



Cisco
Networkers 2011
May 19, Toronto, Canada

Knowledge
Is Power.
Learn. Share. Collaborate.



Extending the Media Experience by Intelligently Linking the Cloud, Network and Device

Presented by Keith Tyndall



TV in the pre-cable/satellite era:



Creation



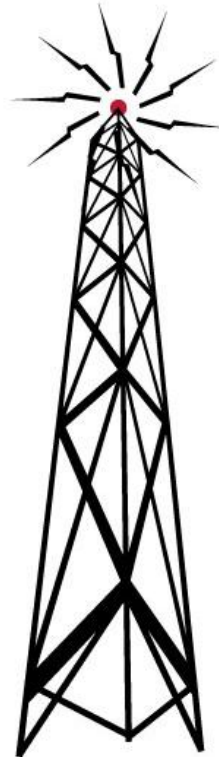
Distribution



Consumption



CBC



#CNSF2011



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“TV” Today:

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Creation

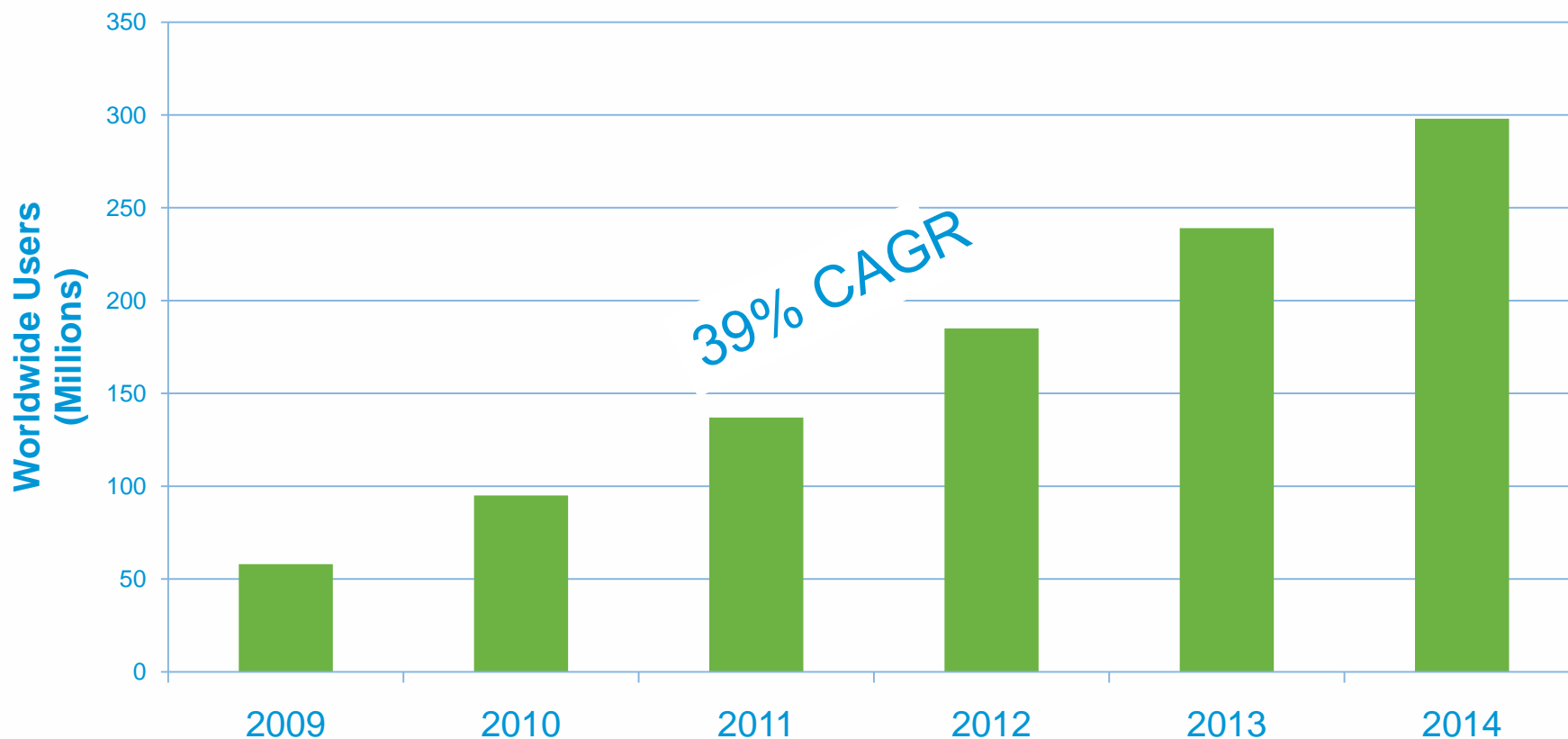
Distribution

Consumption





Drive to Over-the-Top Video



Source: Generator Research, Internet Television 2010-2014

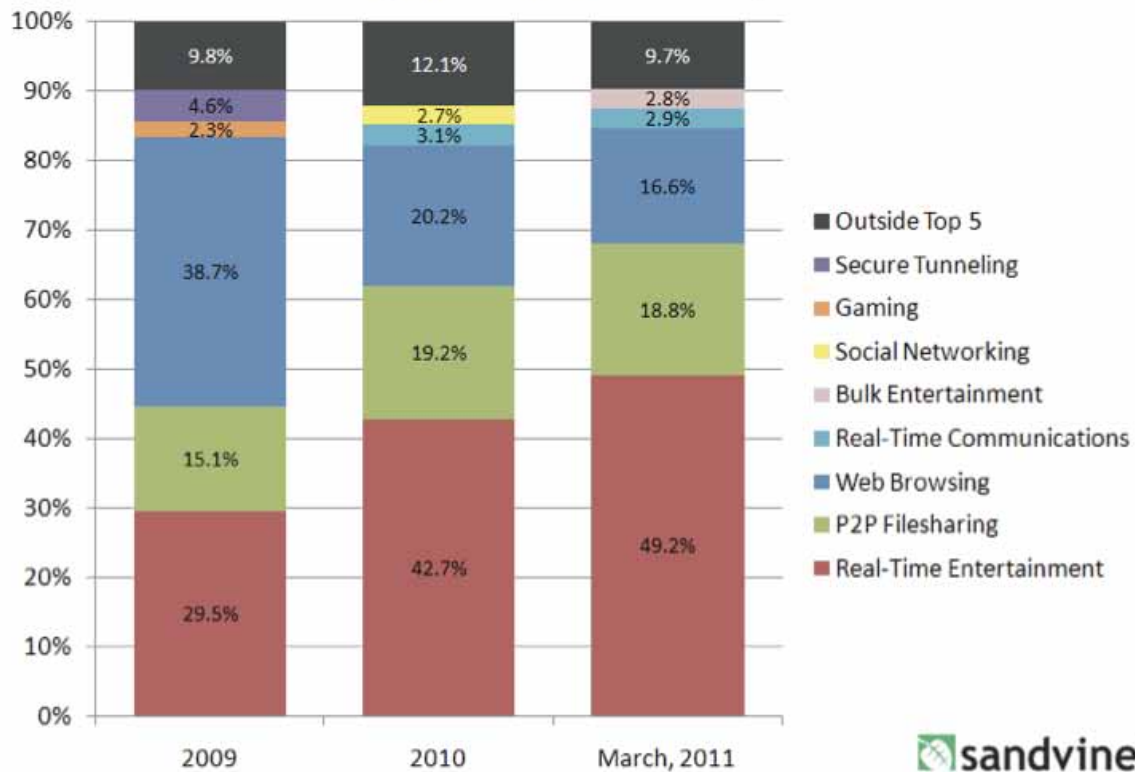
OTT will be 3rd largest video delivery method, after Terrestrial and CATV



Recent Internet Traffic Report



Peak Period Aggregate Traffic Composition
(North America, Fixed Access)



Rank	Upstream		Downstream		Aggregate	
	Application	Share	Application	Share	Application	Share
1	BitTorrent	52.01%	Netflix	29.70%	Netflix	24.71%
2	HTTP	8.31%	HTTP	18.36%	BitTorrent	17.23%
3	Skype	3.81%	YouTube	11.04%	HTTP	17.18%
4	Netflix	3.59%	BitTorrent	10.37%	YouTube	9.85%
5	PPStream	2.92%	Flash Video	4.88%	Flash Video	3.62%
6	MGCP	2.89%	iTunes	3.25%	iTunes	3.01%
7	RTP	2.85%	RTMP	2.92%	RTMP	2.46%
8	SSL	2.75%	Facebook	1.91%	Facebook	1.86%
9	Gnutella	2.12%	SSL	1.43%	SSL	1.68%
10	Facebook	2.00%	Hulu	1.09%	Skype	1.29%
	Top 10	83.25%	Top 10	84.95%	Top 10	82.89%

SOURCE: SANDVINE NETWORK DEMOGRAPHICS





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News Sports Radio TV My Region More Watch Listen

cbcspports.ca HOCKEY NHL | Scores Schedule Standings Stats Teams Players Opinion Contests & Fantasy Special Events Hockey Night in Canada

iDESK **CHEVROLET**

**INTERACTIVE CENTRE
 LIVE STREAM AND CHAT**

Watch the game in 360 » Hockey Night Online »

SELECT YOUR GAME

**San Jose at Vancouver
 Game 2**
 2011 Stanley Cup
 Playoffs on CBC:
 Conference Finals

[▶ LIVE NOW](#)

**Vancouver at San Jose
 Game 3**
 2011 Stanley Cup
 Playoffs on CBC:
 Conference Finals

[▶ Live May 20 at 9:00 PM](#)

**Vancouver at San Jose
 Game 4**
 2011 Stanley Cup
 Playoffs on CBC:
 Conference Finals

[▶ Live May 22 at 3:00 PM](#)

CHEVROLET

CBC's Hockey Night in Canada Interactive
 Chat - Playoff Edition
[Click Here](#)

