

Using Lots of
internets to make
one fast internet!!

Connection Muxing in 2021

But First....

HELLO?



WHO ARE YOU?

@GeneErik

Blue team. Red team. AppSec. Maker. Network engineer. Phreaker. Gene Erik is a hacker jack-of-all-trades who enjoys breaking things, instrumenting hacks, putting things back together even better, and automating new defenses. Gene's philosophy is to make things, teach people, and always do better.

@CellPhoneDude

Cellphone likes cell phones, cell phone networks, cell phone internals, and building new stuff that uses the networks I know best.

LTE expert, radio newb, ATIS & 3GPP Alliance Member, hardware engineer, DFIR professional.

THE INTERNETS

Enter MPTCP!

THE GOOGLE

the Internet is not something you just dump something on. It's not a big truck. It's a series of tubes. And if you don't understand those tubes can be filled and if they are filled, when you put your message in, it gets in line and it's going to be delayed by anyone that puts into that tube enormous amounts of material, enormous amounts of material. -- **United States Senator Ted Stevens (R-Alaska)**

What is MPTCP?

MultiPath TCP is an example of using multiple interfaces / interface types and using them as a single connection bound to an application or service.



Yeah Ok But Why?

Instead of your device having to choose which interface it's going to use, with MPTCP the kernel decides to use all interfaces and layers TCP on top of both connections. Sorta of like muxing dialup connections. Packets are tagged and numbered based on the interface that's going out, so it's transparent to the TCP stack.



Using Both Routes..



WiFi

200 Mbps Down / 20 Mbps Up

Routes

LTE

80 Mbps Down / 40 Mbps Up

Servers



Yeah Ok But Why?

Because why not? Ok Fine real reasons:

- Failover
- Redundancy
- Modern Devices / Multiple IF's
- Speed
- Because someone else already mainlined it so it's there now.

THE INTERNETS

www.teambio.org

ATT
TMO
VERIZON



THE GOOGLE

the Internet is

if you
you

enormous amounts of material. --

dump

understand

gets in

enormous

truck.

GeneErik + TJ

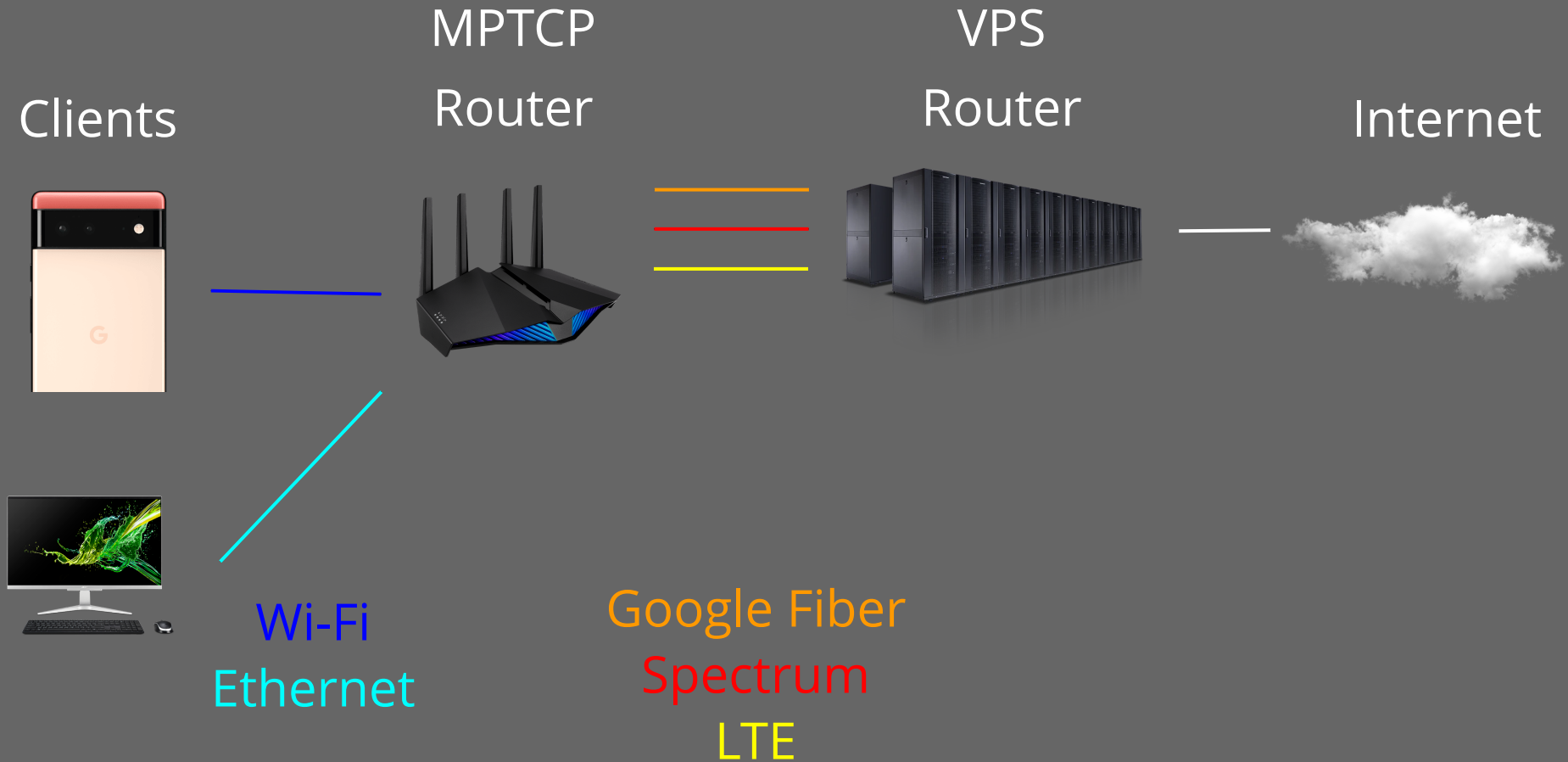
Yeah Ok But Why?



