Hypermediation: Commerce as Clickstream

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When the notion that you could sell things over the Internet first arose, there was a widespread belief that it would mean the death of the middleman: Producers of goods and services would use their Web sites to connect directly with consumers, bypassing wholesalers and retailers altogether. We'd enter a great era of "disintermediation," which would drain profits from distributors and redirect them back to manufacturers.

Like many of the early assumptions about electronic commerce, this one has proved laughably wrong. With few exceptions, manufacturers have not been able to do much direct selling over the Web. In the virtual world as in the physical world, people want a broad selection of goods when they go shopping; they don't want to be limited to a single product line. Even Levi Strauss, whose launch of a sophisticated e-commerce site back in 1994 made it a poster child for disintermediation, has thrown in the towel. It recently announced that it will stop selling jeans through its site.

It is now becoming clear that, far from experiencing disintermediation, business is undergoing precisely the opposite phenomenon – what I'll call hypermediation. Transactions over the Web, even very small ones, routinely involve all sorts of intermediaries, not just the familiar
wholesalers and retailers, but content providers, affiliate sites, search engines, portals, Internet service providers, software makers, and many other entities that haven't even been named yet. And it's these middlemen that are positioned to capture most of the profits.

**Clicks as Transactions**

A simple, everyday example of Internet shopping will show how hypermediation works. Let's say that an occasional Web user – I'll call him Bob – becomes interested in the ubiquitous Harry Potter books. He thinks that he'd like to read them, but he wants to learn a little more about them. So he goes onto the Web and, since he's never bothered to change his browser's default home page, he ends up at the Netscape portal. In the search box he types the phrase "Harry Potter," and from a list of available search services he chooses, on a whim, GoTo.com. He's transported to the GoTo site, where his search results are posted. He chooses a promising-sounding site near the top called "Nancy's Magical Harry Potter Page."

Nancy's site, a personal home page with an unsophisticated but friendly design, is full of information that Bob finds useful. There are glowing reviews of the books by Nancy and a few of her friends, detailed plot summaries and character descriptions, and a discussion board where readers share their comments. There's also a link to a special Harry Potter page at eToys. Bob clicks on the link, and he finds that eToys is selling the first book in the series for 50% off its list price – just $8.97. He can't resist that kind of a bargain, so he takes out his Visa card and places an order. Three days later, the book is in his mailbox.

A fairly routine buying expedition on the Web, right? But consider the complex array of intermediaries that made money off Bob's modest purchase. There are the usual suspects, of course – the retailer eToys, the book distributor that eToys buys from, the bank that issued Bob's Visa card, the U.S. Postal Service. But there are less obvious players as well. First is Netscape. Netscape puts various search services on its home page and, in return, the services pay
Netscape a penny or two every time a visitor clicks through to their sites. So when Bob was transferred to GoTo.com, Netscape received a little money. GoTo, for its part, auctions off its top search results to the highest bidders. Nancy, for instance, agreed to pay GoTo one cent for every searcher who clicks on her link. So when Bob chose Nancy's site, GoTo made a penny. GoTo didn't get to keep all of it, though. Because GoTo contracts with an outside provider, Inktomi, to conduct its searches, it had to pay Inktomi a fraction of that penny for processing Bob's search.

Then there's Nancy herself. Like thousands of other individuals who have personal Web pages, Nancy has signed up to be an affiliate of eToys. When she sends someone to eToys through a link on her page, the e-tailer pays her 7.5% of any resulting purchases. So Nancy made a cool 67 cents when Bob bought the book. What's more, eToys doesn't run its own affiliate program. It outsources the job to a company named Be Free. Be Free, in turn, takes a small cut on the purchases it administers. So it, too, got a little of Bob's money.

Add them up, and you'll find that no fewer than nine intermediaries had their fingers in Bob's $8.97 purchase. (And that doesn't even include the people who posted reviews on Nancy's site – they just haven't realized that they could be charging for their words.) In fact, every single time Bob clicked his mouse, a transaction took place: a little bit of value was created, and a little bit of money changed hands. Yes, the money usually amounted to only a penny or two, but it seems a safe bet that far more profit was made by the intermediaries that took those pennies than by eToys when it sold the book for half-price – and through in free shipping. Bob's transaction is a microcosm of the emerging economic structure of e-commerce: the profits lie in intermediate transactions, not in the final sale of a good.

**Volume and Efficiency**

Two characteristics of electronic commerce make hypermediation possible and even inevitable. First is the sheer volume of activity. People make
billions of clicks on the Web every day, and because each click represents a personal choice, each also entails the delivery of value and thus an opportunity to make money. A penny isn't a lot of money in itself, but when you start gathering millions or billions of them, you've got a business.

The second characteristic is efficiency. Most physical businesses wouldn't be able to make money on penny transactions; it would cost them more than a penny to collect a penny. But the incremental cost of an on-line transaction is basically zero. It doesn't cost anything to execute a line or two of code once the code's been written. The pennies taken in by many intermediaries are almost pure profit.