3

11:16 / LIVE Fullscreen

Powered by: CoveritLive



L PM

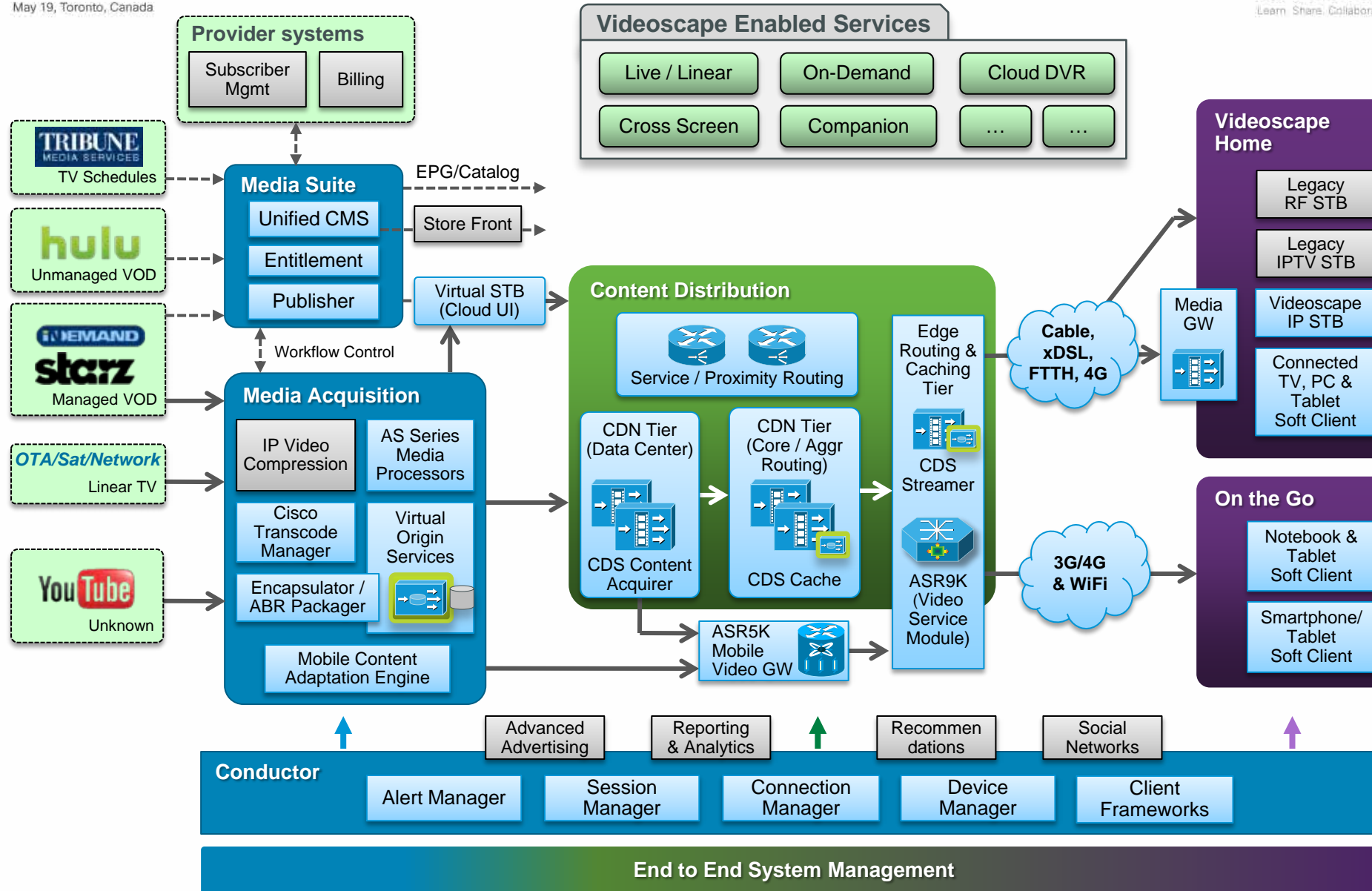
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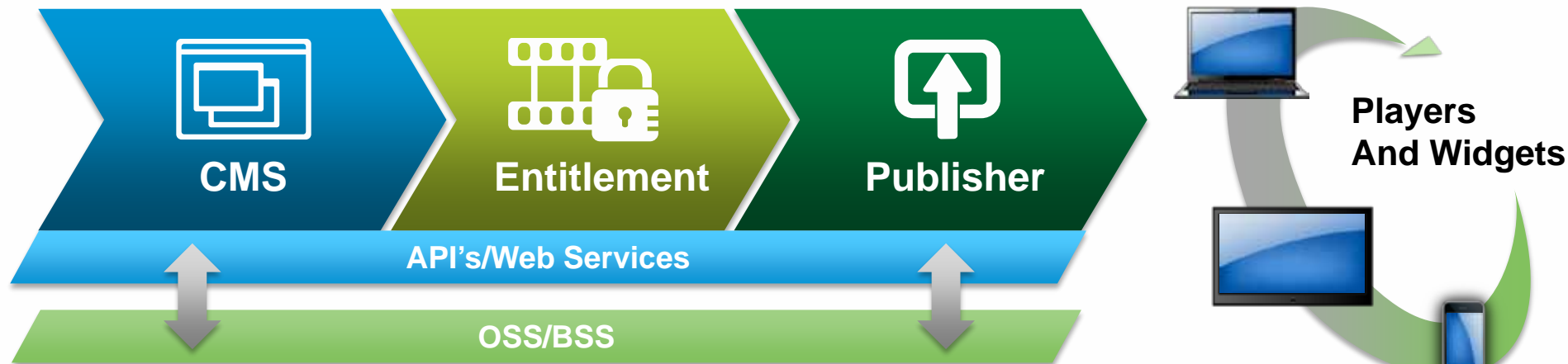
High-Level Video Architecture

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Part 1: Content Management



Content Management

- Multiple content formats
- Sophisticated content bundling
- Customizable metadata model
- Metadata normalization
- Extensible workflow
- Transcoding & encryption
- Distribution to delivery network

Entitlement

- Product/Offer rules creation
- Subscription, rental, EST, ad-supported models supported
- Custom entitlement checks prior to authorization
- Multi-DRM framework
- Customer Care functionality

Publishing

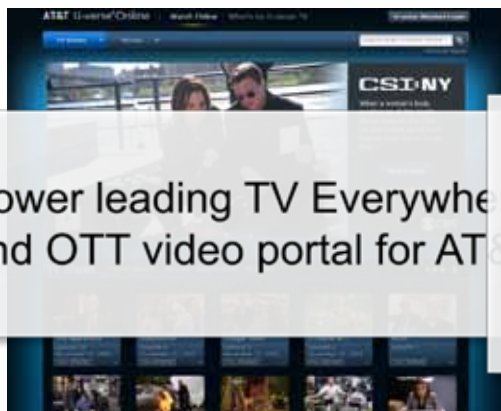
- Feed aggregation & harmonization
- Multipoint catalog publishing
- Category management
- Playlist publishing
- Search and Rating
- Metering & reporting

Client Technologies

- Player Framework & Widgets
- Streaming & Download
- License acquisition
- Library management
- Ad Network integration

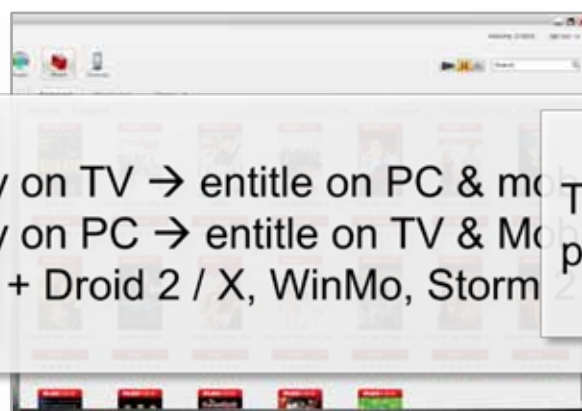


CMS-enabled Case Studies



Power leading TV Everywhere and OTT video portal for AT&T

AT&T U-verse Online



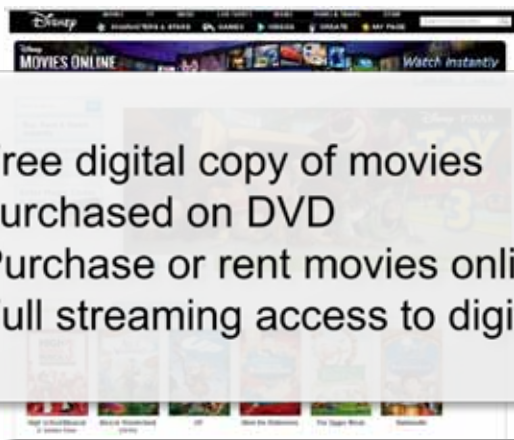
Buy on TV → entitle on PC & mobile
Buy on PC → entitle on TV & Mobile
PC + Droid 2 / X, WinMo, Storm

Verizon FlexView



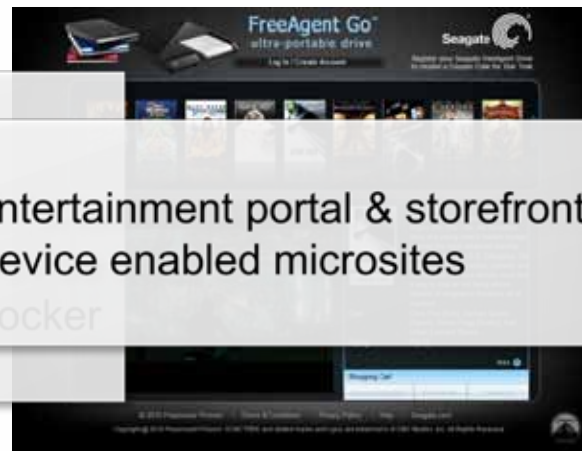
TV Everywhere video solution for premium channel subscribers

Bell TV Online



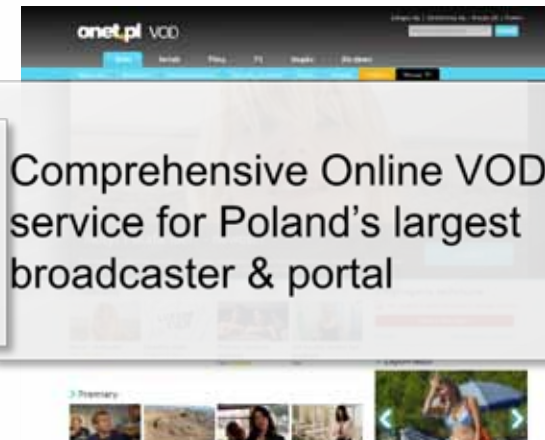
Free digital copy of movies purchased on DVD
Purchase or rent movies online
Full streaming access to digital locker

Disney Movies Online



Entertainment portal & storefront
Device enabled microsites

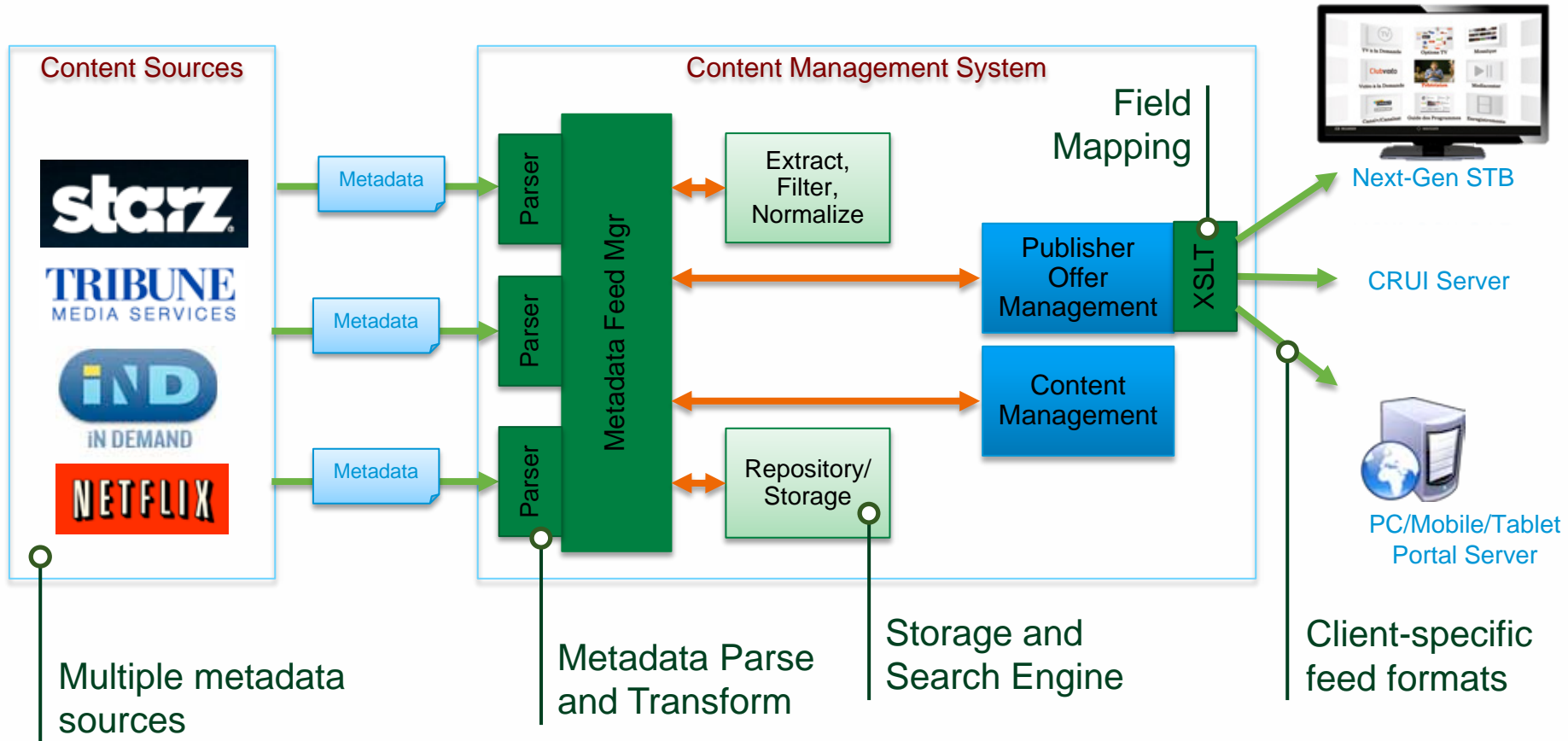
Paramount Media Store



Comprehensive Online VOD service for Poland's largest broadcaster & portal

Onet TV Catch Up

Part 1: Metadata Aggregation and Normalization



VOD and Linear EPG data combined for unified search & recommendation



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Bundle

Sub Bundle(s)

