

Market-Based Alternatives to Internet Content Regulation

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The Challenge

A multitude of political, religious, and social debates play out on the Internet as in the rest of the world's media.

However, the Internet is much more than a forum for these disputes; it provides a platform for economic, industrial, and educational growth unmatched in history.

This opportunity should not be squandered due to a confusion of medium and message.

The Challenge

As with any publishing medium which indiscriminately addresses the broadest swath of the public, messages reach unintended recipients. Taken outside their intended context, they may often cause justifiable insult or offense.

The Challenge

Some people wish to use the Internet, but don't think that this need necessitate that they or their children see things which will offend them.

Some people are concerned about transparency, reliability, competition, and the open end-to-end technological model which has made the Internet's growth possible.

The difficult work of politicians is to simultaneously satisfy the interests of different groups like these. In this talk, I hope to lend an engineer's eye to this problem, and give policy-makers one potential solution, which requires recourse only to existing technology and the workings of the market.

How This Issue Has Become Polarized

- Imposed through top-down, compulsory legislation or regulation
- Outside of the traditional Internet governance process
- Hasty reaction to already polarized demands or threats
- Associated with the most contentious issues: religion, morality, politics
- Command economy rather than market economy needlessly places industry and government on opposite sides of what need not be an issue in the first place

A Counterexample

The issue is not intrinsically controversial.

In Afghanistan, extreme scarcity of resources means that economics play an even greater role than religion in this debate.

A Counterexample

Afghan Internet users are constantly bombarded by advertisements, in languages they don't speak, for products they cannot afford, in currencies they don't have, by companies in other countries, that aren't intending to advertise to them in the first place, and wouldn't be willing to do business with them anyway.

That's just plain insulting.

It costs money to bring those ads to Afghanistan.

Nobody in Afghanistan profits by them.

Nobody outside Afghanistan profits by them.

Sounds like a problem.

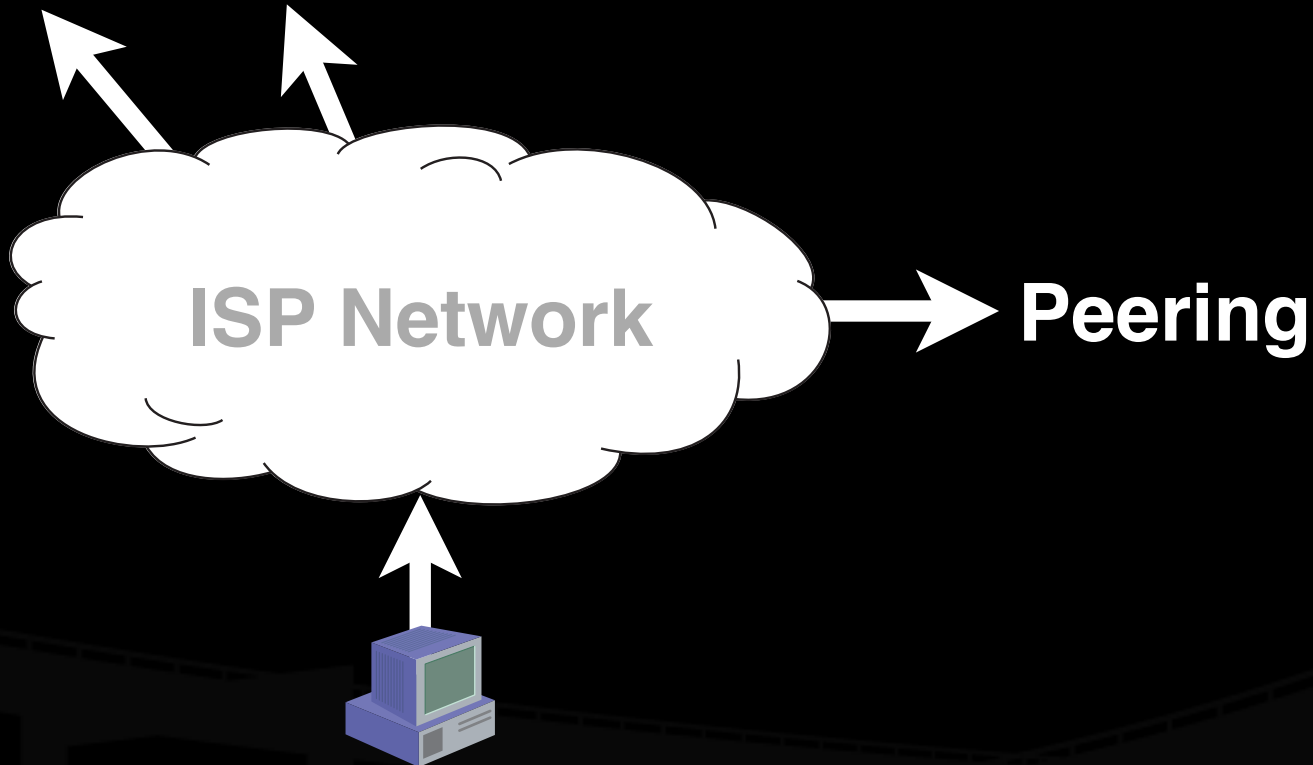
Problems are opportunities for engineers and businessmen.

The Parts of the Solution

- Governmental commitment to work within the market economy, rather than the command economy
- Web caching
- Cache peering
- Private-sector content replacement

