Web & TV IG HTML5 Proposals

November 2, 2011

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Web and TV IG - Members

Media/Operator	Research/Government	Electronics/Software
AT&T	Aalto University	ACCESS
BBC	CWI	Canon
CableLabs	Dept Inf. Tech., India	Cisco
Comcast	ETRI	Ericsson
Deutsche Telekom	EBU	Google
Disney	Fraunhofer	Infraware
France Telecom	IBBT	Intel
Google	ITRI	LG
Microsoft	Institut Telecom	Microsoft
Netflix	IIT	MStar Semiconductor
NTT	Media Access Australia	Nokia
SK Telecom	Mobile Web 2.0 Forum	Opera Software
Sony	Network Inf. Ctr. Brazil	Samsung
Telefónica de España	RIT	Sony
Tomo-Digi	Vrije Universiteit	Sony Ericsson
		Toshiba

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Disney
France Telecom
Google
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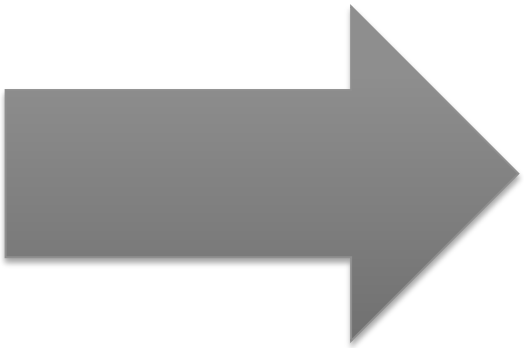
Sony
Telefónica de España
Tomo-Digi



ACCESS
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Cisco
Ericsson
Google
Infraware
Intel
LG
Microsoft
MStar Semiconductor
Nokia
Opera Software
Samsung
Sony
Sony Ericsson
Toshiba

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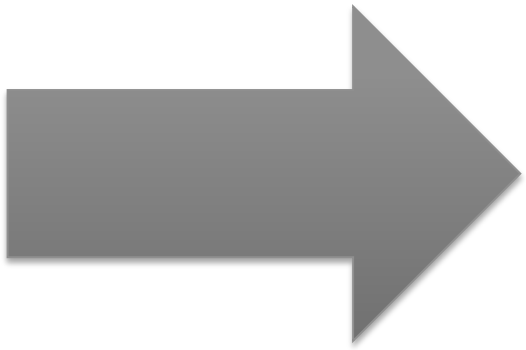
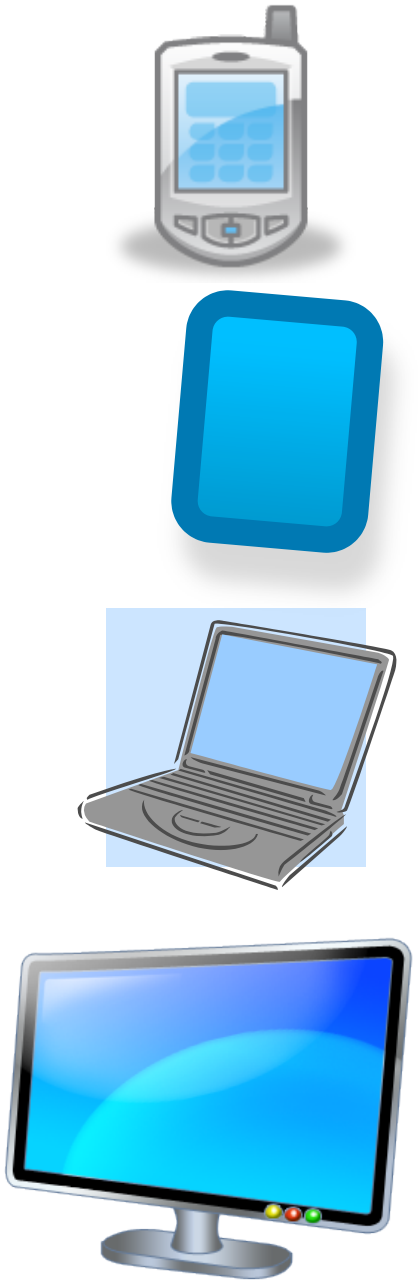
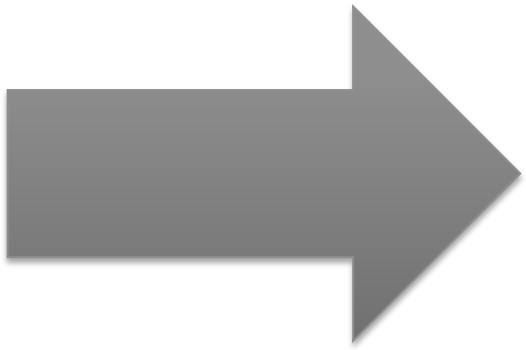
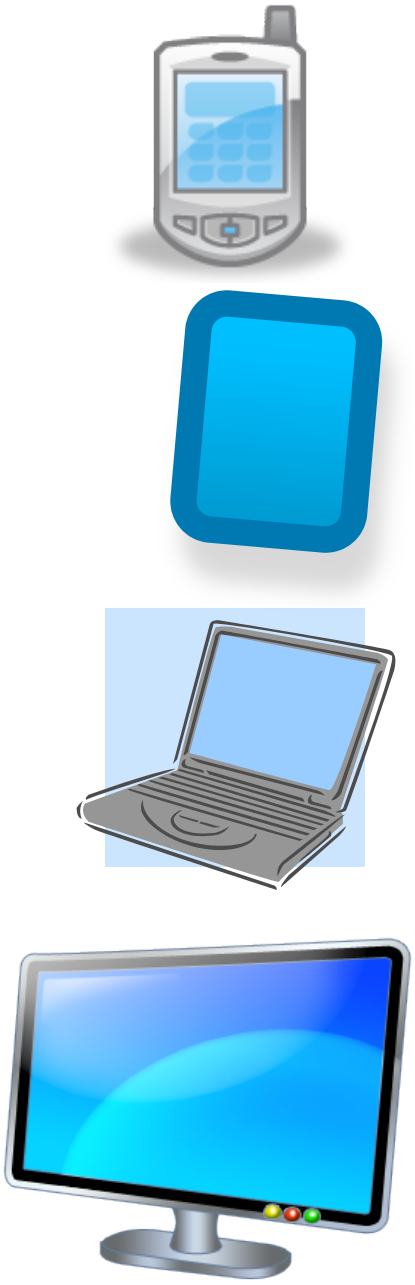




