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What a Tangled Web We Weave

A Review of Pricing Models and the Forces that Drive Them

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By my estimates there are over 50 commonly used pricing models in use for electronic products today. As many of these models are used in conjunction with each other, there are thousands of different combinations. My purpose here is to provide a context for these, and

to show that although they're complicated, the forces that drive them are surprisingly simple.

Let's begin by taking a look at some of the models — this is not meant to be exhaustive, I'm sure there are plenty I've missed:

<u>Model</u>	<u>Category</u>	<u>Example</u>
1 FTE	Approximates use	\$3,000 for schools below 5,000 FTE's
2 Book budget	Approximates use	\$3,000 for schools below \$100,000 book budget
3 Simultaneous Users	Approximates use	\$1,495 for four simultaneous users
4 Connect Time	Approximates use	\$15 per hour connect time
5 Modem BAUD rates	Approximates use	\$50 per hour for 14,400 modem, \$100 per 28,800 modem
6 Number of characters	Approximates use	\$0.10 per '000 characters
7 Number of pages	Approximates use	\$3 per page
8 Number of documents	Approximates use	\$20 per document
9 Number of abstracts	Approximates use	\$0.20 per abstract
10 Number of records	Approximates use	\$0.50 per record
11 Number of downloads	Approximates use	\$1.00 per record downloaded. View for free
12 Number of views	Approximates use	\$0.50 per view
13 Number of faculty	Approximates use	\$100 per faculty member
14 Number of searches	Approximates use	\$0.50 per search
15 Number of sessions	Approximates use	\$5.00 per session, per database
16 Block Session purchase	Approximates use	\$20,000 per block of 1,000 sessions, any db, any location
17 Departmental copy price	Approximates use	\$1,000 for single department access, any location
18 Personal copy price	Approximates use	\$100 for individual copy
19 # of ports	Approximates use	\$3,000 per port
20 Based on last year's usage	Approximates use	Pay fixed amount now, next year's price based on use
21 Institution type	Approximates use	Public library, high school, ARL, Community College prices
22 Price per password	Approximates use	\$5 per password
23 Price per terminal	Approximates use	\$3 per terminal
24 LAN price	Approximates use	\$500 price for a LAN
25 WAN price	Approximates use	\$1,000 price for WAN
26 Unlimited Site license	Approximates use	\$5,000 unlimited use within defined site
27 Purchasing paper copy	Discount	20% off for purchasing paper and electronic
28 Purchasing CD copy	Discount	20% off for purchasing CD and paper
29 Purchasing Web copy	Discount	90% off for purchasing CD and Web
30 Multi-year discount	Discount	5% off for purchasing two years
31 Multi-site discount	Discount	5% off for multi-site purchases
32 Multi-copy discount	Discount	5% off for buying multiple copies of same product
33 Pre-pub discount	Discount	5% off for buying before publication
34 Consortium discount	Discount	20% off for 20 sites participating
35 \$ volume discount	Discount	20% off for sales over \$100,000
36 Multi-database discount	Discount	5% off for purchasing more than 10 products at once
37 Early purchase incentive	Discount	5% off if you purchase without a trial
38 Extra subscription time incentive	Discount	Extra two months subscription if you purchase before x
39 Charter subscriber discount/ fee	Discount	Long term 20% off for paying \$10,000 charter subscriber fee
40 Country Discount	Discount	Developing country discount
41 Profit/non-profit Discount	Discount	Non-profit discount
42 Introducing a new customer discount	Discount	5% if you bring a new subscriber when you buy
43 Advertising - # of click-throughs	Sponsored	\$19.95 per month, but you must look at ads
44 Pledge	Sponsored	Contribute as you see fit
45 Free	Sponsored	No charge
46 Currency	Value added	\$2,000 for subscription, quotes delayed 5 minutes
47 Remote usage surcharge	Value added	\$500 to add a remote campus
48 Ownership surcharge	Value added	\$15,000 for outright purchase of the data for a site
49 Hard disk charge	Value added	\$500 to download data onto a hard disk
50 Magnetic tape surcharge	Value added	\$19,500 for tape to load locally
51 Software loading fee	Value added	To access data through software x, \$3,000 software loading fee
52 Software maintenance fee	Value added	To ensure technical support, and software updates
53 Update frequency	Value added	4 updates per year for \$1,000; 12 updates \$2,000