The Basic ISP Model

Redundant Transit

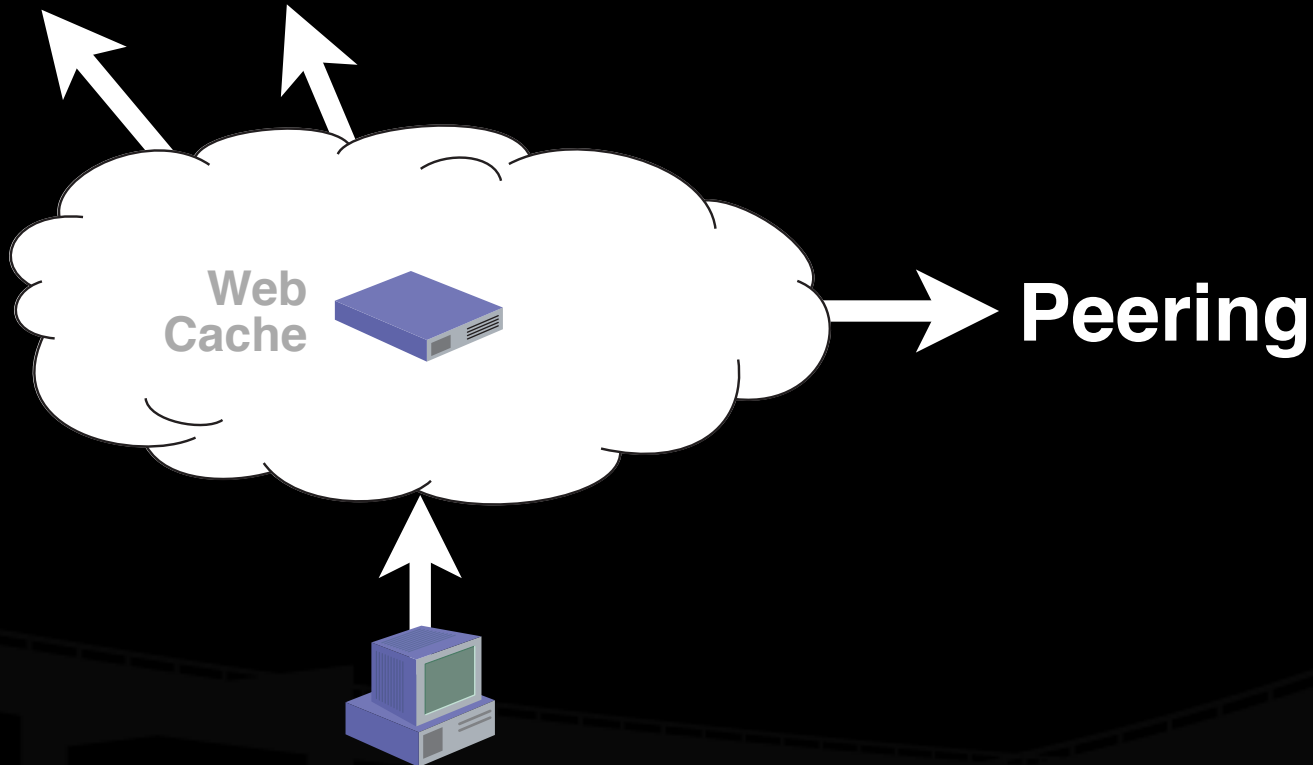


Customers

Peering

...With Web Caching.

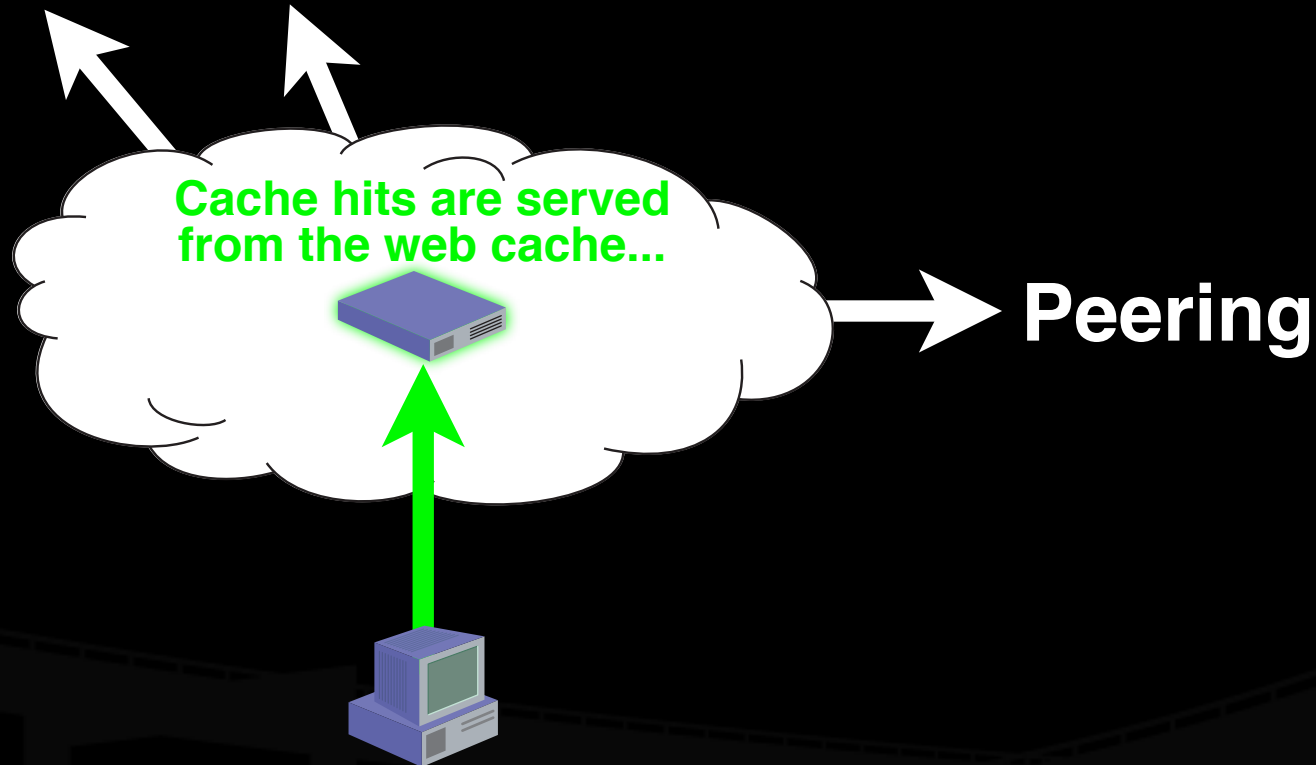
Redundant Transit



Customers

...With Web Caching.

