AMT Multicast

Scott Brown – GM, USA

NANOG52

6/15/2011

Presentation Outline

- Octoshape technology background
- Multicast suite overview
  - Simulated
  - Native
  - AMT
- Value Octoshape brings to Multicast

What is the challenge?

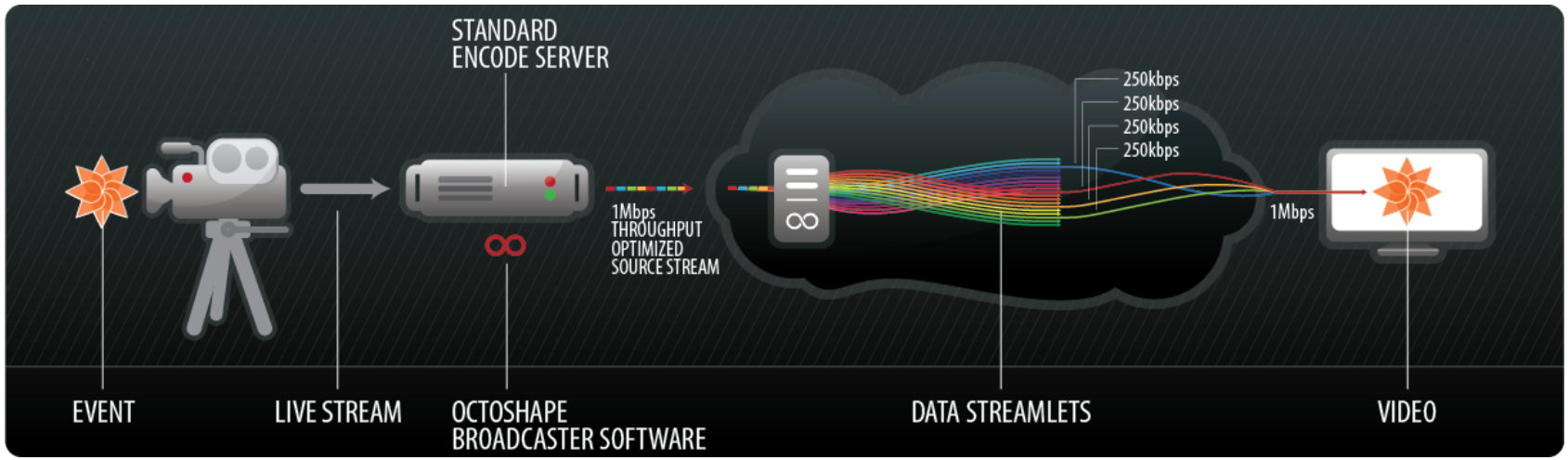
- Today streaming 2MM simultaneous @ 2Mbps is difficult and expensive to achieve even across multiple content distribution network providers.
- Trying to achieve this outside of the US, is simply not a reality.
- TV sized audiences are coming, and at relatively high quality.
- Ubiquitous Multicast adoption has been challenged by many things such as lack of resiliency over best effort networks, reporting challenges, complicated interdomain business discussions, fragmented platform support

What is Octoshape

- Streaming media technology
- Core transport utilizes a UDP + resilient coding scheme like similar to a FEC scheme but without overhead to the client.
- This core transport enables video delivery over best effort networks to perform more like video delivery over provisioned networks
- Octoshape also has a client side technology providing a consistent delivery platform across devices and OS's.
- The core transport enables Octoshape to leverage a suite of multicast technologies reliably over best effort networks
  - Simulated Multicast
  - Native Multicast
  - Automatic Multicast Tunneling

- Using these technologies together gives network operators a transparent path to achieve efficiency and quality today without having Multicast deployed, and puts the deployment timeline of AMT and Native multicast in the hands of the provider, without awareness to the end user.

How does it work?



