

Technical Disclosure Commons

Defensive Publications Series

August 2020

Validation of Media Item Accuracy During Content Delivery

Anonymous

Follow this and additional works at: https://www.tdcommons.org/dpubs_series

Recommended Citation

Anonymous, "Validation of Media Item Accuracy During Content Delivery", Technical Disclosure Commons, (August 07, 2020)

https://www.tdcommons.org/dpubs_series/3508



This work is licensed under a [Creative Commons Attribution 4.0 License](https://creativecommons.org/licenses/by/4.0/).

This Article is brought to you for free and open access by Technical Disclosure Commons. It has been accepted for inclusion in Defensive Publications Series by an authorized administrator of Technical Disclosure Commons.

Validation of Media Item Accuracy During Content Delivery

ABSTRACT

This disclosure describes techniques for validating media item accuracy before a media item is provided for rendering on a user device. A unique key or hash value is generated for each media item such as an image, video clip, etc. at a time of content creation. Upon receipt of a request for rendering content on a user device, hash values are determined for the media item(s) included in the content. The determined hash values are compared to corresponding hash values of the media items previously generated and stored. If it is determined that the determined hash values match the corresponding hash values generated at the time of content creation, the content including the media items is rendered on the user device. In this manner, it is ensured that content such as advertising is rendered with the correct media items included, avoiding brand confusion.

KEYWORDS

- Content validation
- Content hashing
- Content caching
- Online advertising
- Ad rendering
- Content delivery network (CDN)
- Brand identity
- Brand safety

BACKGROUND

Online publishers of content such as news websites, social media portals/apps, etc. commonly include sponsored content, e.g. ads, along with their content. Online content can include large data files, e.g. video clips, images, etc. which are accessed by users who utilize different types of user devices with different screen sizes, aspect ratios, etc. In order to provide a high quality user experience, e.g., fast and accurate loading of content that is tailored to the user device, online content publishers utilize content delivery networks (CDN) that are located at a network edge, e.g., located geographically/topologically close to the user device, to serve content over the last mile.

Errors in the content delivery process can sometimes lead to delivery of inaccurate content. For example, an advertisement may erroneously include an unrelated product image, or even a competitor product image, which can lead to poor user experience and/or brand confusion.

DESCRIPTION

This disclosure describes techniques for verifying (validating) media item accuracy before a media item is rendered on a user device. Per techniques of this disclosure, at a time of content creation, hash values of media items, e.g. images, associated with the content are generated. At a time of providing content to a user device and prior to the actual rendering of the content on the user device, hash values of media items in the content are determined. The determined hash values are compared to the original hash values. The content is rendered on the user device only upon verification that the determined hash values match the original hash values.

