Death of the Fat Butterfly

[and Long Live Business-to-Peer Electronic Spot Markets]

E. Russell (Rusty) Braziel and Andrew McAfee [1]

In the spring of 1999, Rusty Braziel authored one of the earliest articles on business-to-business ecommerce called 'The Fat Butterfly'. Published by NetMarketMakers and used to launch their highly successful online discussion group, the article asserted that the simple process of introducing buyers and sellers would not provide a sustainable business model for an electronic marketplace. Instead, the real value in electronic commerce was premised to be derived from products and services like financial clearing, logistics and back-office integration that would add value to the basic B2B exchange model. In the November-December 2000 issue of the *Harvard Business Review*, Dr. Andrew McAfee's article, 'The Napsterization of B2B,' introduced a new way of thinking about business-to-business electronic commerce. The article described how peer-to-peer technologies can be used to complete electronic transactions swiftly, securely and efficiently without the need for any central aggregator or facilitator. This paper pulls together the two concepts to address many of the difficulties which have faced B2B exchanges, and how peer-to-peer technologies can be used to develop liquidity in these online markets.

It was almost two years ago when the Fat Butterfly concept was introduced to the emerging business-to-business community. In those primitive days of B2B ecommerce, the technology industry was pumped up about the huge potential of independent electronic spot markets facilitating millions of transactions between buyers and sellers in every sector of the economy. Butterfly markets where fragmented groups of buyers represent one 'wing' and fragmented groups of sellers, the other, were the business model du jour. Many of the newly emerging markets adopted the Fat Butterfly model, where "value-added products and services" added heft to the basic butterfly market structure. Based on the experience of Altra Energy and a number of other early exchanges, it was clear even then that the real value in electronic commerce would come from products and services that add value to the basic exchange function of matching trades.

A funny thing happened on the way to building these independent, Fat Butterfly B2B exchanges into the new-economy Nirvana. Many failed. Many of these new markets were unsuccessful in building more than a trivial number of transactions. And it happened to both the thin and the fat butterfly models.

Over the past few months, much of the blame for B2Bs market chaos has been placed the emergence of coalition-based exchanges composed of traditional brick-and-mortar players. But closer observation reveals that most of the problem has not been online competition. Many of the coalition exchanges have demonstrated little traction in online trading activity themselves. Today in most industries, the majority of spot market transactions are still done the old fashioned way – by phone and fax.

And the problem was not the 'fat,' in the Fat Butterfly. Experience over the past few months has shown that value-added services by themselves are not a sufficient draw for many buyers and sellers, and only gain acceptance when an exchange has already been embraced by the marketplace for a critical mass of transactions. The Fat Butterfly model may be necessary for sustaining an exchange's business model, but it is often not enough to bring spot market buyers and sellers to an electronic exchange in the first place.

Instead, the problem is with the 'butterfly' concept itself. In their natural state, spot markets are not **center-based** exchanges, with all transactions flowing through a single point of contact. They are webs. Peer-to-

---

[1] E. Russell "Rusty" Braziel, Netrana CEO, is one of the most respected authorities on the development of electronic markets. In 1996, Mr. Braziel founded Altra Energy Technologies, the largest and most successful independent, B2B exchange. In 2001, Braziel founded Netrana to bring innovative market services, software solutions and liquidity formation methodologies to a broad range of vertical electronic markets.

Andrew McAfee is an Assistant Professor in the Harvard Business School's Technology and Operations Management department. His research focuses on understanding the impact of information technology on companies and their performance, and on strategies to maximize the benefits of IT. Dr. McAfee is the author of "The Napsterization of B2B" published in the *Harvard Business Review*, November-December 2000.

peer webs. They have been around way before peer-to-peer webs were cool. And they are not about to morph into butterflies overnight.

Center-Based versus Peer-to-Peer Markets

Looking carefully at today's electronic exchange landscape, two facts are apparent. First, several center-based exchanges in large, actively traded spot markets for relatively standardized products such as energy and chemicals have been quite successful, seemingly regardless of ownership structure or competitive environment. Second, in smaller spot markets for more unique or customized products, the center-based model has consistently failed.

The explanation is apparent to students of spot market behavior. Where a traditional phone/fax spot market is actively traded by a large number of players dealing with fungible or standardized products, the market behaves similarly to a traditional open outcry exchange. In this environment, market liquidity is self-generating. These marketplaces have generally proven to be good candidates for center-based exchanges, where all transactions can be encouraged to flow through a single point of contact using the exchange's formalized business rules.

In contrast, smaller, more customized spot markets look more like peer-to-peer webs where individual buyers and sellers conduct a series of bilateral transactions with each other, based on a continuous stream of informal market communication. These spot markets are diverse, rich, complex and self-organizing. Experience in many industries has shown that most spot markets actually fit this description. Even large industries are composed of many fragmented micro-markets, where individual decision makers from different companies are focused on a particular region, or a particular set of product categories. In such markets, likely there is no natural critical mass of self-generating liquidity.

B2B exchanges that attempted to quickly morph these networked, analog, peer-to-peer spot markets into center-based, digital exchanges found significant resistance from individual buyers and sellers. The basic problem was a failure to recognize and support existing market relationships and processes conducted between all market participants, including not only producers and end-users, but all companies involved in the supply chain, such as distributors, traders, brokers and other intermediaries.

The Role of Intermediaries

Many entrepreneurs promoting their B2B exchanges found it convenient to portray existing intermediaries as zero value-added leeches within their industries, and to describe all buyers and sellers as eager to be rid of them. Current events demonstrate that this is typically not the case. Here's why: If the old intermediaries were useless, no one would use them. If they charged too much for too long, cheaper competition would appear. If they were so flimsy that the emergence of a computer network could dis-intermediate them, they would have been gone long ago.

