Survival of the Fittest: Findings of an Internet Fairness Watchdog

Adithya Abraham Philip, Rukshani Athapathu, Ranysha Ware, Cheko Mkocheko, Srinivasan Seshan, Justine Sherry

Under review

The Good, the Bad, and the Ugly

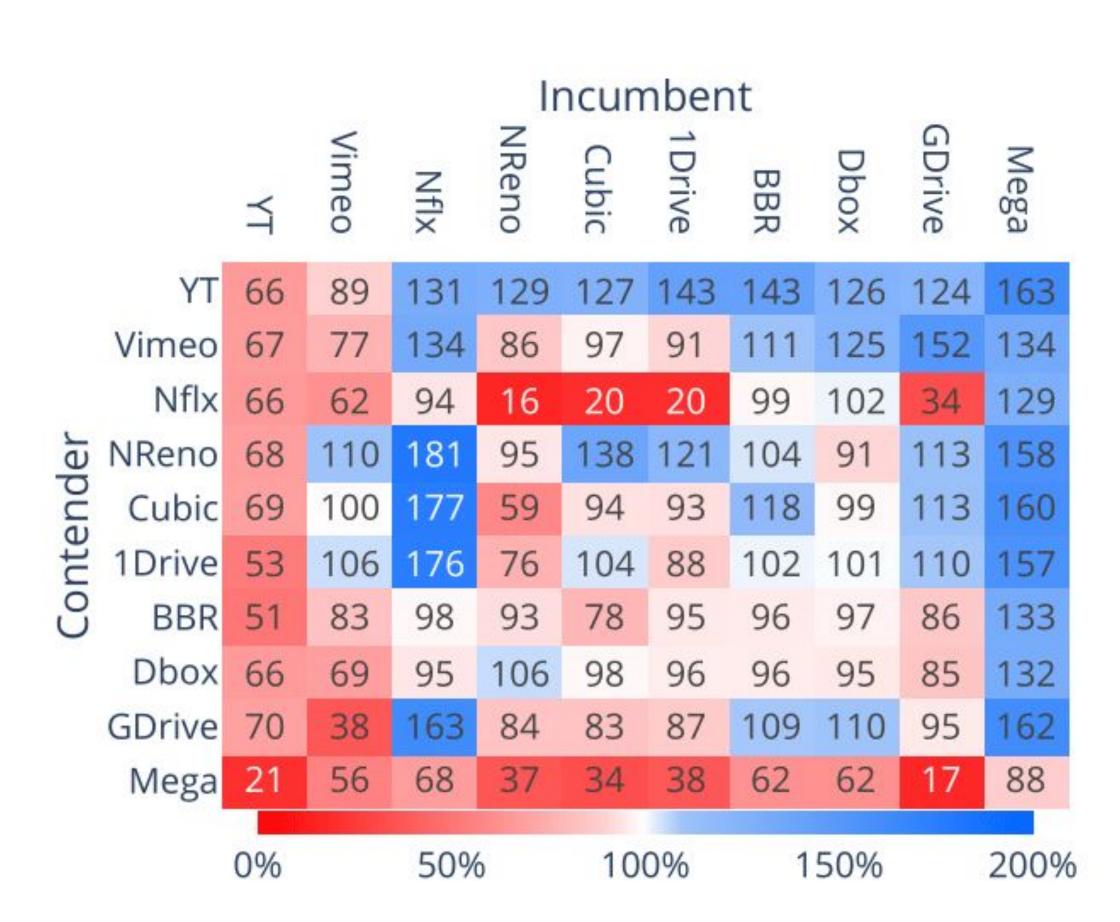
- Video services, NewReno, Cubic most fair
- Mega is extremely unfair at 8 Mbps/50 Mbps
- Avg competing service: 47%/60% of fair share
- Netflix is extremely unfair at 8 Mbps
 - Avg competing service: 60% of fair share
- 20% of service interactions result in < 50% of fair share!