Component

Common Entity

Common Entity

Component

Common Entity

Common Entity

MANAGE BUNDLES > THE DARK KNIGHT

Mark as Complete

Delete

- The Dark Knight
 - Metadata
 - The Dark Knight - English
 - The Dark Knight - Spanish
 - The Dark Knight - French
 - Feature Video
 - The Dark Knight - Feature
 - Metadata
 - Videos
 - The Dark Knight HD
 - The Dark Knight SD
 - The Dark Knight PD
 - Subtitles
 - The Dark Knight - STL
 - Images
 - Thumbnails
 - The Dark Knight Poster Art
 - The Dark Knight Small Thumb
 - Ad Insertion Points
 - ISAN
 - Manifest
 - Chapters
 - Chapter 1
 - Chapter 2
 - Chapter 3
 - Chapter 4
 - Licensing Window
 - Supplementary Videos
 - Making Of The Dark Knight
 - Christopher Nolan Biography
 - Images
 - vDVD
 - Dark Knight vDVD Menu App

Save

Cancel

Remove

General Components

Name The Dark Knight - English *

Alt Code 35342345

External ID 34652

Created Apr 9, 2010 11:39:51 AM

Modified Apr 9, 2010 11:41:51 AM

Metadata

Locale en_US

Long Title The Dark Knight

Medium Title The Dark Knight

Short Title The Dark Knight

Long Summary Batman raises the stakes in his war on crime. With the help of Lieutenant Jim Gordon and District Attorney Harvey Dent, Batman sets out to dismantle the

Medium Summary Batman, Gordon and Harvey Dent are forced to deal with the chaos unleashed by an anarchist mastermind known only as the Joker, as it drives each of them to their

Short Summary Batman, Gordon and Harvey Dent are forced to deal with the ch

Notes

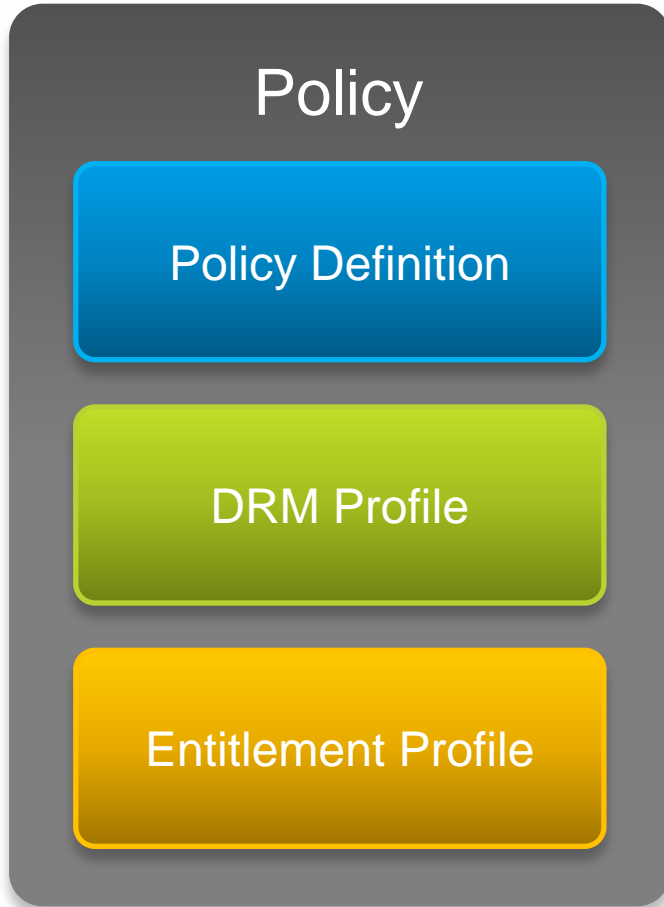
Keywords Comic book, Batman, Gotham, Dark



Part 1: Entitlement



- Policies
- DRM Profiles
- Affiliates
- Accounts / Users
- Entitlement Chains
- Policy Profiles
- Rights Locker
- Customer Support
- Feeds



MANAGE PROFILE > DRM > Profile Detail « 3 of 14 »

SAVE CANCEL DUPLICATE DEACTIVATE

Policy Definition
General policy settings are applied to products at the time of creation. Changes here will only affect new products; existing products should be modified directly.

Name: 2-screen 3-view VOD / \$4.99 + ad supported

Description:

Offer Window: Active Immediately
Deactivate After: days
Affiliation: CableCo
MediaHolder: ADD

Rights and Entitlement
Changes made to any rights and entitlement settings will affect products which rely on this Policy. To modify only new products, create a new Policy Profile.

DRM Profile: Interoperable / PlayReady 3-play
Entitlement Profile: Premium / mixed affiliate
Charge Type: Recurring
Value: \$4.99
Currency: USD
Ad Support: Off On

Specify the maximum number of ads:
Pre Roll: 3
Mid Roll:
Post Roll:

SET UP > DRM CONFIGURATION

SAVE CANCEL

Select the DRM plugins to support. Any supported DRM can be enabled on a policy and fully configured at that point. Some DRM have settings that should be configured here, as they are system-wide.

Interoperable Domain
PC Limit: 2
Device Limit: 0
License Issuance Limit: 0 (Leave blank to specify "unlimited".)
Include DRM: PlayReady Domain
WORM

PlayReady Domain
PC Limit: 2
Device Limit: 0
License Issuance Limit: 0 (Leave blank to specify "unlimited".)

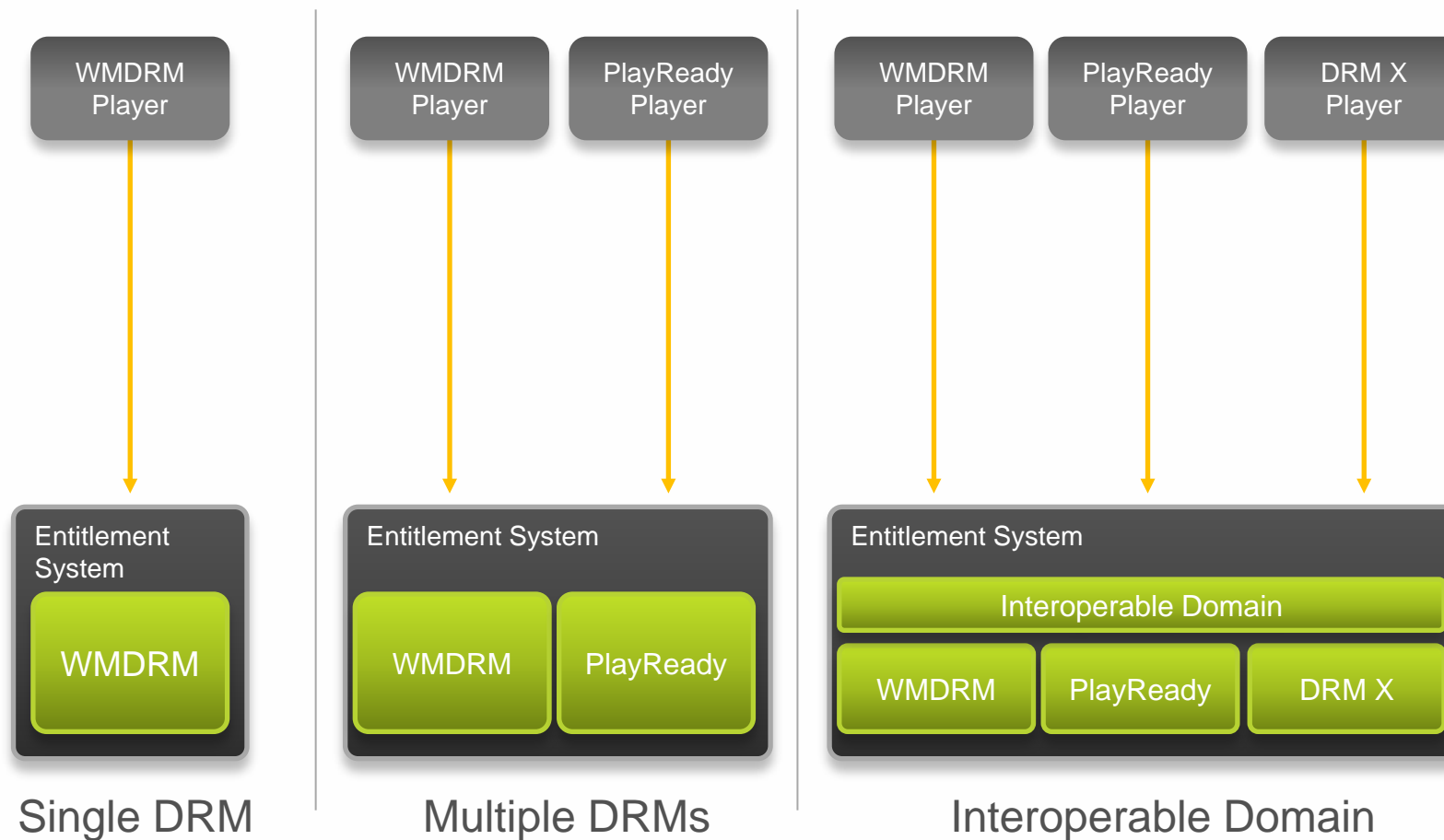
PlayReady Download
 PlayReady Streaming
 WORM

Adobe Domain
PC Limit: 2
Device Limit: 0
License Issuance Limit: 0 (Leave blank to specify "unlimited".)