Web video





Web video – Today

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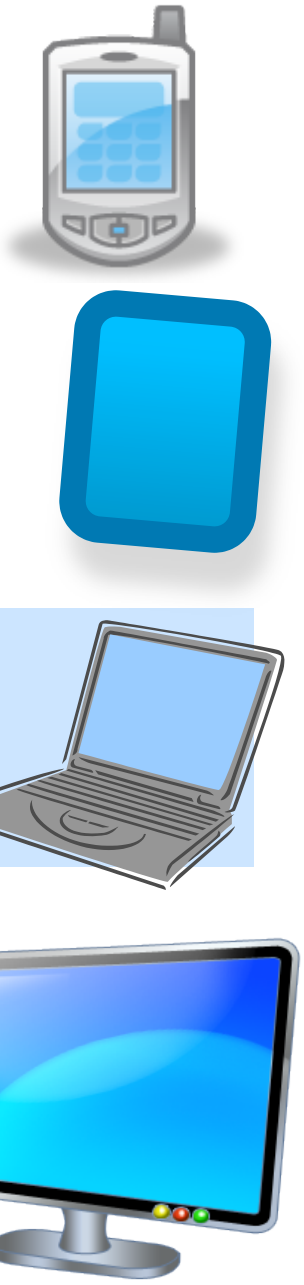

