Power and protect
life online

The OTT Challenge

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The OTT Challenge?

By definition, no single entity is responsible for the end-to-end quality, for example:

❑ Broadcasters are responsible for Encoders

❑ CDN is responsible for Ingest, servers, delivery and security for its customers

❑ Local carrier ISP is responsible for First Mile and Last Mile

❑ ISP End User is responsible for Device

❑ Who is responsible for the performance?
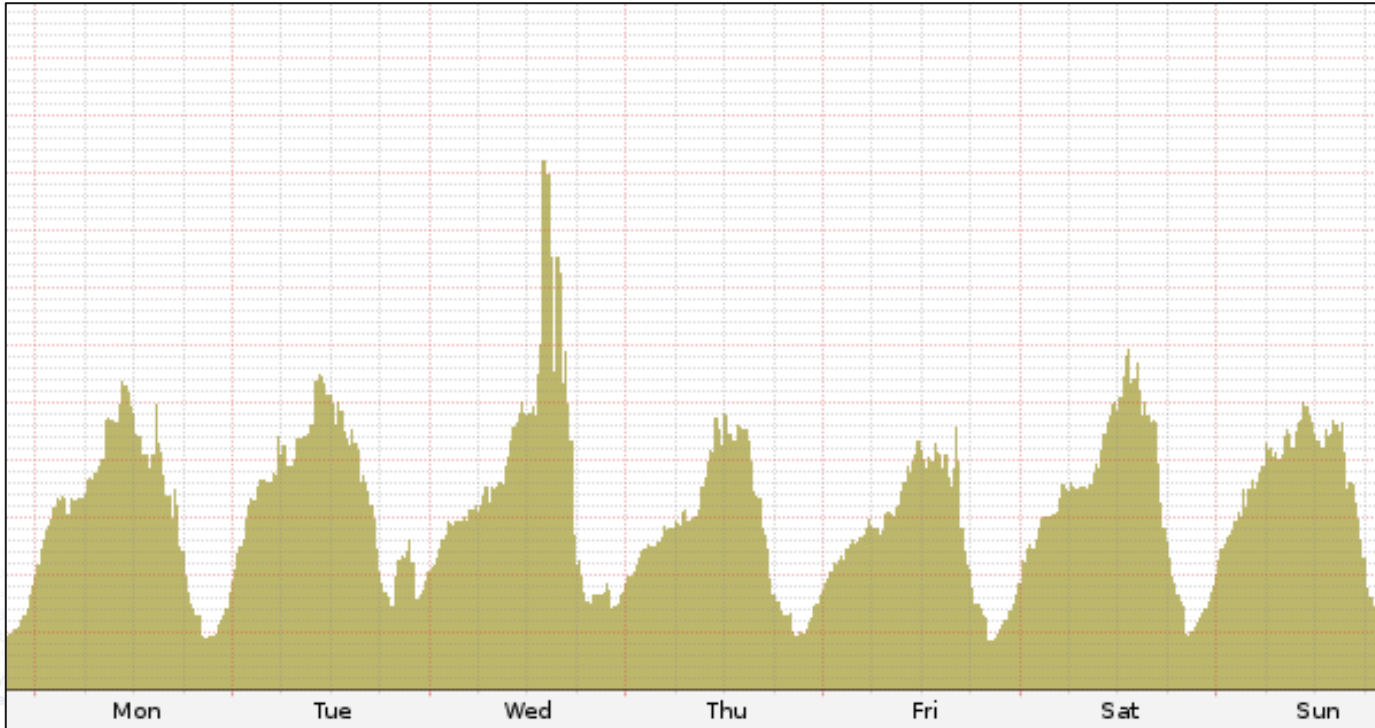
❑ **All of us are the stake holders**

