

What Definition of “Network interaction” to use

In this Call for Objections the Tracking Protection Working Group was asked, which definition of the term “network interaction” to use in the specification.

The CfO was set up to solve and close ISSUE-217: Terminology for user action, interaction, and network interaction (<https://www.w3.org/2011/tracking-protection/track/issues/217>) and the related ISSUE-228: Revise the Network Interaction definition (<https://www.w3.org/2011/tracking-protection/track/issues/228>). Basis for this decision were two text proposals that emerged from the Working Group’s discussion.

After evaluating the groups inputs, we determined that Option A had more substantiated objections and that Option B is determined as group consensus for ISSUE-217 and ISSUE-228.

The Call for Objections was open from November 30, 2013 to December 18, 2013. In total 8 Members of the Working Group participated and presented arguments against or in favor of the two options. The full results of the questionnaire are public at <https://www.w3.org/2002/09/wbs/49311/tpwg-interact-217/results>.

The Options

1. Option A: all requests caused by a user interaction

A **network interaction** is the set of HTTP requests and responses, or other sequence of logically related network traffic, caused by a user visit to a single web page or interaction with page elements.

Non-normative: This is meant to represent the atomic level of interaction by users with web pages. Page loads, navigation, and clicks are common forms of interaction. Page load, object mouse-over, image click, hyperlink click, sub-element re-load, and form entries are all examples of valid network interactions.

2. Option B: user action, network interaction, and subrequest

A **network interaction** is a single HTTP request and its corresponding response(s): zero or more interim (1xx) responses and a single final (2xx-5xx) response.

A **user action** is a deliberate action by the user, via configuration, invocation, or selection, to initiate a network interaction. Selection of a link, submission of a form, and reloading a page are examples of user actions.

A **subrequest** is any network interaction that is not directly initiated by user action. For example, an initial response in a hypermedia format that contains embedded references to stylesheets, images, frame sources, and onload actions will cause a browser, depending on its capabilities and configuration, to perform a corresponding set of automated subrequests to fetch those references using additional network interactions.

Explanatory considerations on the choice of definition

Both of the proposed definitions were in scope of the above mentioned ISSUES 217 and 228. The proposed Options A and B were both useful with regard to the TPE to clarify important terms.

While Option A was more intuitively formulated (this was also emphasized by the comments in favor of Option A by Shane Wiley and Brad Kulick), Option B was more technology-centric. In contrast to Option A, Option B also included the additional definitions for “user action” and “subrequest”.

The decision was made by exclusion, based on assessing the substance of the objections against each option. The goal was to identify the definition with the least substantiated objections. This was done in particular considering the usage of the term “interaction” in section 6.6 (scope of transferred exceptions) of the TPE (<http://www.w3.org/2011/tracking-protection/drafts/tracking-dnt.html#transitive-exceptions>). Based on the current TPE draft we concluded that the usage in section 6.6 would be the most relevant use case to assess the substance of the participants’ arguments.

After evaluating the Groups’ inputs, we determined that Option A received more substantial objections and that B is determined as group consensus for ISSUE-217 and ISSUE-228.

Objections against Option A:

The goal of these ISSUES was to have a usable definition that allows a site owner to understand the scope of a network interaction. In light of this goal, the objection of David Singer, Mike O’Neill, and Walter van Holst that definition in Option A is hard to translate into technically implementable algorithms was a substantive argument against Option and in favor of Option B.

David Singer wrote: “This has serious problems. (a) DNT is attached to a single HTTP header. Is the server supposed to somehow work out which other HTTP requests were for a 'single web page'? (b) Servers know nothing about web pages, only web resources; most servers will not know the end of the 'page load'. (c) many web sites are constructed of independent frames, dynamically generated content and the like, which also makes the concept of 'page' fairly meaningless. As stated, this term is unusable conceptually, unimplementable technically, and unverifiable formally.”

Mike O’Neill objected the vagueness of Option A: “The definition is very vague and of no practical use.”

Walter van Holst raised the concern that depending on interpretation Option A may include the interaction with several different content providers in one single “network interaction”: “While making sense from a legal perspective, this definition makes little sense from a technical perspective. Under this definition a network interaction can involve a one-to-many relation since loading for example a banner ad is logically related to a page load, but may involved entirely different parties than the publisher of the page.”