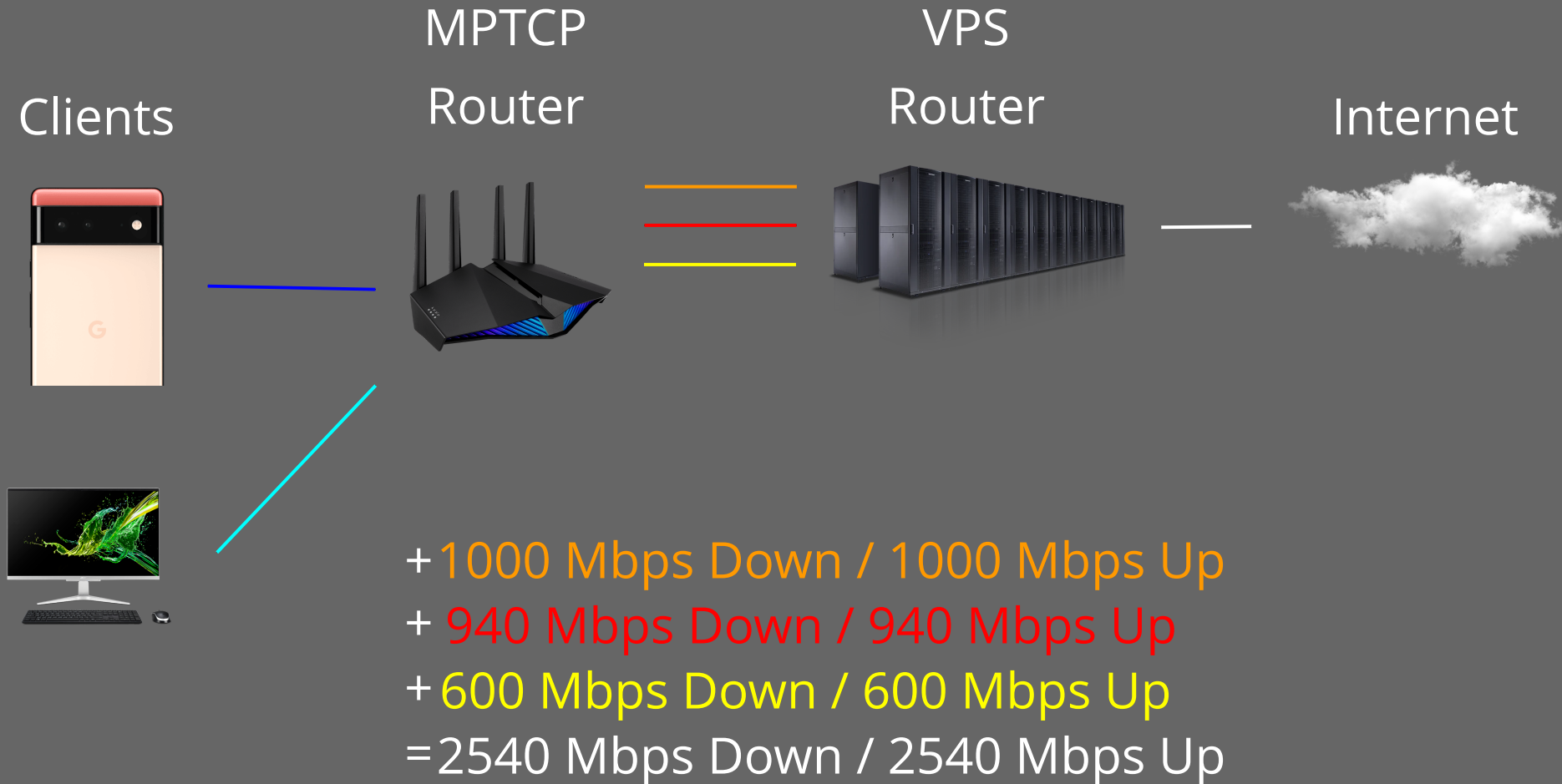
Ever wanted to add all your internet together?