If volume and efficiency make micro transactions attractive, they make micro businesses attractive, too. Take Nancy's Magical Harry Potter Page. (I made up that site, but there are millions just like it all over the Web.) It doesn't cost Nancy much to maintain her site. She spends an hour or two on it a week, adding text and images using a site-design program that came bundled with her home PC. Her ISP hosts the site for free on its servers. And she didn't have to pay eToys anything to become an affiliate. The commission checks she receives from eToys are small – 80 bucks a month, say – but they're all profit for Nancy. She brags about the income to her acquaintances, and now they're all launching small sites focused on everything from gardening to sports to education to doll collecting. Through affiliations with various e-tailers, they're pulling in a few extra dollars a month, too. Some are earning hundreds or even thousands.

Just as micro transactions don't look like much individually, so micro businesses seem insignificant at first glance. But, again, volume changes everything. One micro business is no big deal. Millions of them, sucking billions of dollars of profit out of the e-commerce system, is a very big deal. After all, there's not a whole lot of profit in selling stuff on the Web to begin with.

**Geeks Rule**

So what does hypermediation mean for the future of on-line business? I would argue that
the lion's share of the profits in e-commerce will likely flow to two very different types of intermediaries. One type is represented by Nancy – the owners of specialized content sites. These content sites will draw people interested in the particular subjects they cover, often using discussion boards or other interactive features to encourage return visits. As affiliates of big e-tailers, they will also serve as gateways to purchases, gaining a share of all sales. Some of these content sites will be large – America Online has long pursued such a business model – but most will be small and intimate. When people first venture onto the Internet, they tend to head for the big-name sites – Amazon, Yahoo, and the like – because those are the easiest to find. But as they become used to the Web and more familiar with searches and other navigation aids, they start to seek out sites tailored to their particular interests – sites that might get only a few dozen visitors a day. For content sites, specialization is more important than scale.

The second type of intermediary is the infrastructure company – the search engines like Inktomi and Google, the advertising networks like DoubleClick and Engage, the affiliate networks like Be Free and LinkShare, the backbone providers like Akamai and Exodus. Here, scale will often be important. In some cases, the network effect will lock out small new competitors – at least for a time. But even more important than scale will be technical prowess. The technologies underpinning the Web are still in their infancy. Every day we see the arrival of some new company with a neat piece of code that changes something about the way the Web works. Those companies are well aware that every click is a potential source of profit. They are focusing their energy and creativity, not to mention millions of dollars of venture capital, on figuring out new ways to turn clicks into transfers of cash.

Just as it was once assumed that disintermediation was an inevitable result of e-commerce, so it has been assumed that the power over e-commerce will inevitably shift from the geeks to the suits: good, well-disciplined business sense will supplant enthusiasm and technical know-how as the key determinant of
success. I don't see it that way. In a world of hypermediation, the enthusiasm that gives rise to specialized content sites and the engineering skill that underpins technological advances will continue to trump B–school smarts. While many big, highly visible Web retailers will vainly struggle to sell products above cost, a whole slew of anonymous businesses will be quietly collecting pennies behind the scenes.
ClickStream Analytics is an information retrieval use case for Mahout. Most of the e-commerce applications, social networking sites and several websites carry out lots of analysis using the ClickStream data. ClickStream data could be generated from any activity performed by the user over a web application. What could be the user activity over any website? All these will be locked by a web application.

This data is known as ClickStream Data. It has a high business value, specific to e-commerce applications and for those who want to understand their users™ behavior. More formally, ClickStream can be defined as data about the links that a user clicked, including the point of time when each one of them were clicked. Hypermediation: Commerce as Clickstream. Article. Jan 2000. Various network loan services are provided by commercial banks and e-commerce platforms. This paper deals with the relative advantages and applications of some kinds of network loan for small and medium-sized enterprises, by the comparative analysis of several typical ways of network loan, such as network joint guarantee loan, e-commerce platform loan, revolving loan of e-bank, etc. And the conclusion is that these kinds of network loan have their respective advantages and limits. So the requirements and business characteristic should be clear and considered when the e Click fraud is arguably the cyberworld™s biggest scam. How do click fraudsters frame their actions? What are the characteristics of click fraud victims? How do formal and informal institutions affect... Hypermediation: Commerce as Clickstream. Harvard Business Review, 78(1), 46–47. Google Scholar. Chabrow, E. (2006). Once upon a time – January 2000, to be exact – I wrote an article for the Harvard Business Review called Hypermediation: Commerce as Clickstream. In the early days of the commercial internet, it was generally assumed that the web was a force for disintermediation, that it would allow producers and consumers to connect directly, killing off middlemen along the way. I suggested that this view had it wrong: that while some traditional intermediaries were being cut out of the picture, myriad new ones were arising in their place: Far from experiencing disintermediation, business is undergoing preci... The hypermediation phenomenon is continuing in the Web 2.0 world of online media. 16. For a discussion of network-based mediation, see N. Carr, Hypermediation: Commerce as Clickstream. Harvard Business Review 78 (Januaryâ€“February 2000): 46â€“47. 17. See also L. Downes, The Strategy Machine (New York: Harper Collins Publishers, 2002): 76â€“80, 93â€“96 and 127â€“128. 18. See Business: Time To Rebuild, The Economist, May 19, 2001, 55â€“56. 19. See Wharton: The Chemdex Approach to B2B E-Commerce, May 2000, http://www.ebizchronicle.com/wharton/07_chem.htm; and P. Samec, Thinking Ahead on E-Marketplaces, Computerworld, July 2, 2001, 24. Acknowledgments. The authors gratefully ack