

Internet Architecture and Innovation

by Barbara van Schewick

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Start-Up Video Company Asks FCC to Improve Open Internet Proposal

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On December 1, the chairman of the FCC [proposed a set of rules](#) designed to protect the open Internet. He would like the commission to adopt this proposal at its open meeting on December 21. Since then, many have posted their evaluations of the proposal. Some unequivocally [support](#) the proposal. Some acknowledge they would have preferred a different solution, but think this is an [acceptable compromise](#). A final group of commenters (which includes [academics](#), [public interest organizations](#), [organizations that rely](#) on the open Internet for their work, [investors](#), and companies) can be summarized as follows: "We are glad that the chairman has decided to act. However, the chairman's proposal needs to be improved to adequately protect users and innovators."

Why do innovators and users need protection? If a network provider blocks or discriminates against an application I want to use, I cannot use the Internet in the way that is most valuable to me. If a network provider restricts access to content I am interested in, my ability to educate myself, contribute to discussions of the subject and make informed decisions will be limited. Ideally, open Internet rules would ban this type of discriminatory behavior and provide an easy mechanism for users to ask the FCC to stop it. In the absence of good rules, users just have to live with it.

If an application is blocked, it cannot reach its users and the application developer cannot reap its benefits. In the absence of meaningful protections, there is nothing the application developer can do about this. And concerned about the threat of discrimination, innovators (or potential investors) may decide not to pursue innovative ideas. Thus, without meaningful network neutrality rules, we will get less application innovation. And since applications, services and content are what makes the Internet useful to us, an Internet without meaningful network neutrality rules will be less useful to us in the future.

I'm sure you have heard that a lack of meaningful network neutrality rules harms start ups and reduces application innovation before. But for many, it sounds like an abstract theoretical concern. Yesterday, a start up from Silicon Valley called [Zediva](#) filed a [letter](#) with the FCC that explains what the Chairman's current proposal would mean for them.

The letter does a great job of showing how different proposals for network neutrality rules can provide very different protections for innovative start ups and where the current proposal needs to be improved, so I asked Zediva for permission to post it here.

This is one example of many

Is this just the experience of one company, or does Zediva's story stand for more? Over the past few years, many entrepreneurs have told me that potential investors identified the risk of blocking or discrimination as one of the main risks associated with



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their company and used this fact to justify their decision not to fund them (I talked about the experience of one start up [here](#)).^[1] Even those who haven't had similar conversations with funders yet are usually concerned about the problems described by Zediva. Thus, Zediva's story is not an outlier. It stands for the problems faced by many start-ups and innovators.

You may wonder why we don't hear more from entrepreneurs, if this is the case. My conversations with entrepreneurs suggest a number of reasons:

First, entrepreneurs focus on getting their product to market and making it the best product they can. They do not have the time to follow the latest twists and turns of the Washington policy debate and write letters to the FCC.

Second, many do not come forward because they fear that network providers may retaliate against them in the future. I used to hear this a lot from application and service providers in the mobile space. But over the past year, this concern has started to come up in many conversations with innovators whose applications and services run over wireline networks.

Third, many start-ups do not want to draw public attention to their vulnerabilities, fearing it may scare potential investors away.

And finally, having been declined funding is not something that entrepreneurs like to brag about.

What you can do

I believe that the concerns described by Zediva are real problems, and that the current proposal needs to be improved along the lines described in the letter to make sure that innovators who develop or provide applications, content and services for the Internet are adequately protected. It is not too late to make these changes.

People often ask me what they can do to help make this happen. If you agree with Zediva and want to do something, you could e-mail the FCC Commissioners, in particular [write to Chairman Genachowski, Commissioner Copps, and Commissioner Clyburn](#). (Commissioner Baker and Commissioner McDowell have publicly rejected any network neutrality rules.) Tell them you share Zediva's concerns, and ask them to improve the order in the way Zediva suggests.

You should also spread the word – this rule will affect all of us, whether we use the Internet for work, school, or in our free time. Share this post and [others](#) about the same topic – post on Facebook, on Twitter, on Tumblr, on WordPress, or on whatever innovative application that's part of your life and the product of an open Internet.

Here is the text of the letter

"Dear Chairman Genachowski:

We write to you as co-founders of an online DVD Rental company called Zediva. Our company is directly affected by the lack of clarity around Open Internet rules. We are concerned that your current proposal does not go far enough to provide young innovative video companies like ours the protections needed to foster innovation and investment in next generation technologies and business models.