What is OpenMPTCProuter?



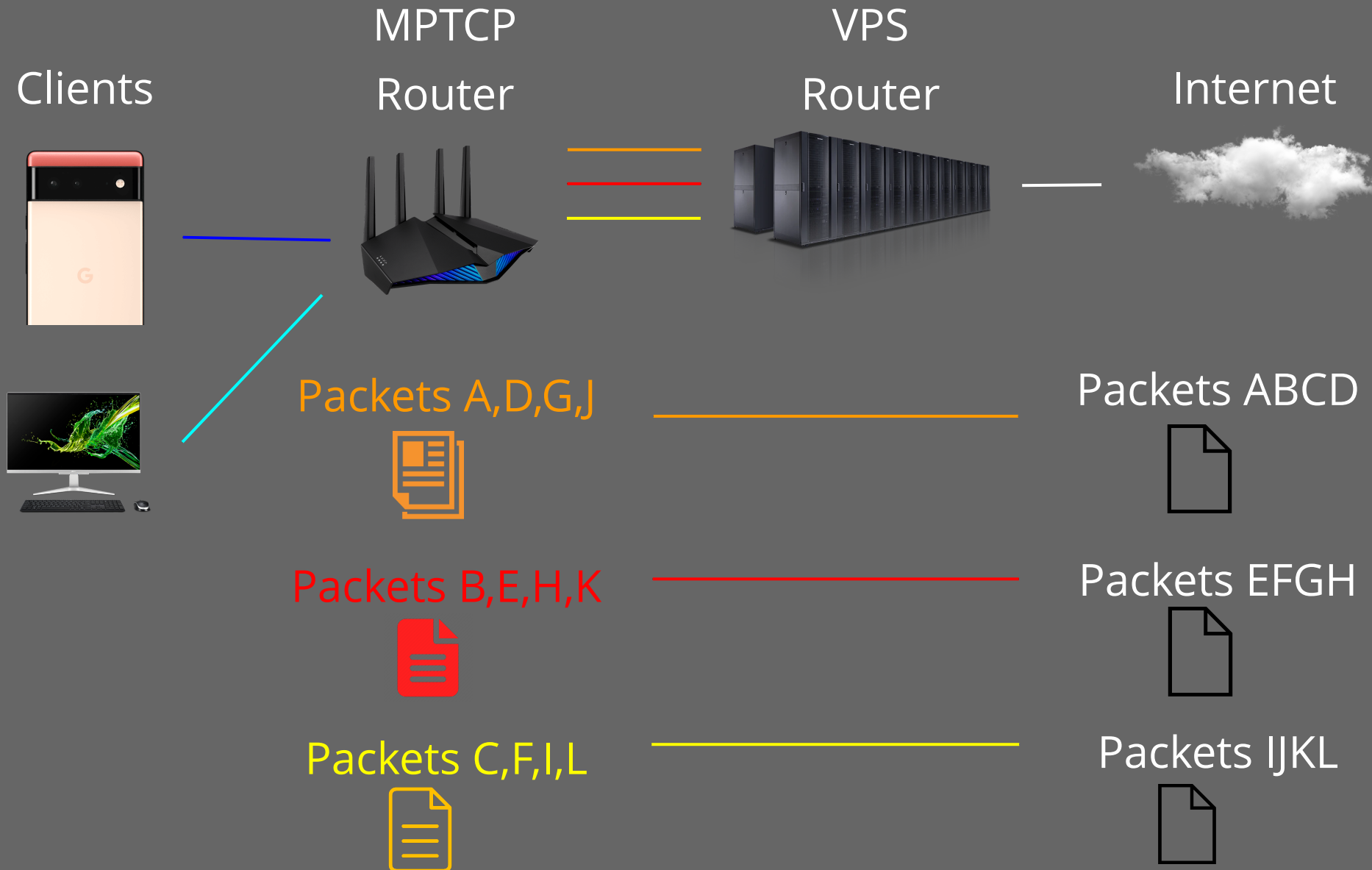
What is OpenMPTCProuter?