Web video – Today

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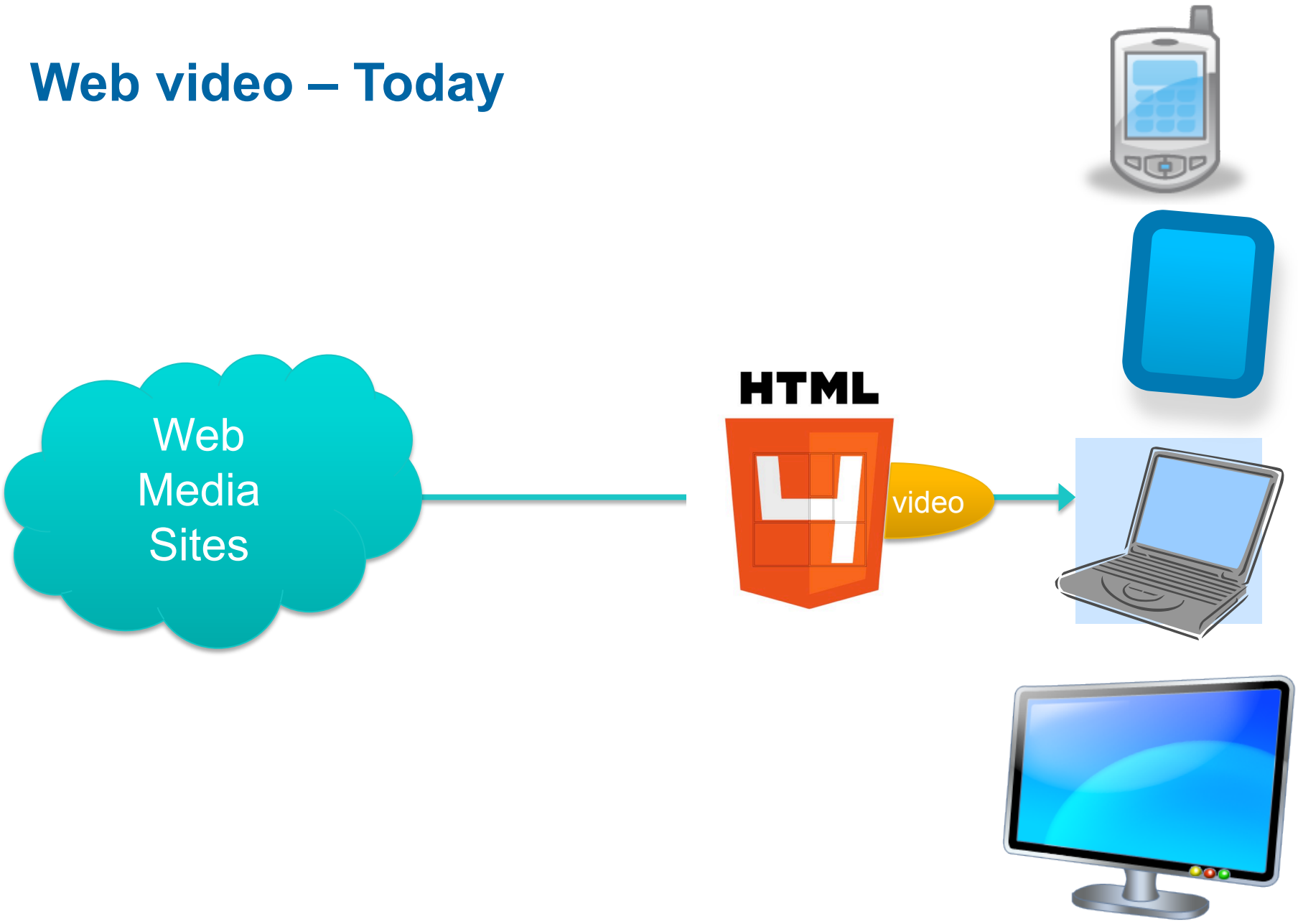
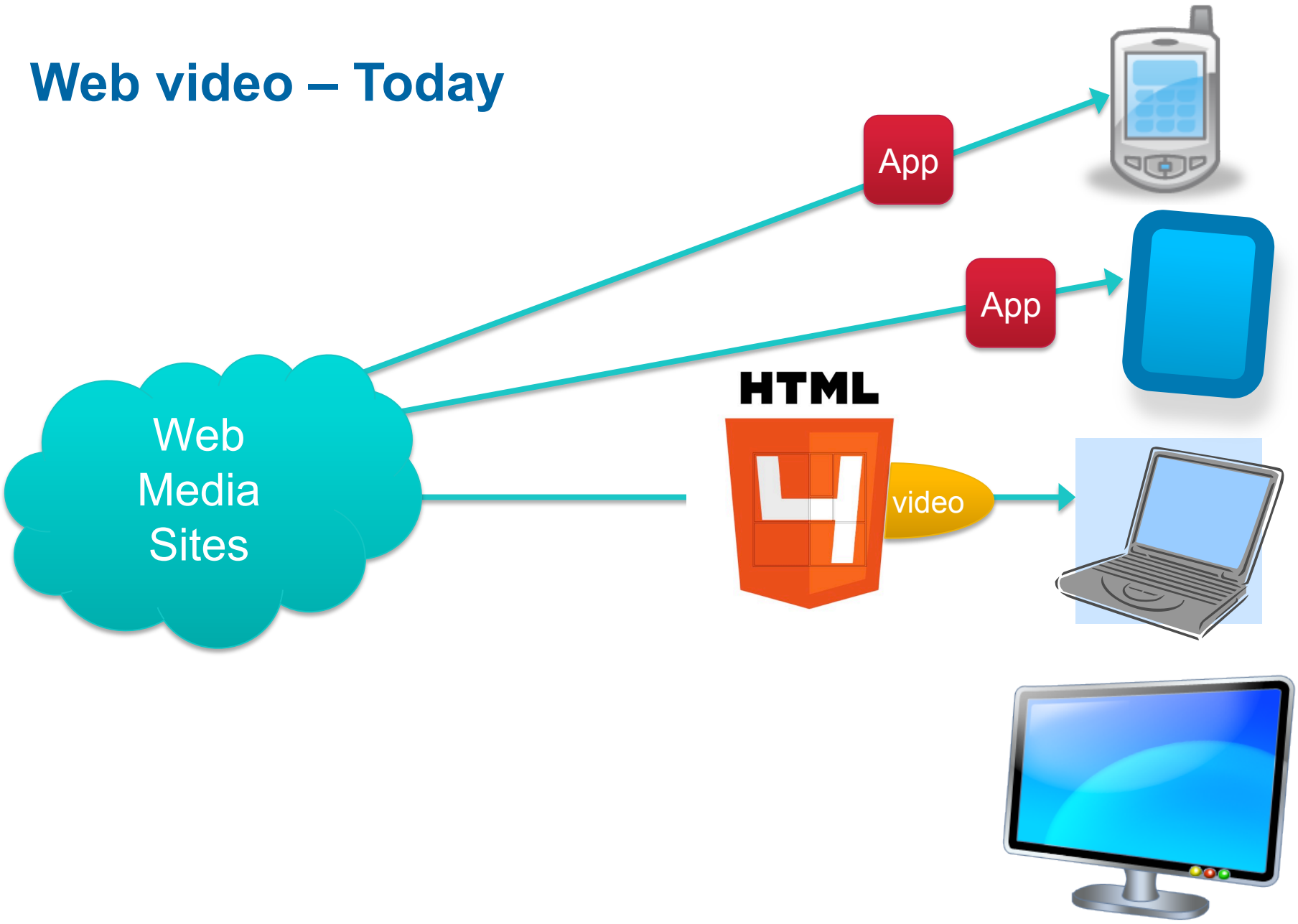
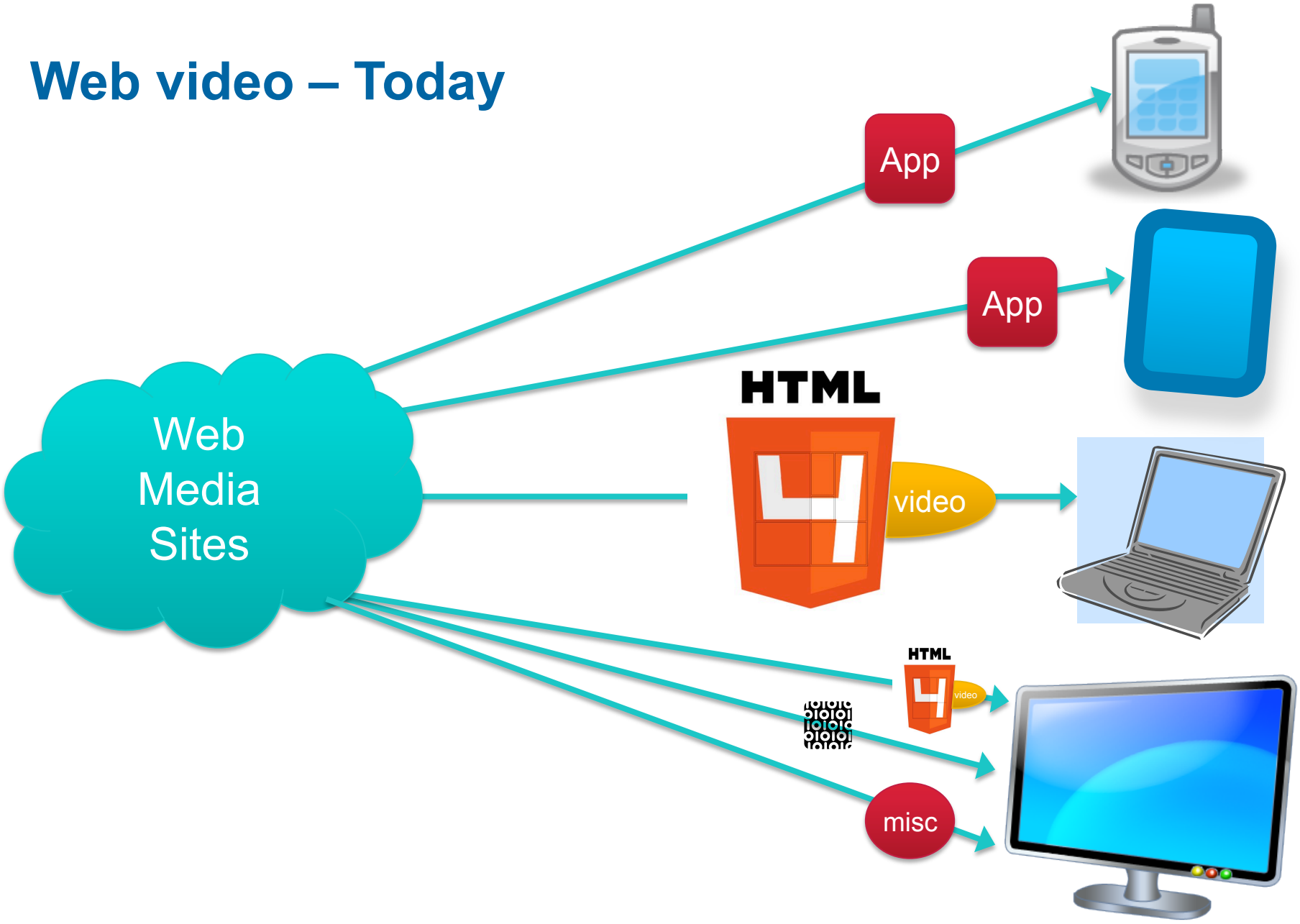