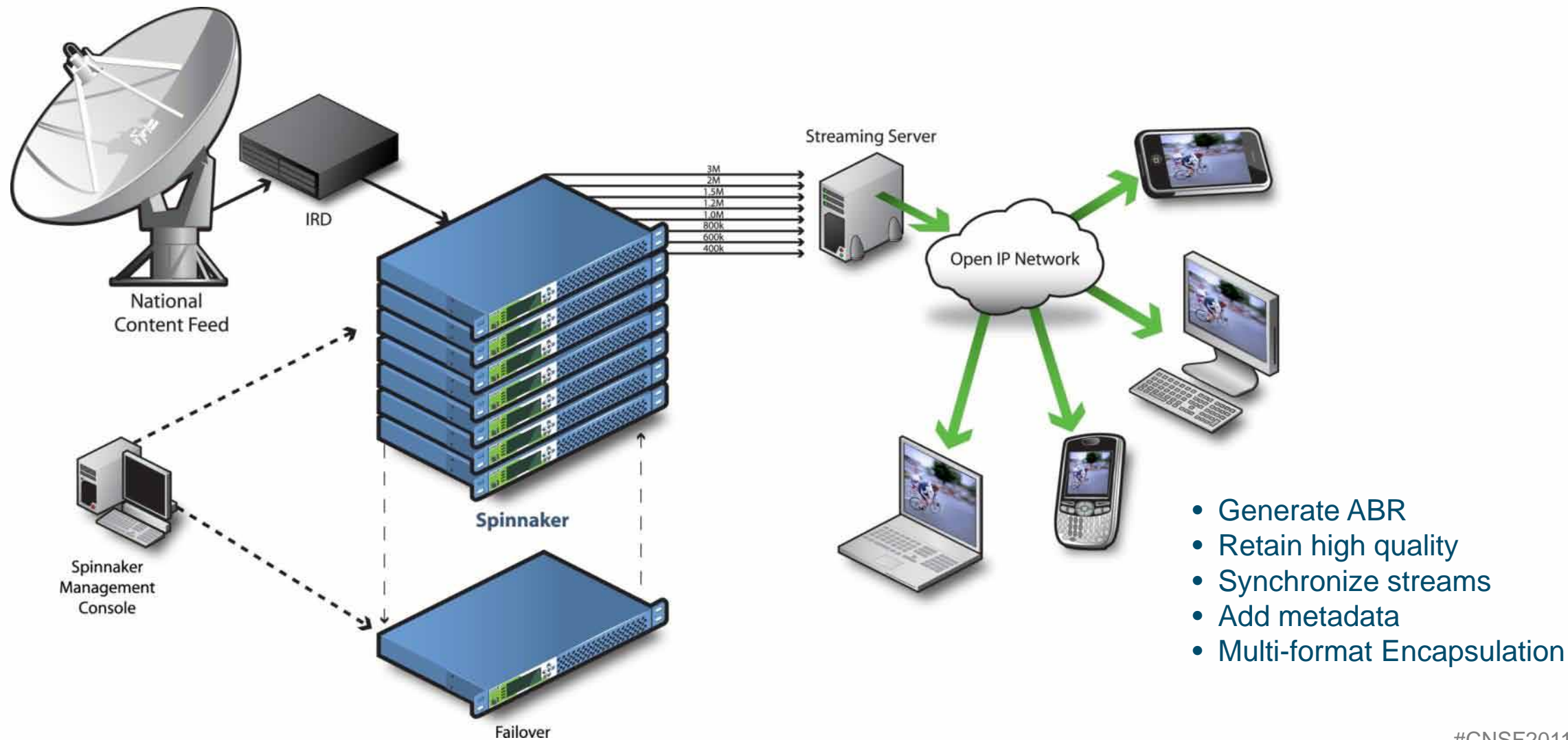
Adobe Download



Part 1: DRM Entitlement Models



Part 2: Content Acquisition (Adaptive Bit Rate Overview)





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Major League Baseball

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LOW-BANDWIDTH | 日本語 | ESPAÑOL | 简体中文 | 한국어 | Register | My MLB.com (Login) | Fan Forum

POWERED BY ORACLE | Search Video | GO | Teams

MLB.com

SCOREBOARD | STANDINGS | SCHEDULE | STATS | PLAYERS | NEWS | VIDEO | TICKETS | MOBILE | SHOP | MLB.TV | FANTASY

MLB.com FastCast

PRESENTED BY Coors LIGHT

MLB.com FastCast

PRESENTED BY Coors LIGHT

3/28/11: MLB.com FastCast 03/29/11 | 02:06

Ben Francisco earns a starting spot with the Phillies, plus Luke Scott drives in seven runs

Comment | Facebook | Twitter | Digg | StumbleUpon

Tags: FastCast

Playlist: FastCast | presented by Coors Light

3/28/11 MLB.com FastCast: Francisco wins starting job Added: 03/29/11 Duration: 02:06	4/3/11 MLB.com FastCast: One slick, quick video Added: 04/04/11 Duration: 03:14	4/2/11 MLB.com FastCast: Lee shines back in Philly Added: 04/03/11 Duration: 03:06	4/1/11 MLB.com FastCast: Kila walks off in KC Added: 04/02/11 Duration: 02:49

CATCH THE SILVER BULLET TO COLD REFRESHMENT.

Coors LIGHT Cold Activated Bottle

LIKE COORS LIGHT ON FACEBOOK >>

Powering

MLB.tv Premium VoD and Live Streaming

At a Glance

MLBAM is extending its services beyond baseball to other organizations, handling the technology infrastructure and customer support for the nearly 3,500 events each year, including the 2009 and 2010 March Madness on Demand (MMOD) for CBS, NBA games, World Cup soccer matches, Grand Slam tennis tournaments, and college football games.

By The Numbers

8.3 million: Number of unique visitors for the 2010 CBS NCAA MMoD.

\$37 million: Online advertising revenue during the 2010 tournament

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Microsoft Xbox Live

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Powering

Zune Marketplace on Xbox Live

At a Glance

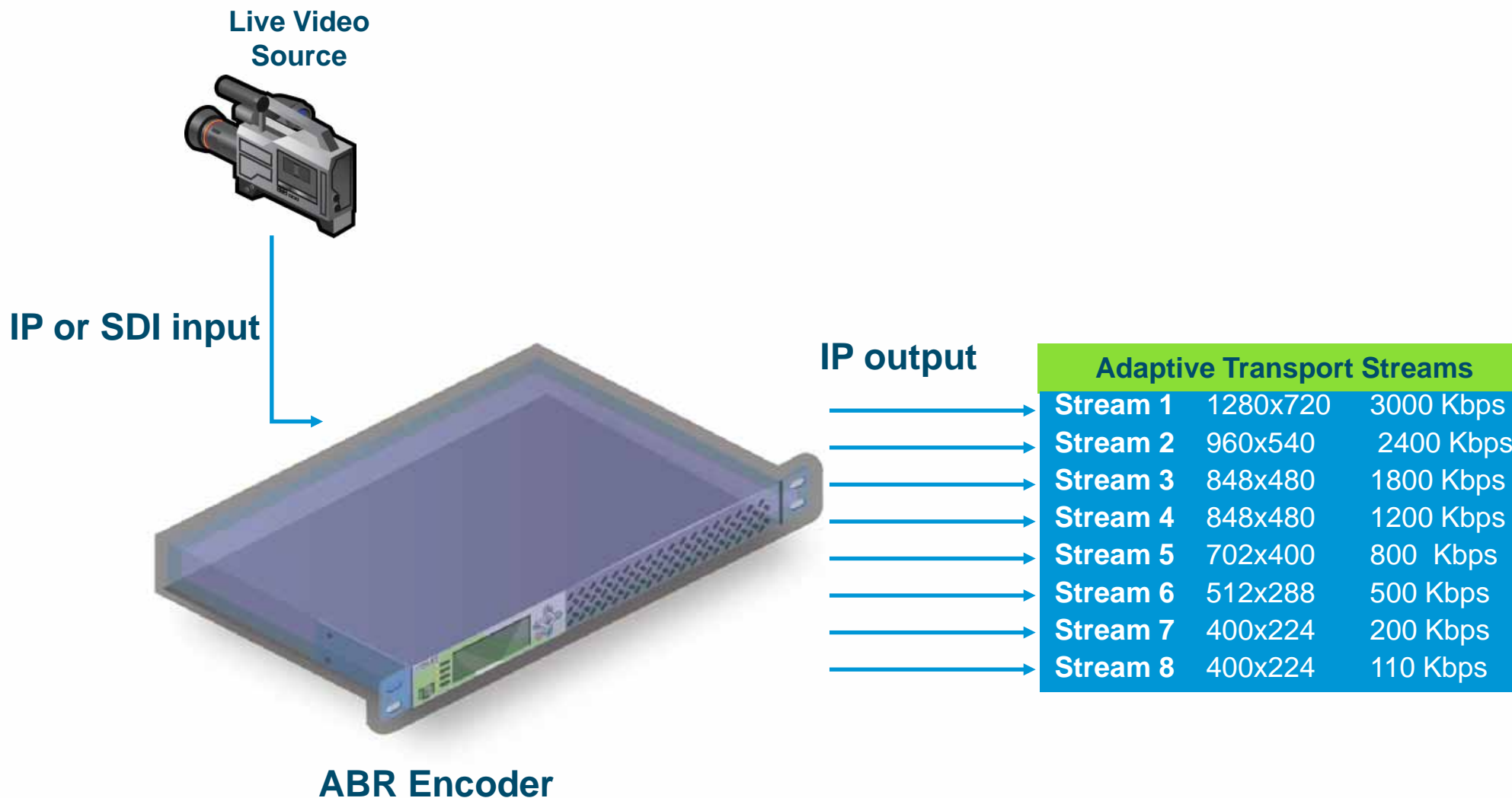
Microsoft transcodes tens of thousands of titles available in the Zune Marketplace on the Xbox gaming console.

By The Numbers

- 18:** Percentage of revenue Zune Marketplace has in the digital video content delivery, up 50-percent YOY.
- 20:** Number of countries for which VidLab Group prepares content.