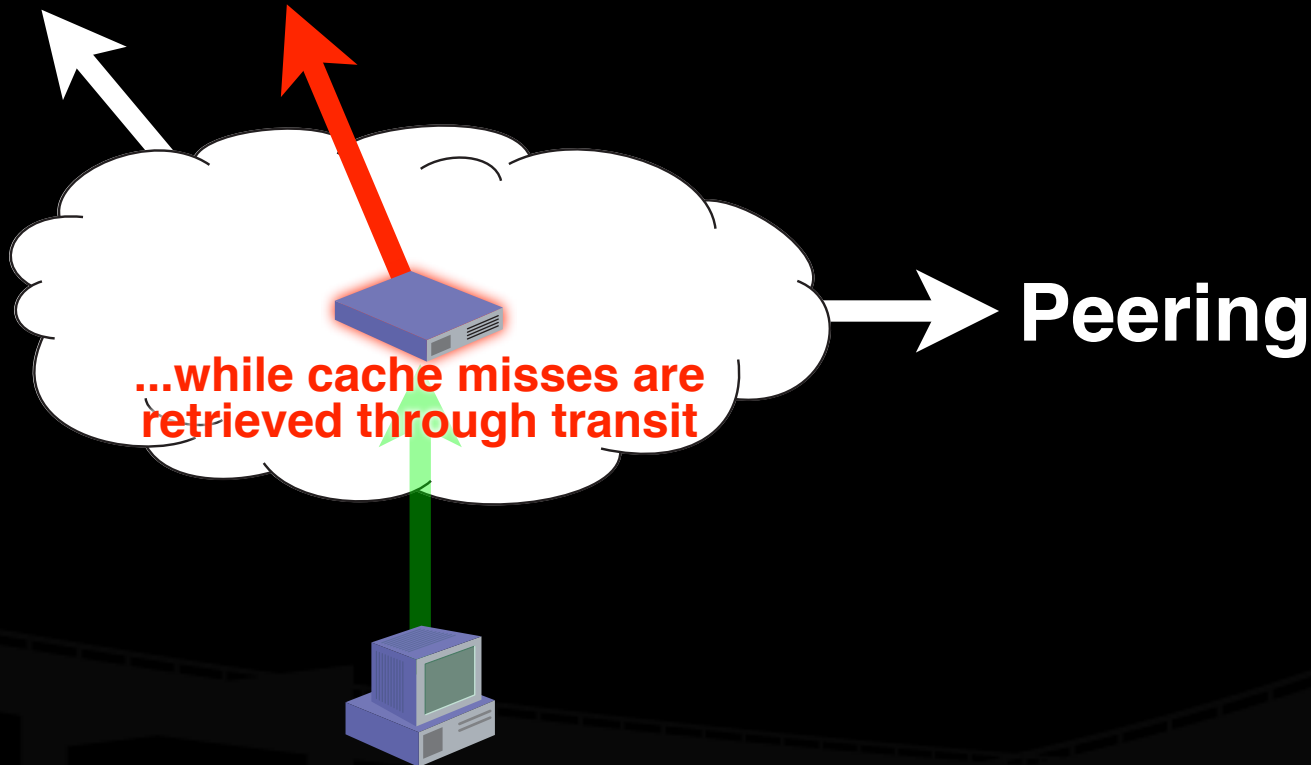
Redundant Transit



Customers
generate **queries**

...With Web Caching.

