

Transparency and Broadband Internet Service Providers

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Broadband Internet Service Providers have been the subject of recent debate about the future of the Internet, with transparency being of particular concern: Are broadband ISPs (and other Internet firms) sufficiently *transparent* in their service offerings to customers? In this paper, I develop four principles of transparency: 1) *disclose all information relevant to customer choice*, 2) to which customers have *easy access*, 3) *clearly and simply*, and 4) in a way that is *verifiable*. I draw on experience in other industries and other regulators to illustrate these points, and I review the current state of transparency of Internet firms, including broadband ISPs, as well as the challenges they face. The point of this paper is not to recommend specific disclosure practices, but rather, to provide a framework for policy analysis.

Introduction

Broadband Internet Service Providers (ISPs) have been front and center in the debate about a national broadband plan. While Verizon, AT&T, Comcast, Time Warner, and a host of other cable firms and telephone companies (telcos) have deployed a broadband distribution network that passes over 92% of American homes, many Internet advocates claim that these broadband ISPs are manipulating Internet traffic to their customers for crass commercial gain, blocking access to Web sites that offer competing services in violation of the principle of “network neutrality.” And if we have little evidence of anti-competitiveness at this time, they probably will undertake aggressive anticompetitive actions in the future. Further, advocates point to limited competition in the broadband ISP market that suggests the exercise of market power that can harm customers and the very Internet itself. Lack of evidence of widespread bad behavior by broadband ISPs has not dampened advocates’ enthusiasm.

Whatever the state of competition is in the broadband ISP market, and whether or not one agrees that a “network neutrality” principle should govern the Internet, all parties can agree that broadband ISPs (as with any other producer of goods and services) should disclose information concerning its offerings to its customers. Broadband ISPs should be *transparent* in their dealings with customers.

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Economists have long recognized that markets can only work well if both producers and consumers are well-informed about the terms and conditions of transactions. If customers don't know what they are buying, they can hardly be expected to make good purchasing decisions, and markets not only may work poorly, they may not work at all (see Akerlof, 1970)! Information asymmetry, when one transacting party has superior information to the counterparty, is a well-known market failure, and public policy intervention to either provide such information or mandate its provision is well accepted (ibid.).¹

In fact, the U.S. economy is rife with disclosure regulations in many markets. Institutions which issue financial instruments such as stocks and bonds are subject to stringent regulations regarding disclosure of relevant information to financial markets, as well as strict limits on "insider" trading using private information. The pharmaceutical industry faces stringent disclosure requirements for both prescription and over-the-counter medications of dosage, ingredients, and measured side effects. In the case of prescription medications, there is actually a bi-level disclosure protocol: the main side effects and contraindications are listed on the label of the medication, while the complete list of clinical results is disclosed by way of a package insert. The packaged food industry is required by the FTC and FDA to include on the package label a standardized information panel of nutrition data; an example is duplicated below to remind the reader of how ubiquitous these labels are.

Nutrition Facts	
Serving Size 29 g	
Amount Per Serving	
Calories 94	Calories from Fat 57
% Daily Value*	
Total Fat 6g	10%
Saturated Fat 2g	8%
Trans Fat	
Cholesterol 23mg	8%
Sodium 93mg	4%
Total Carbohydrate 3g	1%
Dietary Fiber 0g	0%
Sugars	
Protein 6g	
Vitamin A 1%	Vitamin C 0%
Calcium 1%	Iron 2%
*Percent Daily Values are based on a 2,000 calorie diet. Your daily values may be higher or lower depending on your calorie needs.	
NutritionData.com	

Figure 1. Example Nutritional Label from Packaged Food.

¹ Although it is usual to assume that sellers/producers have superior information to buyers/customers, this is not necessarily the case. For example, a buyer of life insurance may have superior information to the seller of a pre-existing medical condition that affects the buyer's likely expected lifetime, perhaps strategically withholding such information when executing a life insurance transaction.

Disclosure is of particular value in markets with information asymmetries, where producers possess information that consumers do not, often information that cannot be easily discerned from inspecting the product or service pre-transaction. Firms may choose to disclose some or all of the information relevant to customers' buying decisions, or government regulations may require disclosure (as in the examples above).² Even if firms choose to disclose information, the disclosure may not be truthful; the FTC, for example, has long imposed truth-in-packaging regulations to ensure that voluntary disclosures are, indeed, truthful and therefore informative.³

Disclosure and Broadband

Broadband ISP is a service which is likely to suffer from information asymmetries. Customers are offered a service which provides data speeds "up to" 12 Mbps, which may be subject to network management during peak periods without notification; which may or may not offer effective protections against spam, viruses, and worms; and which may selectively block/delay some applications without notification. Can customers make good purchasing decisions without more complete information?