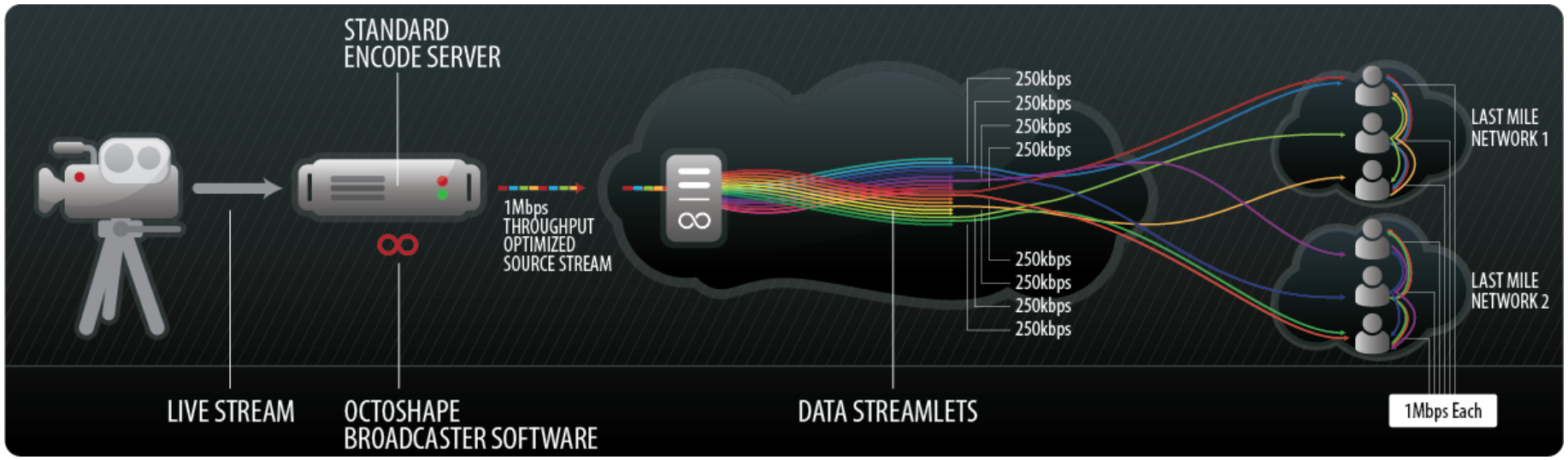
Octoshape was constructed in such a way to deliver high quality video over a pool of unreliable resources.

A stream is ingested into the system at the encoder, and throughput optimized up to the Octoshape streaming server complex

Once in the server complex it is broken up into many streamlets across the complex in such a way that all servers are equal from a data integrity perspective.

The client then pulls small bits of data from many server sources simultaneously, creating a multi path, and video source resilient flow. Packets gathered from any source can recreate the original flow. Sources can be selected, and the volume of data can be adjusted dynamically prioritized by the quality of the flow.

Simulated Multicast



In Simulated Multicast Mode, if other consumers are watching the same video stream, they can become valid sources of data if a quality flow can be achieved.

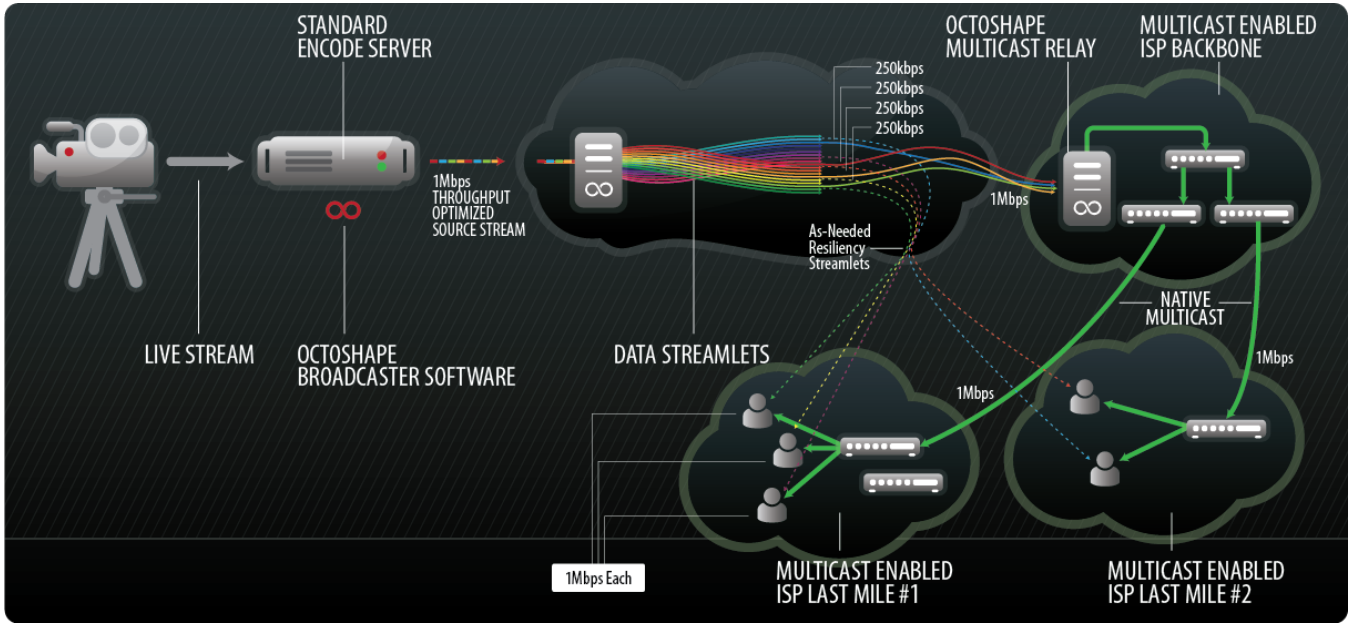
Small portions of data can be consumed, localizing traffic in the last mile.

There is no tracking mechanisms, the Octoshape client is not required to find specific packets or sequence numbers from specific sources. All sources, be it a consumer or server are equal.

This has a similar bandwidth efficiency effect to the last mile and backbone of the Internet by utilizing a conservative amount of available upstream bandwidth.