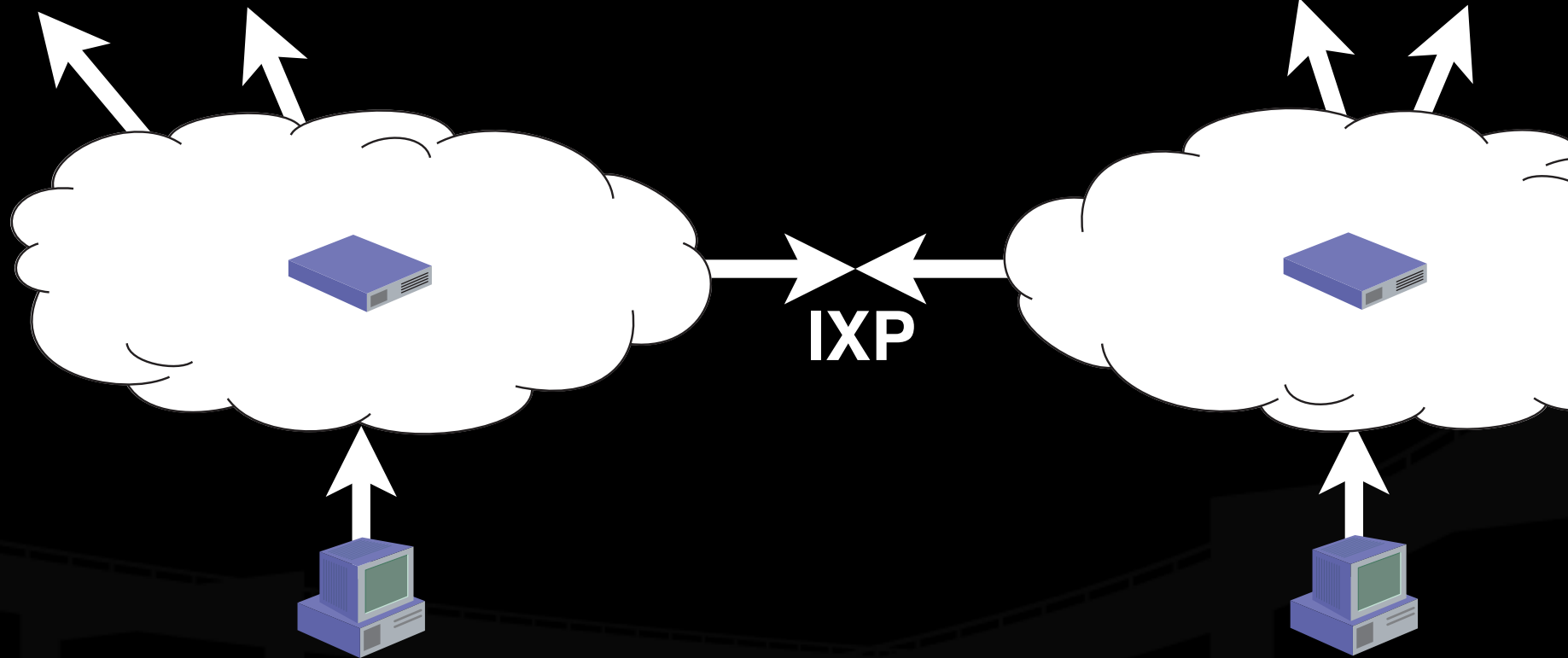
Redundant **Transit**



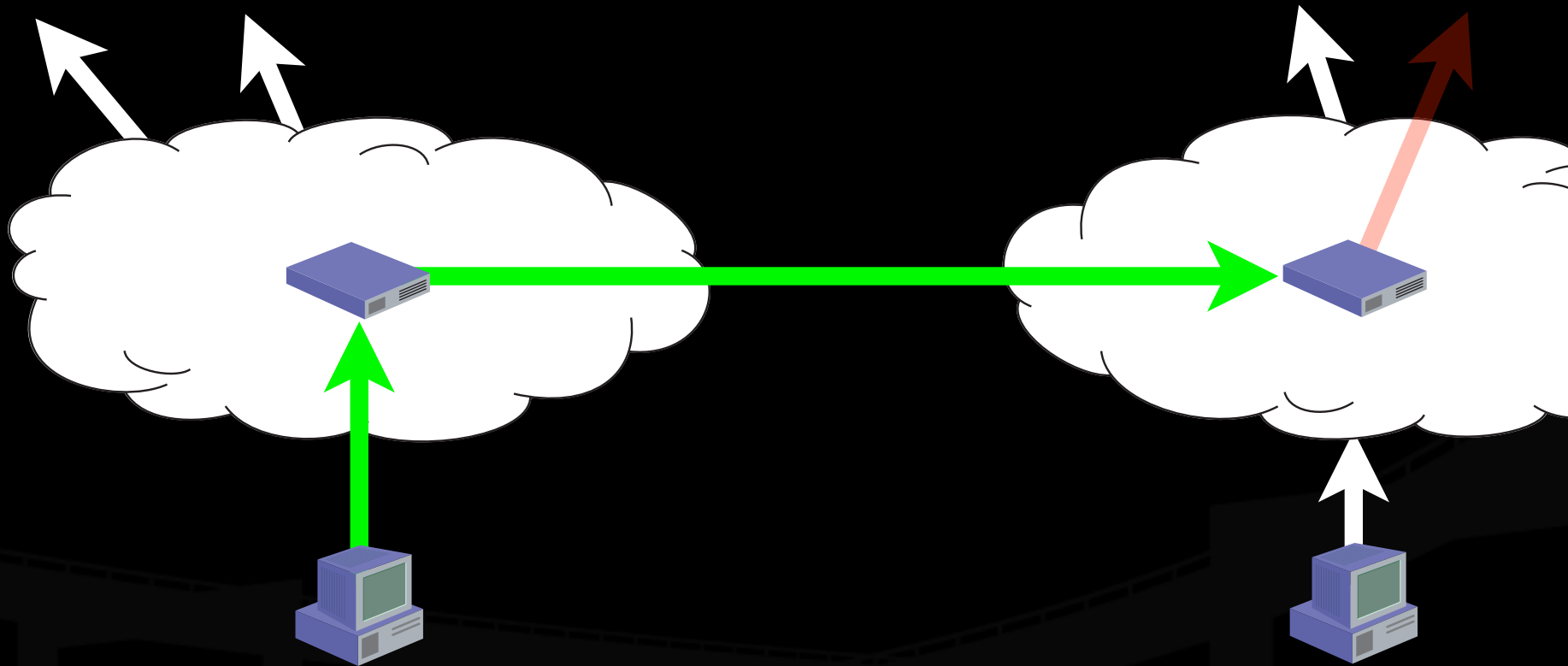
Customers
generate **queries**

Reciprocal Inter-Cache Peering Helps

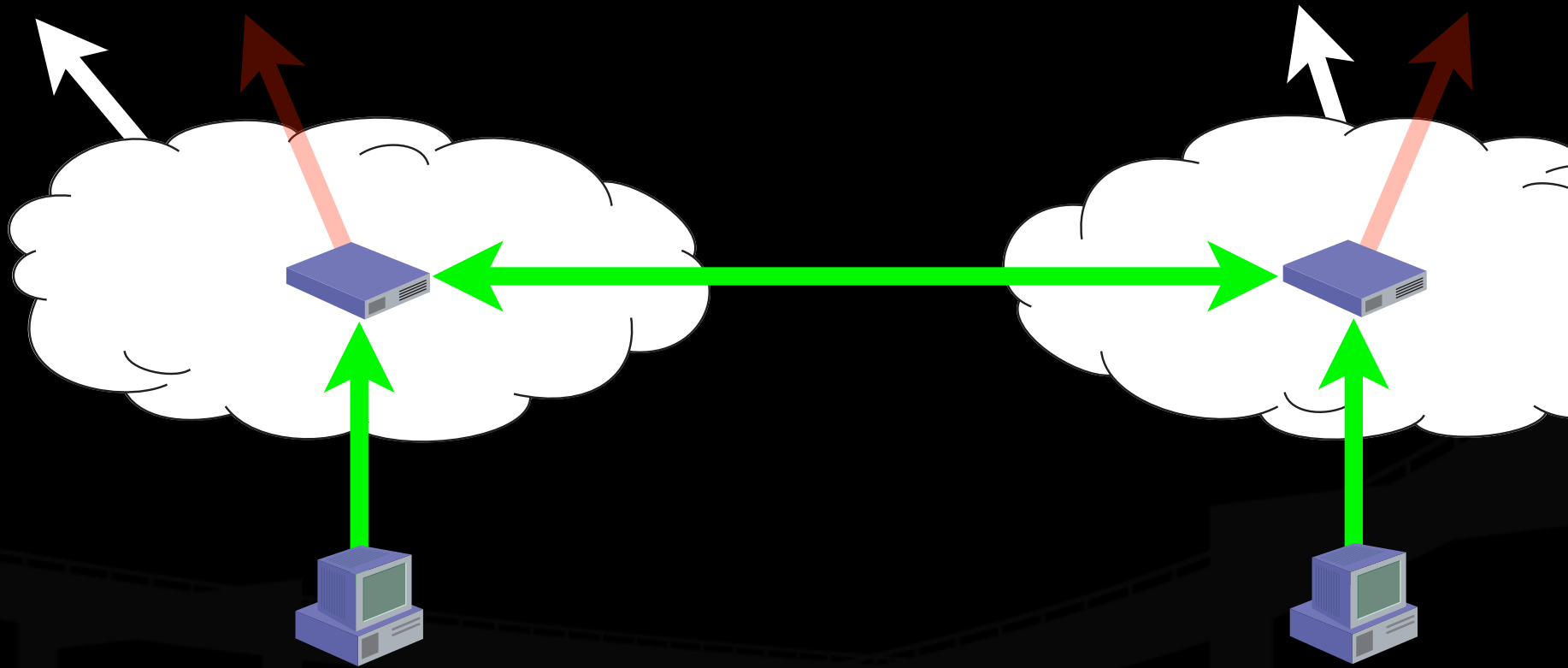
Redundant Transit



Reciprocal Inter-Cache Peering Helps

