





Netflix Content Delivery

UKNOF – Q1 2012

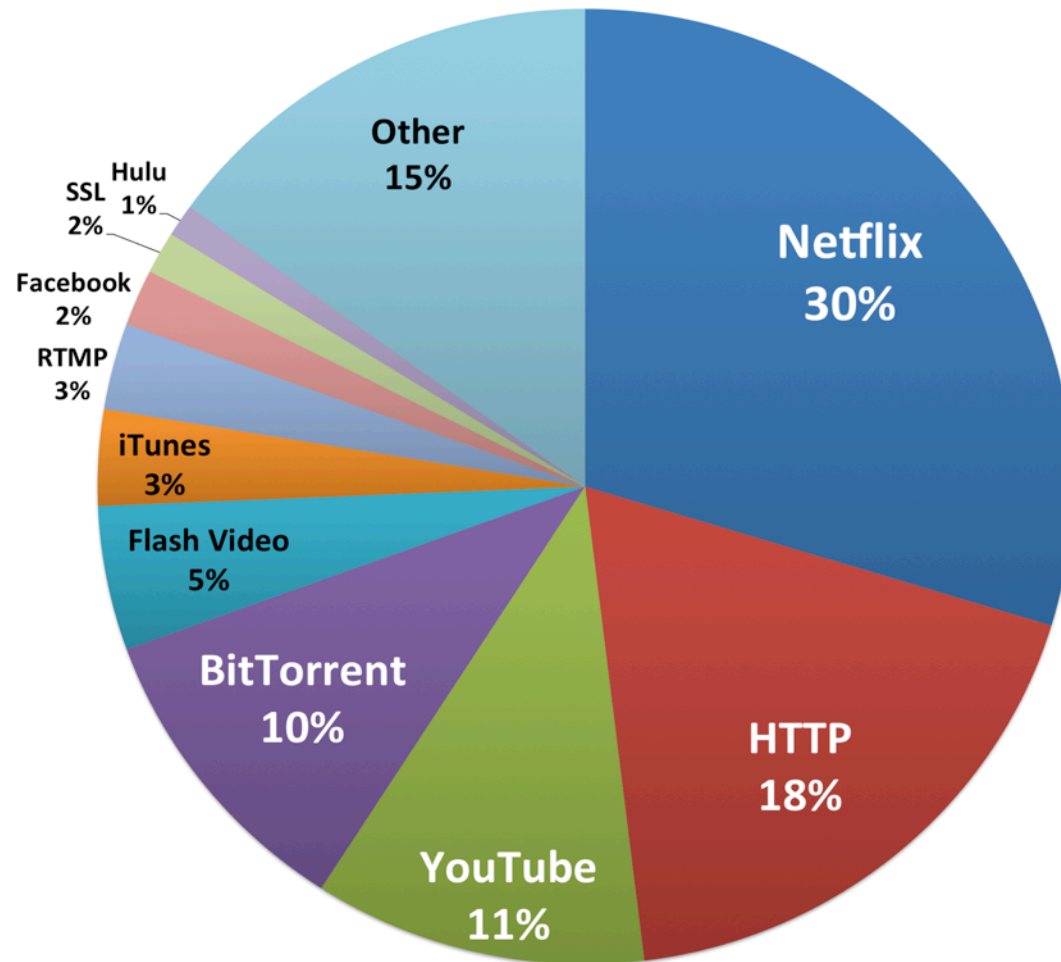
Netflix - Unlimited films & TV episodes for £ 5.99 per month



Start your free trial here

- ✓ Watch on your PS3, Wii, Xbox, PC, Mac, iPad, Apple TV, [more](#).
- ✓ Choose and instantly watch as much as you want — it's unlimited
- ✓ High quality video instantly streamed over the internet
- ✓ Over 100,000 people are joining Netflix every week
- ✓ Cancel at any time with just 3 clicks online — no hassles
-  See what your Facebook friends are watching & Netflix will share what you watch and more with your friends