The question answers itself: Broadband distribution is a complex service with several dimensions that are important to customers, dimensions about which only the producer can supply the relevant information. Further, it is not sufficient to argue that competition among providers will solve the problem of information asymmetry; the classic paper by Akerlof (1970) shows that information asymmetries can cause the collapse of a market, even if it is competitive.⁴

However, it would be a grievous error to confine our transparency focus only to broadband ISPs. Very serious disclosure problems exist with application providers (Web sites and other Internet applications). Internet customers are under significant threat from compromised Web sites and other applications that may leave worms on their computers, steal financial information, or even turn their computers into zombie bots. Yet there appear to be few disclosure requirements (other than obscure and difficult-to-find privacy policies) on application providers.

² Disclosure is not the only way that decision-relevant information reaches customers. Customers often learn post-transaction about products, and firms gain reputations for their quality and service. In fact, various information intermediaries, such as newspapers, magazines, and Web sites may offer reviews of products to help inform customers.

³ Firms that sell high-quality goods and services will often use disclosure as a means of distinguishing their products from firms that sell lower-quality goods and services; a requirement for truthful disclosure makes such a strategy feasible, as firms producing poor quality could not claim otherwise. Thus, high-quality firms could credibly signal to customers that they were, indeed, high-quality.

⁴ The FCC recognized this in its recent Comcast order: "Although Comcast and certain other commenters contend that competition among broadband Internet access providers is sufficient to address any concerns regarding network management practices, they do not address the effects of this information asymmetry between the broadband Internet access provider and its customers and competitors" (Federal Communications Commission, 2008).

A particularly egregious example (Matwyshyn, 2010) involves the election campaign of Norm Coleman, contesting an election for the U.S. Senate in Minnesota, that sent potential supporters an e-mail, providing a link

. . . to read more about the candidate and donate online. On the day the campaign sent the email, it knew the website was under attack and compromised. Because consumers visited the campaign website and donated, their credit card data may have been stolen.

In fact, the *security breach was known by the campaign in January, 2009, and not disclosed by the campaign until March 11, 2009*, after the breach was exposed by third parties (Mills, 2009).

Other application providers can cause mischief with customers, even users of the Internet that are not direct customers. The well-known P2P file sharing application BitTorrent (Wikipedia, 2009) was released in 2001 by programmer Bram Cohen. The application uses a protocol of Cohen's design that increases download/upload speeds dramatically, using methods that can significantly decrease the speeds available to other Internet broadband customers not using BitTorrent. Far from being an unintended consequence of the protocol design, this feature was designed in at the outset (Downs, 2008):

Peer-to-peer users of BitTorrent are a bandwidth-hungry minority . . . Cohen [inventor of BitTorrent] says . . . he predicted [this] when he first thought up BitTorrent. "My whole idea was, 'Let's use up a lot of bandwidth,'" he laughs. "I had a friend who said, 'Well, ISPs won't like that.' And I said, 'Why should I care?'"

Clearly, the practices of application providers are as much in need of full disclosure/transparency as those of broadband ISPs. Although the focus of this paper is transparency of broadband ISPs (to which we now return), we cannot lose sight that customers' need for transparency in the broadband Internet (see Faulhaber, 2009a) extends well beyond the broadband ISP market.

In some circumstances, we may count on market forces to result in voluntary disclosure of relevant information, but such circumstances do not appear to be present in the broadband ISP market (nor in the application provider market, as the above examples illustrate). In a recent unfortunate incident, Comcast chose to block/delay traffic using the P2P BitTorrent protocol for network management reasons, but without disclosing this practice to its customers (or indeed, anyone). After several third parties conducted tests which showed that Comcast was involved in throttling BitTorrent, the FCC investigated a complaint and ordered Comcast to change its network management practices (FCC, 2008). But most interesting for the purposes of this paper was the FCC's finding that Comcast had not disclosed its practices to its customers, and had obfuscated about its practices when confronted with test data from third parties verifying its throttling. Apparently, the lack of transparency was as objectionable to the FCC as was the underlying offense of traffic throttling.⁵ So, it would appear that we cannot expect voluntary disclosure of all relevant information by broadband ISPs to their customers.

⁵ In previous work, I argue that Comcast could have avoided this unfortunate incident using good disclosure practices; see Faulhaber (2009b).

If we must mandate disclosure, then *what* should be disclosed, *why* should it be disclosed, *when* and *where* should it be disclosed, and perhaps most important, *how* should it be disclosed? The next sections of this paper address these questions, first by establishing general principles that govern disclosure in *any* industry, which I illustrate with examples from multiple U.S. industries and agencies. Second, I review the disclosure practices currently mandated or otherwise in place, in both the United States and selected overseas jurisdictions. Third, I review the special disclosure challenges in the broadband ISP industry that the FCC (or any agency) must face.