This can be deployed without any Multicast protocols deployed.

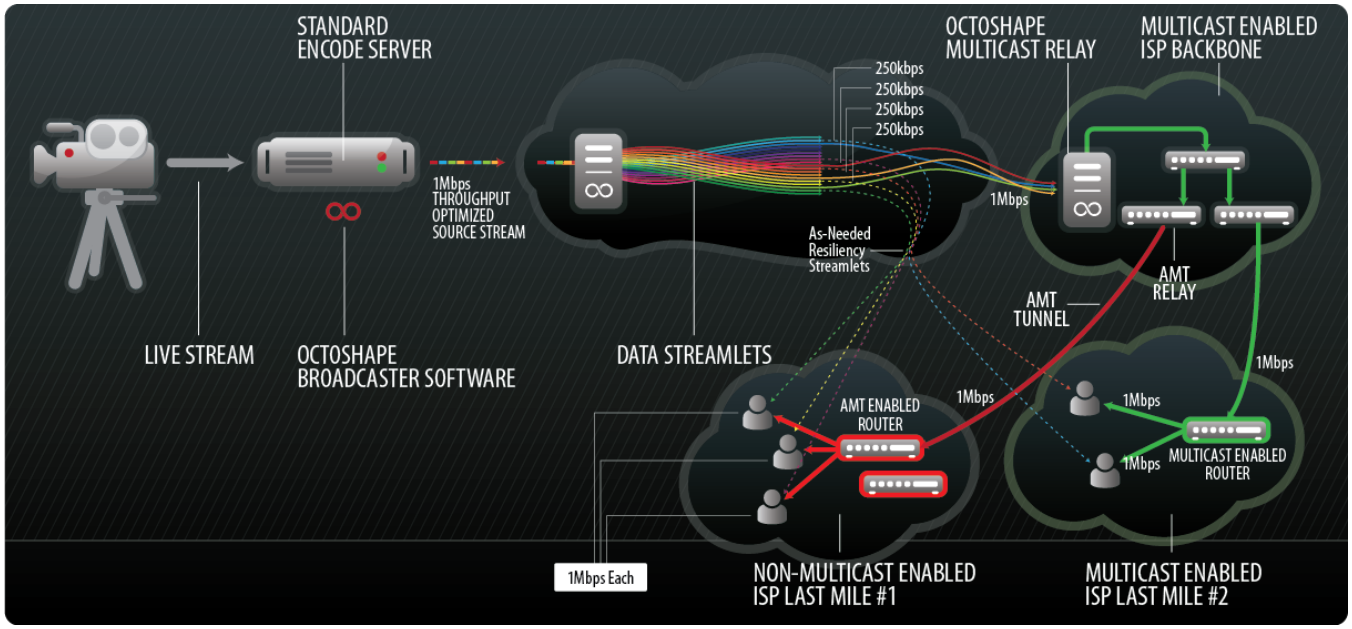
Native Multicast



Octoshape can also inject a resilient stream into a Native Multicast Domain.

- The client requests a stream
- Video data is delivered from the server infrastructure to get the video streaming immediately
- The client learns of other sources of video, and begins to pull data creating a resilient mesh of sources
- One of those sources learned is a Native Source Specific Multicast Address
- Octoshape tries a join, and once it gets a successful flow, begins releasing video sources from the server infrastructure
- Inside this Native Multicast flow is the Octoshape resilient coding scheme, so if there are any packet drops Octoshape is able to fill that loss with small resiliency data connections coming from the server infrastructure
- If any failures occur in the Multicast router process, or configuration, the user does not experience any issues with the video experience.

Automatic Multicast Tunneling



The Octoshape client has a AMT Gateway built in across platforms.

-If the client fails to join a Native S,G, it will send an anycast request out to find the closest AMT Relay

-If a valid AMT is found, Octoshape will begin to let go of video sources from the server infrastructure

-If any packets are dropped, the video experience survives due to the Octoshape resilient coding scheme and resilient flows coming from the server infrastructure

Summary

Octoshape allows network providers to deliver high quality, consistent bit rate video experiences to consumers while enjoying efficiencies similar to Native Multicast, using the Octoshape Simulated Multicast technology.

This creates a path to allow a Native or AMT Multicast deployment in good time, at the pace in the network providers control. Octoshape will take advantage of the AMT and Native Multicast as deployed. As it is deployed the more efficiency gained and more deterministic the flows become, all transparent to the consumer.

What Octoshape brings to Multicast:

Inherent Resiliency: Opening up for Multicast over Best Effort Networks

Multi-Bitrate: The Octoshape Multi-bitrate technologies work inherently with Multicast

Multi-Platform: Octoshape is demonstrable on (Windows, Linux, Osx, iOS, Android)

Multicast Domain Traversal: Octoshape can push resilient stream flows over the Internet and inject them into Native Multicast domains globally

Reporting: Octoshape has client side reporting, facilitating byte delivered accounting

Thank You!

White Paper:
http://bit.ly/octosolution