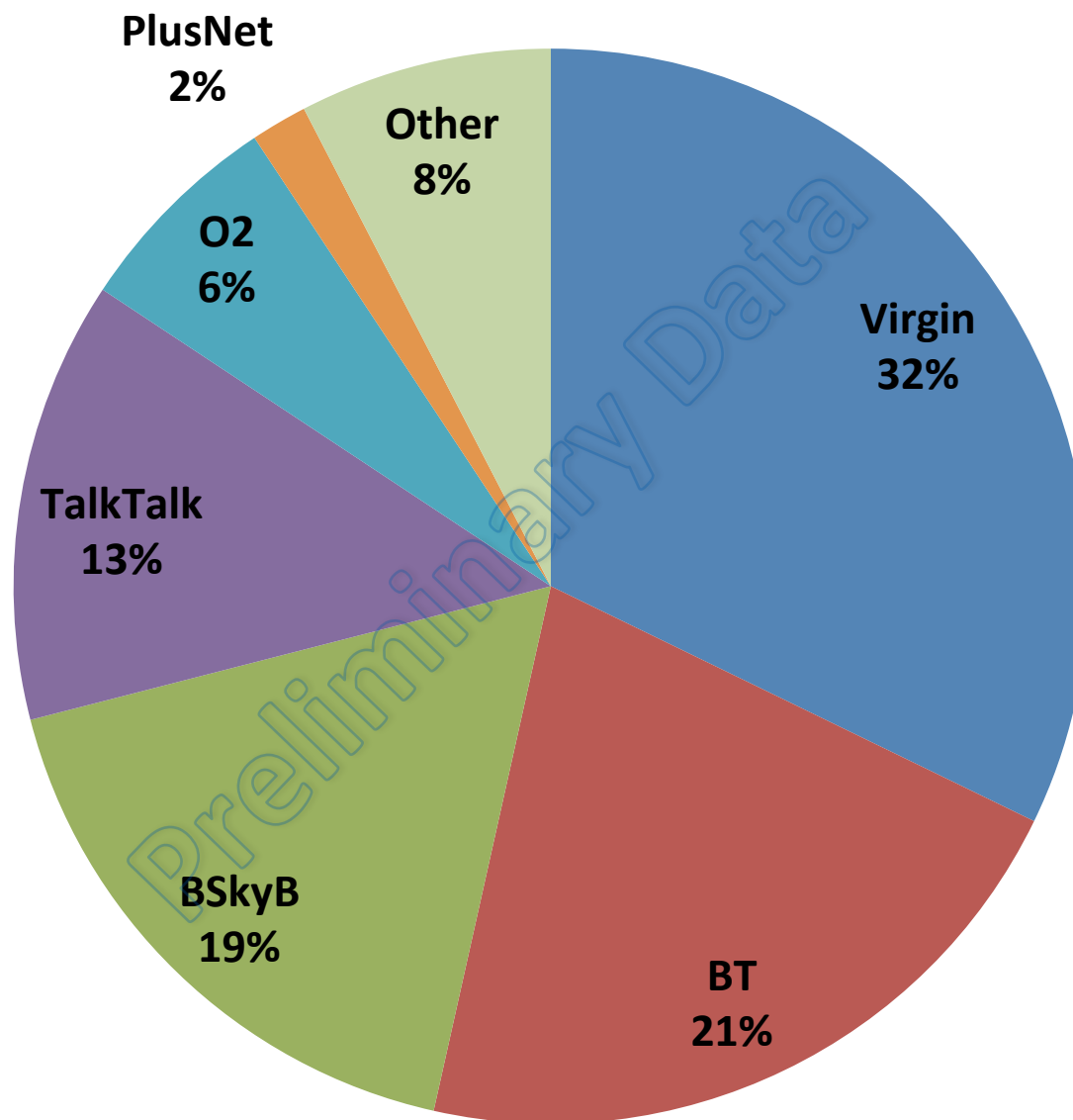
Netflix Share of US ISP Traffic



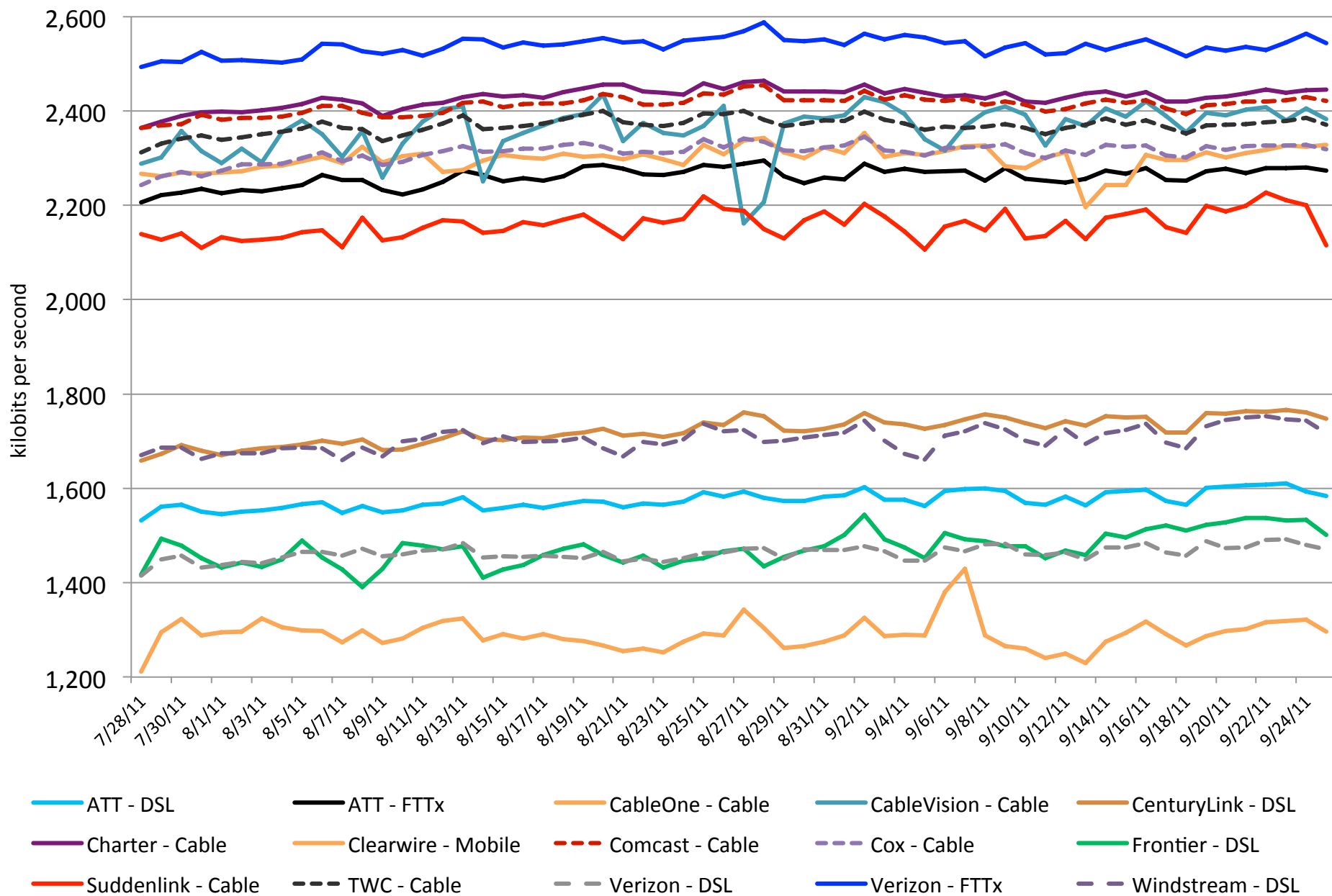
Netflix International Expansion

- Canada Autumn 2010
- 43 Countries in Latin America Autumn 2011
- UK/Ireland last week