The point of this paper is not to suggest or recommend who should disclose what and when. Rather, it is to outline when mandated disclosure is required, what the guiding principles for successful disclosure policies are, what the current experience in this industry has been, and what the challenges are that policymakers must overcome in this industry for transparency to do its work.

Disclosure in General—Four Principles

Mandated disclosure/transparency is well-established in many sectors of our economy, so it is possible to derive a number of principles for successful disclosure rules. In this section, I suggest four principles, illustrating each using examples from other industries.

The *first* principle is the touchstone from which all others follow: **Disclose all information** (and only such information) **that a reasonable customer needs to make an informed purchase decision**. The focus is on the customer when determining the structure and content of disclosure.

A principal activity in which disclosure has a long and rich history is securities regulation, particularly the obligation of corporations to disclose “material” information to shareowners and the market in a timely fashion. For example, information is material for purposes of creating the basis of an insider trading action if “there is a substantial likelihood that a reasonable shareholder would consider it important” in deciding how to act (see *TSC Industries, Inc. v. Northway, Inc.*, 426 U.S. 438, 449, 1976).⁶ This established the “reasonable shareholder” standard for materiality of information, one that can usefully be employed in other contexts, including broadband ISP disclosure (substituting “reasonable customer”).

The FCC itself recognized this standard (although not by explicit reference) in its Comcast order:

. . . disclosure of . . . practices to consumers in a manner that customers of ordinary intelligence would reasonably understand would enhance the “vibrant and competitive free market . . . for the Internet and interactive computer services” by allowing consumers to compare and contrast competing providers’ practices. (FCC, 2008, p. 32)

⁶ Quoted in Matwyshyn, 2005.

And

[D]isclosed information must provide enough detail to enable customers to make an informed decision and to enable them to adjust their behavior. (FCC, 2008, p. 32, fn 240)

These examples highlight the focus on the customer and establish a standard of disclosure of information that a "reasonable customer" would find material in his/her purchasing decision.

In the context of informed consent for digital products (such as DRM-protected media), Matwyshyn (2007) proposes a "reasonable digital consumer" standard for informed consent established using real-world consumers (drawing on trademark law):

. . . creat[e] an objective "reasonable digital consumer" standard based on empirical testing of real consumers. In a manner similar to the way in which courts empirically assess actual consumer confusion in trademark law, the primary vehicle of digital consent, digital user agreements, can be tested for legal usability.

The first principle, then, focuses on (i) disclosure of information that the customer needs to make an informed purchase decision; (ii) uses a "reasonable customer" standard, similar to the reasonable investor standard in securities law and the reasonable consumer standard in consumer law; and (iii) relies on actual customers rather than "experts" to determine what information they need.

The *second* principle is **easy access** to the disclosed information. Customers need to have the information at the point of purchase or use; forcing customers to dig through bill inserts, interminable and incomprehensible privacy statements, or multiple Web pages is not acceptable and does not constitute disclosure.

Perhaps the best model of accessibility is the Nutrition Data panel on all packaged foods, shown in Figure 1.⁷ It is literally on the package itself; the information is disclosed directly to the customer while in the act of consumption/purchase. While the customer is not actually required to read the label, there is no need to search for the information or consult other material. It is right there, and it has the nutritional information the customer needs.

A second example is disclosure of medical indications of prescription and OTC medications in the U.S. Medications are generally very complex products with a number of possible side-effects and drug interactions, all of which are important to the customers. Drug labeling must strike a balance between easy access and completeness.⁸ The solution is to list the main side effects on the drug container itself, highly visible at the point of purchase/consumption, and then to have a more complete list of all known medical indications on a package insert. While customers are likely to read the most important side

⁷ For more information on consumer product labeling, see Federal Trade Commission (2008).

⁸ For more information on prescription drug labeling, see Food and Drug Administration (2008).

effects on the container, the inclusion of the package insert makes available full information as part of the customer actually handling the product.

It is also worth noting that both print and television advertisements for prescription medications are required to disclose in the ad itself major side effects and limitations of the medication. This ensures that customers have the information they need not only at the point of purchase/consumption, but also at the time an invitation to purchase is extended.

Not all disclosure practices provide such easy access. Privacy policies on Web sites that require multiple click-throughs for the customer to finally find a densely worded text are the antithesis of easy access.