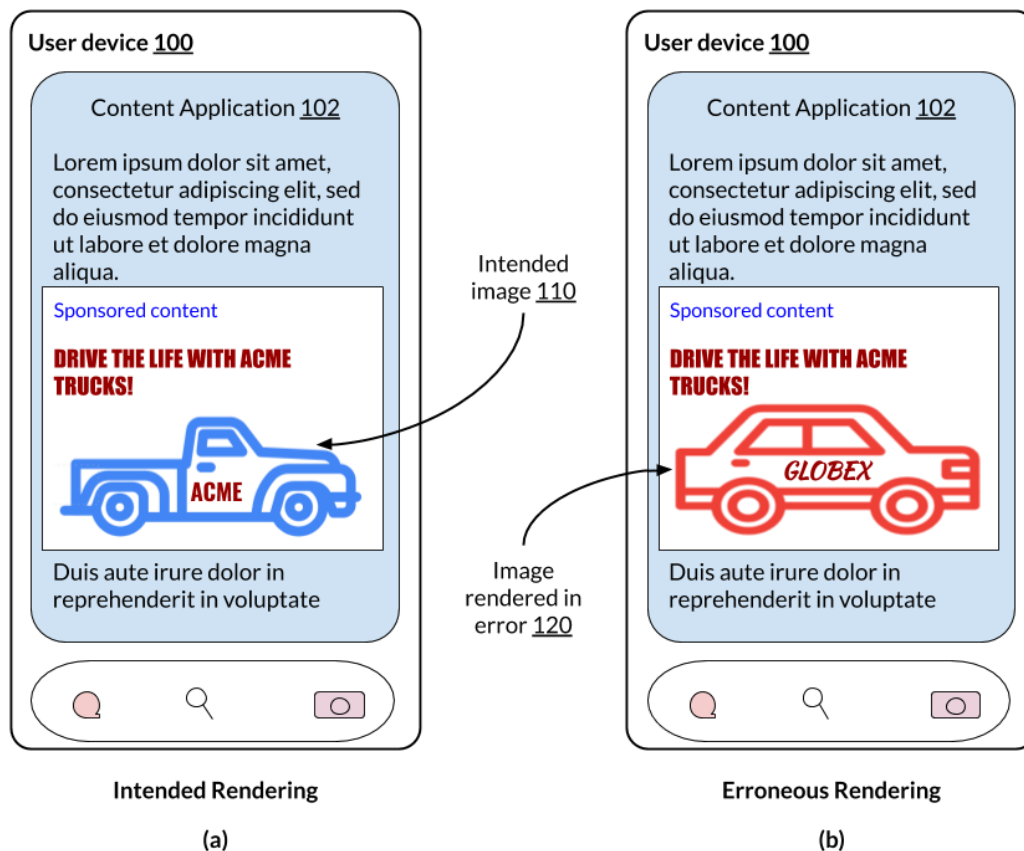


Fig. 1: Media items can be erroneously rendered on a user device

Fig. 1 illustrates an example erroneous rendering of an image. Fig. 1(a) depicts a content application (102) on a user device (100) that includes sponsored content (ads) in addition to the application content (e.g., web page, social media feed, etc.). In the example shown in Fig. 1, the sponsored content includes an advertisement for a product (“ACME Trucks”). The advertisement includes text (“Drive the life with Acme Trucks”) as well as an embedded image (110) of an ACME truck. Fig. 1(a) depicts the intended rendering of the page on the user device.

Fig. 1(b) depicts an example of incorrect rendering of content on a user device. In this illustrative example, due to a cache error at a content delivery network (CDN) utilized for delivery of an image to the user device, the sponsored content includes an erroneously rendered embedded image (120) of a Globex car. As can be seen, this can lead to brand confusion and a

poor user experience since the ad text relates to Acme trucks while the image shown is of a Globex car. Such errors can lead to penalties and/or loss of revenue to the content publisher or the advertising network.