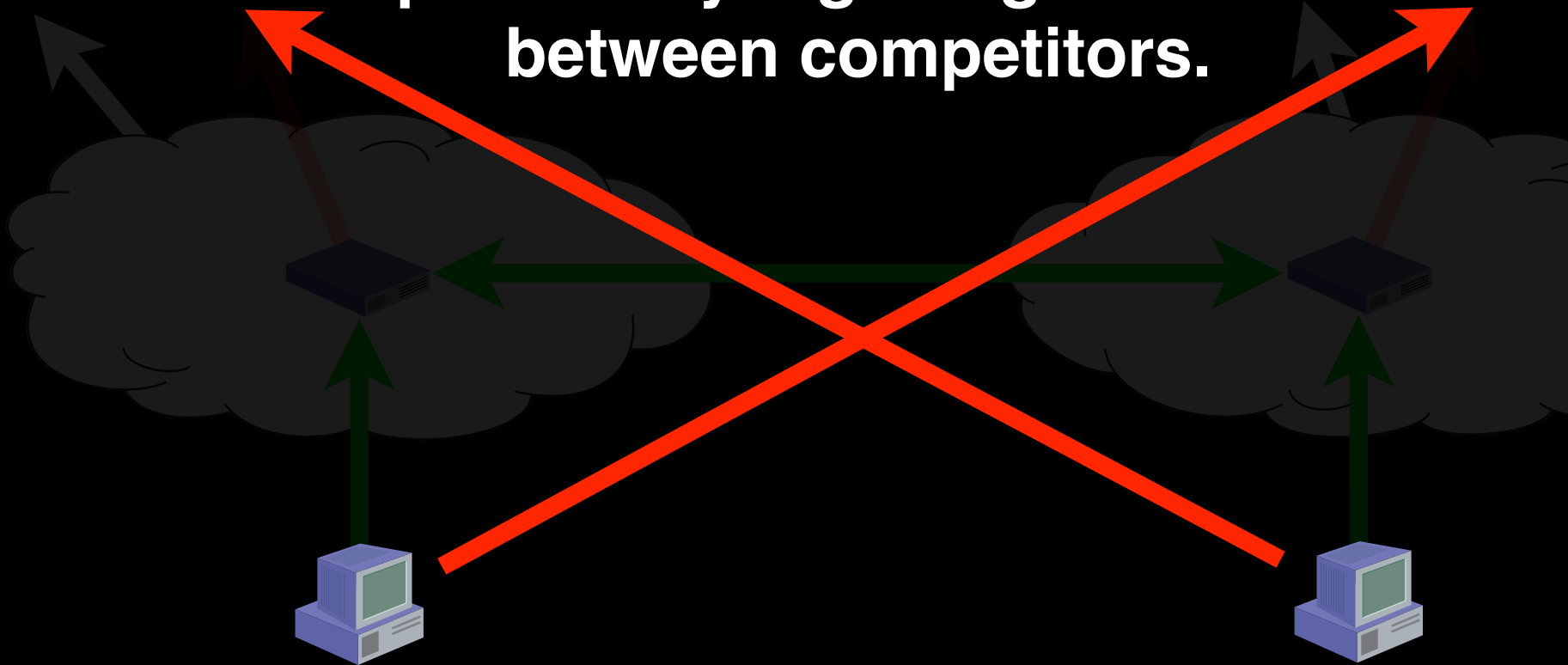


Reciprocal Inter-Cache Peering Helps

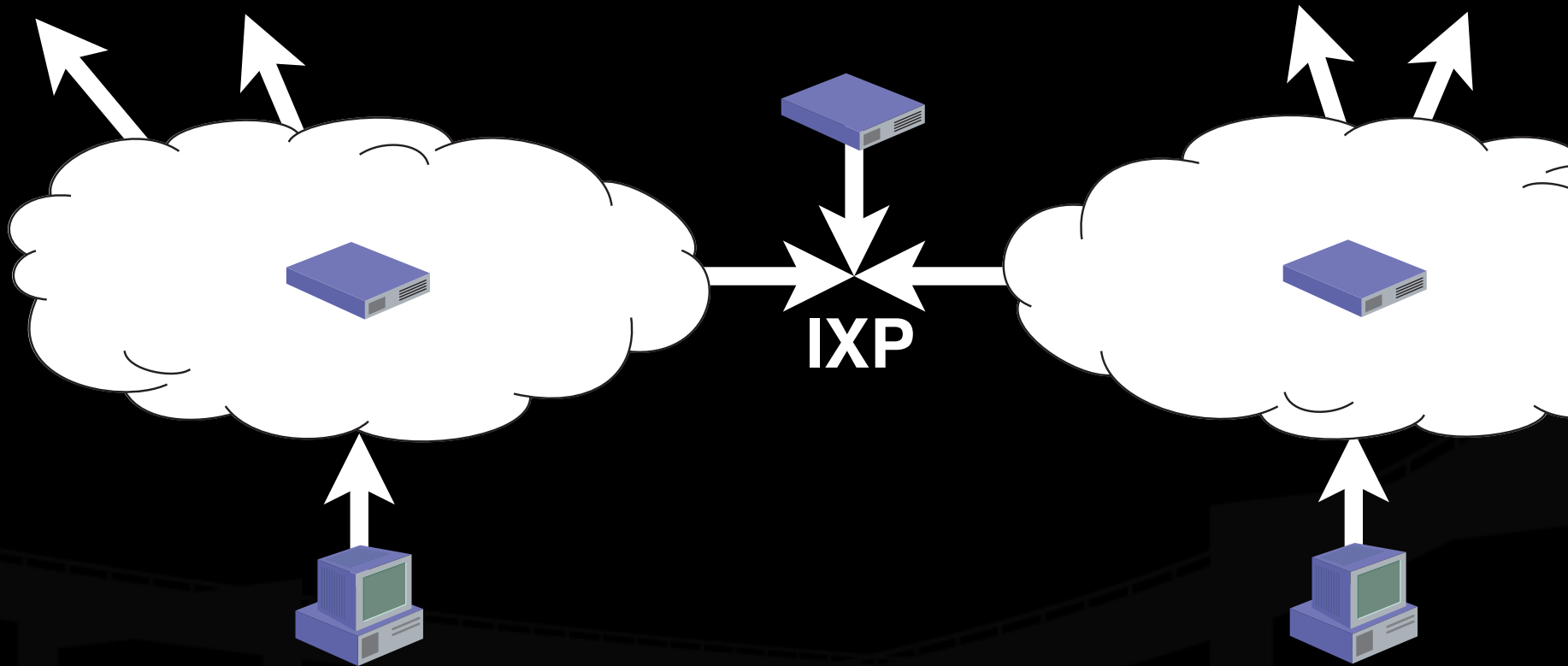


Reciprocal Inter-Cache Peering Helps

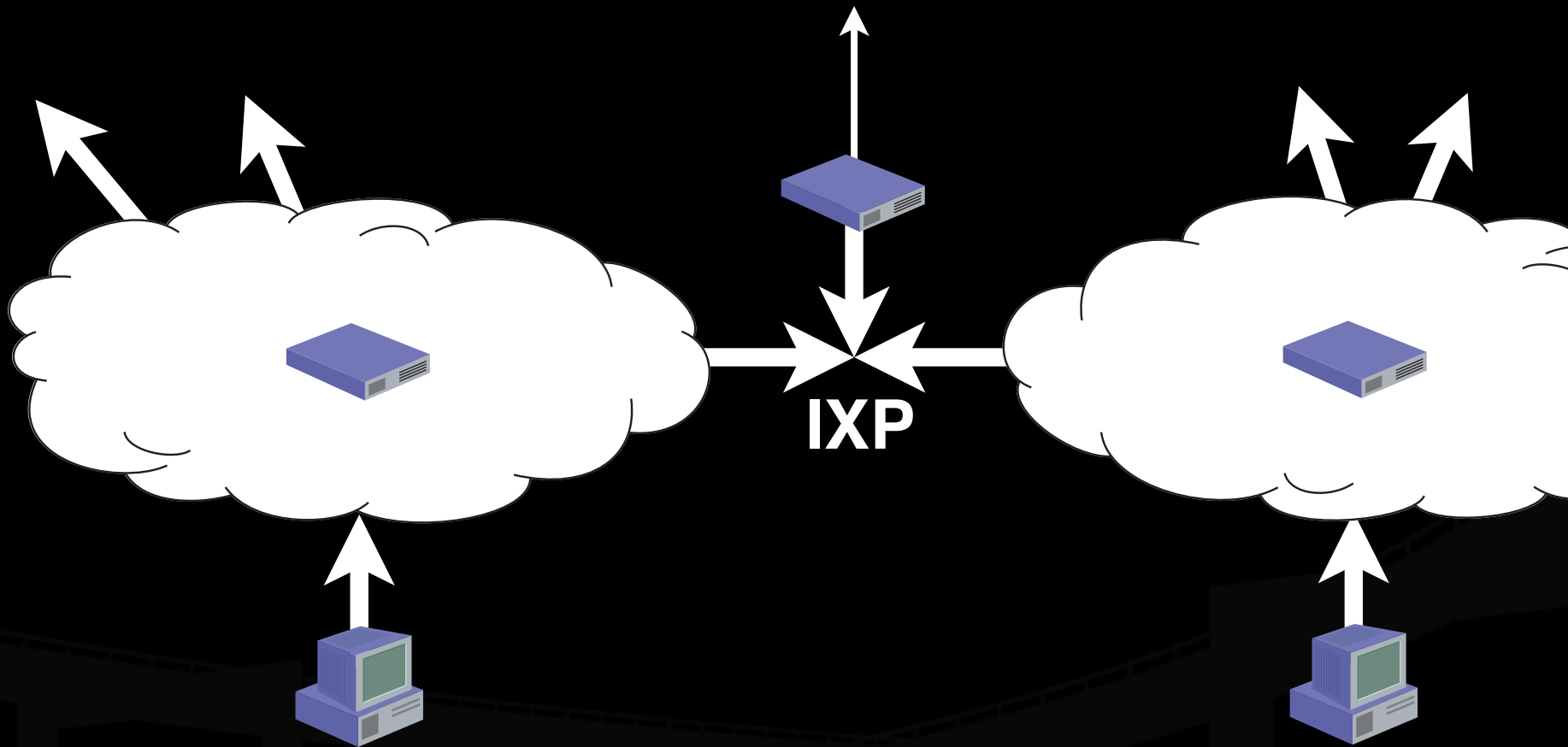
...but reciprocity requires an impractically high degree of trust between competitors.