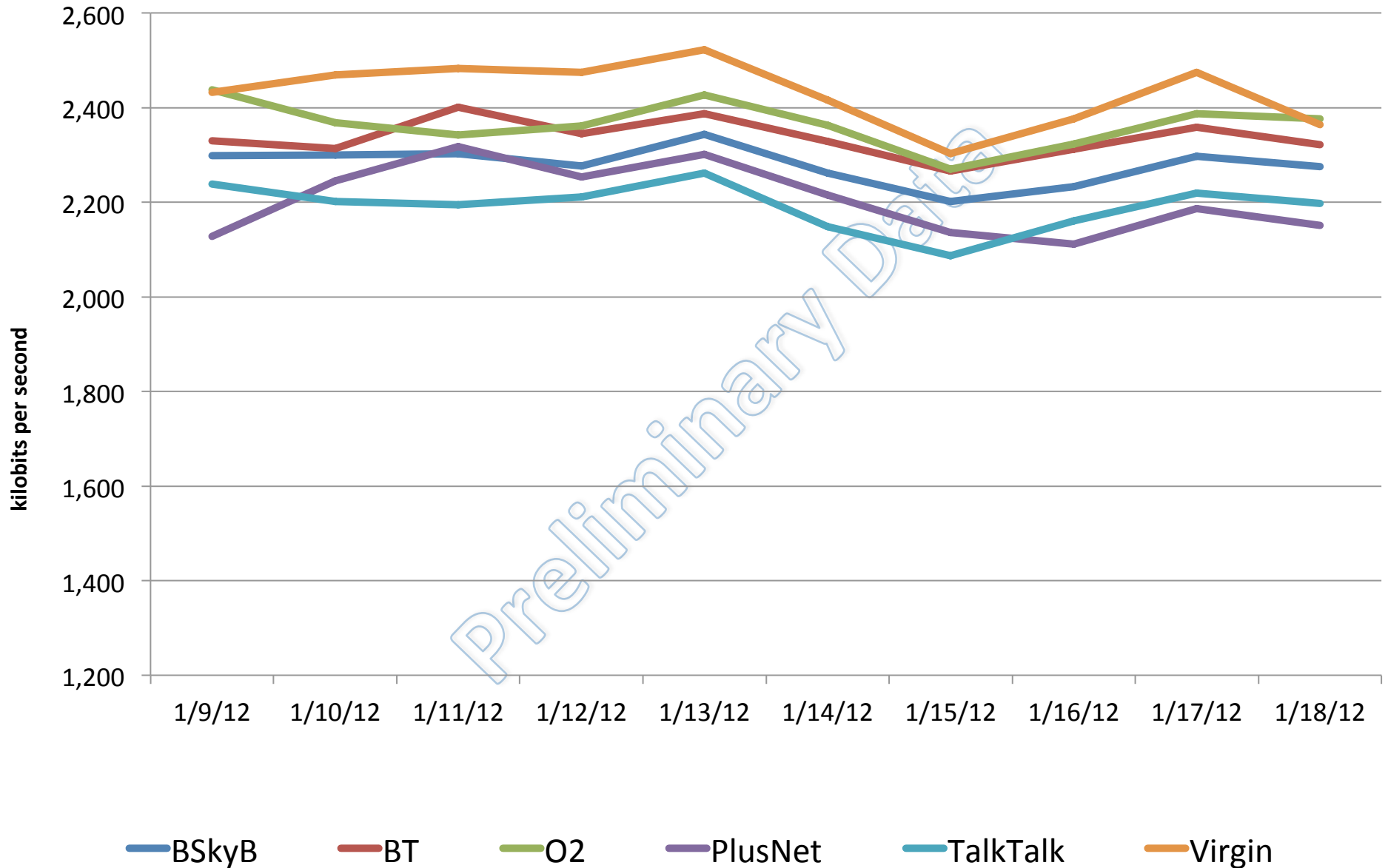
Share of Traffic Across UK Service Providers