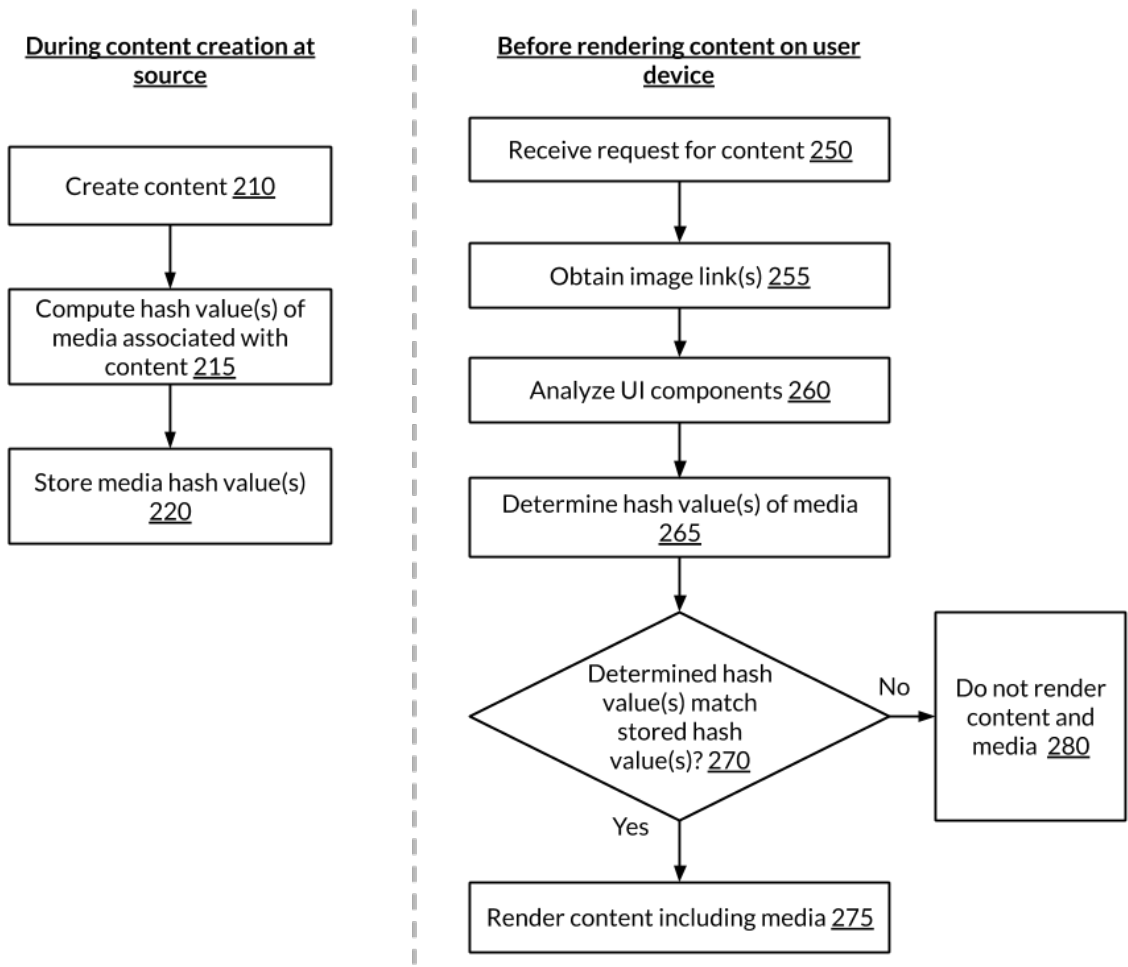


Fig. 2: Validation of content media items prior to being rendered on a user device

Fig. 2 depicts an example workflow for verifying accuracy of media items prior to rendering on a user device. The workflow may be applied to a variety of media items, e.g., images, video clips, etc. that are associated with different types of content, e.g. news feeds, advertisements, blogs, stories, etc.

The workflow commences at a time of content creation with creation of content that includes multiple items, e.g., text copy, image(s), video(s), etc. at the source (210). A unique key, e.g. hash value, is generated for each media item in the content (215). In some use cases, hash values are also generated for the text component of the content, separate from the media items. In some use cases, a combined hash is generated based on the respective hash value(s) generated for each media item and the text component of the content.

Hash values are generated based on functions that are utilized to map data, e.g. data files, of different types to unique fixed-size values, e.g. 64-bit integers, representative of the data. A comparison of any two data files can be made by comparison of hash values corresponding to the data files. A hash value for a data file can be utilized as its ground truth or key.

The hash value(s) associated with the media item(s) and/or content are stored (220) along with the associated content. At a time of rendering of content on a user device, the hash values of media item(s) to be rendered are verified prior to rendering content on the user device, as described below.

A request for rendering content on a user device is received (250). For example, the request may be a request for rendering a news feed that includes textual content as well as image(s). In another example, the request may be a request from an ad server for rendering an advertisement (ad) that includes ad copy and an associated image on a user device.

Media item link(s), for example, image links are obtained for each link included in the received request (255). The user interface (UI) components are analyzed (260). Hash values are determined for the media item(s) (265) included via the media item links. In some use cases, hash values are determined for the text content and/or a combined hash value is generated for the content inclusive of the text content and media item(s).

The determined hash values are compared (270) to corresponding hash values of the media items and/or text content previously generated and stored at the time of creation of the content. If it is determined that the determined hash values of the media items and/or text content match the corresponding hash values of the media items and/or text content generated at the time of content creation, the content including the media items is rendered on the user device (275).

If it is determined that the determined hash values of the media items do not match the corresponding hash values of the media items generated at the time of content creation, the content is not rendered on the user device (280). In some implementations, a fresh request for content is initiated. In some implementations, one or more user interface elements may be inactivated, in response to determination that the media items do not match.

The described techniques can be used for any type of content delivery. For example, a social media “stories” feature can include display of user content interspersed with an advertisement (also formatted as a story). If the media content of the advertisement is not validated, display of the advertisement as a story is suppressed. For example, the story may include a hash for each embedded image, and if the hash of the received image does not match, the story is not shown to the user.

CONCLUSION

This disclosure describes techniques for validating media item accuracy before a media item is provided for rendering on a user device. A unique key or hash value is generated for each media item such as an image, video clip, etc. at a time of content creation. Upon receipt of a request for rendering content on a user device, hash values are determined for the media item(s) included in the content. The determined hash values are compared to corresponding hash values of the media items previously generated and stored. If it is determined that the determined hash

values match the corresponding hash values generated at the time of content creation, the content including the media items is rendered on the user device. In this manner, it is ensured that content such as advertising is rendered with the correct media items included, avoiding brand confusion.