



## **Title II vs. Section 706**

Patrick W. Gilmore, Chief Technology Officer  
Markley Cloud Services / Markley Group

## Agenda

This is a discussion on the United States Federal Communication Commission (FCC) **Notice of Proposed Rulemaking** (NPRM):

- [https://apps.fcc.gov/edocs\\_public/attachmatch/FCC-14-61A1.pdf](https://apps.fcc.gov/edocs_public/attachmatch/FCC-14-61A1.pdf)
- Warning, it is 99 pages long!

We will be concentrating on:

- Section 706 vs. Title II
- Quality of Service implications
- Paid Peering

## Disclaimer

These are my personal opinions, not anyone else's

- But they should be!
- Specifically not representing Markley Cloud Services, LINX, SIX, PeeringDB, etc.

This is very high level due to time constraints

Presentation is meant to be unbiased

- Please interrupt if you hear something you think is biased
- Or if you just have a question

I am not a lawyer

- In fact, I Am Not An ISP

## What is an NPRM?

Pretty self explanatory: **N**otice of **P**roposed **R**ulemaking

- Probably the only government acronym that actually makes sense

New rules are preceded by a long public comment period

- Which is over, sorry

If passed, the rules will have the force of law

Some say this isn't really an "NPRM" (despite the title of the document) since there are no actual rules being proposed

- Perhaps an "NOI", Notice of Inquiry?

## Motivation For The NPRM

In *Verizon v. FCC*, the US Court of Appeals struck down parts of the FCC's the Open Internet Order

The non-blocking and non-discrimination rules were specifically singled out because they violated the 1996 Communications Act's ban on imposing common carrier obligations on ISPs which the FCC refused to classify as common carriers

The FCC says it will try to re-issue rules under Section 706

- Chairman has said "all options are on the table" (meaning Title II)

Others argues Title II is better suited

## Title II Protections

Classifying broadband under Title II would make ISPs “common carriers”, with all the rights & responsibilities that implies

Protection for users such as anti-blocking and anti-discrimination are built-in

- For instance, an ISP could not filter traffic, or give one company an “unfair” advantage over another (some caveats apply)

Also protects carriers

- For instance, ISPs would have much stronger protection than the DMCA affords regarding content being transmitted across their links

## Title II Responsibilities

In addition, it burdens the carriers with responsibilities

To be fair, not everyone agrees on how Title II would affect ISPs

- Most doubt it would make them exactly like the original ILECs

It is possible that many requirements most people on both sides of the argument want to avoid would be imposed, such as:

- Peering connections could be tariffed
  - I.e. FCC could set pricing & rules around peering
- Universal access
  - Require every home to have a broadband connection at the same price

## Title II Forbearance

But the FCC could also “forbear” the additional requirements

Most people believe the FCC **would** forbear if broadband is classified as a Title II service

- Everyone – users and carriers both – would want the FCC to forbear
- The FCC is not in the habit of going against the wishes of the public and industry combined

But if the FCC does not, it could (**would!**) result in massive and detrimental unintended consequences

- Another reason the FCC would forbear

## Section 706, Promoting Broadband

Section 706 requires the FCC to promote broadband in the US

- It was not written to regulate broadband

The FCC claims, and the court agreed, Open Internet Protections create a “virtuous circle” of investment and innovation

- Does that mean we can use 706 to regulate broadband?

Section 706 is far less onerous on requirements

- No fear of things like tariffs on peering sessions

For this reason, many people will prefer the FCC stick to 706 instead of trying to impose Title II on broadband

## Section 706 Limitations

Section 706 may have fewer requirements, but also far fewer protections

In *Verizon v. FCC*, the court suggested that enforcing anti-blocking rules would mean a lack of anti-discrimination rules:

"For example, Verizon might ... charge an edge provider like Netflix for high-speed, priority access while limiting all other edge providers to a more standard service. In theory, moreover, not only could Verizon negotiate separate agreements with each individual edge provider regarding the level of service provided, but it could also charge similarly-situated edge providers completely different prices for the same service." (*Verizon v. FCC*, p. 61)

## NRPM Fairness

The FCC's NPRM includes the anti-discrimination rules

- This would require some "fairness" in the application of QoS
- If a broadband provider sells QoS for VoIP traffic, all VoIP providers would be given the same opportunity to purchase the same level of QoS for the same price

Proponents of Title II say the FCC cannot fix Section 706

- The court said 706 cannot be used to regulate discrimination

The FCC has left reclassification "on the table"

- Reclassification means to Common Carrier status, i.e. Title II

## Alternatives to Section 706 or Title II

The FCC could do nothing

- Not sure this would be acceptable to anyone
  - Perhaps a few carriers?