The *third* principle is **clarity and simplicity** of disclosed information. Again, the Nutrition Data panel is an illustration of this principle, for several reasons:

1. The panel contains only 14 numbers, clearly labeled. Reasonably knowledgeable customers are aware of the importance of each number: calories, fat, protein, etc. The panel does not offer advice, lecture the customer, or otherwise depart from a pure data format. It offers both absolute levels of nutritional elements and their percentage of daily value (which is briefly described in the panel).
2. Other numbers may be useful or relevant to some subset of customers, but are not included to avoid information overload. For example, glycemic load is an important nutritional element for diabetics, but is not included in the standard panel in the interest of simplicity.
3. The panel is absolutely uniform in content, format, and presentation. The Nutrition Data panel on salad dressing is identical to the panel on frozen food or candy. Customers can easily assimilate information in a format which they have seen hundreds of times. They need not spend effort figuring out what the panel format is for, say, Wishbone salad dressing, because it is the same format for every packaged food. Standardization of format facilitates side-by-side customer comparison shopping, and thus aids in purchasing decisions.

Similarly, with more complex products, such as prescription medications, simplicity and clarity are important. As noted above, the customer-relevant information which is of greatest importance to most customers is clearly and simply stated directly on the package label, and customers are accustomed to being able to access it directly. More detailed and complete information is contained in a package insert, which is necessarily more complex.

Another example of clear and simple disclosure standards is that of financial reporting for publicly traded companies. Firms are required to report their income statement and balance sheet to their shareowners and the investing public in their annual report. The income statement and balance sheet (IS/BS) are a standard format established by the Financial Accounting Standards Board, used by all auditing firms and reporting corporations. The IS/BS contains the most important information concerning

a firm's financial position: revenues from various sources, operating costs of various forms, assets, and liabilities. There is more detail available, and reported quarterly, in the firm's 10-K report, filed with the SEC. Again, a key to effective disclosure is that the IS/BS is (relatively) simple and clear, and that it is produced in a standard format across the economy. This permits the IS/BS to be used by investors in their purchase and sale decisions regarding firms, without having to expend great effort to disentangle the meaning of the report.

In contrast, software firms sell their products along with an End User License Agreement (EULA), usually requiring customers to agree fully with all terms in the EULA. Traditionally, EULAs are quite long and appear to have been written with obfuscation in mind. They are neither clear nor simple; it is perhaps not surprising that they strip customers of most of their rights to redress under product liability.

Another area of recent concern in the financial sphere is disclosure to mortgage purchasers of the terms and conditions of their home mortgages. In a Federal Trade Commission staff report, Lacko and Pappalardo (2007) examine current and proposed mortgage disclosure policies to determine empirically what information customers need to make decisions and how best to present that information. Their work involved extensive use of customer focus groups, and their report is a model of how to conduct good empirical research in the design of disclosure policies.

Related work in disclosure practices for private student loans, again using the focus group approach, is reported in Wroblewski (2007). The Federal Reserve Board (2009) has recently revised Regulation Z, which deals with disclosure forms for private student loans in accord with the findings of the Wroblewski report.

Privacy policies, required of both broadband ISPs and application providers who handle personally identifiable information of customer, are a mixed bag. Privacy policies are always at least one click away from what a customer usually sees, and often hidden several levels down. In many cases, written privacy policies are confusing and unclear, and certainly not simple. Firms that are likely to earn significant returns from the sale/sharing of customer information are also likely to use a heaping helping of legalese to obscure their actual practices, which they are required to disclose. Others are clearer and more open about privacy practice disclosure, but this is an area in which disclosure could be much improved.

The *fourth* principle is **verifiability**. If a firm discloses relevant information in an easily accessible, clear, and simple format, but the information is false or misleading, then this is worse for customers than no information at all. Consumer products claiming "new and improved" or "organic" have little credibility with customers unless such labeling passes muster with the relevant government agency, such as the FTC. Firms that claim "earnings up 35%" have little credibility unless the claim is supported by an independent auditor and the supporting IS/BS filed with the Securities and Exchange Commission. Auto firms claiming their cars are the most reliable have little credibility with customers unless the claim is supported by a ratings firm such as J.D. Power.

There are various routes to verifiability, each of which may have their place in the broadband ISP industry.

1. *Process standards-based.* A standard of performance is adopted, and the firm is audited against that standard, which it may advertise or be required to disclose. The ISO 9000 family of industrial standards functions in this fashion. The firm retains an auditor that examines the processes and practices of the firm and certifies if they are in compliance.
2. *Results audit.* A performance measure, such as mean-time-to-failure or level of customer satisfaction, is audited on a regular basis by an outside auditor, who then reports the results, often making them public. The performance measure is usually an industry-standard measure, possibly determined by an engineering body or management practices organization, which is common across all firms.
3. *Regulatory audit.* A series of performance measures, likely defined by an engineering body or a management practices organization, determined to be the relevant measures for the regulated firm, are evaluated by the firm according to established and auditable procedures, or by an outside auditor or (less often) the regulatory body. Results are reported on a regular basis and made public.

