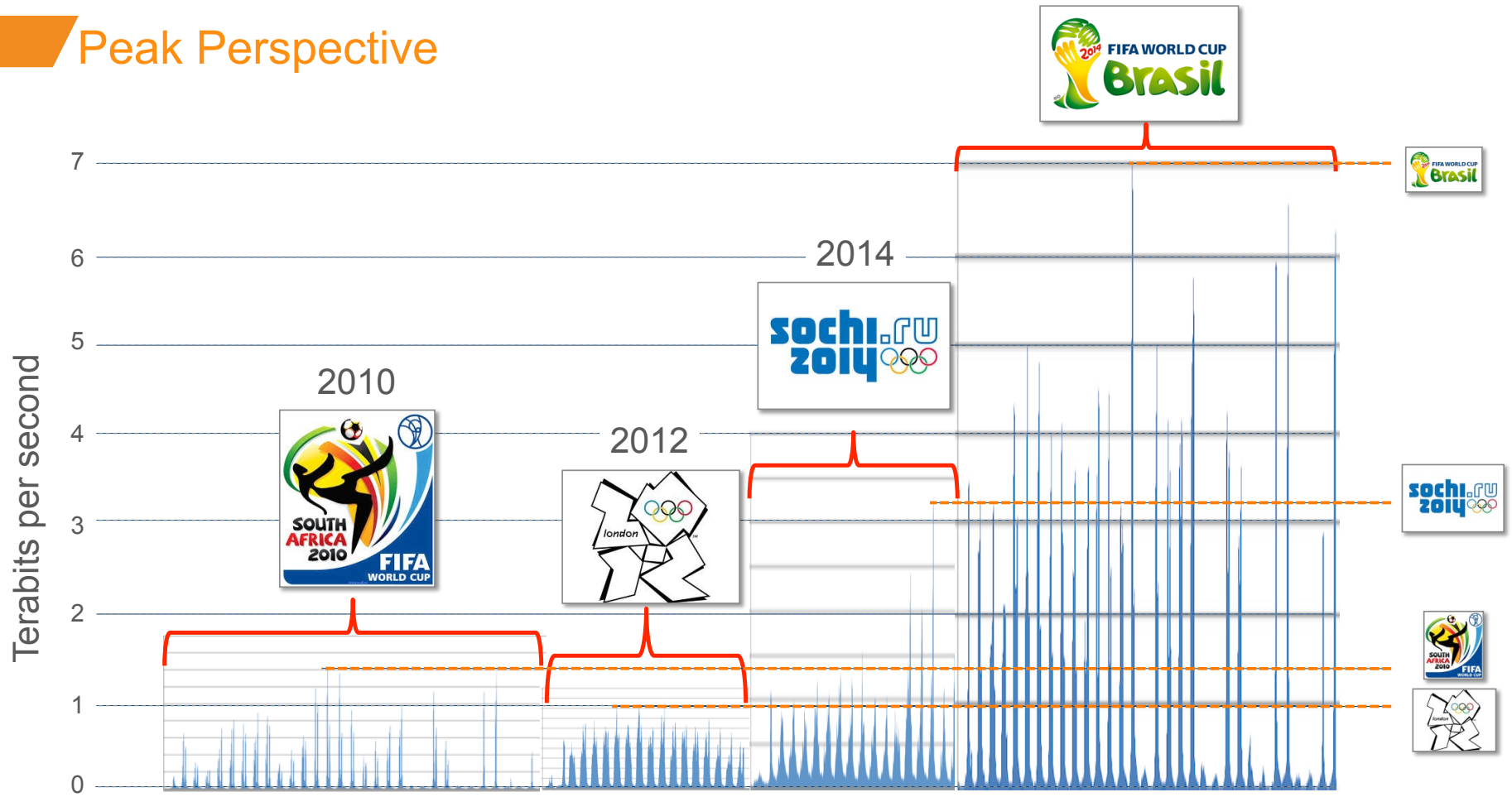# Will video break the internet?

Guido Hettema

Agenda

- What is a CDN – 10 min
- Trends seen, forecasting our future – 10 min
- Numbers aligned with trends – 5 min
- What's the target and how do we get there! – 10 min
- Closing remarks – 5 min

What is a CDN?

Single Source
Format

Akamai Media &
Delivery Solutions

Device-matched
Stream output

VoD Files

MP4

HDS

Live Streams

RTMP

Intelligent in-cloud packaging
for on-the-fly format matching

HLS

iOS

Peak Perspective

©2014 AKAMAI | FASTER FORWARD™

Evolution of Online Video

81% CAGR!