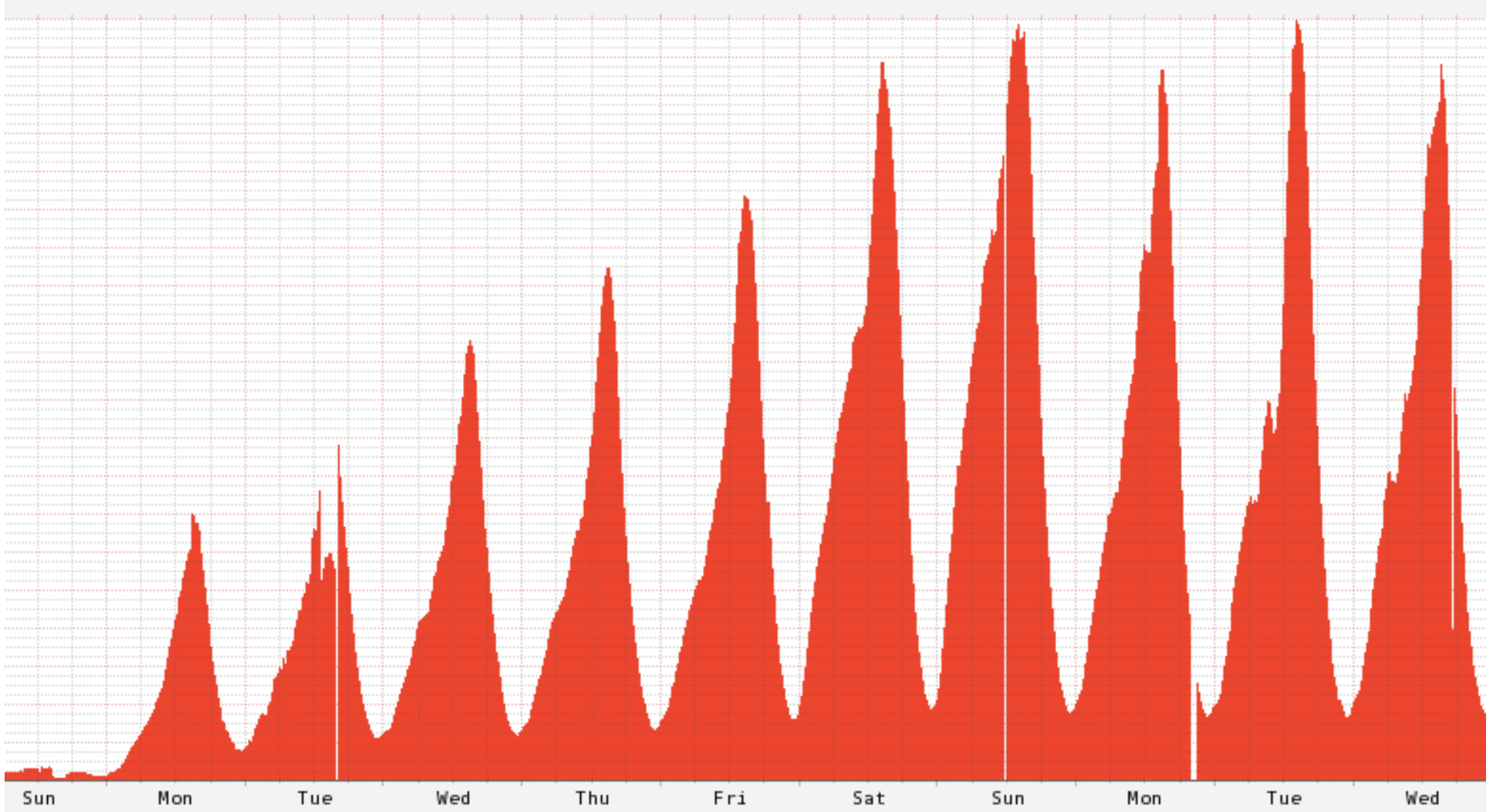
Netflix Performance on Top Networks - USA



Netflix Performance on UK Networks



From 0 to 10's of Gbps in 10 days



Currently Using Top Three Global CDNs

- Akamai
- Level3
- Limelight
- Traffic share directed by client-measured network performance and commercial considerations

Netflix-Developed Adaptive Client

- All content delivered via HTTP
- Clients actively measure network performance to select bitrate and CDN
 - Stream start
 - During playback
- Very large library of catalog titles
- Wide distribution of viewing across the entire library driven by highly personalized recommendation engine