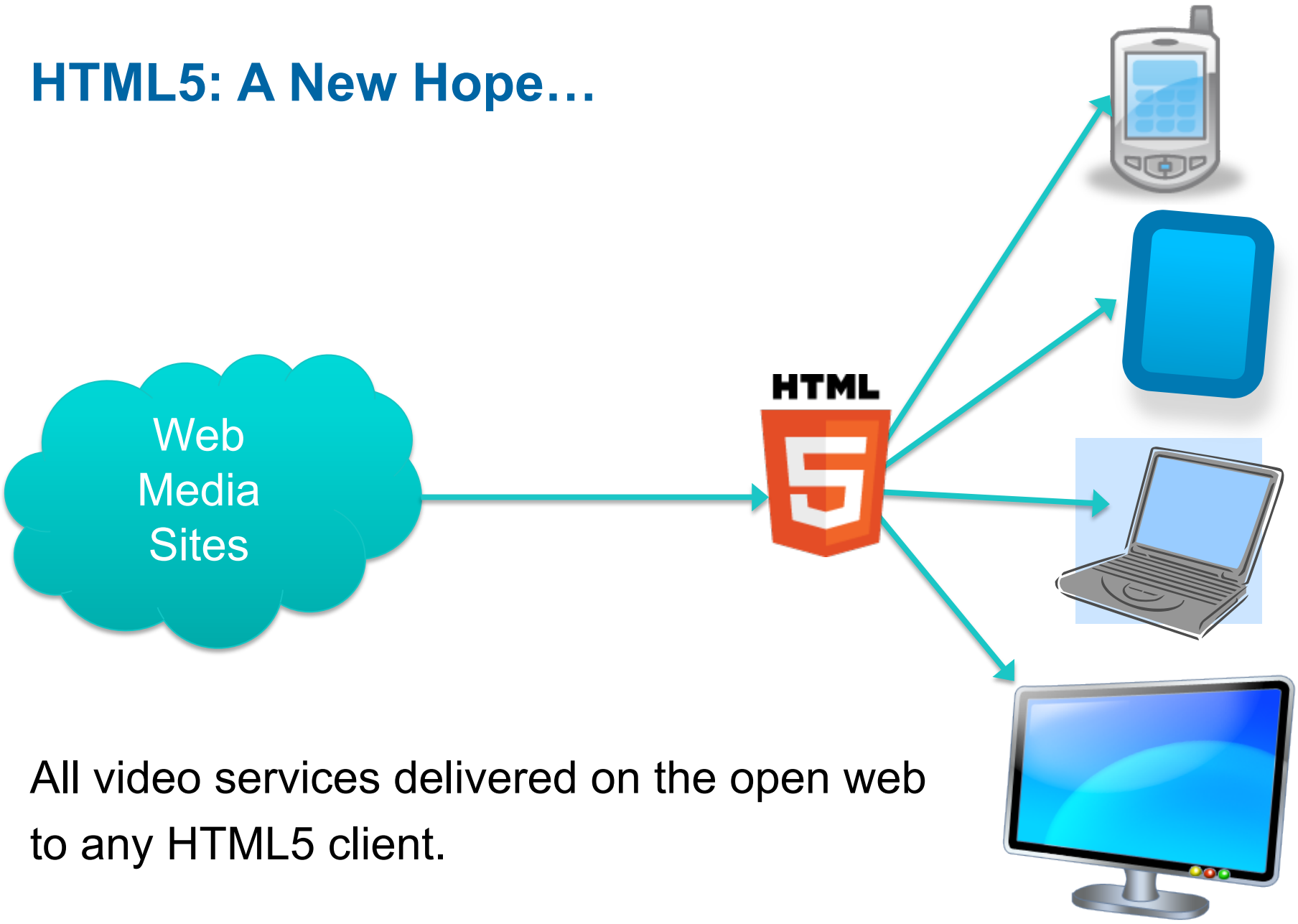
Web video – Today



Web video – Today

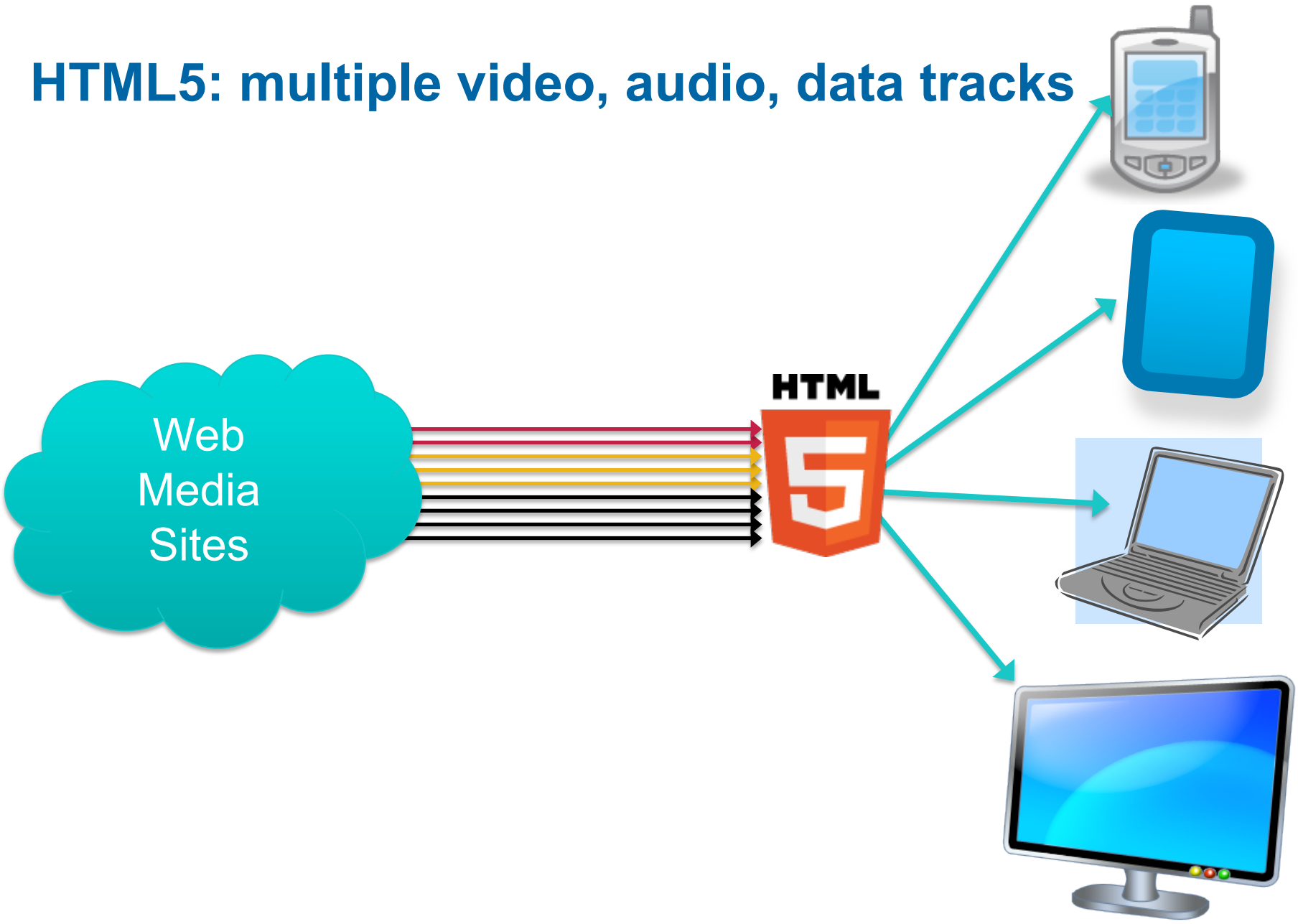


