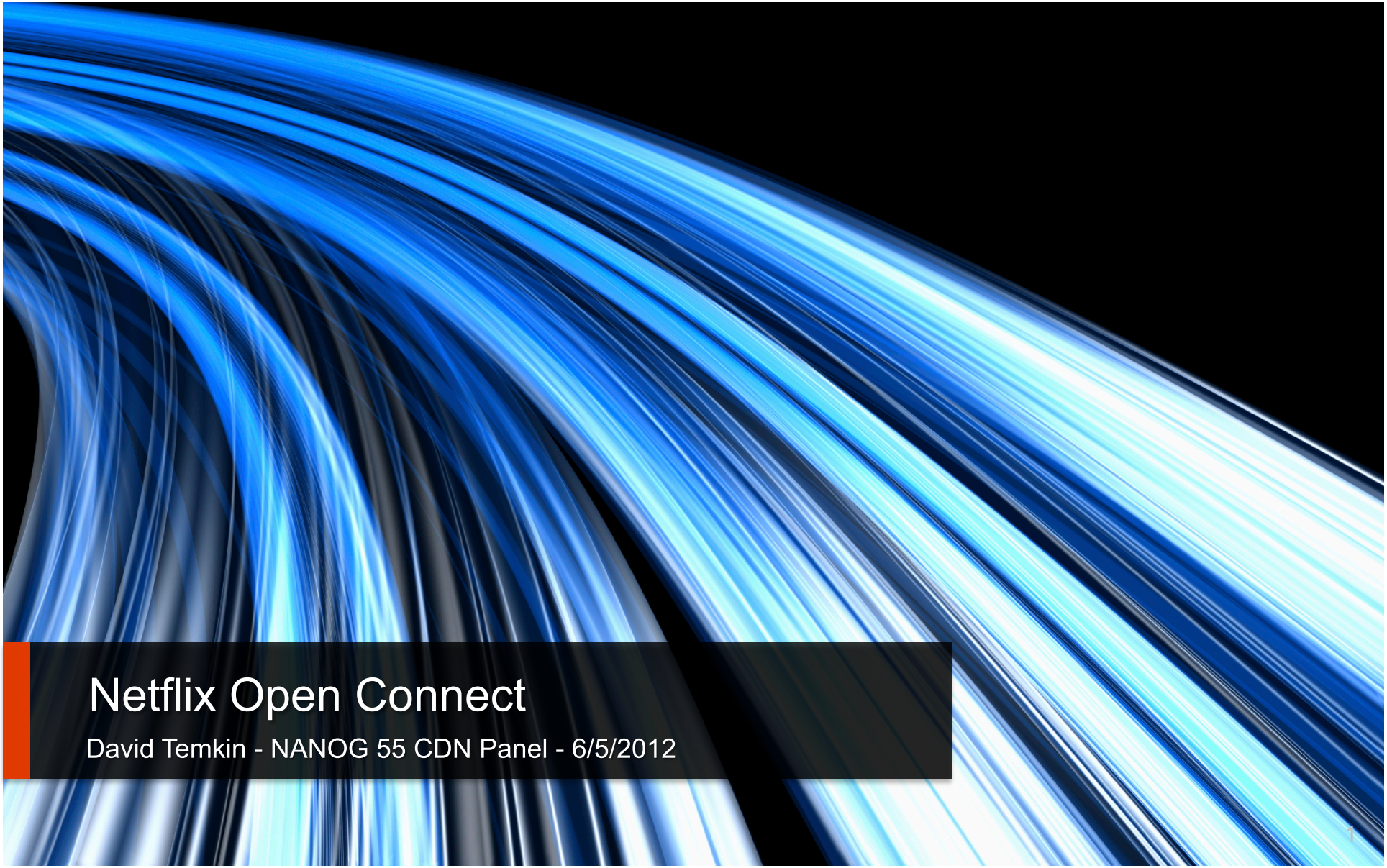
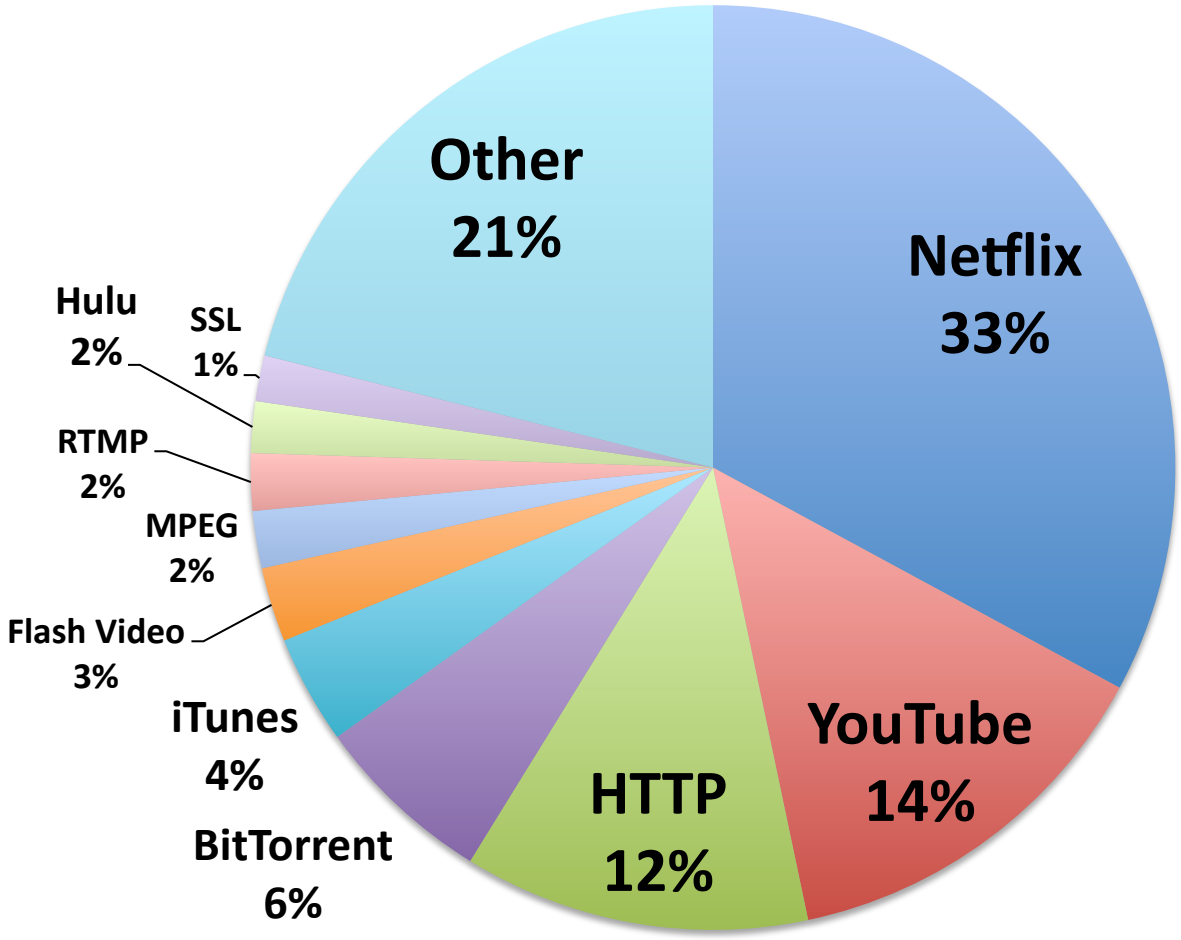


