

## **Network Neutrality and Quality of Service: What a Non-Discrimination Rule Should Look Like (Summary)**

Stanford Law School Center for Internet & Society White Paper. Barbara van Schewick. June 11, 2012

Over the past decade, the debate over network neutrality has remained central to Internet policy for governments all over the world. Non-discrimination rules are a key component of any network neutrality regime. They apply to any form of differential treatment that falls short of blocking, including differential treatment associated with Quality of Service.<sup>1</sup> Policymakers who consider adopting network neutrality rules need to decide which, if any, forms of differential treatment should be banned or permitted.

This paper provides the first detailed analysis of the Federal Communications Commission's non-discrimination rule and of its implications for network providers' ability to offer Quality of Service, offers the first in-depth analysis of the relationship between network neutrality and Quality of Service, and proposes a non-discrimination rule that policy makers around the world should adopt – a rule that the FCC adopted at least in part. The results of the paper are applicable to countries all over the world.

### **A Framework for Evaluating Network Neutrality Proposals and Discriminatory Conduct**

The paper proposes a balanced framework for evaluating different options for network neutrality rules, or for examining specific instances of discriminatory conduct.

The framework includes criteria that account for what has made the Internet the robust multi-use platform it is today while preserving industry autonomy and flexibility for network providers to innovate. The specific elements of the framework are as follows:

- Preserve the factors that have allowed the Internet to foster application innovation, improve democratic discourse, facilitate political organization and action, and provide a more decentralized environment for social, cultural and political interaction in which anybody can participate: *User choice, application-blindness, innovation without permission, and low costs of application innovation.*
- Not constrain the evolution of the network more than is necessary to reach these goals.
- Make it easy to determine which behavior is and is not allowed to provide much-needed certainty for industry participants.
- Keep the costs of regulation low.

### **A Proposal for a Non-Discrimination Rule: Ban Application-Specific Discrimination, Allow Application-Agnostic Discrimination**

The paper applies this framework to evaluate existing non-discrimination proposals from a variety of sources, including academics, industry participants, and policymakers; the proposals have varying degrees of support both in the U.S. and abroad. Those proposals are: Allow all discrimination; ban all discrimination; ban discrimination that would be considered harmful under an antitrust standard; ban discrimination that is anticompetitive or harms users; ban discrimination that is unreasonable; ban discrimination that is not disclosed; ban discrimination among like applications and classes of applications, but allow discrimination among classes of applications that are not alike and application-agnostic discrimination; ban application-specific discrimination, but allows application-agnostic discrimination.<sup>2</sup>

As the paper shows, only one of the rules realizes the goal of network neutrality regulation while avoiding unnecessary social costs. The rule *bans application-specific discrimination, but allows application-agnostic discrimination.* This is the rule policy makers should adopt.

The proposed rule balances the public interest in network neutrality with the legitimate interests of network providers. It prevents network providers from interfering with user choice or distorting competition among applications or classes of applications, while providing them broad flexibility to differentiate and price their Internet service offerings and manage their network in application-agnostic ways. The rule allows network providers to offer some forms of user-controlled Quality of Service and provides certainty to market participants. Technically, the rule reinforces important architectural principles on which the Internet's original

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<sup>1</sup> While the original Internet provides a single best-effort service for all packets (i.e., the network does its best to deliver data packets, but does not provide any guarantees with respect to delay, bandwidth or losses), a network that provides Quality of Service offers different types of service to different data packets.

<sup>2</sup> Throughout the paper, "applications" is used as shorthand for "applications, content, services, and uses."

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architecture was based. During the FCC's Open Internet proceeding, this rule was supported by market participants (including [Brad Burnham](#) and [Fred Wilson](#), two leading VCs), network engineers (including [David Reed](#), one of the architects of the original Internet) and non-profit organizations.

### **The FCC's Non-Discrimination Rule and Its Impact on Network Providers' Ability to Offer Quality of Service**

Drawing on a close reading of the text of the Open Internet Order and the results of the paper, the paper sets out the FCC's non-discrimination standard as clarified by the text of the Order and shows how it may apply to specific discriminatory conduct, in particular to the provision of Quality of Service.

The Open Internet Order's non-discrimination rule for fixed broadband Internet access bans discrimination that is unreasonable, subject to reasonable network management. Whether specific discriminatory conduct is unreasonable will be decided in future case-by-case adjudications.

First, as the paper shows, the FCC will evaluate discriminatory conduct under the non-discrimination rule and the reasonable network management exception based on how well they preserve three of the factors used to evaluate alternative options for non-discrimination rules and specific discriminatory conduct throughout this paper: *user choice*, *application blindness* and *innovation without permission*. Since the analysis of specific discriminatory conduct throughout this paper was based on the exact same factors, the results of the paper imply how the conduct would fare under the FCC's rules. In particular, they suggest which forms of Quality of Service would be allowed under the FCC's non-discrimination standard as clarified by the text of the Order.

Second, while the FCC did not adopt the non-discrimination rule proposed by this paper, the proposal heavily influenced the FCC's non-discrimination rule. In particular, whether discriminatory behavior complies with the proposed rule (i.e. whether it is *application-agnostic*) is one of the factors the FCC will use to determine whether the conduct violates the FCC's non-discrimination rule and the reasonable network management exception. Thus, the paper's discussion of application-specific and application-agnostic discrimination can illuminate the rationale underlying the FCC's rule as well as help apply the rule to specific instances of discriminatory conduct in the future.

### **Network Neutrality and Quality of Service**

Currently, the relationship between network neutrality and Quality of Service is uncertain and contentious. Often, it is not immediately apparent how a specific non-discrimination rule affects network providers' ability to offer Quality of Service. At the same time, it is unclear which forms of Quality of Service, if any, a network neutrality regime should allow. The paper explains how eight different non-discrimination rules and the FCC's non-discrimination rule affect network providers' ability to offer Quality of Service and which forms of Quality of Service, if any, a non-discrimination rule should allow.

The network neutrality debate is often framed as a debate for or against Quality of Service. As the paper shows, the reality is much more nuanced. Many network neutrality proposals allow some, but not all forms of Quality of Service. Many forms of Quality of Service allow Internet service providers to distort competition among applications and interfere with user choice. These forms of Quality of Service should be banned. However, some forms of user-controlled Quality of Service do not similarly threaten application innovation, competition or user choice. They provide the social benefits of different types of service without the social costs. With appropriate restrictions on charging and with provisions that protect the quality of the baseline service from dropping below unacceptable levels, these forms of Quality of Service should be allowed. Under the non-discrimination rule proposed by this paper and the FCC's non-discrimination rule, these are the only forms of quality of Service that network providers would be able to offer.

Thus, policy makers do not have to choose between protecting users and application innovators against interference from network providers on the one hand and innovation in the network and the needs of network providers on the other hand. As the paper shows, it is possible to protect users and innovators while giving network providers the tools they need to manage their networks and allowing the network to evolve.