HTML5: A New Hope…

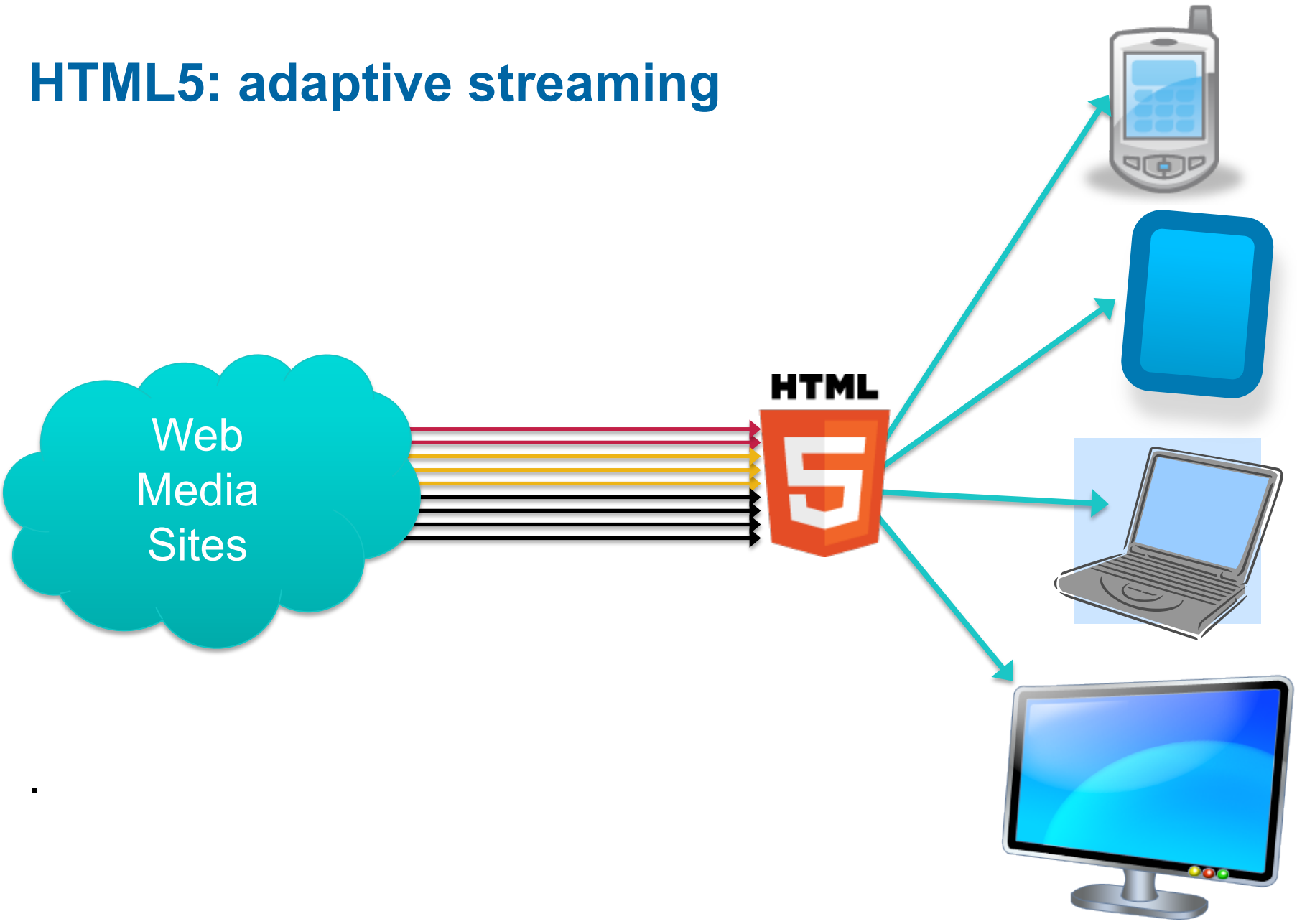


All video services delivered on the open web to any HTML5 client.