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Usage based pricing sets up a measure which assumes a certain value for each action, and then charges accordingly. Even site licensing is a variant of usage based pricing. In this case the limit is the description of the site, but there is still an assumption of the amount of use that will go on within the site.

Discounts are usually tactical. Their purpose is to reward customers who help the company by buying early, or to pass on cost savings for volume. Notice that often a discount is actually a price. For example, if I buy the CD and paper together I get a lower price.

Value added forms of pricing choose a particular desirable feature or part of the service, and then attempt to differentiate customers accordingly.

Sponsored pricing is when advertising, sponsorship or other good will dispense with fees completely. In some cases the customer must undertake an action to get the discount, such as providing the sponsor with a number of click-throughs on banner advertisements.

If you find these categories somewhat arbitrary, that's because most pricing models have multiple purposes. They defy categorization. You could argue that additional months is in fact value added rather than a discount. It's much easier to look at the forces driving the models rather than the models themselves.

So what are the driving forces?

- Customer pressure for lower prices:

It's easier to see if you take a micro-example.

Hypothetically, let's imagine an ARL — Ivy University, and a Technical School — Bob's Late Night College — that both want to buy the same product. Just look how the simultaneous user model penalizes Bob's College. Bob's has fewer students, fewer faculty, a lower budget and fewer overall usage than Ivy University — surely it should pay less? Bob's complains loudly — and the vendor — MoreMoney Inc. — recognizes that it was unlikely they would sell to Bob at full price. If only MoreMoney Inc. could come up with a price that would still leave their current customers paying the same, but that would allow some revenue to be generated from Bob's ... Hey presto ... a new pricing model is created: the technical school price.

- Publishers create additional models to maximize revenues.

Sometimes the market drives the change, sometimes publishers do. Publishers naturally seek to recover the costs of creating a product or service from the market for which it was created. If they can keep the revenues from this market stable, but find a new group of customers they will do so. Often, the easiest way for them to do this is add a restriction on something that the target customers are prepared to pay for.

This is why we can have a corporate customer paying tens of thousands of dollars for up to the minute information. Fifteen minutes later the same information can effectively be had for free on America Online.

- Different products need different models

Books don't perform. Readers do. It doesn't make sense to talk about the "performance" of a book. This isn't true for electronic products. Much of the value they have is in their performance, rather than the content they contain. The measures of that performance — speed, ease-of-use, level of technical standardization, accessibility, and others — are all strong drivers towards new pricing models.

The company I work for publishes 250,000 works of literature on the Web in our *Literature Online* product. When we examined how to price it, we quickly learned that customers did not want to pay a per text price. They pointed out that a number of the texts would rarely be used. Instead they preferred an annual subscription, where they could get as many of the texts as they wanted. The product

required a different pricing model.

Another example. A while ago I was involved in a conversation about pricing market research reports. The publisher was unwilling to give the customer a price for simultaneous use. Why? Because the value in each report is in downloading it. The publisher wanted to be remunerated by the number of times each report was downloaded. A simultaneous usage model would mean unlimited downloading. Since each report cost hundreds of dollars the publisher wanted far more for the product than the customer was willing to pay. A new model was needed.

We don't expect a doctor, a lawyer or a plumber to charge the same way for their services. We should not expect electronic services or products to be any different.

- Technology enables pricing models that reflect value more accurately

Technology is going to provide us with more and more ways of pricing. The ability to create useful subsets of databases, micropayments, and ever more sophisticated usage and monitoring schemes will drive this.