The firm's disclosure of the results of the audit may be mandated, or the results may be made public by the regulatory (or other) body in a format convenient for customers to compare performance of all audited firms side-by-side.

Disclosure of packaged food nutritional data and prescription medication data derives from information generated by each firm using standard processes, and it is subject to review and certification by the FDA. FDA-related mandated disclosure would be an illustration of #3, above. Disclosure of the financial information of publicly traded firms is always accompanied by the name of the accounting firm that performed the audit, as well as their attestation of its accuracy. SEC-mandated disclosure would be an example of #2, above.

Broadband Disclosure Today—Current Practices

Broadband ISP service is a rather new industry which the FCC has considered an "information service," subject to little or no regulation. There appears to have been no disclosure requirements for broadband ISPs until very recently. Even for cable television service, the disclosure requirements imposed by the FCC relate only to what must (47 CFR 76.952) or may (47 CFR 76.985) appear on the customer's bill, as well as minimal customer service requirements (47 CFR 76.1602-3 and 76.309). Beyond that, further disclosure is left to local jurisdictions.

The Federal Trade Commission is the most likely agency to formulate and enforce mandated disclosure regulation, as it is the lead Federal agency for consumer protection issues.⁹ Indeed, the FTC's staff report on broadband competition (Federal Trade Commission, 2007) noted, "Internet access

⁹ Of course, the FCC has a leadership role in consumer protection for telecommunications customers.

implicates two broad areas of consumer protection: (1) clear and conspicuous disclosure of material terms of Internet access services; and (2) security and privacy issues created by broadband Internet access services.”

Surprisingly, the staff report has no specific recommendations about disclosure, other than a general dictum to “continue to enforce the consumer protection laws in the area of broadband Internet access” (Federal Trade Commission, 2007, p. 162). Then-Chairperson Deborah Platt Majoras (2007) spoke strongly about disclosure in the online world: “Technology evolves, but general FTC standards for disclosures remain constant – ‘clear and conspicuous disclosure of material terms’ prior to purchase.” This language is quite similar to the four principles put forth above. Unfortunately, there appears to be scant reflection of this principle in the broadband ISP market.

The FTC, however, has been quite active in pressing Web sites to adopt privacy statements, as well as in enforcing such statements. In a report to Congress in 2000, the FTC (2000) assessed the “self-regulation” approach then (and now) in place. A study was commissioned by an outside academic, reviewing the privacy policies of selected Web sites. These policies were evaluated using the FTC’s “widely accepted fair information practices” of notice, choice, access, and security,¹⁰ and found that the results of self-regulation fell far short of acceptable and non-deceptive privacy disclosure. The Commission recommended legislation to Congress for a mandatory privacy statement law. Congress did not act at that time, and self-regulation of Web site privacy statements continues to be the norm. After 2000, there were no more reports to Congress on privacy issues.

The FTC continues its interest in this area. Lack of mandated privacy disclosure limits FTC enforcement activities to bringing cases against firms whose Web sites contain a privacy policy that they are violating. Nevertheless, the FTC is active in this area (Federal Trade Commission, 2010). The statutory authority for FTC action in such cases is Section 5 of the Federal Trade Commission Act (1914), which forbids unfair or deceptive acts or practices. If a firm has no privacy policy, the FTC has no basis for action.¹¹

As a result of the Comcast order (FCC, 2008), Comcast’s disclosure practices have changed substantially. In the firm’s letter to the FCC, Comcast (2008) describes in detail how they will inform customers about the transition to their new network management practices. These practices include publication of Comcast’s acceptable use policy (AUP) as updated; posting of information concerning the design and trial of Comcast’s new network management to their network management policy Web page; post new frequently asked questions explaining the new AUP and network management practices; and send e-mails to all customers two weeks prior to the commercial deployment of the new practices.

¹⁰ A fifth principle of Enforcement is sometimes added. Note the similarity of these principles to those espoused in this paper. See FCC (2000, p. iii).

¹¹ A recent article (Ciochetti, 2009) suggests that Web sites be required to prominently display the equivalent of a Nutrition Label which explains how the Web site complies with each of the Fair Information Practices.

Since the order, Comcast appears to have significantly beefed up its customer disclosure, primarily via their Web site. This includes statements of their subscriber agreement,¹² acceptable use policy,¹³ network management policy,¹⁴ privacy policy,¹⁵ and security.¹⁶ Links to these Web pages are provided at the bottom of the Comcast.net opening Web page (www.comcast.net). In addition, Comcast claims to use e-mail to disseminate important information to its customers.