Company Background

Zediva enables its users to rent DVDs, and watch their rentals instantly on their computer, without needing to pick up a physical copy of the DVD. Just like with Sony's LocationFree, or Sling Media's Slingbox devices, our technology allows a user to remotely "PlaceShift" their media to their viewing location over the Internet using streaming technologies. Specifically, Zediva users can rent a DVD and a DVD player

located in Zediva's data centers, and watch their "PlaceShifted" rental at a place of their choosing – typically their home PC, TV, or portable wireless device (tablet or phone) over the Internet. They have complete control of the remote DVD player and rental DVD just as if they had a really really long video cable and really long remote control cable connected to the DVD player.

Investor Concerns over potential unfair competition

By enabling users to watch new DVDs online, our service may be perceived to directly compete with the Video-on-Demand service, PayPerView or other PayTV services offered by cable providers and, in some cases, the providers of fiber networks and wireless networks. At the same time, we depend on the broadband Internet access service offered by these providers to reach our users. In the absence of strong non-discrimination rules and meaningful restrictions on what constitutes "reasonable network management", these competitors will be able to exploit their control over the provision of broadband access to put us at a competitive disadvantage. Since we started working on our product over two years ago, this concern has come up repeatedly in conversations with potential investors, who pointed this out as one of the risks associated with investing in our company. The very real potential for unfair competition by incumbents who control the networks (ISPs and Wireless Providers alike) causes great uncertainty about the size of the market and therefore reduces the confidence of investors in their ability to secure a reasonable return on their investment.

We outline below our concerns in four different areas, and respectfully urge you to consider these as you draft new rules for the Internet:

A. Non-Discrimination Rules

We understand that the current proposal only bans discrimination that is "unjust" or "unreasonable." This type of rule does not solve our problem. Whether specific discriminatory conduct meets these criteria, would be left to later case-by-case adjudications by the FCC. We don't know whether we will be protected against discriminatory behavior until **AFTER** a broadband Internet access provider actually discriminates against us – and even then, we will only know whether we are protected after we have complained to the FCC and gone through a lengthy and costly process to determine whether the discrimination against our application was actually "unjust" or "unreasonable," and thereby banned.

Significant Delays and Difficulty in Detecting Discrimination: In the event that our traffic is discriminated against, we would have no easy way to determine that discrimination has actually taken place, and which provider engaged in the discrimination. So it would be hard for us to even show that discrimination was taking place without undertaking a very expensive engineering effort, let alone file a protest with the FCC. Further, there are many providers and each may engage in different forms of discrimination making it a Herculean task for us, as a small company, to separate out systematic discrimination from normal internet packet losses or delays.

In the meantime, the damage to our customers and reputation will have been done. Unless there is some temporary relief, we will not be able to provide satisfactory service to our users, which may hurt our reputation in ways that will be felt even after the complaint is resolved. After-the-fact resolution is not the type of protection that would allow us to remove potential investors' concerns about discrimination. Customers once lost are unlikely to come back to our service.

Instead, we need a rule that clearly maps out what type of discriminatory behavior is, and is not, allowed under the rules. We suggest that the right approach would be to ban all application-specific discrimination (i.e. discrimination based on application or class of application), but allow, to the extent necessary, application-agnostic

discrimination. This would make it impossible for a competitor to single us (or video applications in general) out for discriminatory treatment.

B. Reasonable Network Management

Streaming video is an increasing source of traffic on the Internet, particularly during peak times. As a result, we are concerned that more broadband access providers will start restricting (or otherwise interfering with) streaming video applications during times of congestion. British Telecom's (BT) throttling of streaming video to 986 kilobytes/sec in BT's "Up to 8 Mbps Option 1" broadband plan between 5 pm and midnight in 2009 is an early example of the kinds of possible measures an ISP may take.^[L1] The experience with network management practices in Canada, the UK, and the US shows that network providers often use approaches that single out specific applications or classes of applications in order to deal with congestion.

We are concerned that your current proposal may not do enough to protect us against the type of discriminatory network management described above. Given the available information about the order, it seems possible that restricting access to video applications (but not to other classes of applications) during times of congestion could be framed as a tailored approach to congestion, as long as the measure is restricted to times of congestion.

Discriminatory network management of this type would put the affected applications at a severe disadvantage. Companies that offer these applications and services will be less able to reach their users during times of congestion, which in turn may affect their success in the market (who wants to use an application or service that is less usable during peak time, when most people actually want to use the Internet?) and their ability to get funding – thus squashing innovation before it has had a chance to prove itself in the marketplace.

We understand that network providers need to manage their networks, and may need to take measures during times of congestion to ensure that one user's traffic does not overwhelm the network, or drive out the traffic of other users. As Comcast's new application-agnostic network management practices demonstrate, this can be done without needing to single out specific applications or classes of applications and putting them at a disadvantage. There is nothing inherently special about streaming video that would suggest that streaming video should be less able to use the network during times of congestion than other potentially bandwidth-intensive applications (e.g. downloading large files or emails with big PowerPoint attachments, or high resolution pictures/videos of "Stupid Pet Tricks").