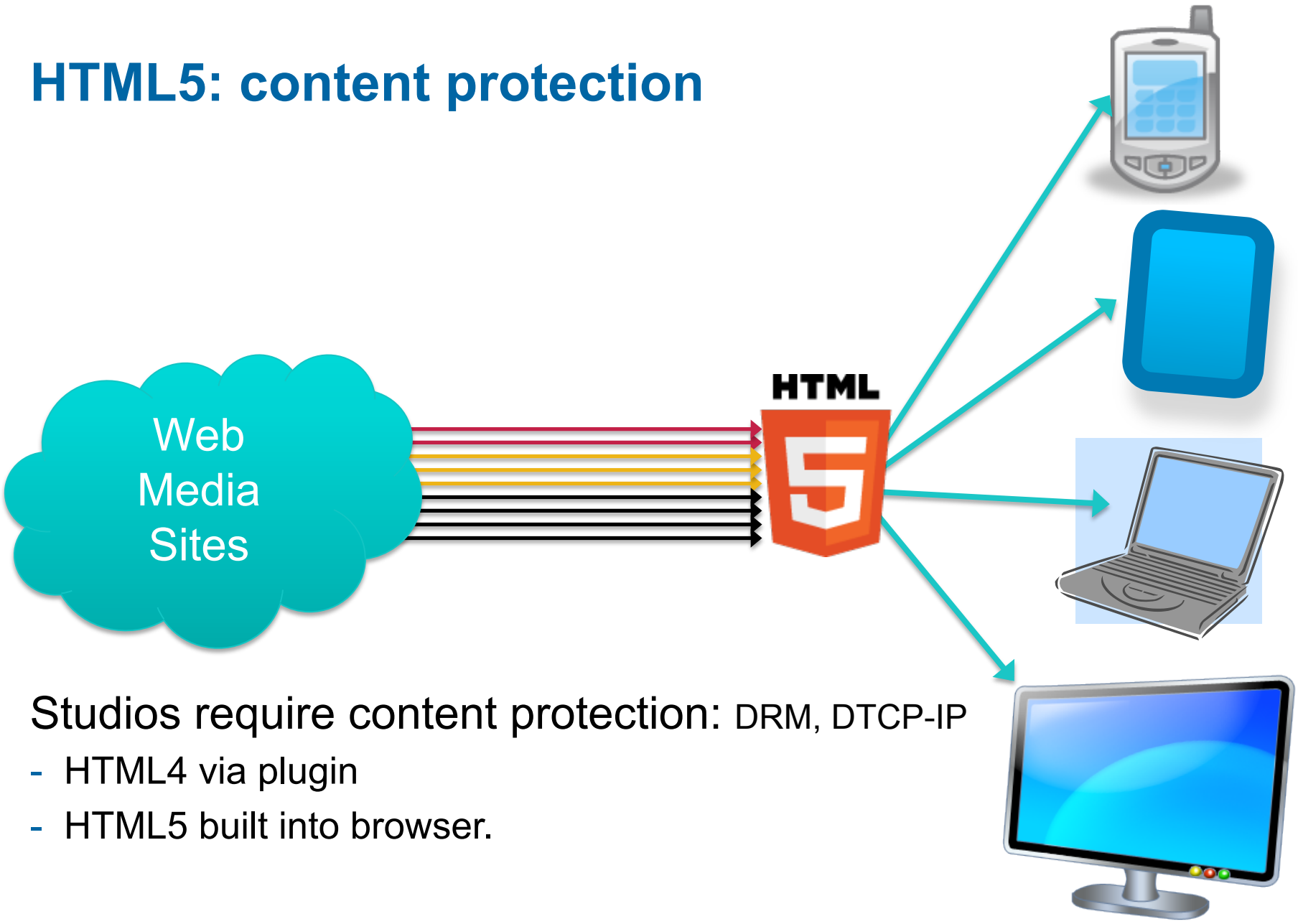
HTML5: multiple video, audio, data tracks