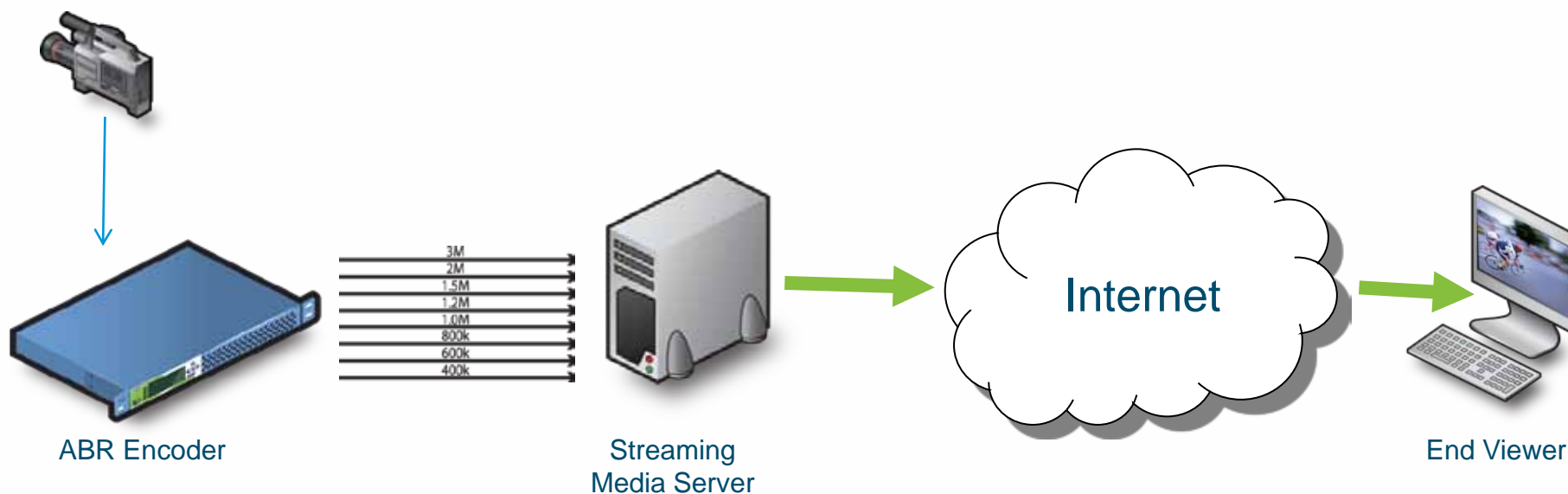
What is ABR?: Origination



**A variety of
different
resolutions,
qualities and
frame-rates**

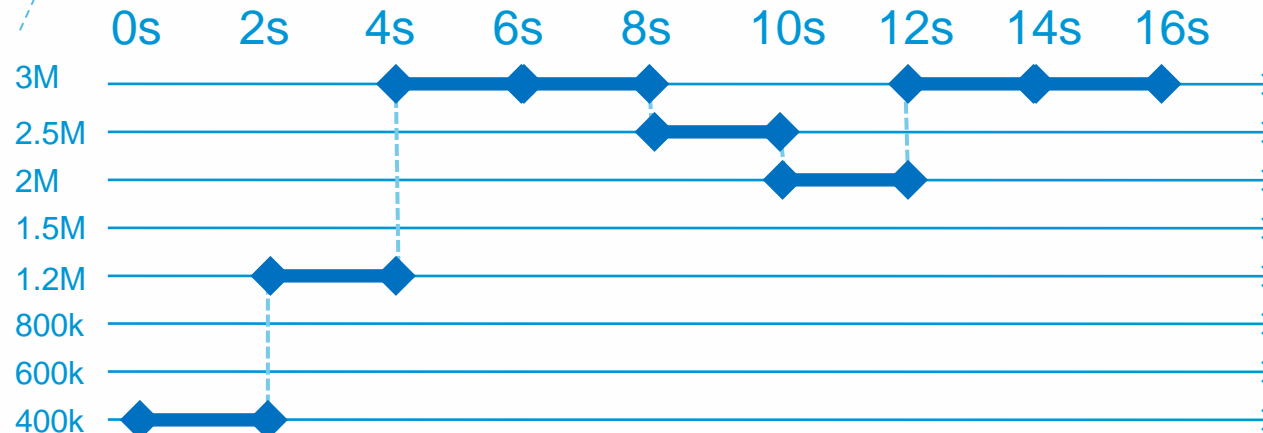
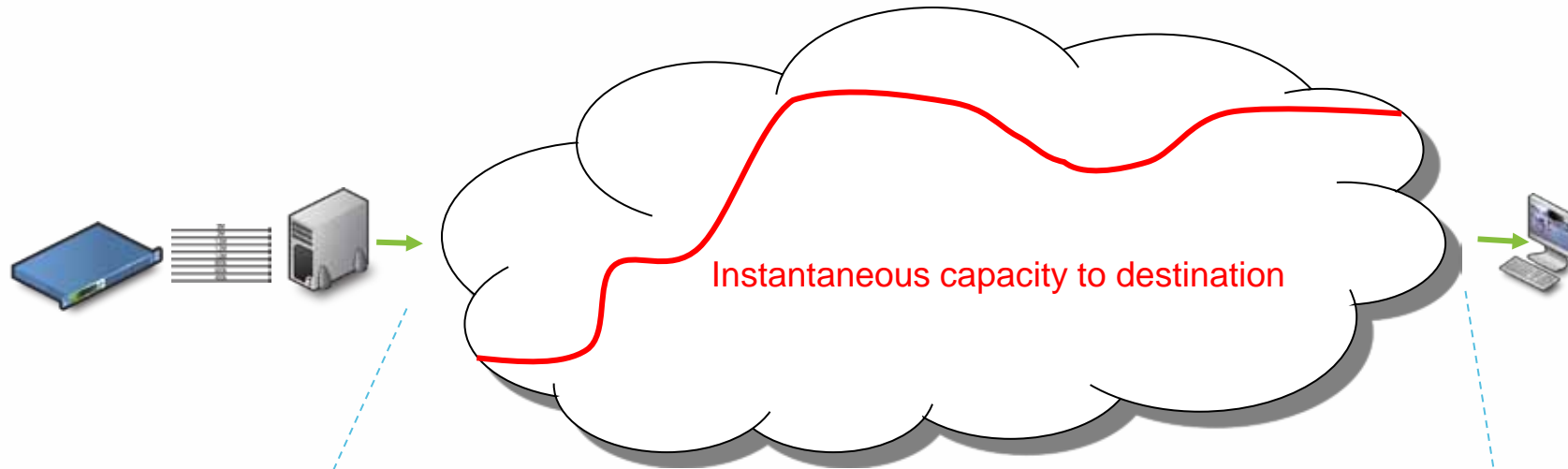


What is ABR?: Transmission





What is ABR?: Adaption

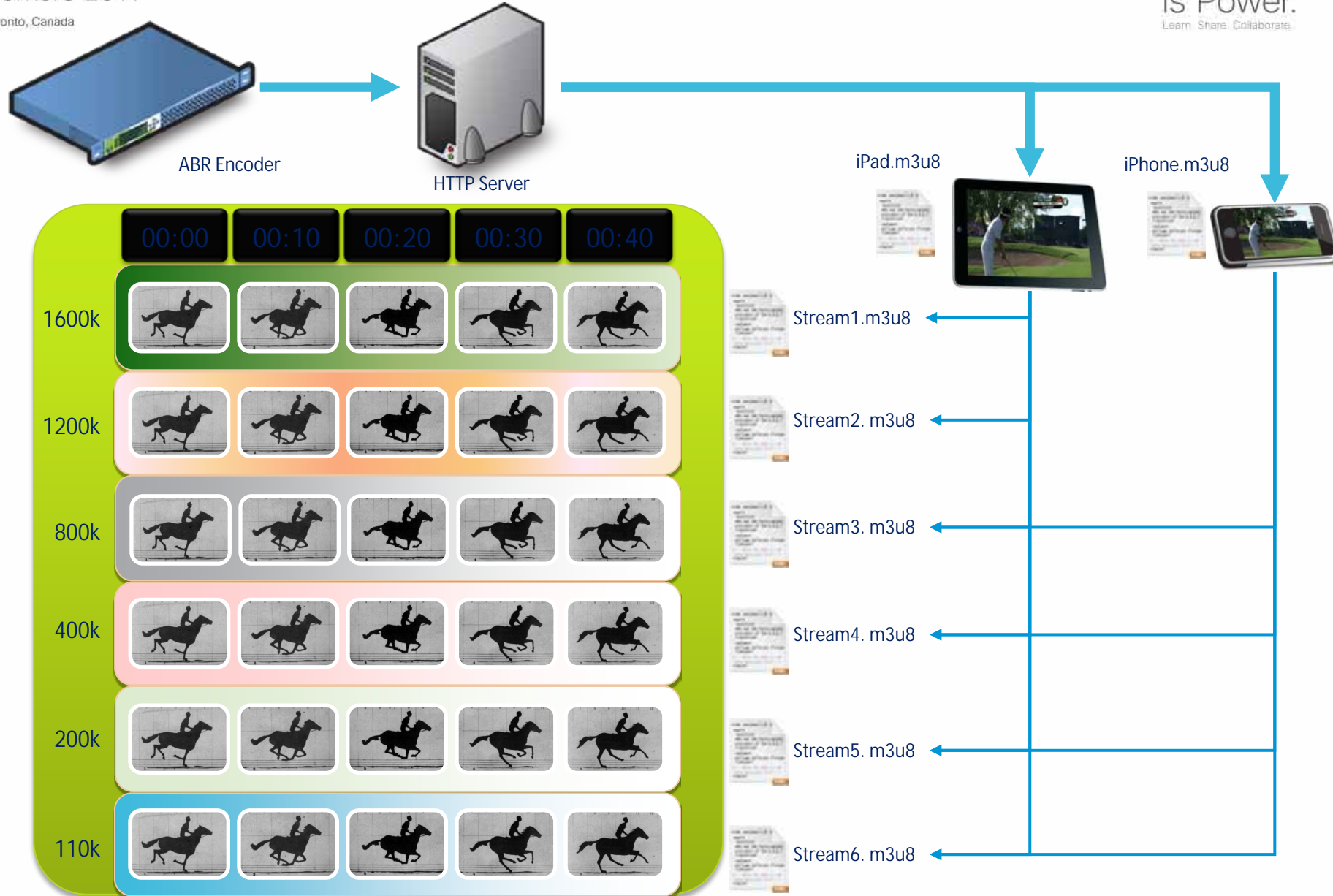




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ABR for iPad and iPhone

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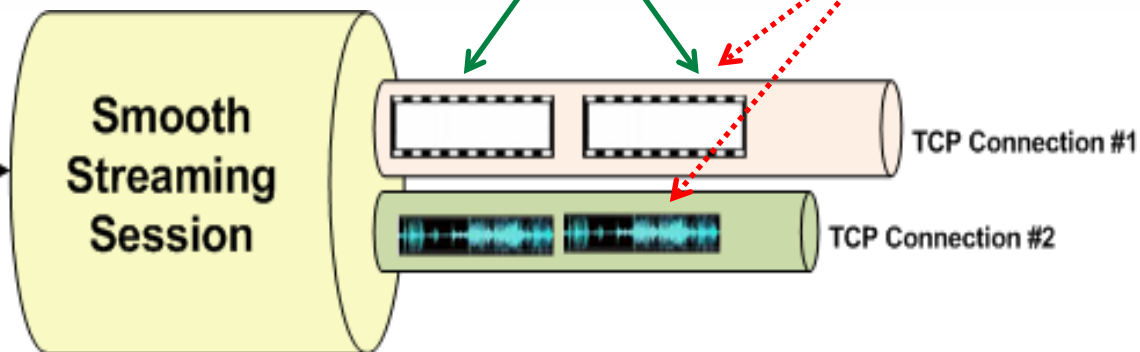
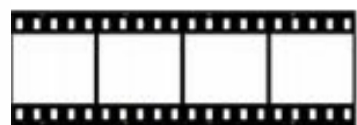
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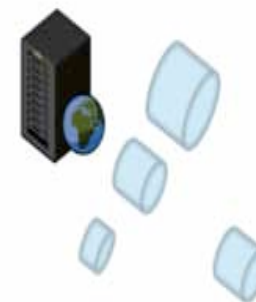
Smooth Streaming Session