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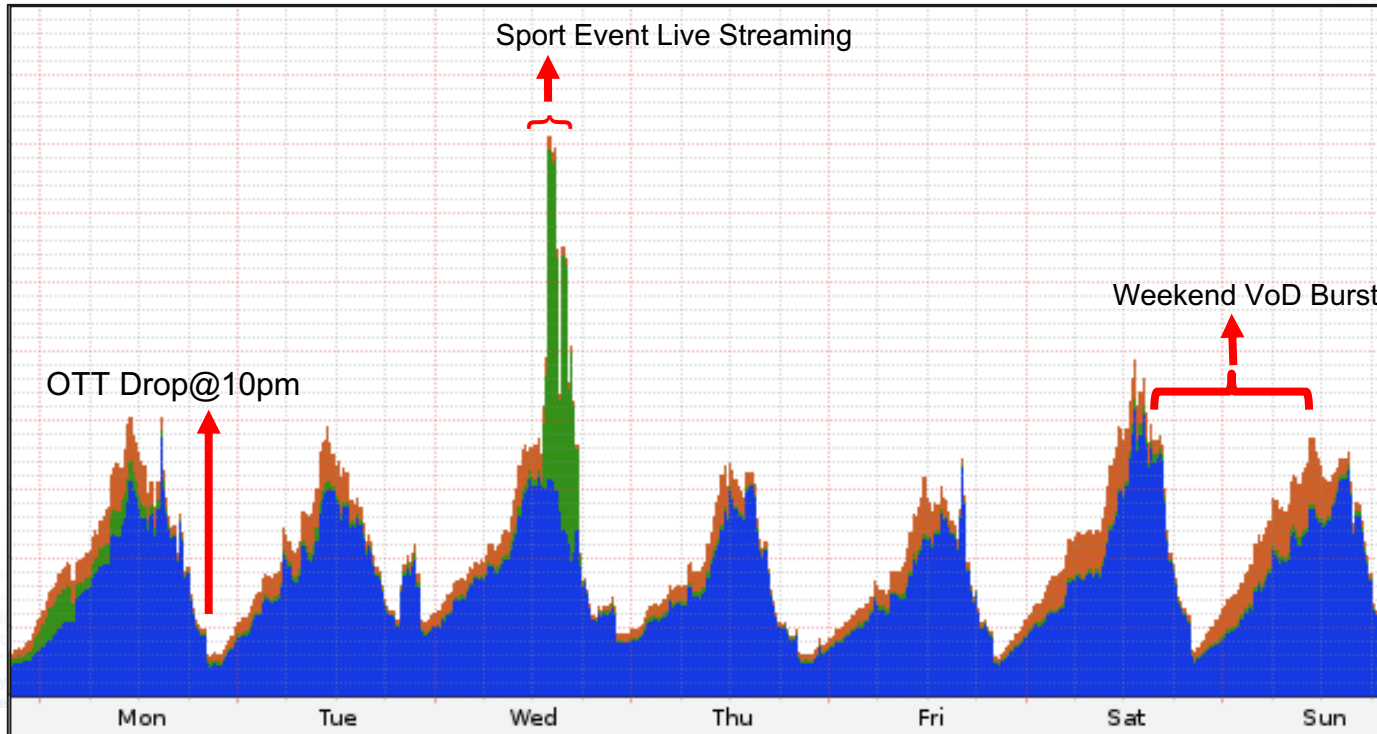
The OTT Traffic Trend

CDN Point of View

OTT Traffic Pattern : The New Normal

❑ What the ISP sees while monitoring traffic.

OTT Traffic Pattern : The New Normal

❑ Overlay of Live Sports (Green), OTT/gaming/software updates (Blue) and others (represented by Brown)

Sport Event Live Streaming

Weekend VoD Burst

OTT Drop@10pm

Mon   Tue   Wed   Thu   Fri   Sat   Sun

What are the Benefits

ISP End Users and
Content Owner

ISP End Users Benefits

❑ Access the video content from anywhere, any devices, anytime

  ❑ Mobile network / Wifi / home broadband from metro station, bus, cafe, home; etc