You can make a subset of an electronic database relatively easily. This enables new kinds of services (and price models) to be created from what used to be indivisible databases. It used to be expensive and time consuming to divide, but now an electronic newspaper can and will be crafted into biographical databases, almanacs, real estate analysis tools, historical dictionary, genealogical research tools, etc. Each one of these may use a different model.

- Sublicensing makes models more complex still

Most — if not all — electronic databases are aggregations of rights. Behind the scenes there are software rights, and sublicenses for content. These rights are usually won over time, often with tightly argued contracts. Each agreement is subject to the value the licensor believes his or her data has, the personal opinions of the negotiators, and competitive concerns.

A quick example to show how complex this can be: Journal publisher A gets most of their revenue from advertising. Providing the aggregator promises to carry their advertising they are prepared to license it at very low fees. Journal Publisher B gets revenue from current issues. They're worried about loss of print subscriptions, so they want a per copy per individual fee. How should the aggregator price? For them to be sure not to lose money they need to be extremely careful on the terms on their pricing. In practice this might result in a price model that allowed a site with fewer than 10 faculty having an unlimited license, but an additional charge for every 10 additional faculty.

Is there anything wrong with this?

Clearly, complex pricing offers more chances for libraries to overpay vendors, but it also offers more chances for customers to pay less. Look at *Encyclopedia Britannica* which is now available to many thousands more users than earlier versions. A new pricing model that the market liked had much to do with this.

Some might say that it's unfair that in the example above Ivy University has to "subsidize" Bob's College. But on many measures Bob's won't get much value from the database anyway. If Bob's doesn't buy, then the overall cost of the file will be higher, which could end up in Ivy University paying more. Very quickly such arguments become philosophical. Should a student pay more or less than a professor for the same information? Should a corporation pay the same as a university? Is more information necessarily more valuable than less information? Surely a product that has turned data into knowl-

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edge is worth more than one that has raw data? That way madness lies.

The bottom line is that customers will not and should not pay more than they think the product is worth.

Ideally, the value delivered should fit the model. By this I mean that customers should pay more for things they value. In the longer term this will mean that companies seek to add more value, so doing a better job for the users. For example, if high schools want tailored features for high schools, they should be prepared to pay more for them. And as with most products and services, the better the product the more the company should be rewarded.

Ideally, there should be some standard general models. In theory where the data is the same and the market is the same, there should be the same kind of pricing. Customers and publishers would save money and hassle.

Let's take a look at the candidates:

Per search pricing rewards the publisher for the number of searches performed. As most users who find what they want will stop searching, this means that the publisher is incentivized not to give the answer the patron is looking for until they've done several searches. I'm not saying that publishers who use this model are doing this — I'm merely pointing out that patrons come to libraries to find answers, not to do searches. It would be better if the pricing could be per answer rather than per search.

Simultaneous Use pricing rewards publishers for the time users spend on the database. But it does so in a perverse way. Most reference databases are not like word processing or spreadsheet programs. Their value is in providing answers to a select group of students, not in how long you use them.

Simultaneous user pricing also brings several disadvantages for both publisher and customer:

Imagine¹:

- Every English Literature undergraduate at a particular university has to write a paper.
- All the students want to use the same database for their papers.
- The papers are all due at the same time.
- Each student uses two 15 minute search sessions.
- The library is open from 9 a.m. to Midnight. This means there are 60, 15 minute sessions which can occur during the day.
- Students all save their searching for the same two-week period.

Then the theoretical total number of users is defined as:

$$\frac{\text{Sessions/Day} \cdot \text{Days} \cdot \text{Number of weeks} \cdot \text{Number of machines}}{\text{Machine Week} = \text{Number of Students Served}} \\ \text{Number of Sessions/Student}$$

This means that for a single user on a network 420 students could use the file. For 9-12 simultaneous users 5,040 students can use the file. What this means is that most simultaneous user pricing is a very good deal for the customer. The formula also means that the larger the user population the better deal it is — so penalizing smaller institutions. This is why there is so much pressure to "pool simultaneous users"². For every additional simultaneous user you add, the size of the population you can serve increases geometrically.