Congestion means that a user's ability to get all the bandwidth he or she may want may be limited. Even during times of congestion, applications and services should have an equal chance to reach their users and the decision of how to use the available bandwidth should remain with the user.

Thus, we strongly urge you to make sure that the "Exception for Reasonable Network Management" is defined in a way that – to the extent possible – preserves an equal playing field for applications and classes of applications during times of congestion and respects the principle of user choice. A definition that would require network management to be as application-agnostic as possible would reach that goal. To the extent that some applications may suffer more from congestion than others, this proposal would allow users to determine the relative priority among their own applications. Technology that realizes this approach is available today.

C. Access fees

The current proposal does not clearly ban broadband access providers from charging us, as service providers, access fees – fees for the right to reach their broadband access customers, or for prioritized or otherwise enhanced access to these.

We are concerned that allowing broadband service providers to charge access fees would put start-ups like us at a severe competitive disadvantage compared to incumbent companies in the video space. In the absence of significant outside funding, many start-ups will not be able to pay access fees. But if streaming video over YouTube would not count towards your usage cap because YouTube (Google) paid for that arrangement, who would be interested in using an alternative streaming video application like Miro or justin.tv? Or if Netflix bought guaranteed bandwidth during times of congestion, while Zediva's service was stuttering due to the broadband provider's network management, who would want to rent a DVD from Zediva?

Thus, the final rule should clearly ban access fees – both for the right to reach users at all, and for prioritized or otherwise enhanced access to the users.

D. Wireless

One of the biggest requests from our users is for portability of their service with Zediva. They would like to watch their rentals on any device of their choosing – i.e. on the TV, PC, or Wireless phone or Tablet. We currently offer our service on many wireless devices. We are very concerned that the current rules would significantly reduce our ability to continue to do so. We would not be protected from blocking or discrimination, and would be subject to whatever discriminatory network management a mobile provider comes up with. Our concern is that a wireless provider could easily use discriminatory network management to unfairly discriminate against our service in favor of either their own services or a competitor of ours with whom they have a beneficial financial relationship. It seems to us that the rules would also allow wireless providers to restrict their basic Internet service to access to the Internet that excludes the right to use video applications, and restrict the right to use video to those users who buy a separate "video option."^[L2] The proposed wireless rules cause our investors and us to seriously evaluate whether, as a small company, we can afford to meaningfully compete in the wireless space.

We strongly urge you to extend the same protections to wireless networks that you intend to apply to wireline networks. It shouldn't matter through which technology users access the Internet. In fact, our concerns about discrimination are even stronger in the wireless space. Wireless networks have a long history of control. The problems that Slingbox ran into with AT&T Wireless gave us pause, and we understand that the current rules would not protect us if a wireless broadband access provider decided to ban our service (specifically, or together with other online video applications in general). We understand that some mobile networking technologies may face specific constraints due to bandwidth scarcity, or that mobility may pose specific problems, but these problems could be dealt with when applying the reasonable network management exception. They do not justify leaving innovators and users without meaningful protections.

We have dedicated significant time and resources to finding new innovative ways to allow users to watch video on the Internet. Open access to the Internet has offered a level playing field enabling small companies to compete with incumbents in offering consumers a better service, product or technology (e.g. Amazon, Google, Facebook and Netflix). Future innovative applications, services and business models are likely to come from small companies with innovative ideas backed by risk taking investors. We strongly urge you to improve the protections for users and innovators alike, in order to allow us to continue to innovate in the future.

Respectfully,

Venky Srinivasan, Founder and CEO, Zediva

Vivek Gupta, Co-Founder and VP Engineering, Zediva

December 10, 2010"

The letter as filed with the FCC is available in pdf [here](#).

Footnote 1:

I understand that an investor's decision not to invest in a company has many facets, and cannot be reduced to one consideration alone. But the fact that these issues come up during entrepreneurs' discussions with investors and are used to justify the decision against funding suggests that the threat of discrimination is something potential investors think and care about.

Footnote L1:

http://www.bbc.co.uk/blogs/technology/2009/06/iplayerbbc_v_bt.html.

Footnote L2:

This is not a moot concern. Mobile providers in Europe routinely prohibit the use of many classes of applications (e.g., Internet telephony, Instant messaging, peer-to-peer file-sharing, and e-mail clients). Users who want to use a prohibited type of application need to buy a separately priced option that allows them to use applications in this class.

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