  ❑ Multi-device such as Tablet, Phone, Set Top Box, Game Console, Laptop; etc

❑ Fast startup times and minimal delay

  ❑ Video plays instantly, Minimal buffering time and delay

❑ Video quality comparable to Traditional / Linear TV

  ❑ Higher bit rate e.g. HD / 4K / 8K

  ❑ Minimal re-buffering or freezing

❑ Personalized and Interactive video

  ❑ Localized and interactive content for Music videos, Animation, Live Sport, Hollywood, Bollywood

  ❑ End user can consume or broadcast Live Streaming on gaming and daily life

❑ Expectation - Minimal/No Ads, Minimal/No subscription fee

Content/Broadcaster Benefits

❑ Audience Engagement

 ❑ Concurrent viewers, visits, plays, play duration, low abandonment rate
 ❑ Personalize and Interactive Content

❑ Quality Video

 ❑ Availability, startup time, re-buffering, bit rate

❑ Monetize Content / Traffic

 ❑ Premium Content / Subscription Base / Target advertising

❑ Copyright Protection

 ❑ DRM / Media Encryption / End to end SSL

❑ Support all devices, platforms and formats

❑ Scalable capacity for Traffic Spikes (concert / sporting event / user generated live content/ movie launch/ software/game release)

 ❑ Low Cost of delivery

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How can ISP's help?

The OTT Challenge

What can ISPs Help? Key Takeaways

- ❑ Know your end customers internet usage and its characteristics

- ❑ Monitor end user performance statistics

- ❑ Be aware of the trend and popular festival driven content/ sporting events/ gaming and software updates

- ❑ Attend conference and NOGs to understand new trends and new technology

- ❑ Arranging intermediate BGP and Security training for network engineers so the right kind of questions and replies are available while planning of network and dealing with network outages

- ❑ Subscribe to internet and security reports ex. Akamai SOTI security report

- ❑ Closely collaborate with IX, Internet community and forums for market trends and proactively plan capacity

- ❑ Its always handy to have spare capacity on transit and IX to deal with emergency and outages

How can CDN help?

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Akamai Approach

- Partnering with DC and Internet Exchanges to provide coverage through peering
    - Akamai was the first CDN to pass traffic at over 100 IX locations
        - This took 15 years! (2000 – 2015)
    - Current IX connected: 183
    - Fair number of IX connected in India….and growing…
- Hardware
    - Upgrade servers in carrier neutral DC facilities every few years
    - Increase interface capacity
    - Decrease server size and power consumption
    - Use bigger SSD and HD in each server generation
    - End Goal - Increase throughput per server with each new server generation
- Software
    - The secret sauce to Akamai's success
    - Matured over the years to scale ever increasing capacity, concurrency and security

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Akamai Approach

- ❑ Capacity Planning Cycle
  - ❑ Closely collaborate with ISP
  - ❑ Review the traffic profiles
  - ❑ Lower distance to end users
  - ❑ Maximize burst capability
  - ❑ Reduce ISP backbone usage
  - ❑ Peer with ISP on all commonly present IX
  - ❑ Encourage IPv6 to both ISPs and Content Owners, which usually improve throughput and removes CGNAT in many scenarios

- ❑ Operation
  - ❑ 24x7 Network Operations Control Center (NOCC), Broadcast Operations Control Center (BOCC) and security Operations Control Center (BOCC) to help content partners and ISPs alike

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Summary

❑ End users expect OTT to be comparable or better than Linear TV

❑ By OTT definition, no single entity is responsible for the end-to-end quality, we all are the stakeholders

❑ The best solution is collaboration among all stake holders to ensure the end user experience

❑ ISP operations/NOC should be trained and qualified to ask right questions while planning/trouble shooting issues

❑ ISP can collaborate with CDN and IX closely for understanding the trend and capacity planning

❑ Akamai collaborates with larger ISP and IX's closely on capacity planning

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Reach Akamai at….

❑ Peering requests: peering@akamai.com

❑ https://www.akamai.com/why-akamai/network-operator/akamai-network-partnerships

❑ PeeringDB: https://www.peeringdb.com/net/2

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