The Grand Unification of Video

Bruce Davie
Richard Maunder

{bsd,rmaunder}@cisco.com

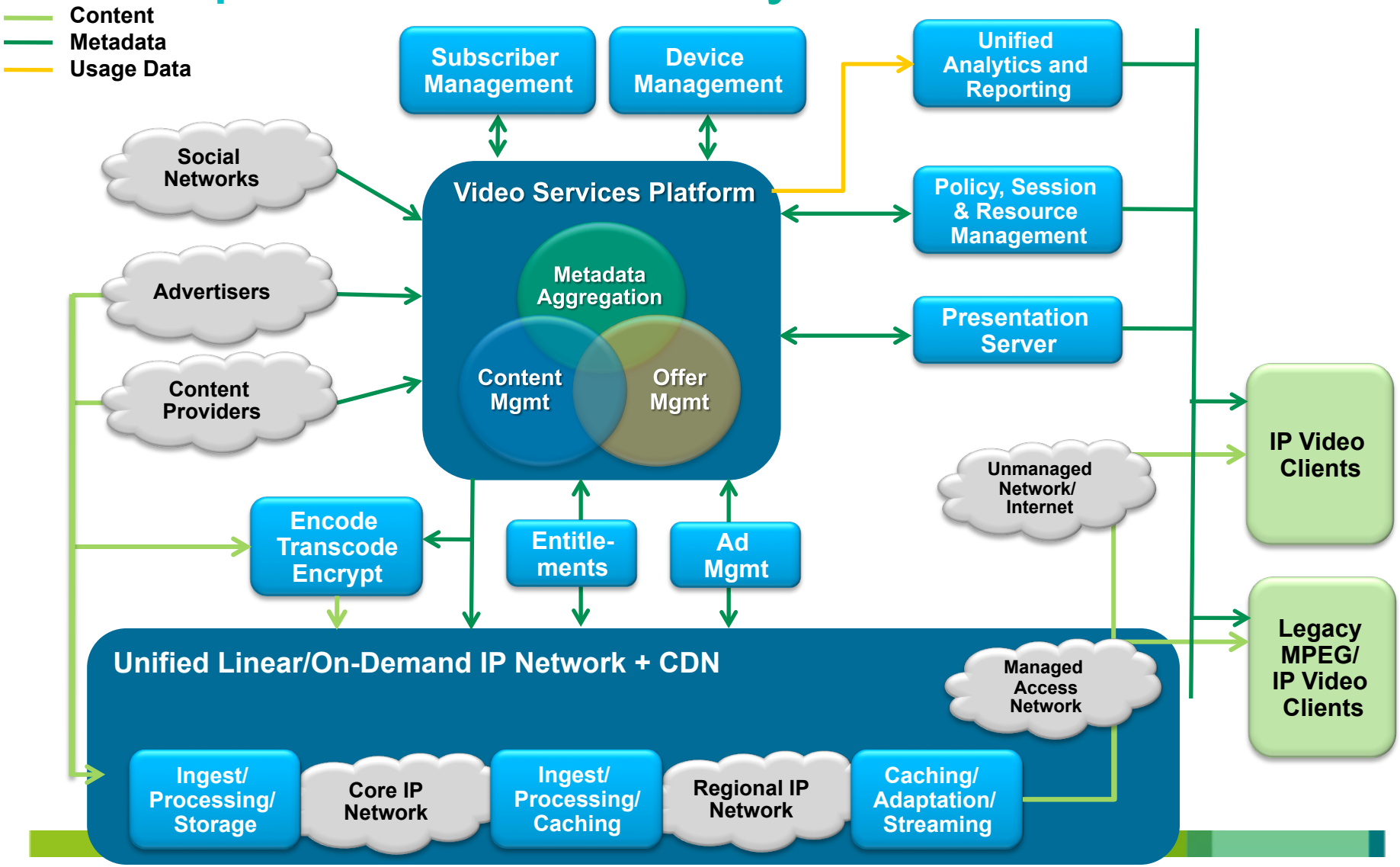
© 2010 Cisco and/or its affiliates. All rights reserved.

Overview

- Even though Video over IP isn't that new, the shift to Video over HTTP is of major importance
  - Adaptive HTTP-based streaming enables common technology for "managed" and "unmanaged" (over the top) services
  - Capitalize on scale, ubiquity and cost benefits of HTTP
- Ability to support live & on-demand, managed & unmanaged on common infrastructure offers many benefits
  - Lower costs
  - Greater opportunities for innovation, cross-pollination
- Standardization is essential
  - At the same time, allow room for innovation/differentiation
  - Leverage other groups' work as appropriate
- Role of W3C may include standards, reference implementation

© 2010 Cisco and/or its affiliates. All rights reserved.

Example Video Delivery Architecture



© 2010 Cisco and/or its affiliates. All rights reserved.

Importance of HTTP Adaptive Streaming

- HTTP adaptive streaming optimized for “difficult” environments
  - Not just variable network conditions, also diverse device capabilities
  - Suitable for more controlled conditions (managed networks & devices)
- Using common technology for managed, unmanaged, live and on-demand would be a big step forward
  - Today we have separate infrastructure for each environment ➔ higher costs
  - Siloed infrastructure and services hampers innovation
- With a common, web-based infrastructure we can:
  - Leverage innovations in other spaces, e.g. web services, social networks etc
  - Leverage new devices (tablets, phones etc.)
  - Develop innovative applications e.g. N-screen, “Social TV”, etc
  - Build applications that span service types

© 2010 Cisco and/or its affiliates. All rights reserved.

Need for Standards

- Most deployed adaptive streaming currently proprietary and lacking modularity
  - This adds cost in many places (caching infrastructure, IP network, application development, etc.)
  - May be impediment to development & adoption of new apps/services (e.g. due to content unavailability on some devices)
- Specific standardization issues:
  - Container (with appropriate features, multi-DRM support, codec independence)
  - Manifest file format
  - Adaptation algorithms (need to allow diversity here cf. TCP congestion control algorithms)
  - HTML5 support
- MPEG DASH covering much of this
- HTML5 clearly W3C item
- Reference Implementation?

© 2010 Cisco and/or its affiliates. All rights reserved.

Summary

- We view the development and standardization of HTTP-based adaptive video as very important – a key enabler for better video applications and services, and a cost reducer
- We'd like to see W3C
  - Bless existing standards or define suitable subsets of them
  - Fill gaps in existing standards
  - Consider reference implementation, maybe test tools?

© 2010 Cisco and/or its affiliates. All rights reserved.