HTML5: adaptive streaming



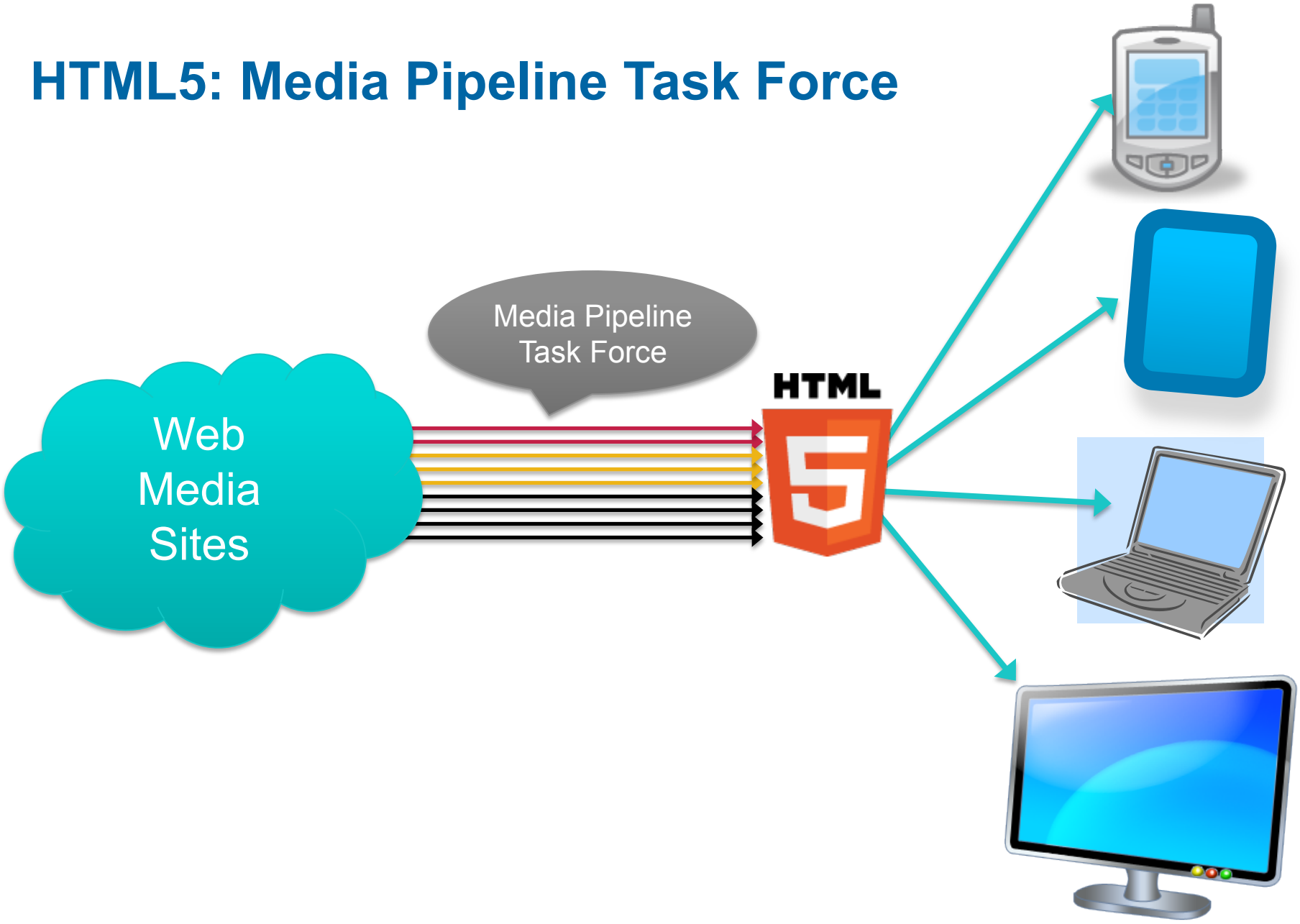
HTML5: content protection



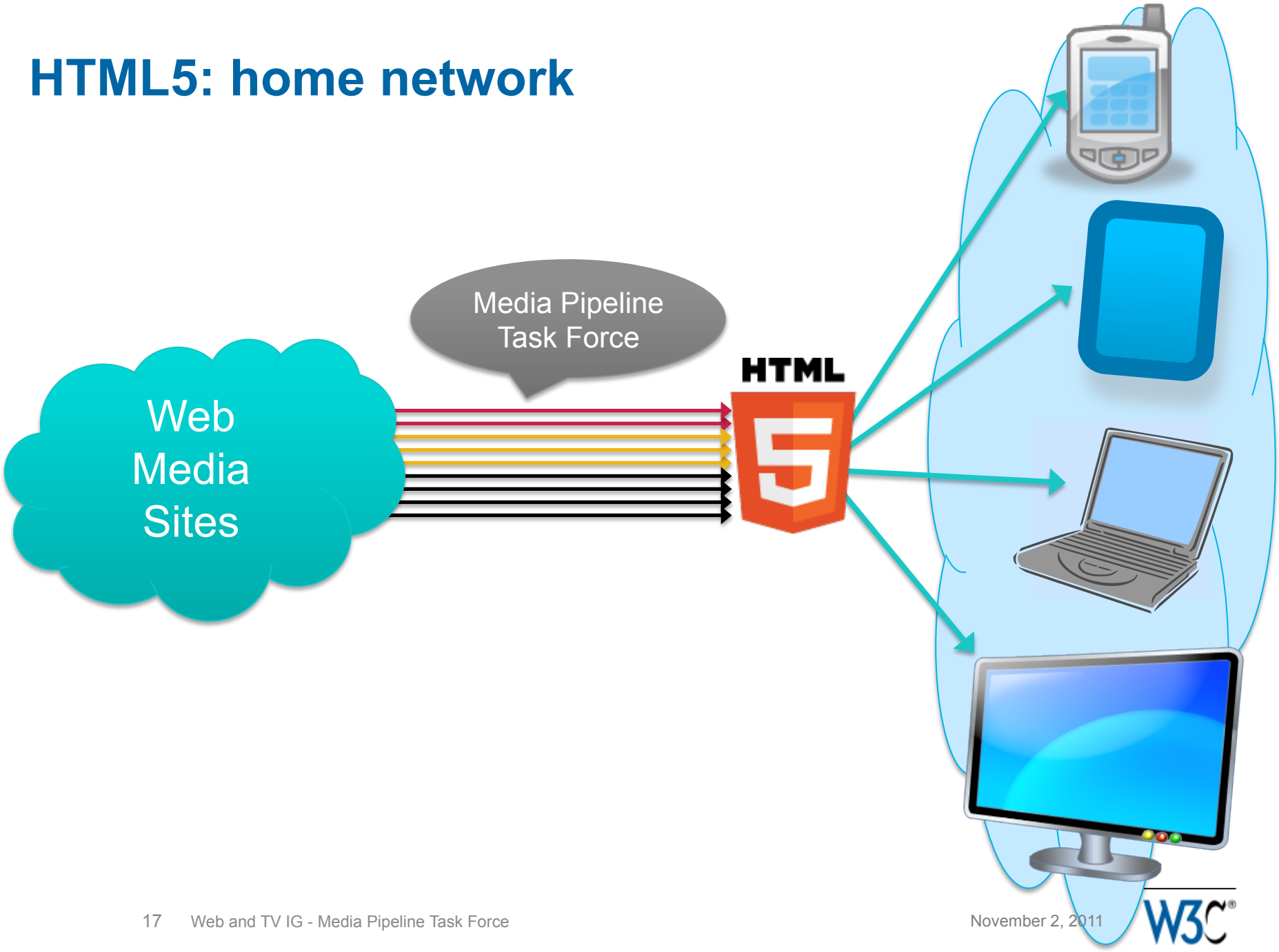
Studios require content protection: DRM, DTCP-IP

- HTML4 via plugin
- HTML5 built into browser.