Methodology

- Two bandwidth settings:
 - Highly Constrained: 8 Mbps
 - Moderately Constrained: 50 Mbps
- Pairwise evaluation of 10 popular file hosting and video services, and 3 popular websites

Fraction of fair share obtained by "Incumbent" when competing against "Contender":

Red is UNFAIR!

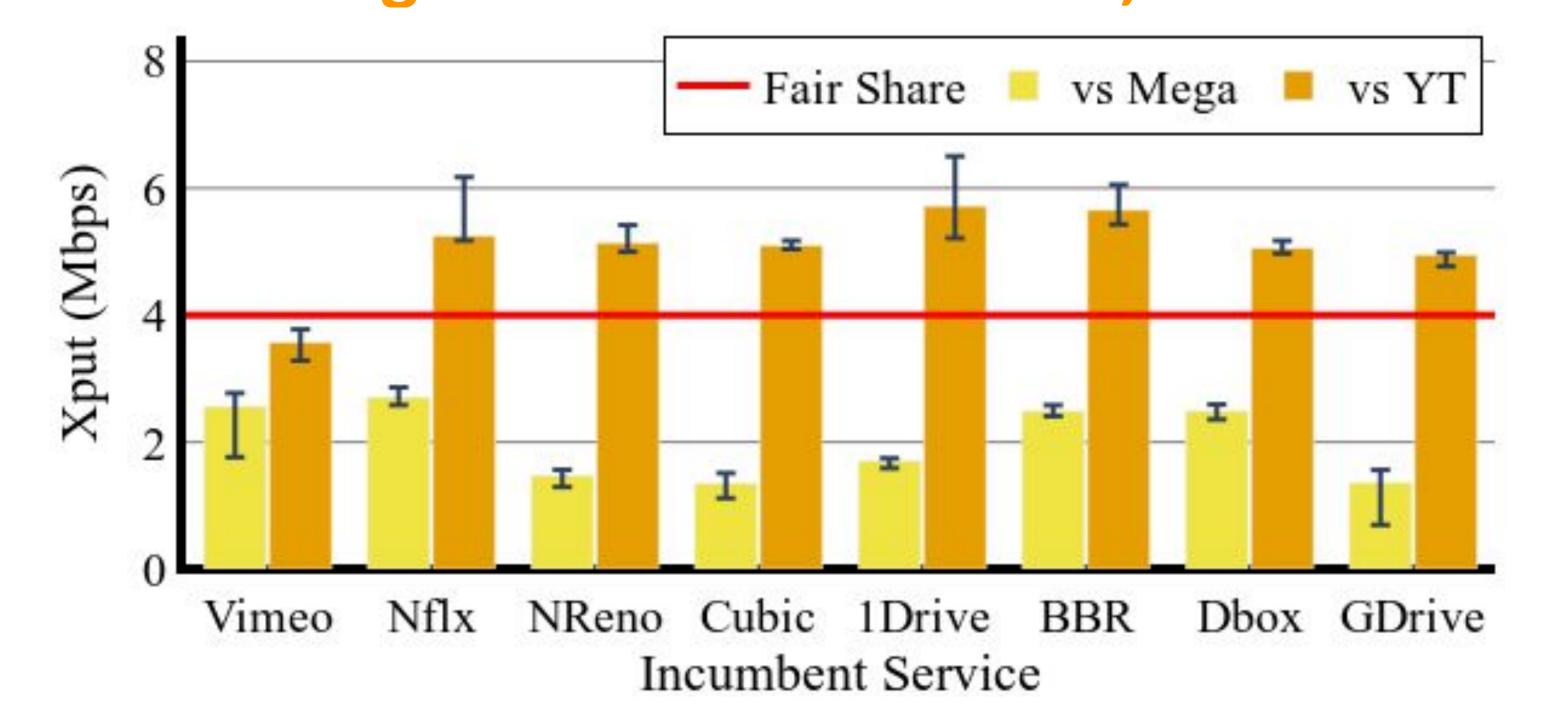


8 Mbps Setting

NReno 98	58	98	86	176	148	94	94	124	145	
O BBR	58	48	100	102	110	108	93	94	100	102
O BDrive	105	35	95	73	85	85	87	93	95	116
Mega	104	104	95	22	27	16	88	87	70	82