Netflix Open Connect

David Temkin - NANOG 55 CDN Panel - 6/5/2012

Netflix Share of US ISP Traffic



Source: *Sandvine Global Internet Phenomena Report – 1H 2012*

The “Netflix Problem”…

- Whenever we go to a technical conference, we see lots of vendors trying to solve “The Netflix Problem”
  - Qwilt
  - Oversi
  - Cisco
  - Juniper
  - Alcatel-Lucent
  - PeerApp
  - Etc.
- This diversity of solutions would require a separate, extensive integration effort from Netflix to fully support Netflix client capability, as well as achieve a high percentage of cache hit rate
- Neither demand-driven, nor other kinds of proxies or caches are effective at caching the very broad working set of the Netflix catalog

“ISP CDN”

- Various ISP networks have deployed or are deploying their own internal CDN solution
  - These may be effective for the Telco’s own use
  - For content providers, each unique CDN would require a separate integration effort
  - For Netflix, it’s already a great deal of work to manage three 3rd party CDNs
- CDN Federation wouldn’t help us
  - We have very specific CDN requirements
  - Federation would only support the most generic case
  - Even under ideal conditions, Federation is still just a layer of logic on top of many different CDN solutions

Zero balance point

- There is no market for the cost of access to an eyeball, while there is a robust market for peering, transit, and CDN

- Content providers should pay for getting the data close to the ISPs' end users
- ISPs' subscribers pay for the last-mile network

How is Netflix helping ISPs?

- Anyone can peer with Netflix on public peering fabrics in common IX's
- Any ISP with more than 2 Gbps of Netflix traffic in a given region can receive dedicated 10Gbps PNI
  - peering@netflix.com
  - http://as2906.peeringdb.com
- ISPs who have concentrations of Netflix traffic in specific metro areas can receive Open Connect Appliances free of charge (requires 10Gbps port)
  - http://openconnect.netflix.com

Enter the Netflix Open Connect Appliance

High storage density in a small package

- 4U high, less than 24” deep
- ~500W of power consumption
- 100+ TB of storage
- AC or DC power
- No field service
  - Tolerates drive failures, power supply failures, etc. without interaction
- 10Gbit SFP+ port
  - BYO Optic capable (we ship with LR)

We enable ISPs to be able to control the the flow of Netflix traffic on their networks

- Every appliance peers via BGP
- We honor MEDs, allowing you to
  - Tier caches
  - Control fail-over
  - Build clusters of caches
- Each appliance is capable of 80% offload of Netflix traffic
  - Multiple appliances acting as a cluster can offload 95+%
  - When combined with peering, a network can sustain 100% offload from upstream connectivity during peak hours
- Appliances only fill during off hours
  - Generally 2AM-6AM local time (configurable)

We enable ISPs to be able to control the the flow of Netflix traffic on their networks

- Peering functions similarly to caching
  - MEDs sent to peering points factor into the same tiered system for caches
- We're in common peering points in the markets that we serve
- We will transition to serving 100% of our traffic over this infrastructure over time

Questions?

- http://openconnect.netflix.com
- dtemkin@netflix.com

Thanks!