Pre-Internet intermediaries have reputations, contacts, relationships and expertise in their industries. In many cases they provide the all-important liquidity in these spot markets. And they are not about to surrender it to any new entrant, much less one founded by outsiders on the premise that "the Internet changes everything."

So what kind of technology-based facilitation would work well in these web-like spot markets? One way to answer this is to look at the required characteristics of such technology. The above discussion indicates that the technology would have to embrace rather than alienate existing intermediaries. This implies that it would have to be immediately useful and not too expensive for intermediaries, buyers and sellers alike.

So if these spot markets are naturally self-organizing, peer-to-peer webs, then the business models of exchanges in these markets should support this way of conducting business, rather than attempting to force it into a radically new structure. Center-based exchange technologies, whether auction, reverse-auction, bid-ask or any of the other popular business models miss the mark in these markets. The answer is technology and functionality that is designed from the ground up to fit the requirements of these web-like, product-based markets.

Peer-to-Peer Technologies

The exciting news in business computing these days is the rapid emergence of a class of information technologies that has exactly these characteristics. They are lumped together under the heading "peer-to-peer," or P2P. P2P includes a variety of technologies like instant messaging and distributed storage and processing that, while fascinating and useful, are not directly relevant for businesses looking to find partners and execute transactions and processes with them.

We therefore use the term "business-to-peer," or B2P, to specify peer-to-peer technologies with great relevance for B2B. Even with this restriction, B2P remains a difficult term to define exactly.

Many P2P technologies, for example, rely heavily on servers (think of Napster and e-mail) so it is not correct to think about P2P or B2P as simply computing without file and process servers. We believe it's more useful to think about B2P as a set of technologies that (1) support self-organizing market communities, (2) remain under the control of the community, (3) provide capabilities that enhance the way individuals in these markets already do business, and (4) support intermediaries and intermediation. A B2P approach must support unique and complex product descriptions, and other features of traditional phone/fax based transactions, including the ability or option of participants to restrict trading and information flow to only certain groups or trading partners. After all, that is the way most existing phone/fax spot markets operate today.

If B2P technologies are such a great fit for so many spot markets, how did all those smart entrepreneurs jump straight to the center-based Fat Butterfly? First, center-based exchanges captured the imagination of the analyst and investment communities. They were fundable. Second, two years ago B2P technologies were not ready for prime time. Today B2P applications are becoming available, and can be used to conduct business in Web-based spot markets. For example, let's consider the market for XYZ, a fictitious niche industrial chemical. (Note that this example is based on an actual industrial product and the market it trades in.)

An Example

Although the overall chemical market is huge, XYZ trades in a small micro-market environment. There are only 20 individuals that transact 80% of the XYZ spot market trade, and only five to 10 XYZ trades are consummated each day. Five of the individuals in our micro-market work for trading, distribution or brokerage companies. These individuals provide the 'grease' that keeps the market liquid in situations like the following:

- A seller needs to move product today. The buyer is not in the market until tomorrow.
- The seller wants to deliver in Chicago, but the buyer wants delivery in Pittsburgh.
- The buyer is willing to pay up to cover an unexpected shortfall, but does not want any of her contract suppliers involved.
- The seller wants to move surplus product outside his franchise territory.
- The buyer wants 5,000 tons of 95% pure product, but the seller only has 3,000 tons of 98% pure to sell.

Today the XYZ market is conducted exclusively by phone and fax. Intermediaries mix, match, blend, transport and store product in a variety of complex multi-part transactions to meet the needs of buyers and sellers. But the manual processes involved are costly, time-consuming and inefficient. Each party must track and record each step of the negotiation process. Paper documents must be filed and re-entered into computer systems. Written communication between multiple parties must be replicated for each recipient.

Clearly this market is too small and too illiquid to justify a center-based exchange, especially one which would alienate the five intermediaries who provide marketplace liquidity. But using B2P, these companies can offer, negotiate and transact spot trades online. B2P can provide the same flexibility of phone-based trading, and at the same time eliminate the costs associated with manual trading processes. Each market participant manages its own software application, and controls how that software is used. Bids and offers are distributed based on each company's best interest, rather that rules established by a center-based exchange. In fact, there is no center. B2P interconnects the market participants in a peer-to-peer web, where existing phone/fax based transaction processes are replicated in an automated, efficient network.

Conclusions

This is one simplistic example of how B2P technologies can address the needs of a marketplace in ways which have proven difficult for many center-based exchanges. But B2P is only one tool among many. We are not asserting that B2P technologies are a magic formula that will resolve all of the complex issues around the development of electronic markets. Nor are we saying that center-based exchanges will fade from the B2B landscape.

Our core message is that online markets must be designed to meet the unique needs of each marketplace, and must be introduced to the market in a manner that will encourage adoption by individual buyers and sellers. In many large, frequently traded markets, a center-based exchange will prove to be the best approach to achieve this objective, and in such markets, the Fat Butterfly remains alive and well.

But in the thousands of micro-markets in industries covering the economic landscape, we do believe that B2P is the right approach. The applications will be designed to interconnect groups of individual trading partners, providing capabilities that support and enhance the way these individuals already do business, and providing a foundation for peer-based, value-added services. The technologies will be simple, inexpensive, and comfortable for the entire marketplace community. We believe that these technologies will prove successful in many of the industries and markets where Fat Butterflies are now fading.