7,000x
7 Tbps

World Cup

1.4 Tbps

1.3 Tbps

444 Gbps

1.08 Tbps

4G LTE

1Gbps

5.9 Gbps

21.0 Gbps

hulu

VOTE

BBC iPlayer

tv

1999 2002 2004 2007 2008 2009 2010 2011 2012 **2013** **2014+**

©2014 AKAMAI | *FASTER FORWARD™*

Trends in Media Delivery

Viewers Demand Higher Quality

Broadcast is the benchmark

Faster starts, no pauses

Better resolution

- (Retina Displays, 4K/UHD)

4K ULTRA HD

Online Audiences Are Growing

World Cup: >10M unique viewers

Complexity is Increasing

More Devices, Formats, Network Types/Speeds,
Audience Mobility, Browsers, OSs, New Codecs,
Content Protection, Monetization, Authentication,
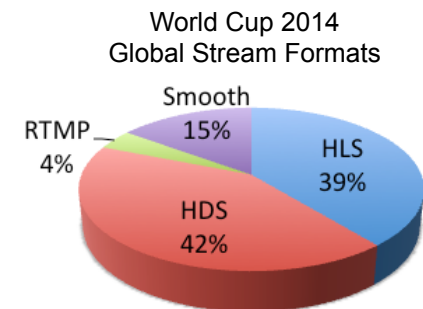Attack threats

Security is Assumed

Content owners expect that their content is protected
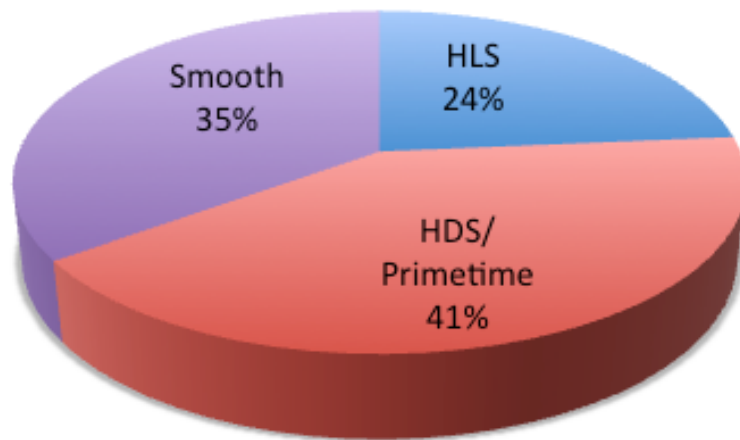from piracy

SECONDS COUNT
**Viewers begin leaving if video play
takes more than 2 seconds. Each added
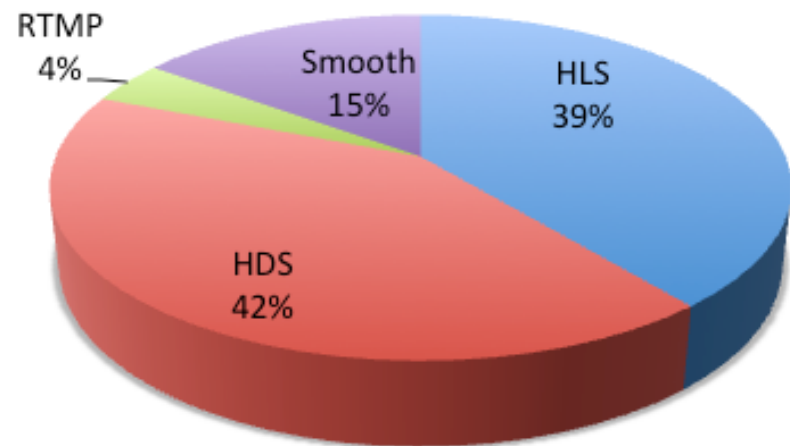second loses another 5% of audience.**

**No Dominant
Streaming
Format**

World Cup 2014
Global Stream Formats

Smooth
15%

RTMP
4%

HLS
39%

HDS
42%

Mobile on the Move

Sochi Games

Smooth 35%
HLS 24%
HDS/ Primetime 41%

World Cup

RTMP 4%
Smooth 15%
HLS 39%
HDS 42%

- Apple's HLS, a popular mobile format, was used for 39% of World Cup Traffic,
- HLS grew by 15% compared to Sochi
- Customers traditionally using Smooth tried HLS