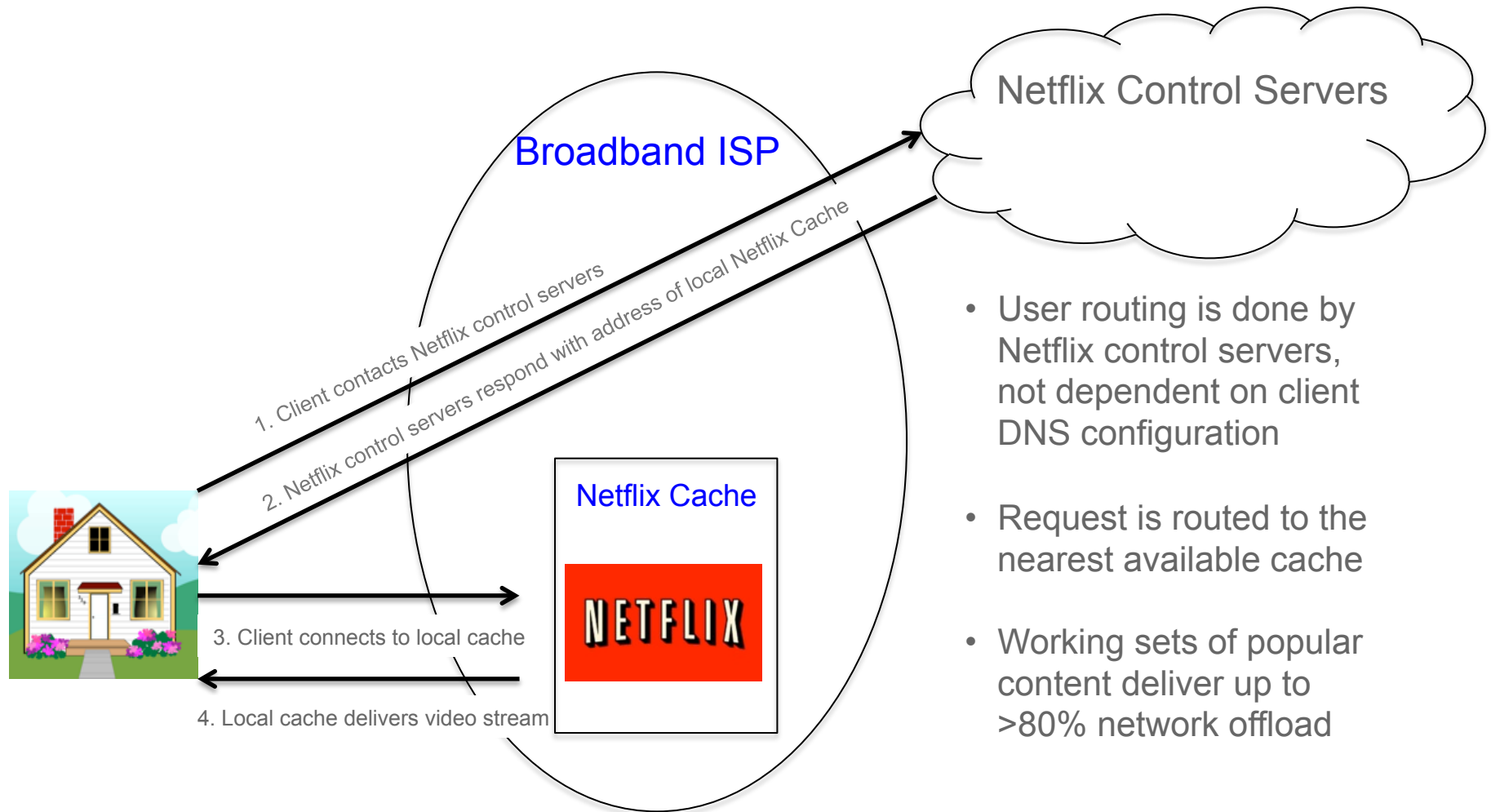
Helping Service Providers Scale Netflix Delivery

- Performance statistics
- Traffic forecast under mutual NDA
- Embedded caching with larger providers (>5 Gbps)
- Peering for smaller providers (<5 Gbps)

The Netflix Cache

- Serve >80% of Netflix traffic from the local ISP datacenter
 - Saves on transit, transport and other upstream scaling costs
- ISP provides rack space, power, 10 Gbps optical port(s)
- Used exclusively for Netflix content
- Completely integrated with the Netflix content delivery system
- Fill content outside peak times

Directing Clients to Caches



Cache Hardware & Software

- Space optimized: 4U high-density storage
- Power optimized for low power/cooling requirements ($\approx 500\text{W}$)
- 10GE optical network interfaces
- FreeBSD
- nginx high-performance web server

Network Planning and Failover

- Uses BGP to associate client networks to caches
- Uses BGP MEDs to create hierarchy giving service providers control over traffic
- Typical configuration includes N+1 redundancy
- Cache requires no field service

Questions?

Contact us: cache@netflix.com