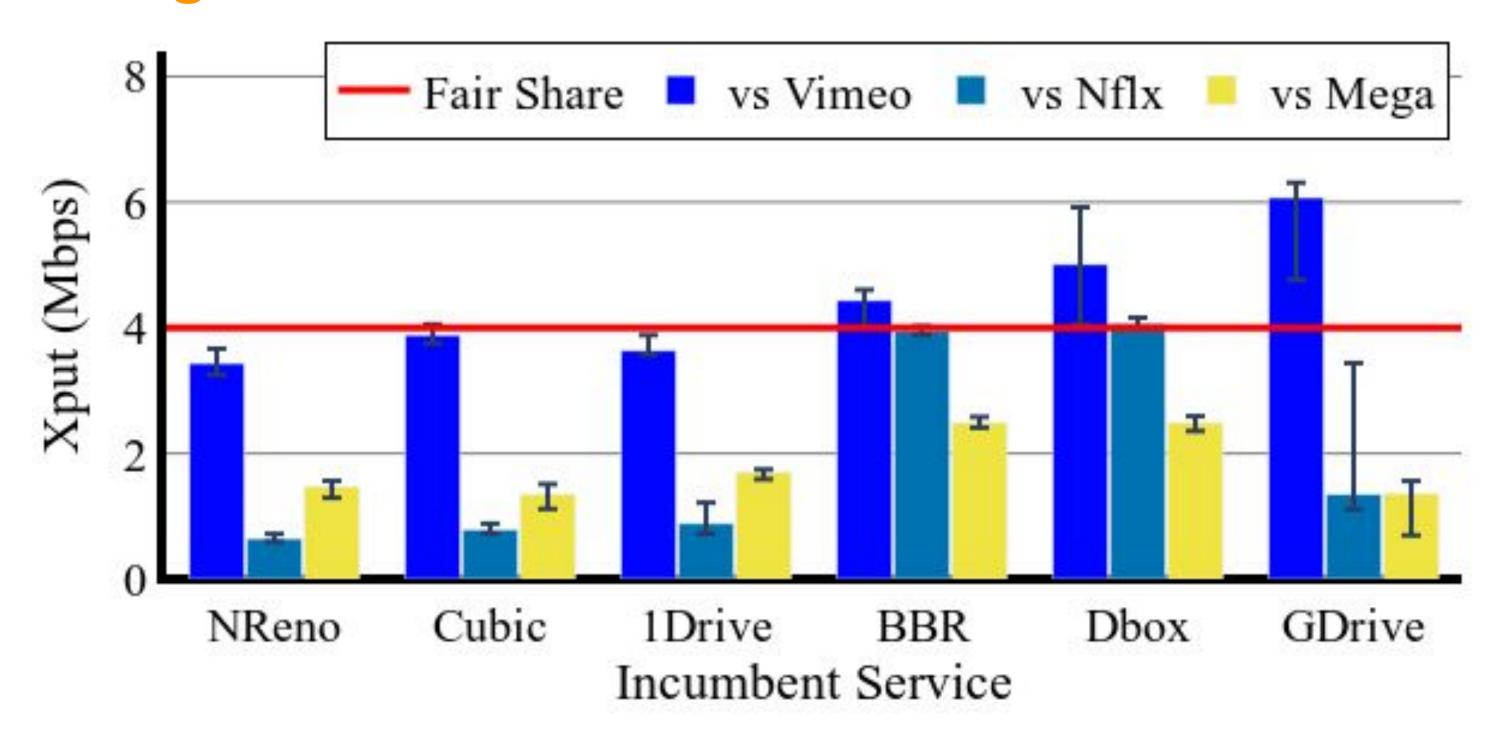
50 Mbps Setting

Finding #1: Evaluate services, not CCAs



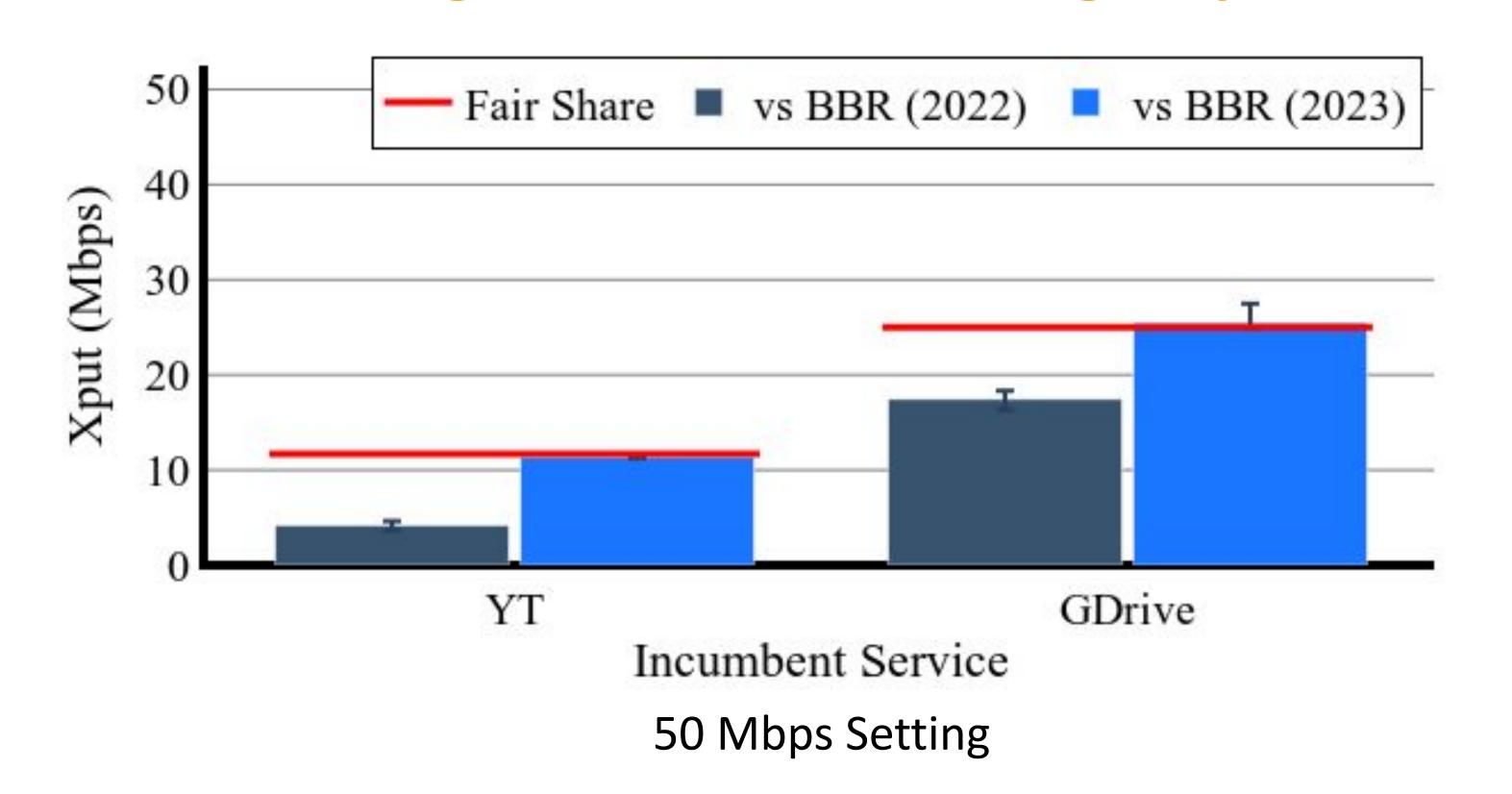
