity strategy. A managed network that is exclusively focused on the capital markets creates a trading ecosystem that brings together liquidity venues, trading counterparties, IT infrastructure and market data providers to meet the rapidly growing demands of market participants and the trade lifecycle. Prop trading firms must employ rigorous selection criteria when choosing a vendor. As discussed in this paper, a connectivity vendor must demonstrate the following attributes:

- 1. Community of Global Liquidity Venues and Trading Partners**
- 2. Reliable and Diverse Connectivity to Liquidity Venues, Data Centers and Trading Partners**

- 3. Knowledge of Routes and Sources of Latency**
- 4. Deliver Low Total Cost of Ownership**
- 5. Agility to Adapt to the Ever-Changing Regulatory Landscape**

A meticulous approach in selecting a connectivity vendor can help in swiftly identifying arbitrage opportunities, capturing spreads and substantially increasing profits.

About IPC

IPC is a technology and service leader that powers financial markets globally. We help clients anticipate change and solve problems, setting the standard with industry expertise, exceptional service and comprehensive technology. With customers first and always, we

collaborate with each to understand their individual needs to help make them secure, productive and compliant within our connected community. Through service excellence, long-developed expertise and a focus on innovation and community, we provide agile and efficient ways

for our customers to accelerate their ability to adapt to the ever-changing requirements for advanced data networks, compliance and collaboration with all counter-parties across the financial markets.

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