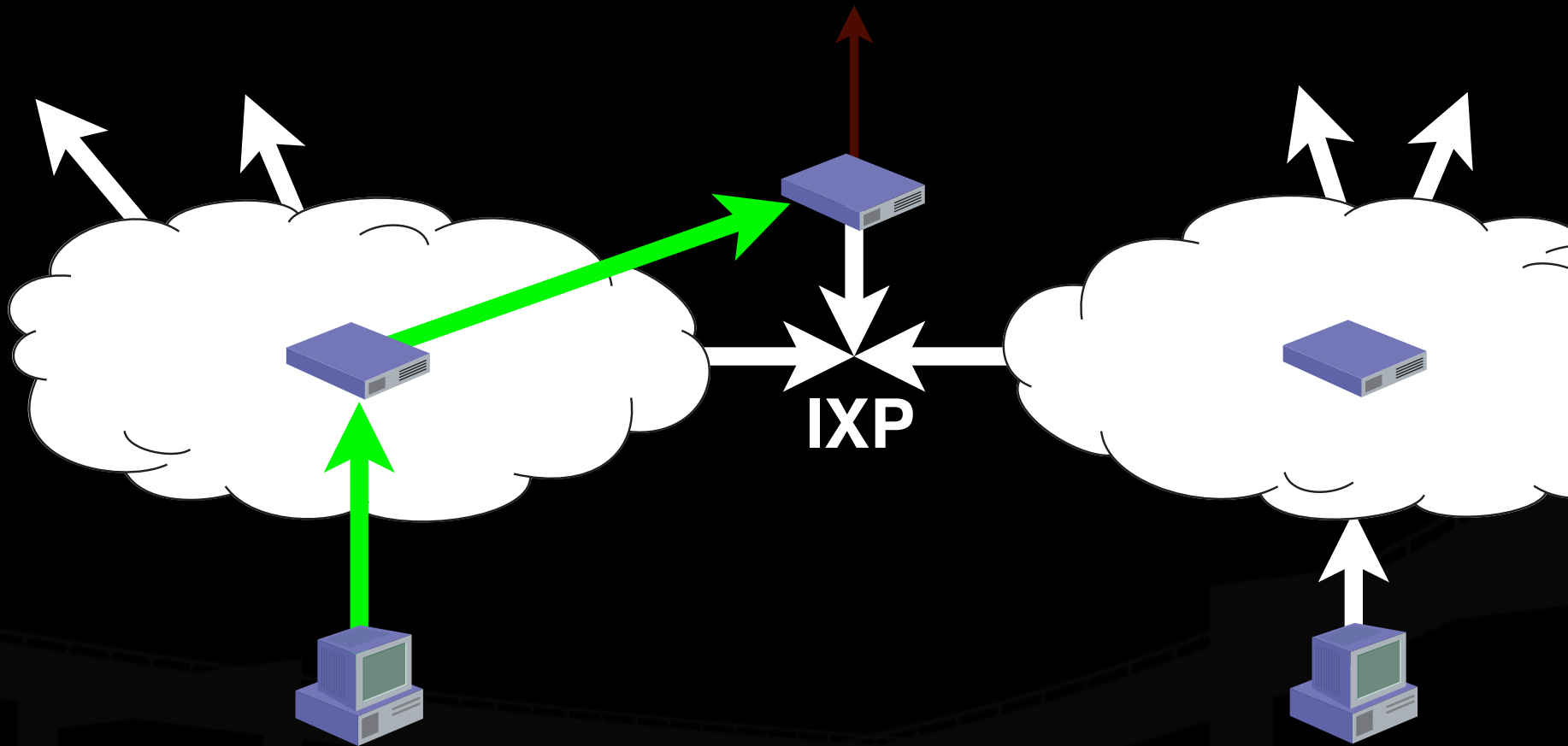
An Available Parent Cache...



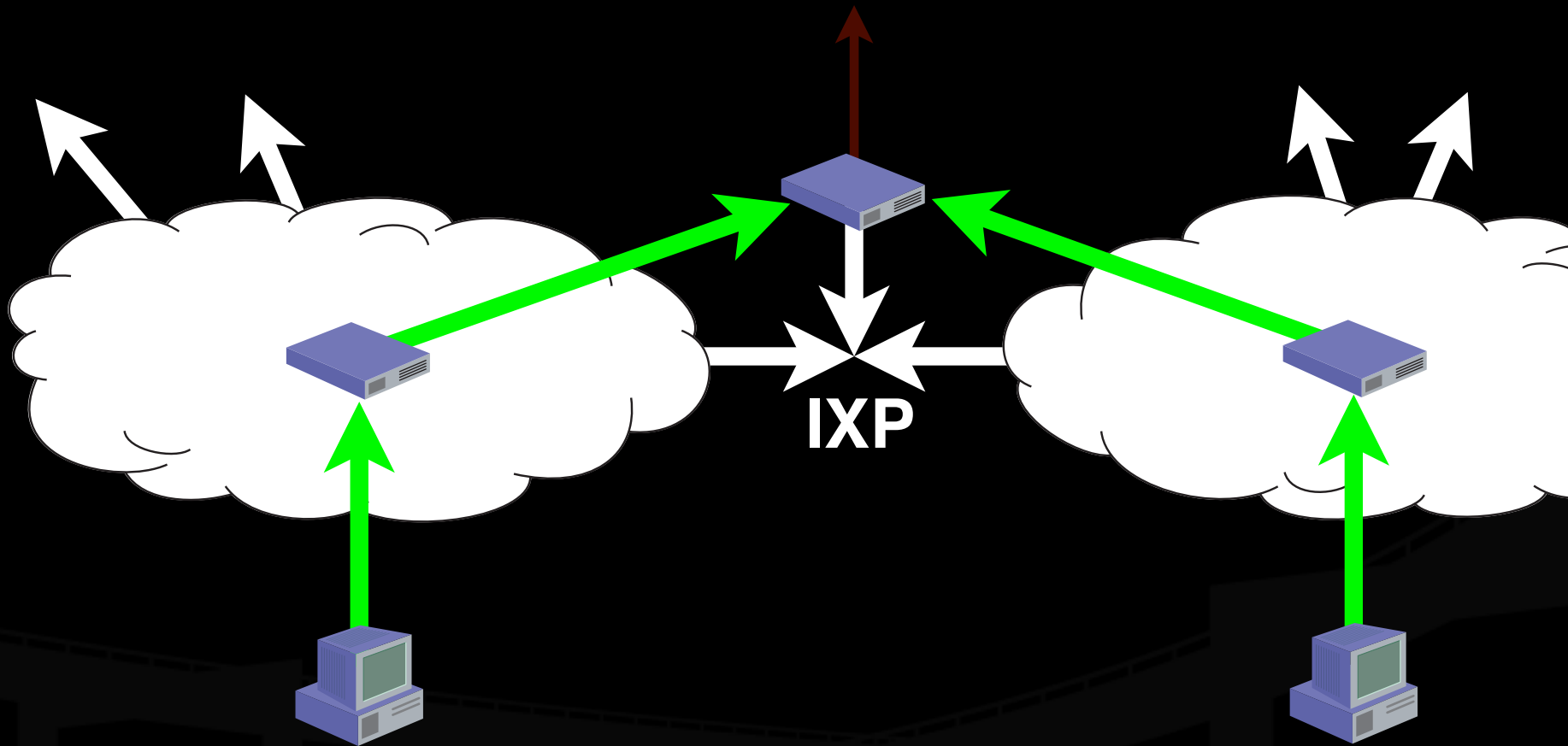
...Which Uses its Own Transit...