8 Mbps Setting

Finding #2: Multi-flow services cause extreme unfairness



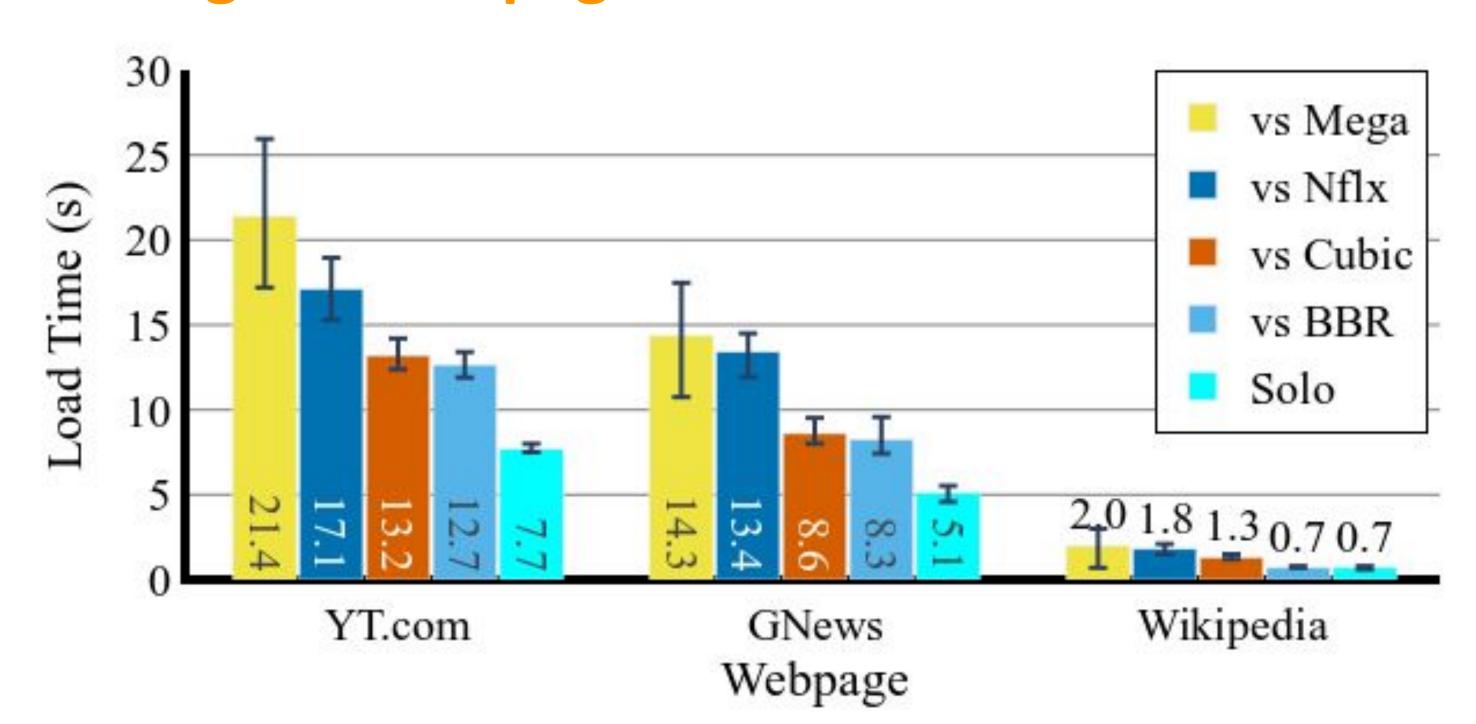
8 Mbps Setting

Finding #3: Live monitoring required



See more at http://www.internetfairness.net/

Finding #4: Webpage load times increase almost 3X!



8 Mbps Setting