It would appear that Comcast has taken the transparency critique seriously. This event also appears to have impacted other broadband ISPs; checking the Web sites of both Verizon and AT&T reveals similar disclosure policies.¹⁷

While this extensive level of disclosure by broadband ISPs is to be welcomed, it is useful to analyze this disclosure using the principles above:

1. Does this disclosure provide all the information a customer would need to make an informed purchase decision?
2. Does the customer have "easy access" to the disclosed information?
3. Is the disclosed information "clear and simple?"
4. Is the disclosed information "verifiable?"

It is not the purpose of this paper to critique Comcast's or any other firm's disclosure policy; the reader is invited to apply the principles of this paper to this and other disclosure statements to ascertain the extent to which these disclosure efforts constitute best practice.

Google is often lauded as an exemplar of openness, so an examination of Google's disclosure statements is informative. Their disclosure statements are accessible at the bottom of Google's homepage via the Privacy link. A comparison of the Comcast and Google disclosure statements shows that they are remarkably similar. The obvious differences are that (i) Google's statements use less formal language and employ short YouTube videos; (ii) since Google offers many products, there is a privacy statement for each product; and (iii) Comcast devotes a Web page to network management issues, while Google does not. But overall, they disclose about the same level of detail. Of course, the reader is invited to assess Google's disclosure statement using the principles and questions above.

¹² See <http://www.comcast.net/terms/subscriber/>

¹³ See <http://www.comcast.net/terms/use/>

¹⁴ See <http://www.comcast.net/terms/network/>

¹⁵ See <http://www.comcast.net/privacy/>

¹⁶ See http://security.comcast.net/?cid=NET_33_0

¹⁷ Comcast challenged the FCC's action before the District of Columbia Circuit Court; recently, the Court decided in Comcast's favor, that the FCC did not have the authority to require Comcast to alter their network management practices (see Kang, 2010). Comcast's disclosure policies have not changed as a result of this decision. Nor does the decision limit the ability of other agencies, such as the FCC, to mandate broadband ISP disclosure policies.

One industry that has received much attention recently for its opaque disclosure policies is the credit card business. While a credit card disclosure chart has been mandated since 2000, it appears to be designed to confuse rather than inform. An interesting proposal suggests that credit cards carry the equivalent of a Nutrition Label, and the proposal's authors actually design and display such a label, comparing it with the existing chart and with the Nutrition Label (Gibson, et al., 2009). Even a complex product such as consumer credit can yield a disclosure solution which is easy to access, clear, and simple. Perhaps this degree of accessibility, clarity, and simplicity should be an objective for the broadband ISP industry.

The Australian Competition and Consumer Commission (ACCC) has taken a unique approach to disclosure of broadband speeds achievable by customers. This is a matter likely to be of substantial importance to customers, although it is not covered at all by U.S. broadband ISPs. The standard format for advertising broadband speeds is to quote maximum speeds—i.e., “up to 12 Mbps”—without stating the conditions under which such speeds are actually attainable (if at all) by real customers (and without verification). The ACCC (2007) has issued very clear guidelines to broadband ISPs concerning how they can advertise the speed performance of their service without running afoul of the Australian Trade Practices Act of 1974. The ACCC takes the position that accurate disclosure requires that speed test results actually achievable by real customers can be advertised, and that variations which occur in the real world that affect customers must be prominently displayed in advertising. The ACCC does not at this time require verification of test results, although it is likely that falsification of test results in public statements could have significant consequences for the offending ISP. An unusual feature of Australian regulation is that a single regulator is responsible for all regulation, including telecom and consumer protection. It has based its ruling on the Trade Practices Act; in the United States, it would be the FTC that would have primary jurisdiction over (unregulated) consumer protection issues.

Ofcom, the British telecommunications regulator, has adopted a rather aggressive disclosure policy. For several years, Ofcom has conducted wide-ranging broadband testing over a broad sample of British broadband households and reported the results publicly.¹⁸ Additionally, Ofcom has encouraged broadband ISPs to adopt a voluntary Broadband Speeds Guide, with both a code for ISPs and a guide for consumers as to what speed and performance to expect from their ISP (Ofcom, 2009c). To develop these results, Ofcom has partnered with SamKnows, a British broadband firm that, in 2008, developed the benchmark tests Ofcom uses.¹⁹ Ofcom has focused on technical completeness and accuracy, while still maintaining relative simplicity of measurements. Ofcom has chosen not to regulate performance (or price, or any other variable), but rather, to ensure that customers have the correct information to enable them to make informed decisions regarding their broadband ISPs. The use of the technical expertise of a firm such as SamKnows seems particularly crucial in the difficult area of disclosing broadband ISP performance information.

¹⁸ The most recent test results are reported in Ofcom (2009a). A fuller report (Ofcom, 2009b) discusses the testing methods and results. Note that the regulator is collecting and disseminating information, not the broadband ISP. Ofcom has taken on the disclosure role.