Congress could vote to give the FCC new powers or write a law

- HAHAAHA!!!! ... Oh, sorry

The FCC could use funding or “promotional” powers

- E.g. Require e-Rate funds only go to networks which support Network Neutrality rules

None of these seems likely

## NPRM & Quality of Service

The most contentious part of the NPRM's suggested regulation is the section on Quality of Services, or QoS

The NPRM allows broadband providers to configure QoS on the end user connection

Let's state that again, because it gets lost: QoS would **only** be allowed on the "last mile"

To be clear, the NPRM does not apply to peering connections

- Although the NPRM does ask if the rules should be extended past the last mile (read "to peering connections")

## QoS vs. Best Effort

Most ISPs offer what is called “Best Effort” delivery

- Think “commercially reasonable efforts”

This means all traffic is treated equally and they do their “best” to deliver the traffic, but delivery is not guaranteed

- ISPs do not want to be dinged by the customer if a packet is dropped
- Because some packets *will* get dropped

QoS solves this problem for some customers some of the time

- But not all customers, such as the ones who do not pay extra
- And not all the time, as in when there is more prioritized traffic than capacity
  - Also, what happens once everyone has paid for QoS?

## QoS and Congestion

QoS is usually implemented as ordering packets in a router's queue

QoS takes "prioritized" packets to the front of the queue

During congestion, every packet that is prioritized delays another packet

- And if the queue gets too long, packets will be dropped
- If you try to send 11 Gbps over a 10 Gbps link, some packets *must* be dropped

QoS is not really a "fast lane"

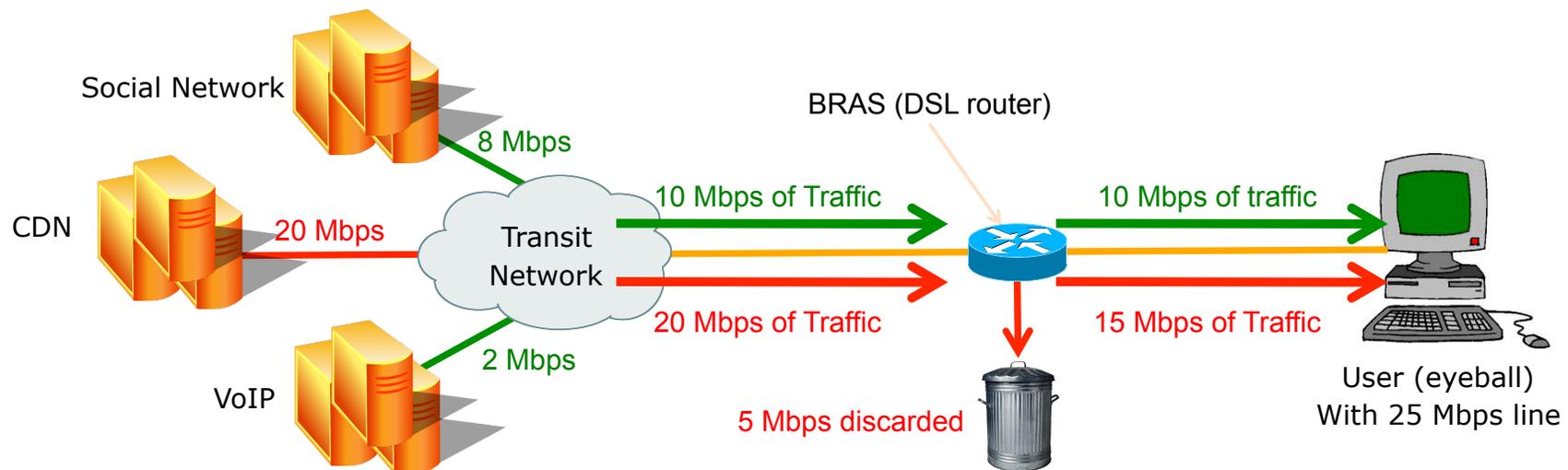
- Analogies are like bicycles: It doesn't matter how many marbles it takes to fill the outhouse, telco execs will always be making silly metaphors

## QoS Refresher

A simple diagram of how QoS works

- The arrows are for simplicity, there is only one link to the end user

For every additional green packet, a red packet is discarded



## Quantity of Service

*Quality* of Service (QoS) is only relevant during congestion

“Jumping the queue” is not useful if the queue length is zero

For this reason, I think of QoS as ***Quantity*** of Service

Put another way: “QoS” means “I do not have enough bandwidth, but if ***you*** pay me extra, I’ll drop ***her*** packets first”

## ■ Paid QoS

Broadband providers are allowed to charge for QoS in the NPRM

- And obviously if a company **can** charge for something...