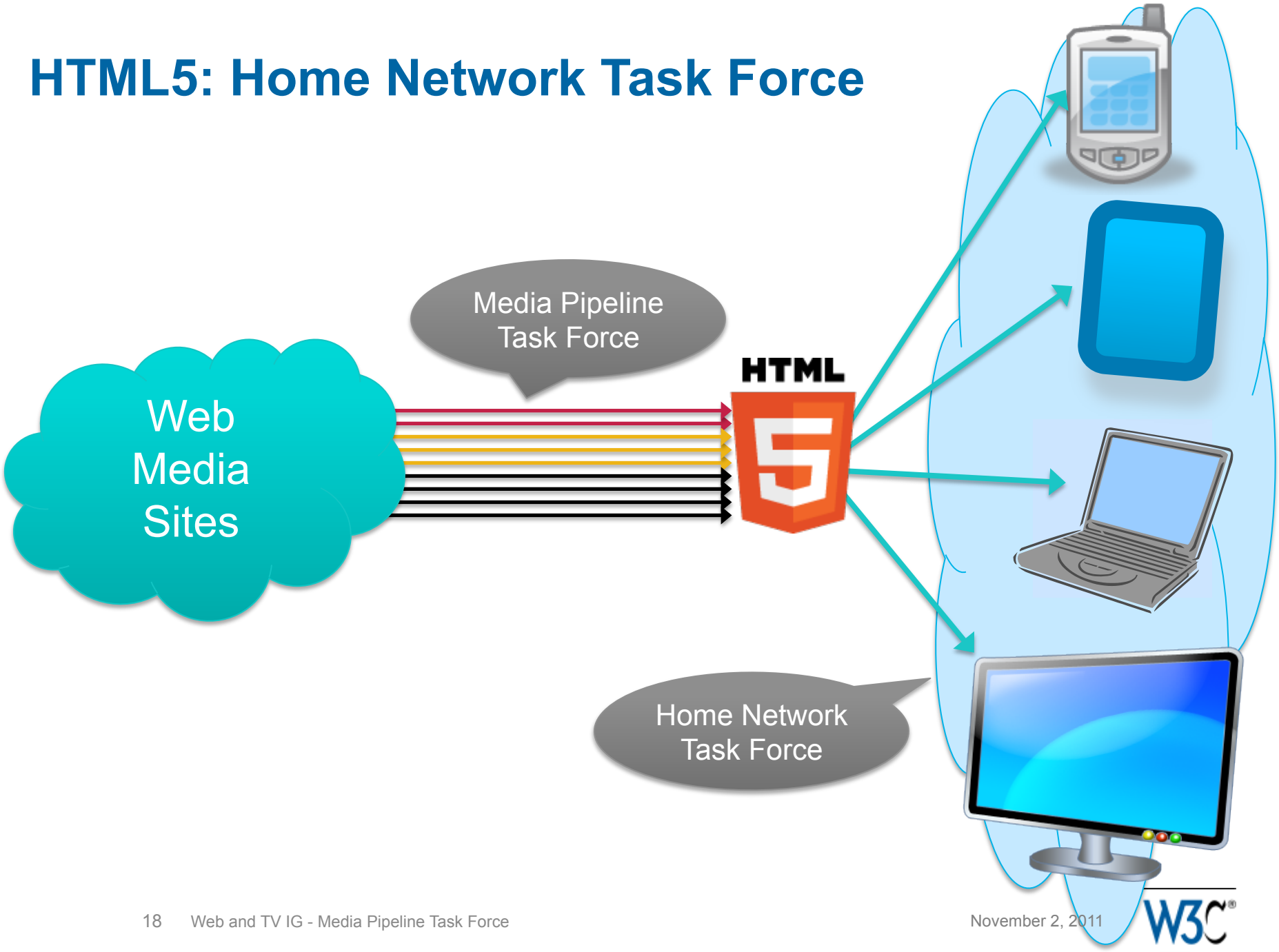
HTML5: Media Pipeline Task Force



HTML5: home network



HTML5: Home Network Task Force



W3C Media Pipeline TF Report

November 1-4, 2011

The promise of TV on the web

The reality of TV on the web

Why isn't professional quality TV everywhere?

- Content rights
  - Professional content requires a legitimate business model
- Common protocol communication
  - It's not practical for all content formats to be supported by all browsers
  - It's not practical for all content providers to support all content formats
- Mainstream television services
  - Content advisories
  - Content authorization
- Accessibility
  - Services currently provided on television + more

Why stop there? The web promises more

New user experiences

- Multi-screen experiences
- Synchronization of multiple content types and sources
- Content customized by available platform and user preferences
- Commercial quality content on any platform
- Support for accessibility features
- Interactive experiences
- Context awareness
- Intelligent delivery management
- Integration of other networked devices

What's needed?

R1. Combined main + description audio track

- **Use case:** Playing descriptive audio tracks , which come in two forms:
  - description pre-mixed with main audio (e.g. USA, Canada)
  - description not mixed with main audio (e.g. Europe)
- **What doesn't work:** HTML5 spec only supports non-premixed description tracks.

- **Suggested changes:**
  - Define two new Category values:
    - "main+description" - pre-mixed main audio track and audio descriptions
    - "translation+description" - pre-mixed translated audio track and audio descriptions.
  - Make Category a list, allowing other combinations (e.g. video with main and sign).

R3. Handling of In-band Tracks

- **Use case**: Playing in-band multiplexed media streams (e.g. broadcast television, live events and recorded movies) with track elements that come and go over time (e.g. secondary audio, subtitles in different languages, application signaling and content ratings.)
- **What doesn't work:** Application doesn't know type of data tracks or when tracks end.

- **Suggested changes:**
  - Mapping of in-band tracks needs to be done in a standard way within each transport: should W3C publish mapping specs?
  - The transport "directory" info(e.g. PMT) can be mapped as text track using current spec. Would be better as a track type.
  - Deletion of track causes some notification.

R7. Additional Media Parameters

- **Use case:** Playing adaptive rate video via video element. Currently deployed object element adaptive rate video players allow application control of adaptive play-out. Common parameters for other media should also be considered.
- **What doesn't work:** HTML5 spec has no APIs to control adaptive video.

- **Suggested changes:**
  - Expose information, such as the available bit rates and set a maximum used by the user agent
  - Expose and set parameters of an adaptive bit-rate fragment selection algorithm
    - E.g. contentInfo and size from LC Bug 13625
  - Ability to signal and play media spliced seamlessly onto end of current video.

R8. Additional Media Feedback and Errors

- **Use case:** The media element interface should support the feedback of relevant adaptive bit rate, or other media information (e.g. delivery statistics, events, and errors).
- **What doesn't work:** HTML5 spec lacks error messages and events specific to adaptive bit rate video or other media specific support.

- **Suggested changes:**

  Add error codes common to media errors, and additional events or information, e.g.

  - DNS failures, TCP failures, TLS failures
  - Delivery statistics (packet drop rate, etc.)
  - Change in rendered stream event

R10. Content Protection Parameters

- **Use case:** The media element interface should support secure specification of content protection and digital rights management parameters (e.g. subscription requirements, etc.).
- **What doesn't work:** HTML5 spec has no APIs to control content protection.

- **Suggested changes:**
  - Make changes to:
    - Expose information, content protection level
    - Expose and set parameters of a content protection algorithm
      - E.g. protectionInfo from LC Bug 13625

R11. Content Protection Feedback and Errors

- **Use case:** The media element interface should support the feedback of relevant content protection and digital rights management information (e.g. supported DRMs, DRM ready, need to reactivate license, etc.).
- **What doesn't work:** HTML5 spec lacks error messages and events specific to content protection support.

- **Suggested changes:**

  Add error codes common to content protection errors, e.g.

  - MEDIA_ERR_KEY_EXCHANGE
    - The key is not valid.
  - MEDIA_ERR_GEOGRAPHY
    - The media resource is not available in user's geography.

Summary – LC bugs and related issues

Use Case	Issue 179	LC 12399	LC 13357	LC 13358	LC 13359	LC 13625	LC 14492	Mapping
R1. Combined main + description audio track			✔					
R3. Handling of In-band Tracks				✔	✔		✔	✔
R7. Adaptive Bit Rate Parameters	✔					✔		
R8. Adaptive Bit Rate Feedback	✔	✔						
R10. Content Protection Parameters	✔					✔		
R11. Content Protection Feedback	✔							

Next steps

- Work with HTML WG to address the issues identified in the Media Pipeline TF and make any necessary specification changes (several related LC bugs filed)
- Work with accessibility group and other groups to ensure that media-related requirements are met
- Work with browser vendors to move towards implementations