¹⁹ These benchmark tests are described at <http://www.samknows.com/broadband/performance.php?page=performance-ofcom-and-samknows>

The FCC has recently published its anxiously awaited National Broadband Plan (FCC, 2010a), in which transparency and disclosure play quite prominent roles as means of empowering customers and helping markets work.²⁰ The FCC has gone further than simply planning; it placed a contract out to bid to firms that are expert in measurement technology to develop both a broadband ISP measurement system and tools for use with U.S. broadband ISPs. SamKnows (the same firm hired by Ofcom in Great Britain) won the contract, and the FCC (2010b) has requested comments on the collection, content, and presentation of this data. The FCC has (at least for now) decided to take the public disclosure route, as has Ofcom.

Another possibility is that customers could collectively provide performance measurements using speed-measuring Web sites. These measurements could contribute to “wiki” approaches to organizing the effort on the Web, attempting to map out performance measures for different ISPs and different neighborhoods. Of course, this option is available to anyone now, and no such “ISP performance wiki” has developed thus far. Should one develop, it is not clear how useful this would be, as measuring performance is an exacting engineering exercise, and amateur efforts are likely to fall short of professional standards.

This brief and incomplete survey suggests that existing transparency/disclosure practices in the broadband ISP industry are a work in progress. Privacy disclosure (applicable to both broadband ISPs and application providers) is the subset of disclosure issues which has the longest history and the benefit of long-term FTC scrutiny. The regime of self-regulation apparently has produced uneven results. Disclosure of other material facts has only recently emerged, beginning from a very low base. Again, self-regulation is the regime in place. Whether this is sufficient to ensure the four principles for disclosure stated earlier is a matter for policymakers to decide.

Disclosure Challenges in the Broadband ISP Industry

It is one thing to enunciate principles of disclosure that represent an ideal; it is quite another to implement them in the context of broadband ISPs. This industry presents special challenges, which even with the best of intentions make realizing the disclosure principles difficult. I mention a few of the obvious challenges, and I suggest avenues to be explored for solutions.²¹

1. If speed performance of a broadband ISP is to be disclosed, exactly what speed is it that should be disclosed? The problem is that maximum speeds are likely irrelevant to most customers who will never realize such speeds. But actual speeds vary moment by moment as traffic ebbs and flows on the network, and as other customers come and go. It also depends on traffic in the

²⁰ An earlier version of this paper was filed with the FCC (Faulhaber, 2009c) in the National Broadband Plan docket.

²¹ I explicitly disclaim any expertise in software, Web design, information presentation, or consumer psychology. I offer suggestions simply to illustrate that challenges may be met, and that progress is possible.

wider network, beyond the ISP's immediate distribution system. There is no single speed that any customer is guaranteed, so what is to be disclosed?

- The ACCC report suggests a direction. Test results can determine, based on historical usage patterns, both average upload and download speeds, as well as variation in speeds. These speeds may depend on the level of service chosen by the customer, and the variability may depend on factors such as loop length for DSL. A parsimonious presentation of such results would be both useful and accurate, providing customers with information relevant to purchase decisions.
- Developing a standardized test and standardized presentation format would greatly improve the effectiveness of disclosure. Ofcom's benchmark tests using SamKnows technology appear to be a very promising direction, at least demonstrating that this complex problem can be solved. However, several issues must be kept in mind:
 - End-to-end customer performance depends not only on broadband ISP performance, but on customer configuration (LAN, router, etc.) and backbone performance, as well as well as on destination ISP performance. A test of a broadband ISP's speed should be just that; it should not depend on other links in the Internet chain.
 - Broadband performance not only depends on network congestion (and time of day, etc.), but on system configurations, such as length of loop (for DSL) and number of households on a hub (for cable). Measuring average speed (and variance) can be misleading if neighborhood configurations are not factored in.

A simple example is the EPA requirement for disclosure of vehicle fuel efficiency for new automobiles. A sticker is required that lists both city and highway miles per gallon in standard format. It is generally recognized that these miles per gallon rates are rather optimistic and not reflective of the mileage a particular drive will achieve, but they do form a good basis for comparisons among vehicles.