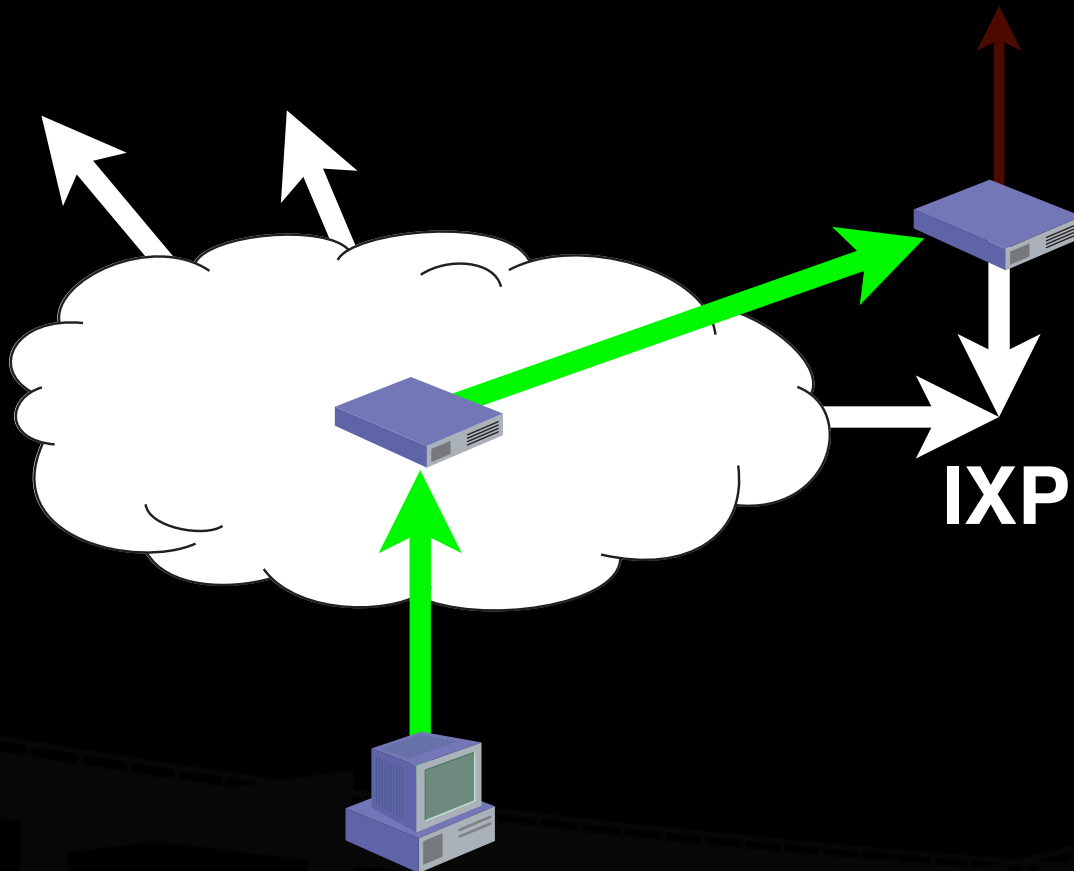
...Can Solve That Problem.



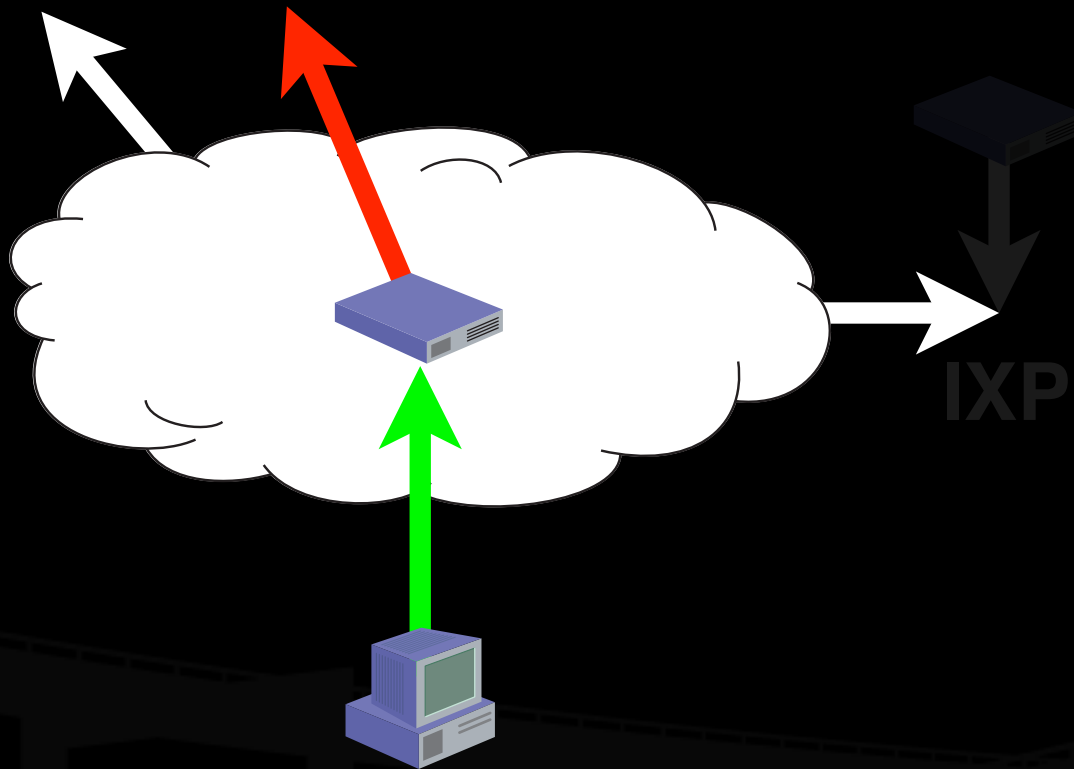
...Can Solve That Problem.