If you look at the elements within the formula you can see several problems with this form of pricing. The shorter a session, the more students can be served, and so the larger the population served. So publishers are incentivized to make searching slower and to lengthen the session. Interestingly, the slowness of the Web helps publishers greatly on simultaneous user pricing, because it lengthens sessions and means that customers need to buy more simultaneous users to serve the same population. I can assure you that my

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company is not doing this, and I expect most other companies aren't, but we are not incentivized to improve performance.

The higher the usage the better the simultaneous user model correlates to value delivered. So for high use databases like **InfoTrac SearchBank** there is a good correlation between "actual use" as defined in downloads, prints, and time spent on the system and the level of simultaneous use. For a low use file, simultaneous user pricing can become almost meaningless.

The Usage model

Over the past year several companies have announced "transactional" pricing models. Typically these models measure use based on downloads, prints, sessions, etc. In so far that these models reflect "actual" use they provide a much better indication of value delivered.

Some of these models have been tweaked to give libraries fixed "budgetable" prices. Just as you pay for your insurance your initial fee is based on an assessment, and then the price goes up or down depending on what you do during the year.

Even this model is fraught with challenges. For many kinds of research, you want the patron to be incentivized to search the data more rather than less. Many people feel that information should be (close to) free at the point of consumption. Otherwise learning, research and knowledge will be penalized. With this model the penalty for high use is deferred for a year, but it's still a disincentive to use the file.

Imagine usage based pricing was applied to the existing library for their monographs. How many books have not been looked at for years? Would that mean they should be disposed of?

The Site license

A significant part of this paper has been devoted to stressing that having multiple models is a good thing. So, this is not intended to hold up one kind of model as the best for all cases. It is to suggest that a site license has many positives to it. It gives customers unlimited use to seek, discover, and explore information without penalties. It is much simpler to administer than the simultaneous use model, where technical definitions of what constitutes a simultaneous user can drag on for weeks. With the site license model the main point of contention is what constitutes a site.

Parties that use site licensing tend not to get distracted by the model — they can focus on whether the product is worth the money

or not. It doesn't get into subjective judgments — of whether an abstract is worth more than a download — which anyway differs by database. It also rewards publishers who have better products and penalizes those who have worse ones.

But the winning model is ...

Unfortunately, there's one force that overrides all others. For almost all customers the best model is the one that gives the lowest price. If it's free so much the better.

Pricing isn't about theories, it's about establishing what vendors will sell for and what customers are prepared to pay. It's about prices, not pricing.

Theoretically simultaneous user pricing is a poor model. I think customers like it because it is a very good deal for them. Many publishers have decided that they would have to adopt the model — driven by customer requests. And so it's become established. Any model that displaces it will have to generate lower prices, or publishers will have to raise prices on simultaneous use to make other models more attractive.

All publishers compete with each other, and with free sources of information. I believe we should embrace this. It's a great thing that the Web has enabled so much more information to become free. It will drive publishers to produce better products and to become more efficient. A more efficient publishing system will improve the utility of our societies and result in a much greater good. We should welcome creative new models and seek better ways of allocating the resources society sees fit to spend on information.

The future offers some very interesting models. Technology will eventually make it possible to price by the answer rather than the search, by the amount learned rather than the amount taught. In short it will make it possible to price by the result we're seeking rather than the process.

Unless, of course, pricing by process results in lower prices. 🌱

Endnotes:

¹ Formula taken from "Balancing Your Database Network Licenses Against Your Budget", Benjamin F. Bauer, *Searcher Magazine*, February 1995. NetEffect Inc., Benbauer@neinc.com, <http://www.neinc.com>

² Pooling simultaneous users is when several institutions club together to use a fixed number of simultaneous users, e.g., a subscription to four simultaneous users across seven campuses.

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Send ideas by **June 30, 1998**, to Barbara Dean, Technical Opera-

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