2. "Easy access" makes much more sense for a packaged good, in which disclosure is right on the label, than it does for a digital service, such as broadband ISP, for which the customer does not actually see any tangible evidence of the service while using it. Even for a Web site, the best that can be done is to provide links to terms-of-use Web pages.
3. The usual practice with Web sites today is to present these links rather inconspicuously on the opening page in the smallest type. An alternative would be to use a standard icon in the upper right-hand corner of the opening webpage;²² rolling the mouse pointer over the icon would cause

²² Example icon:



- a dropdown menu to appear, listing Help, Terms and Conditions, Personal Information, or Privacy as options that would take the user to the relevant page.
4. For a broadband ISP, the problem is more difficult, as there is literally no “package” on which to place the label. One option would be that when the customer is connected to the broadband ISP, an icon would appear in the customer’s SysTray (for Windows users), which would function similarly to the icon above. This icon could be proprietary (to avoid confusion with the standard website icon above). Of course, the customer would have to opt in (or out) of having this functionality.
 5. Broadband is a complex service with lots of parameters; keeping things simple and clear is difficult when the ISP is presenting a terms and conditions contract or network management policy.
 - The model here would be prescription medications, which are every bit as complex as broadband. Disclosure is bi-level; the first level is the most important (to the customer) disclosures, listed in brief, and with easy access (on the package label). The second level is more complete, more detailed, and more like a terms and conditions contract (package insert).
 - The Google privacy policy disclosure provides an interesting avenue; basic information is described in simple, short videos, understandable by people without a JD or EE.²³ More complete and detailed information is linked to from the basic information. In this regard, application providers and ISPs have an advantage over the FDA and the pharmaceutical industry in that short, simple videos are an available disclosure mechanism. Additionally, ISPs and application providers can use the by-now standard of Frequently Asked Questions (FAQs), which can provide detailed information in a format comprehensible to regular people.
 6. Broadband ISPs have a wide range of business relationships with application providers, other ISPs, and other network providers. Does this complex web of relationships need to be disclosed to customers?
 - Only to the extent that these business relationships affect customers’ decisions. For example, it is probably important to disclose if an ISP is blocking certain Web sites or other data streams (say, kiddie porn and worms/viruses). By way of example, the clear and simple disclosure might include the principles the ISP uses to block; the more detailed disclosure might include why they are blocked.
 - Some ISPs may have preferential relations with application providers, affording them caching services, Quality of Service traffic handling, etc. Should these relationships

²³ AT&T’s online privacy policy also makes effective use of videos.

necessarily be disclosed? Again, only insofar as it affects customers' purchase decisions. This is a gray area which is likely best handled on a case by case basis.

7. Malware is a growing threat to the Internet, which hurts both customers and ISPs. Customers expect ISPs to vigorously defend them, but what are the disclosure implications of this emerging problem?
 - This presents interesting disclosure tradeoffs. It is likely that customers will look to their ISPs for protection from these threats, but they will be unhappy if site blocking is excessive. Should we require that each site blacklisted as a suspected spam source be identified and listed? As a security issue, this is probably a bad idea, because it lets the bad guys know what the ISP's blacklist policy is, permitting them the intelligence to work around the ISP's defenses.
 - This also highlights the role of the customer in protecting not only their own computers and broadband connection, but those of other customers on the ISP's grid. No one wins when hackers turn machines into zombies, and customers bear some responsibility for safe computing. Broadband ISPs may have a responsibility to disclose malware dangers (for example, downloading software which is impossible to fully uninstall, leaving bits of malware on a customer's computer), and perhaps offer to provide software that detects, notifies, and eliminates malware on customers' computers.

In summary, the nature of the broadband business leads to unique problems and challenges in achieving model disclosure. This section suggests that these problems are not insurmountable, and that disclosure need not be an onerous task for the industry. Even if mandatory disclosure is not adopted by policymakers, ISPs need to be aware that, as this industry matures, its customers will expect more of them, and full and clear disclosure may become a competitive necessity for their business.

Conclusion

The purpose of this paper is *not* to determine what broadband ISPs or any other Internet firm should be required to disclose. The purpose of this paper is threefold:

1. To provide a framework for analysis of appropriate disclosure. I formulate four principles: (i) disclose facts *relevant for customers' purchase decisions*; (ii) ensure that *access* to disclosed information *is easy*; (iii) ensure that disclosure information is *clear and simple*; and (iv) make sure that disclosed information is *verifiable*. These principles are supported by reference to successful models of disclosure elsewhere in the economy.
2. To provide a comparative review (unfortunately brief and incomplete) of (i) existing practices in the broadband industry, as well as how these practices are evolving; (ii) existing practices associated with privacy policies (for both broadband ISPs and application providers), as well as

the FTC's involvement in these practices; and (iii) disclosure practices in other countries, to the extent that information is available.

3. To provide a brief review of some of the challenges for disclosure inherent in the broadband ISP industry, with suggestions about how these difficulties might be overcome.

There are, of course, a host of issues concerning this industry of policy importance, such as network neutrality, investment issues, rural deployment, pricing, network management, competition, and many others. This paper is tightly focused only on the transparency/disclosure issue, leaving these broader issues to other work. I find that disclosure is likely an important issue for customers of broadband ISPs, and that the response of these firms for disclosure is evolving rather rapidly. Whether policy intervention is needed at this point depends upon factors beyond this paper.

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