Media Asset * N
Profiles



Adaptive Streaming



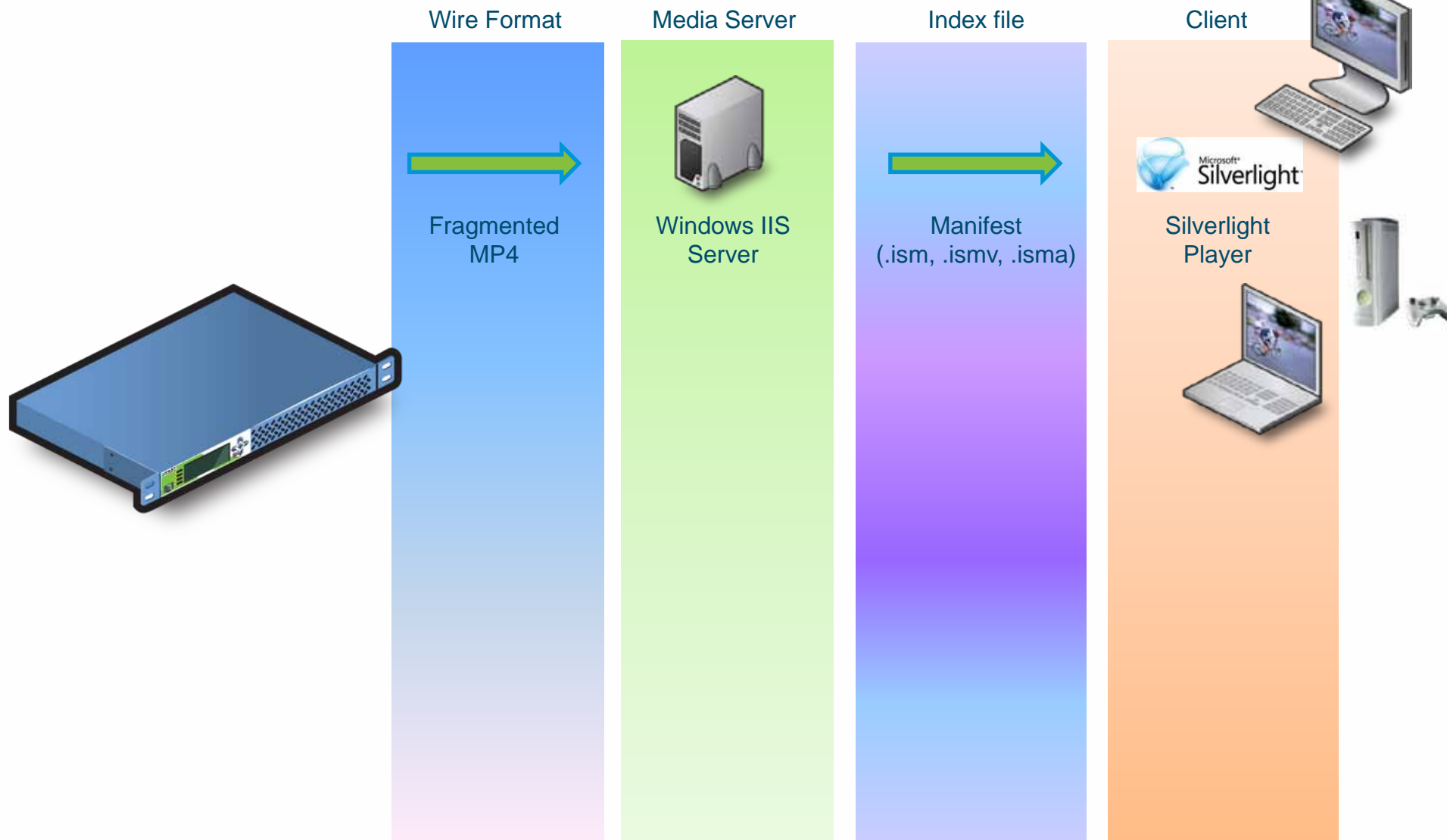
- Media is split up into a series of file chunks which are downloaded via plain HTTP
- If several bitrates are available, client can choose between chunks of different size

Typical chunk size = 2 seconds of video
(i.e. 250 KB for 1 Mbps video)