81%

CAGR y/y

1.8Mbps

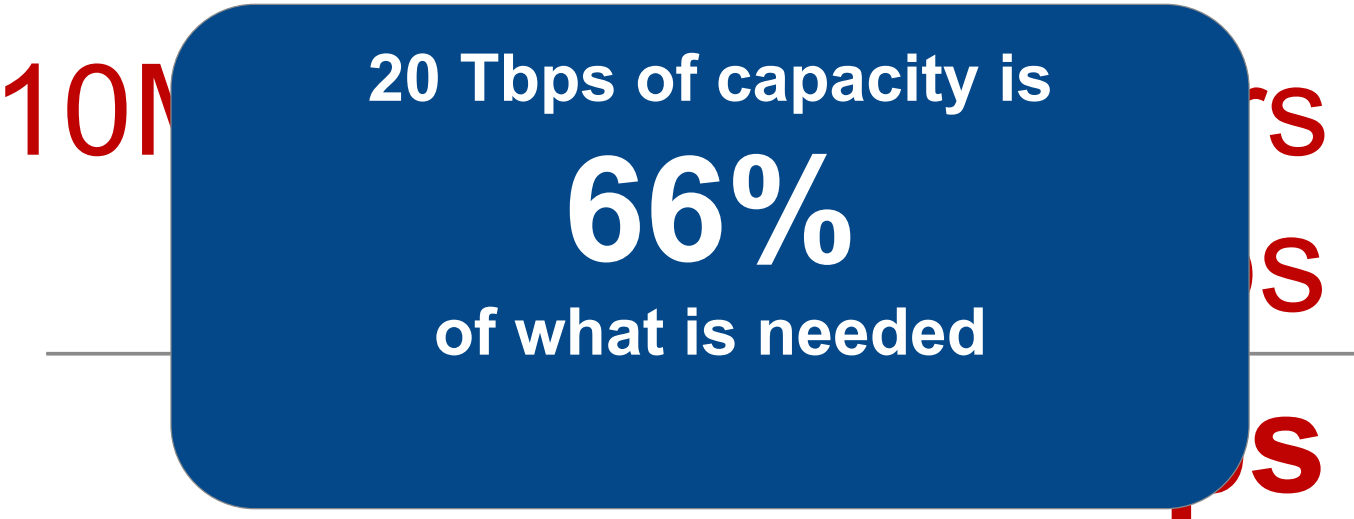## 50%

Avg bitrate growth

7Tbps

73%

Traffic (peak) growth

528.000

+20%

Viewers per minute

What is the Target?

What if… Primetime audiences shifted to online broadcast delivery?

10M

s

s

s

20 Tbps of capacity is

66%

of what is needed

How Do We Get There?

More Servers?

More Efficient Software and Hardware?
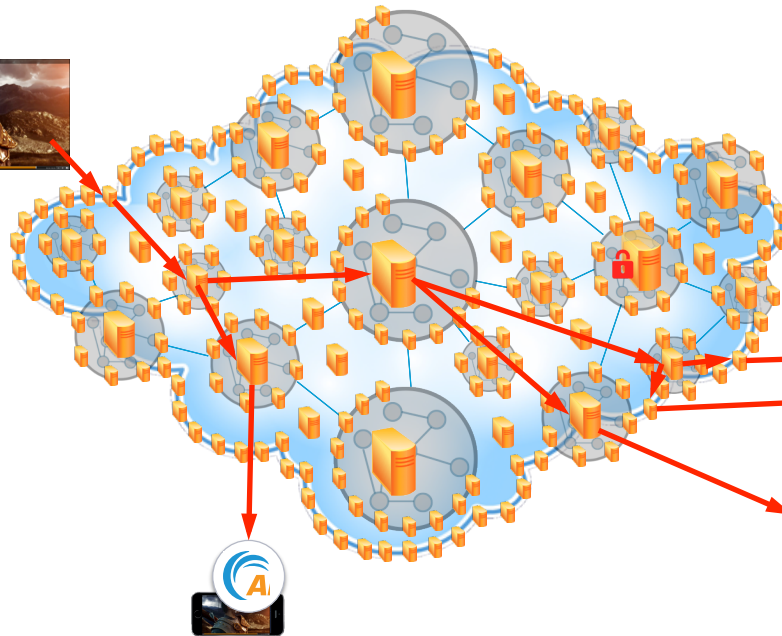
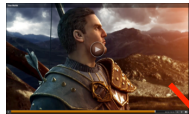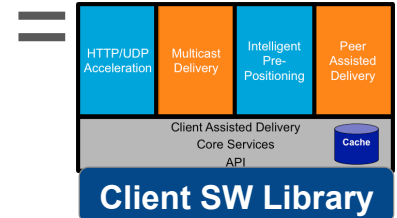Higher Capacity Connections?

All Necessary, but Insufficient

New Innovation is Needed

Akamai's Media Client Technology Initiative
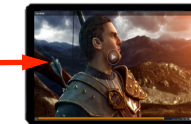## Multicast

- ☑ HTTP/UDP Unicast Acceleration
- ☑ Multicast

Leverages the Akamai Intelligent Platform's Global Footprint

Multicast

Residential Gateway

HTTP/UDP Acceleration	Multicast Delivery	Intelligent Pre-Positioning	Peer Assisted Delivery
Client Assisted Delivery Core Services API			Cache

Client SW Library

The Power of Combining These Media Client Services

The Next Generation CDN requirements cannot be addressed with a single technology

A "toolkit" of innovative technologies, leveraging intelligent end user devices, can address the online video challenge.

These new tools can be used in combination to solve a variety of problems
- For example: preposition first 10 minutes of high-demand content, and serve remainder of title with multicast stream of Hybrid HTTP/UDP

Closing remarks

- Cloud is answering scalability, security and performance matters
- Fast growing market – requires flexible environment
- Desktop Internet is like FM radio, Mobile is like Digital radio
- Traditional expansion measures not sufficient, hybrid solutions!
- Remember where we stood 1999 and now, 7000x as much traffic
- Innovate!