Some claim that will stifle innovation

Only big companies will be able pay

- “The next Google or Facebook” cannot be built in a college dorm room if it costs millions to ensure good performance

## Moral Hazard

There is an argument that allowing a fee for QoS gives broadband providers an incentive to congest

This is a little less clear, at least to me

The end user picks the size of their pipe

- Will users buy smaller pipes?
  - Obviously different for DSL than cable

Would a BB network make more money by selling smaller pipes and more QoS?

## Netflix vs. Comcast, Verizon, ...

Some people conflate the recent announcements by Netflix and the NPRM

The NPRM may allow broadband providers to use QoS on the last mile, the end user link, but it is not in force today

- Again, the NPRM does ask if QoS rules should be extended past the last mile

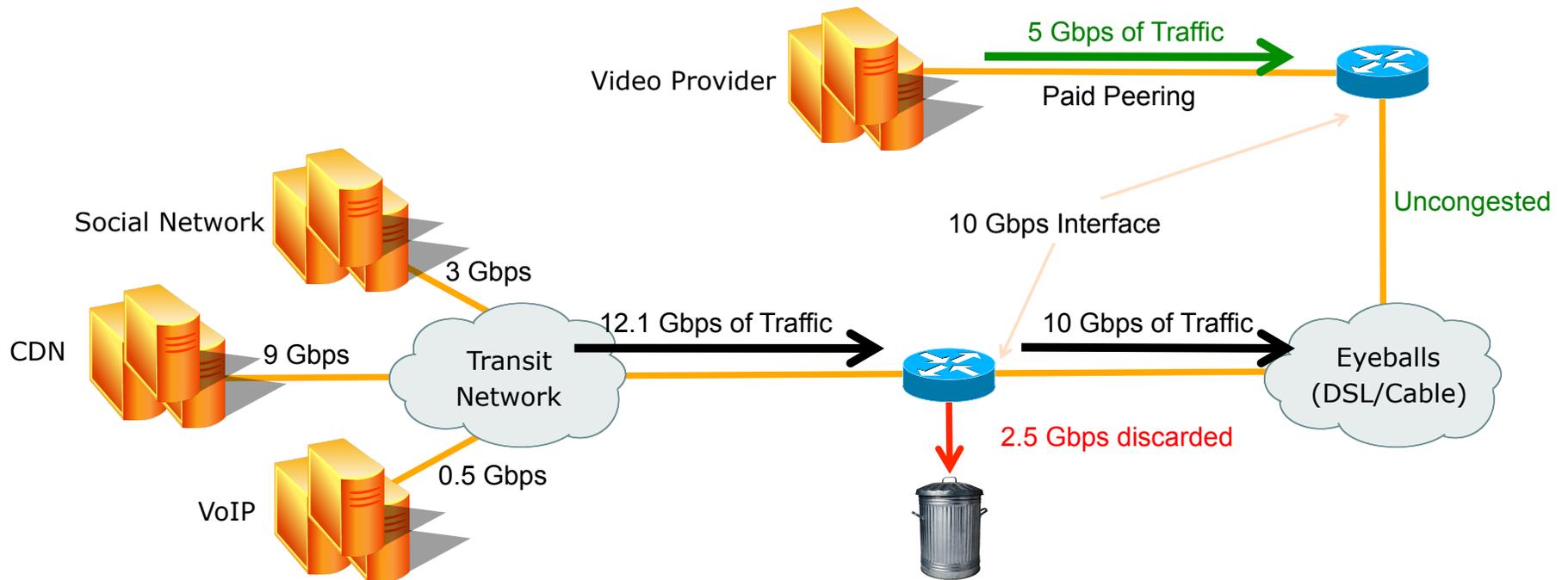
Even if the NPRM were in force, Netflix is not prioritized on that link

- Side note: Contrary to popular belief, there is some prioritization on the last mile, but it is not being used for third party VoD

So why did Netflix pay if they are not getting QoS?

# Netflix vs. Comcast, Verizon, AT&T, ...

Netflix got a "fast lane" (sort of) without QoS



## Netflix vs. Comcast, Verizon, AT&T, ...

Netflix is paying for a dedicated path into the broadband networks' cores to avoid congestion on transit or peering

The NPRM would not change broadband networks' ability to charge for private peering (i.e. "dedicated path")

Nor would the NPRM regulate the amount of transit or peering a broadband network needs to have

- Meaning transit may still be congested

Questions?

This slide intentionally blank