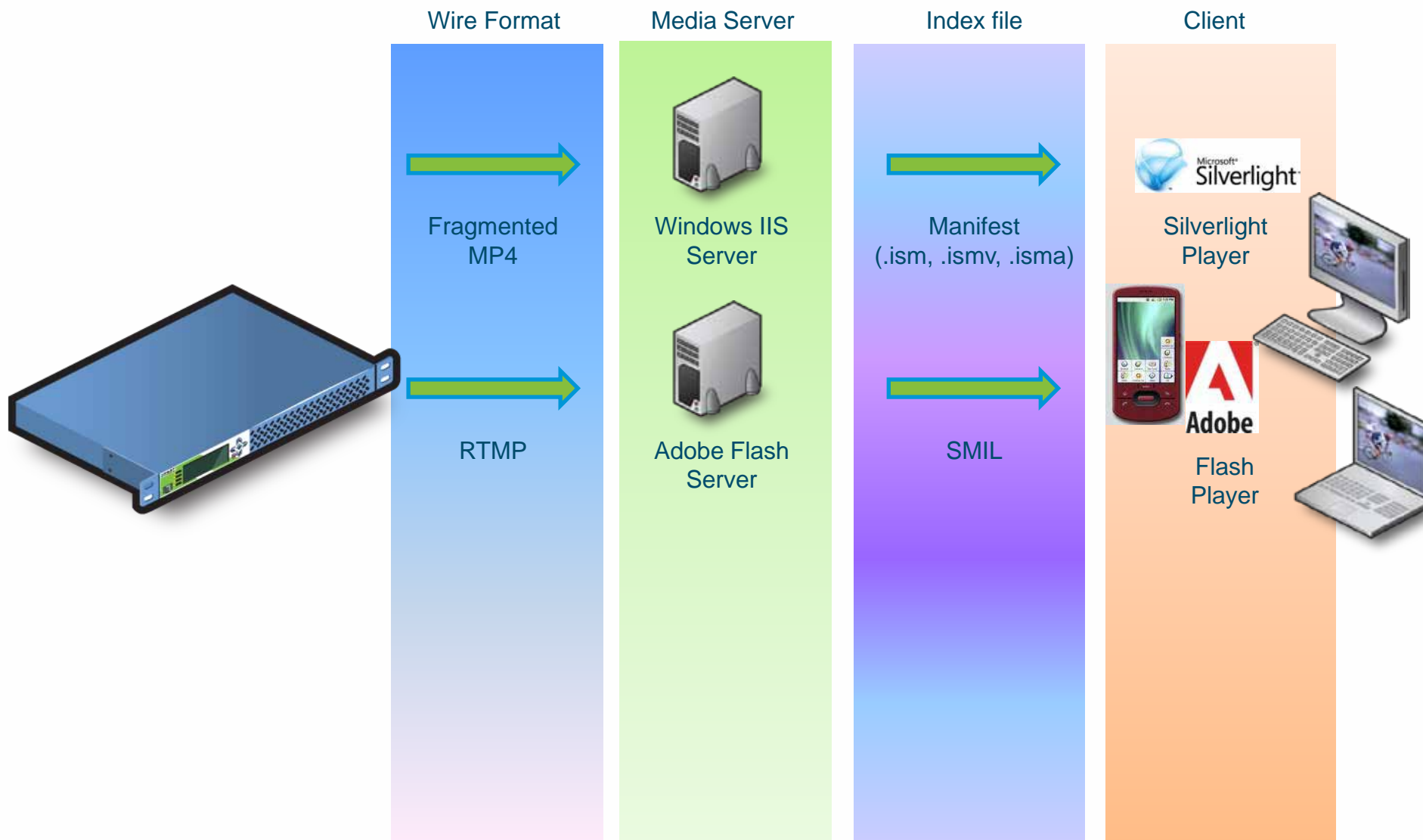


Microsoft Smooth Streaming





Adobe Flash Streaming

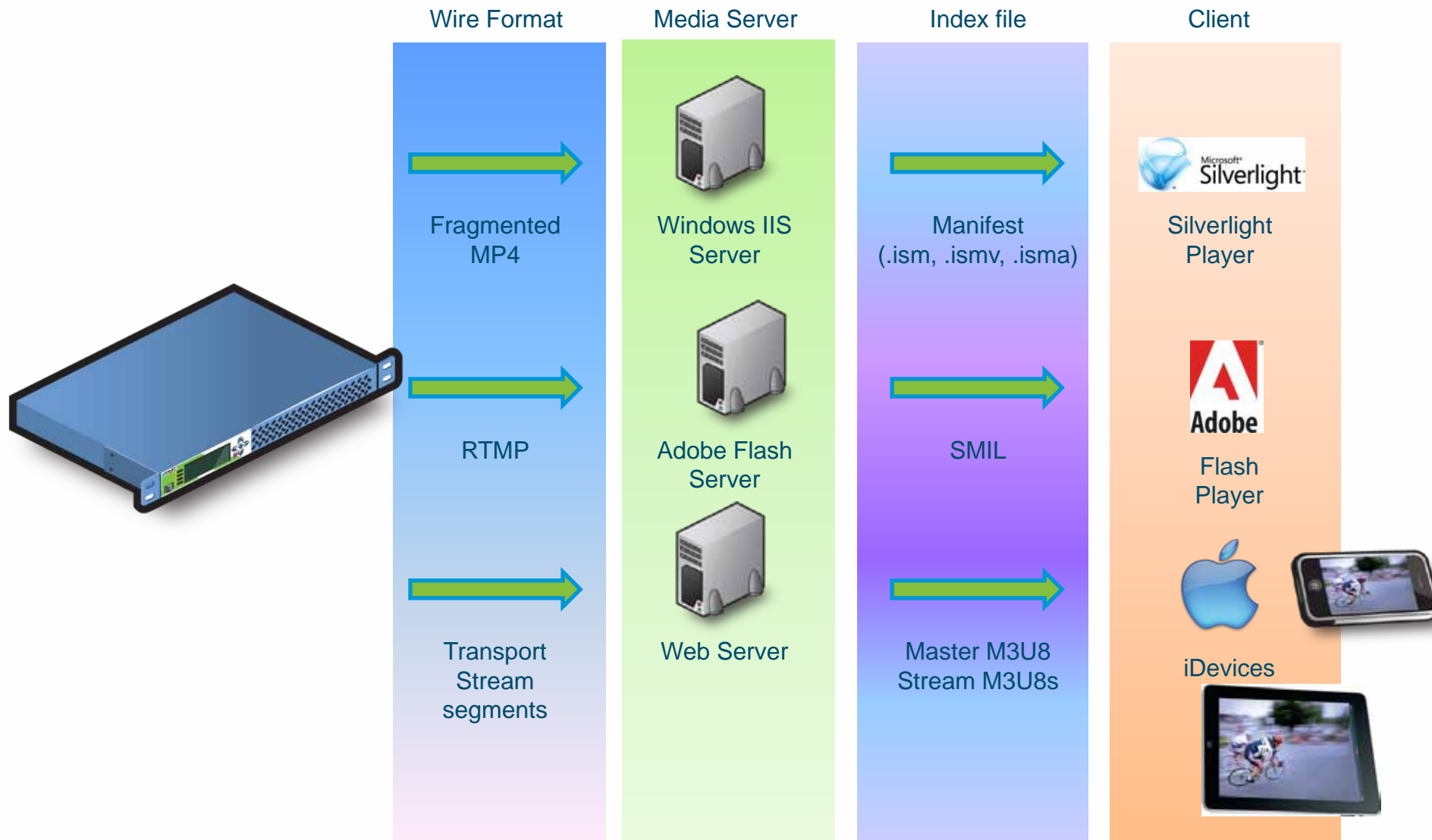




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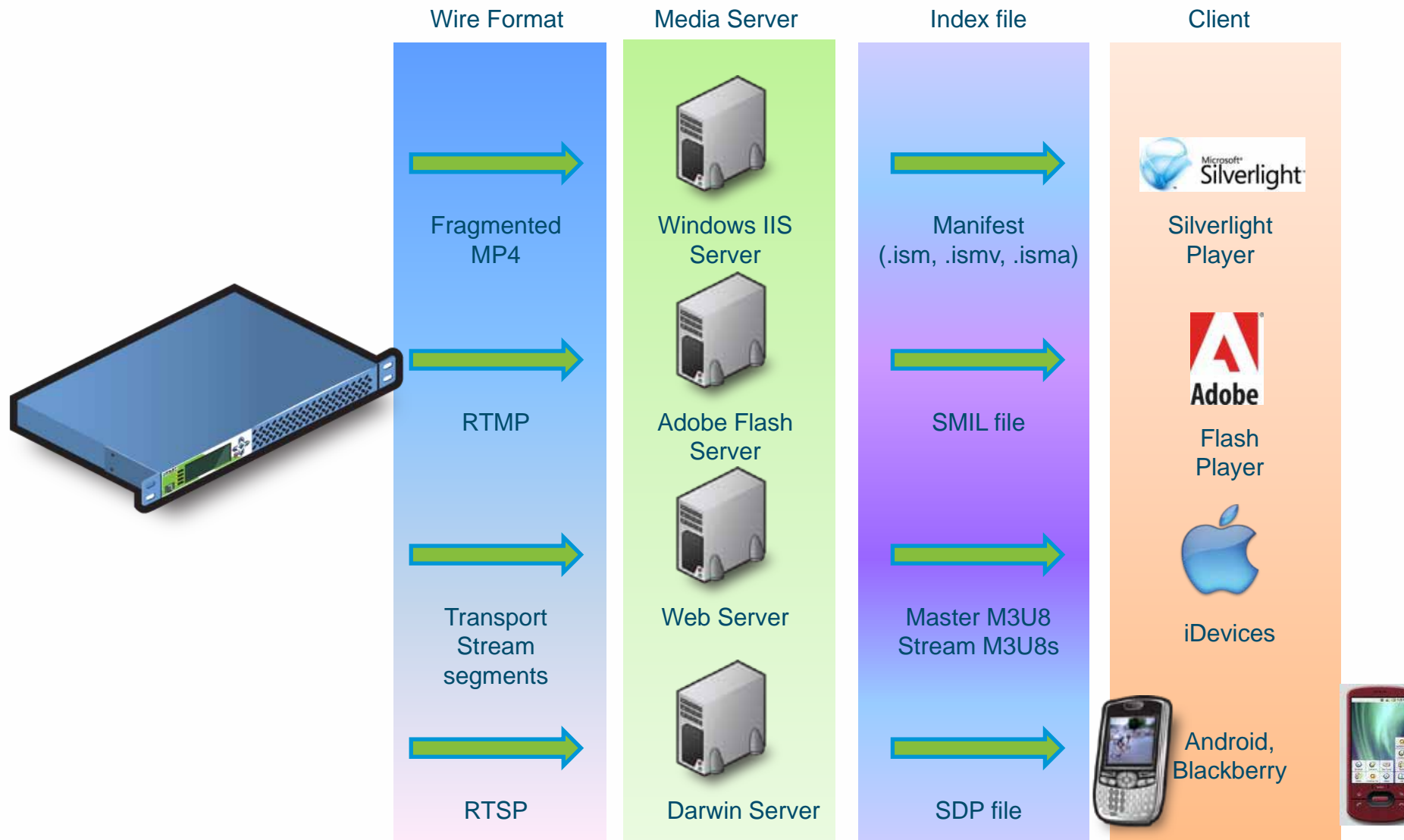
HTTP Live Streaming (HLS, iOS)

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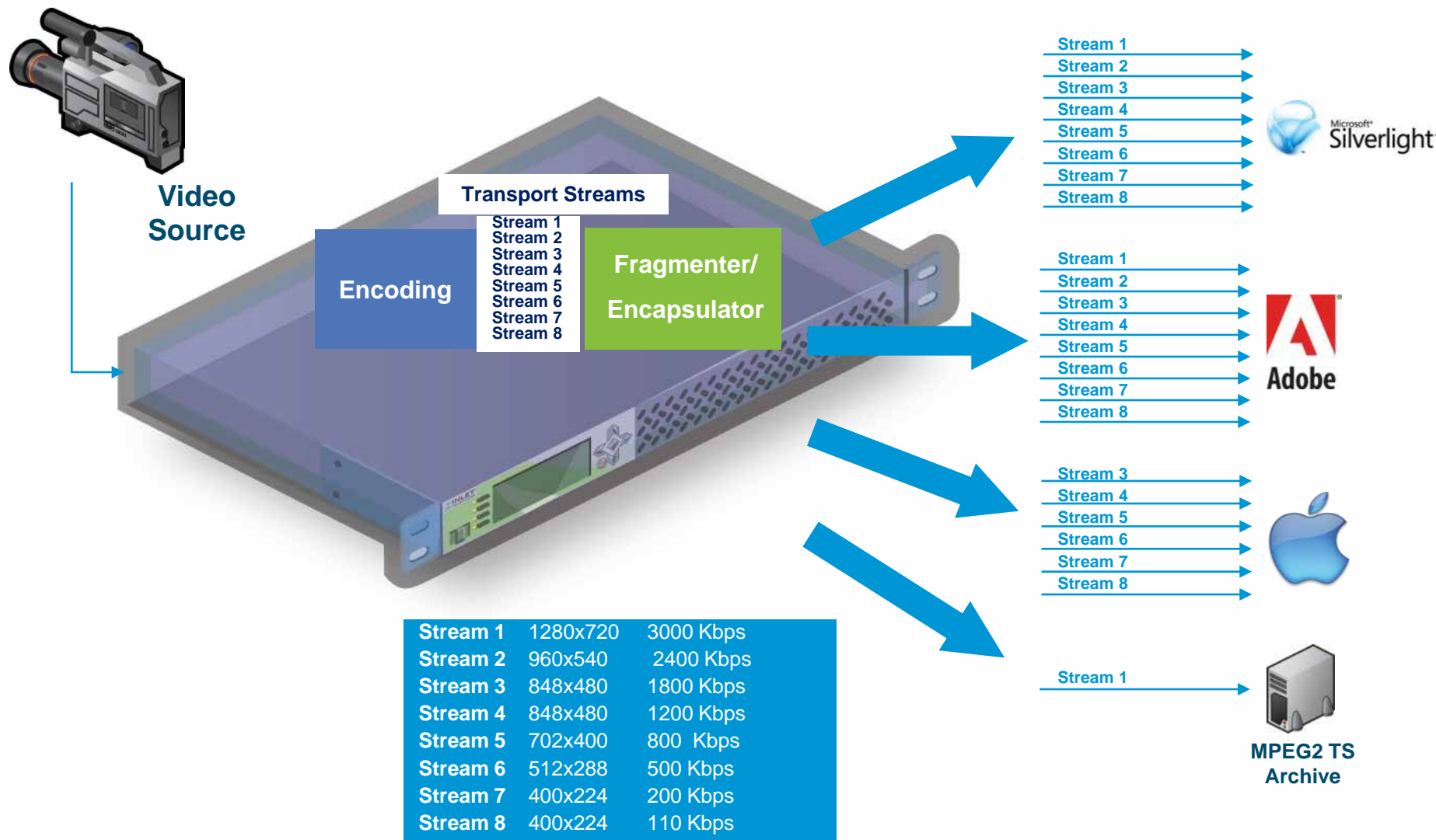