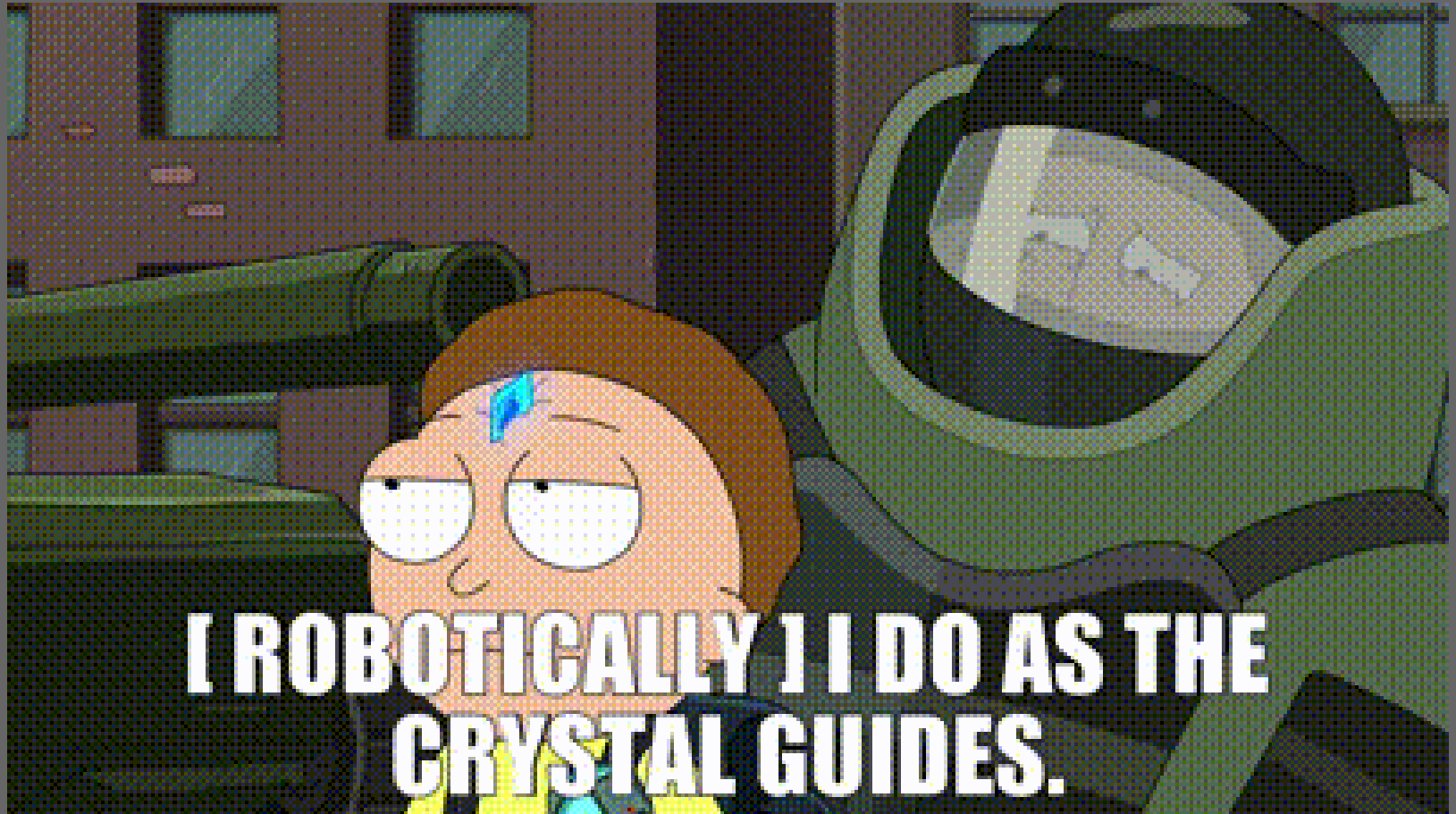
What is OpenMPTCProuter?



How does it move traffic?



How does it move traffic?





**WHAT'S THE RETAIL
ON ONE OF THOSE?**

Text



**MORE THAN YOU
CAN AFFORD PAL.
~~FERRARI~~**

Cisco



SMOKE HIM.



References

MultiPath TCP

<https://www.multipath-tcp.org/>

OpenMPTCProuter

<https://www.openmptcprouter.com/>