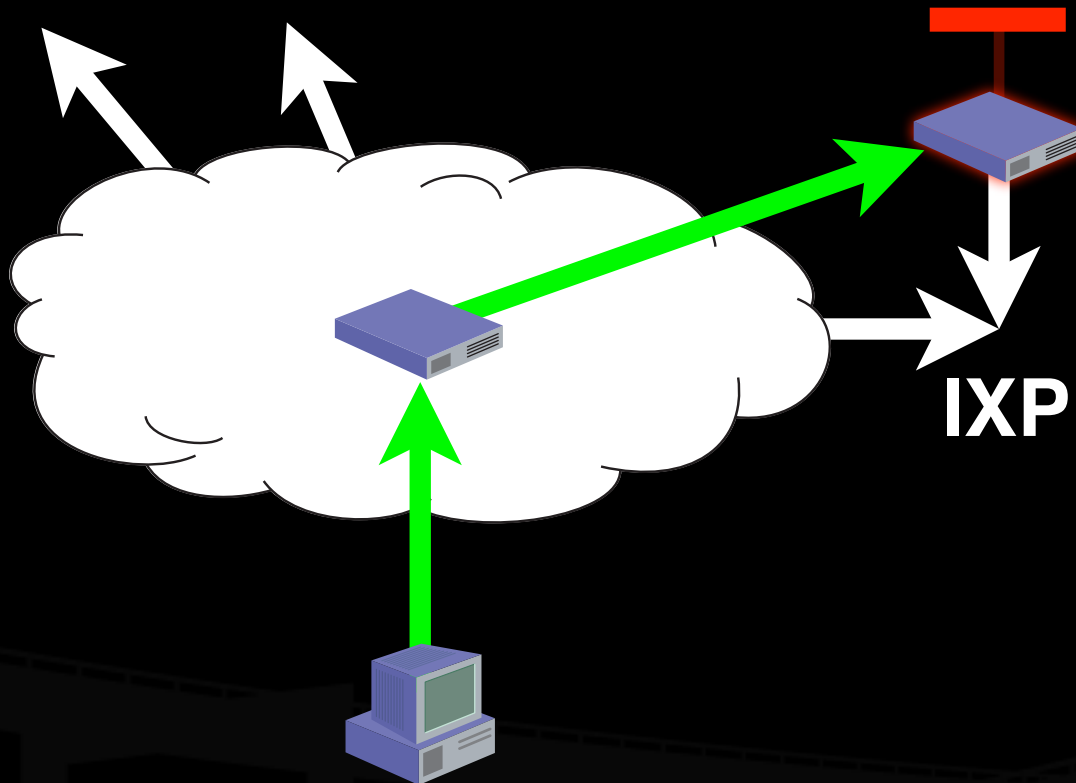
An ISP Will Always Prefer Free Peering...



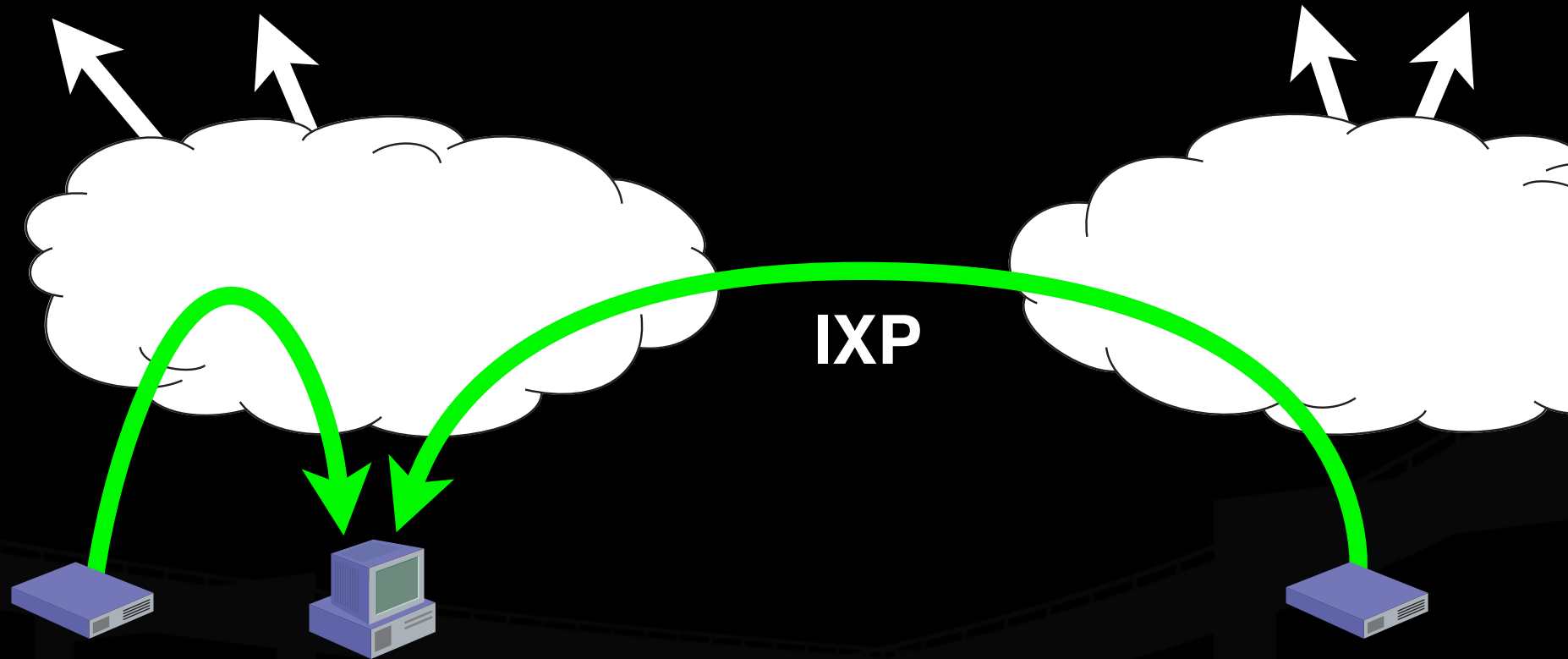
...Over Expensive Transit



But What Happens When There's a Cache Miss?



Private-Sector Content Substitution Makes That a Revenue Opportunity for Local Content Providers or Advertisers



So What's the Market Effect?

ISPs which use the parent cache see a reduced average per-bit delivery cost, and increased performance.

ISPs which also do not use transit to fulfill cache misses see a further reduction in APBDC.

ISPs which also substitute local content see an increase in revenue.

So What's the Market Effect?

Each of these steps makes an ISP more profitable, and allows them to compete in the marketplace with a lower retail cost for a higher quality of service.

All but a handful of customers will prefer the higher quality service at the lower price.

The market can provide what regulation only strives to achieve.

The Net National Economic Effect

ISPs share a common cache, so content can be backhauled from overseas once, rather than once per ISP. Overall decreased export of capital.

Customers receive faster service at a lower price.

Government transfers expenditure from law enforcement to Internet service production.

Thanks, and Questions?

Copies of this presentation can be found
in Keynote, PDF, and QuickTime formats at:

[http:// www.pch.net / resources / papers / content-regulation-alternatives](http://www.pch.net/resources/papers/content-regulation-alternatives)

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