3GPP Live Streaming



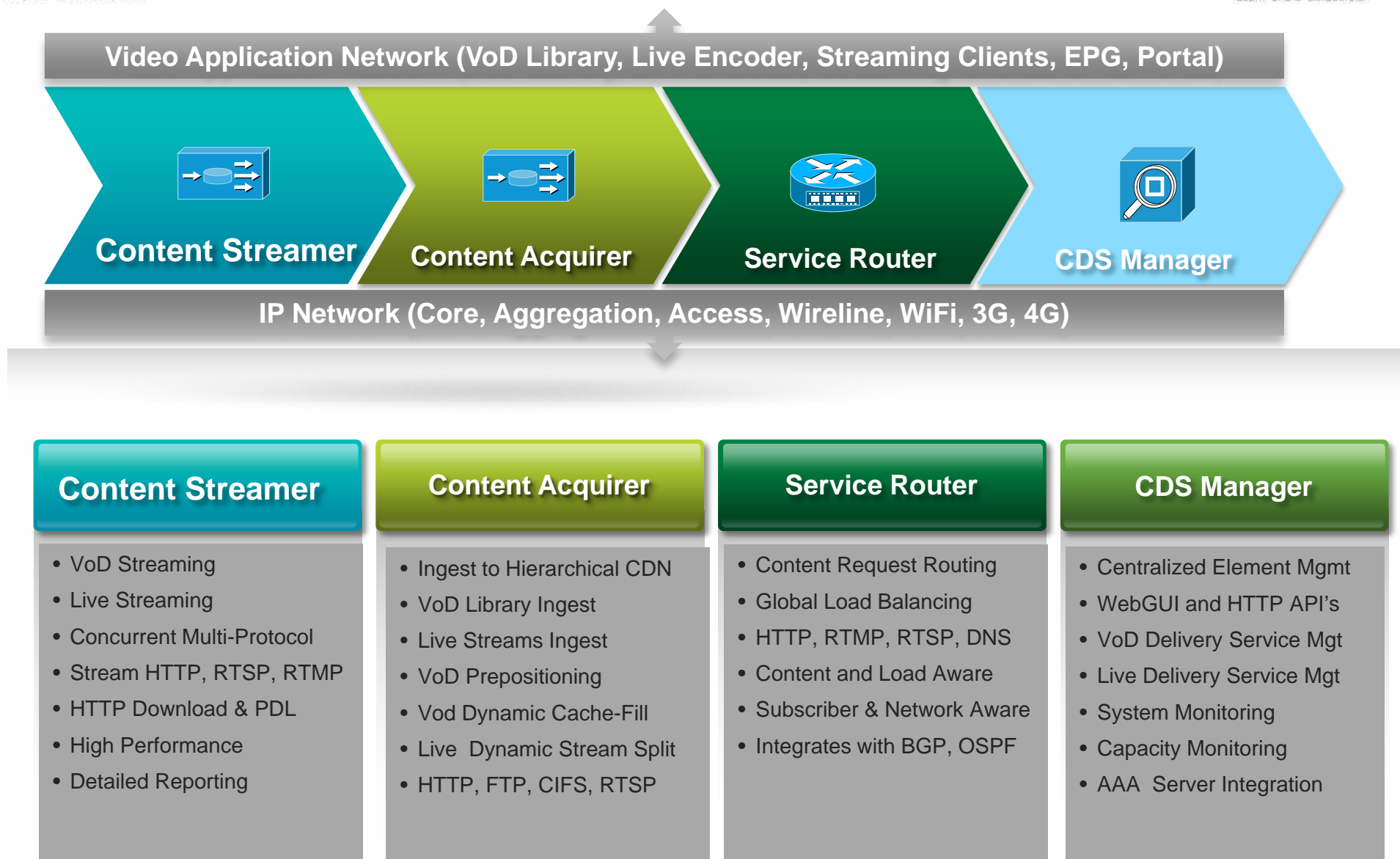


Encapsulation





Part 3: Distribution

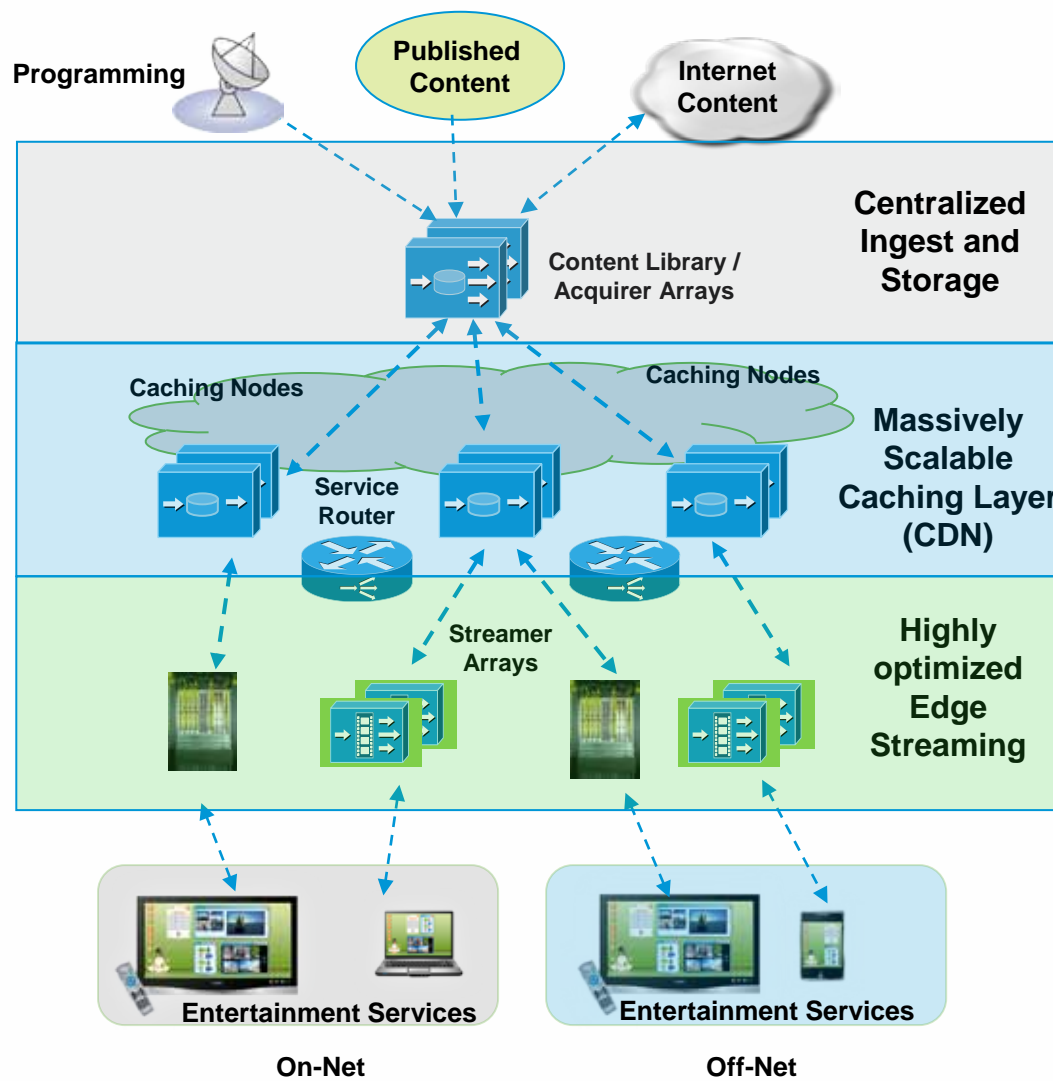




Part 3: Distribution via a Content Distribution System



- Acquires Content in Multiple Formats from Multiple Sources, Live and On-Demand
- Independent Scalability of Content Delivery Functions – Adapts to Any Network Topology
- Very Low Latency Content Propagation for On-Demand and Real-Time applications
- Guarantees non-stop Service Availability through Advanced Resiliency Features
- Intelligent Service Routing for Global Network Routing and Service Extensions

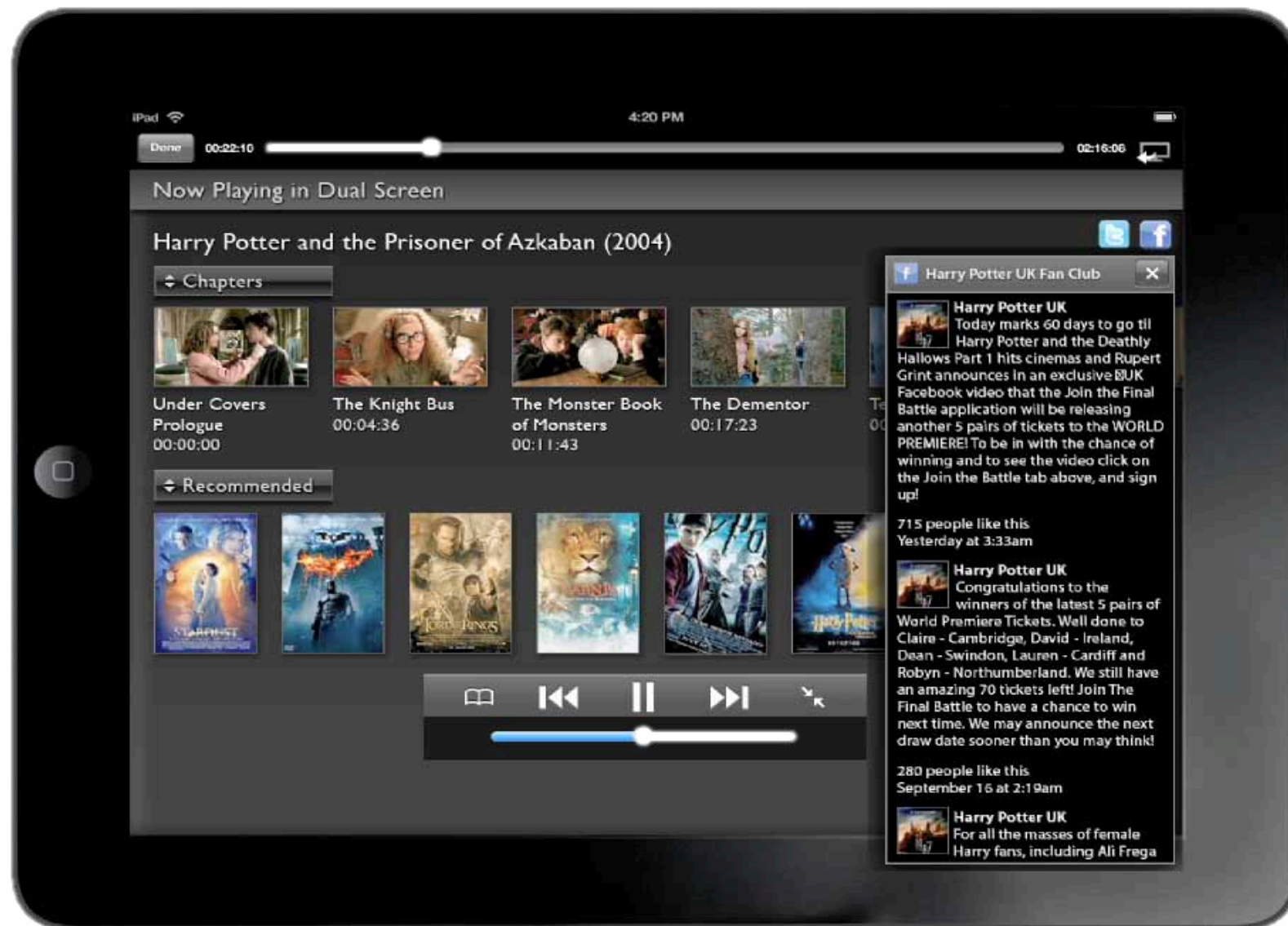




Part 4: Tablet App



- Service providers expand on-demand/linear solution to unmanaged devices
- iOS & Android based tablets
- Digital Media: TV Shows/Seasons, Movies/vDVDs, Music, Apps etc.
- Linear, On-Demand, “My Digital Locker”
- State/history/ personalization in the cloud
 - “iPad Companion App” enhances collaboration between STB/Gateway and 3rd Party devices
- Enhanced social networking integration
- Full SDK to allow for both light & deep customization





Part 4: Smartphone Apps



- Service providers expand on-demand/linear solution to unmanaged devices
- Digital Media: TV Shows/Seasons, Movies/vDVDs, Music, Apps etc.
- Linear, On-Demand, “My Digital Locker”
- State/history/ personalization in the cloud
 - “iPad Companion App” enhances collaboration between STB/Gateway and 3rd Party devices
- Enhanced social networking integration
- Full SDK to allow for both light & deep customization



iOS



Windows Phone 7



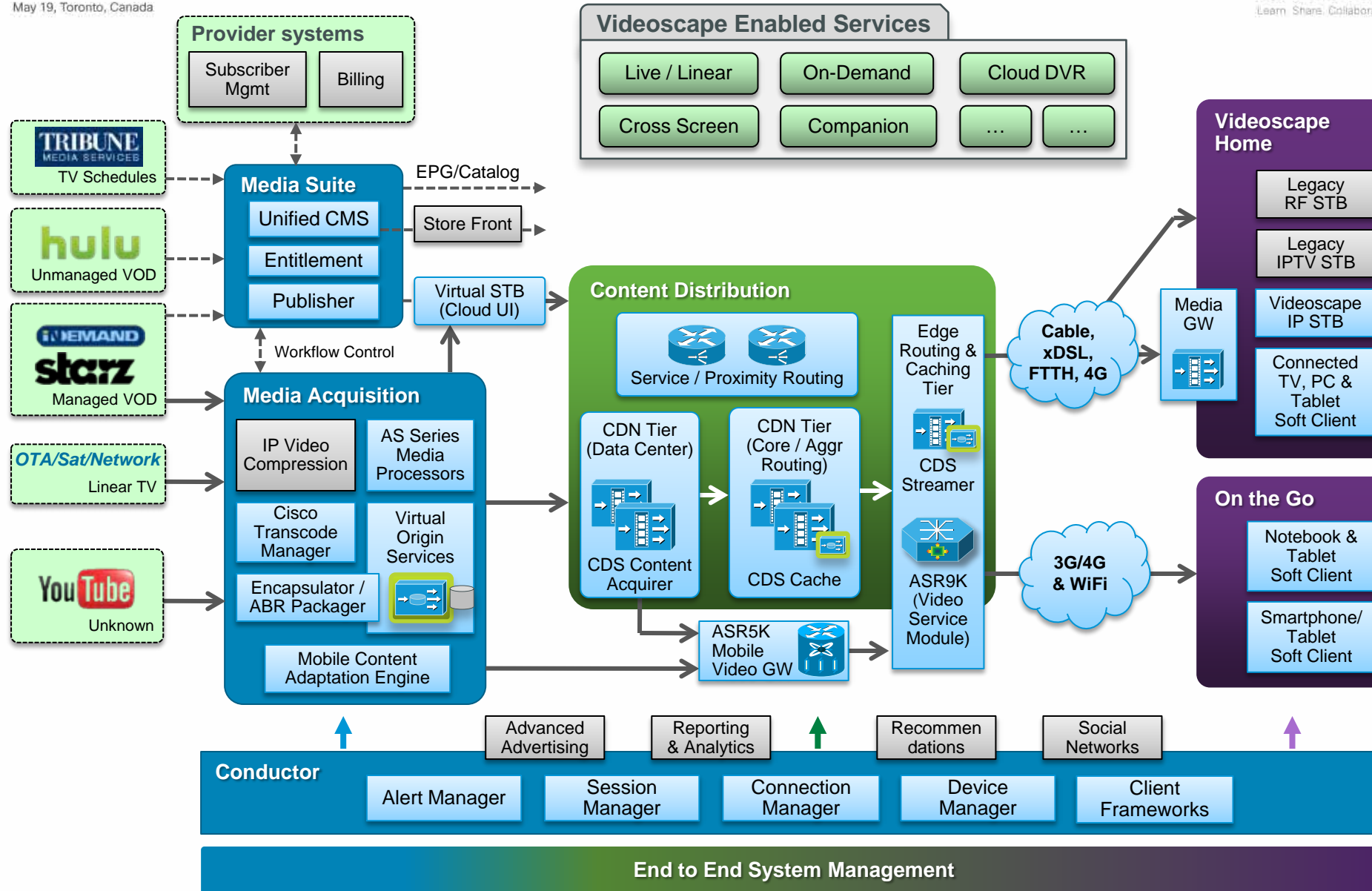
Android



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Architecture Summary:

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Q & A



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Please take a moment to complete the
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Thank you.