In addition, this objection made by Rob van Eijk that Option A may define a longer series of request/response pairs as being within a single interaction would not fit with the goal of the transferred exceptions in section 6.6 of the TPE spec.

He wrote: “A network interaction is a single HTTP request, not a dialogue. Network interaction and visiting a single site are not synonymous. At least not from a TPE perspective. Since the current state of play is centered around the TPE, it makes sense to define the network interaction in a

bottom up (i.e., technical) sense. If it were a definition for the TCS, a more top down (i.e., legal) definition would be needed.”

Bryan Sullivan only conditionally agreed to Option A: “[I]f it is clarified that "all requests caused by a user interaction" includes anything that the app does automatically (e.g. via XHR, JSONP, etc) in response to some earlier interaction. This includes simply launching the start page of the site/app, as in many current apps all kinds of ongoing automatic transactions can occur simply due to visiting the start ‘page.’”

As Option B was determined as the Group’s consensus for the ISSUES in question and Bryan Sullivan did not raise similar concerns for that Option, we consider these concerns addressed by the decision.

Objections against Option B:

We assessed the arguments against Option B to have less substance in light of the envisioned use case of transferred exceptions.

Mike O’Neill objected to both additional definitions of “user interaction” and “subrequest”: “I do not like the definition of user action because the examples it gives may not be the result of an action by the user, they could have been fooled into clicking a link that takes them to a different server than they imagine or it may be the result of script placed by a server i.e. that uses a JavaScript `element.click()` or `form.submit()` method. Similarly the differentiation of a request from a subrequest by whether it has been directly initiated is vague and not useful.” The Co-Chairs are not convinced that fooling a user into conduct a different network interaction would constitute a deliberate “user action” under this definition. Moreover, if deception is the threat model we are concerned with, the standard could otherwise prohibit tricking users into performing certain actions — that does not have to be achieved in the definitions section.

Rob van Eijk objected the definition of “subrequest”: “A network interaction must be limited to a single request, and not cascade to multiple get requests. It seems almost synonymous with OPTION A (all requests caused by a user interaction).”

The Co-Chairs recognize these concerns with the definition of subrequest; however, given that neither TPE nor TCS currently use the term, those concerns seem less significant than the objections to Option A: if “subrequest” is subsequently used, it can be used with the prescribed parameters of the definition in mind.

Multiple respondents indicated that a definition of “network interaction” is unnecessary and that the additional definitions “user interaction” and “subrequest” may not be needed either.

Jack Hobaugh wrote: “I object to this particular set of definitions because it does not add any clarity to the concise definition already offered in Option A and adds two superfluous definitions (“user action” & “subrequest”) that are neither referenced in the offered definition for “network interaction” nor are they referenced in the TPE.”

The Working Group agreed that if a specific definition is not needed in the TPE, we may discuss whether it should be pushed to the Compliance document during the final clean-up of the document or eliminated altogether. However, our current TPE Editors’ draft section 6.6. (transferred exceptions) uses the term “interaction” in a way that is congruent with “network interaction.” It scopes the transfer of an exception to third parties by using the term “interaction” (if an ad network obtains a DNT:0, it can transfer this exception to its ad providers for this network interaction).

Other participants objected to Option B because the use cases and criteria for applying these definitions were unclear to them. Moreover, the definitions were not tied together well enough.

Shane Wiley wrote: “The current TPE drafts don’t mention any of these terms so I’m challenge with understanding the full intent of the assembly of these terms. While it’s possible the terms could be assembled in a meaningful manner within the definition of Network Interaction, they have not been in this case. There could several combinations or modifiers used in their assembly that I would likely disagree with but initiatively I believe they (user action and subrequest) were set out as limitations within the broader conceptualization of a Network Interaction – which would actually make the two definitions much closer than they currently appear. That said, since these terms were never fully articulated in this manner, I need to object to this definition of Network Interaction as being overly broad.”

Similarly, Brad Kulick objected Option B: “While it provides definitions for network interaction, user actions, and subrequests and they could be used in conjunction to provide the appropriate scoping for which network traffic DNT is applicable for, it leaves these elements disjoint. Without tying them together or understanding how they will be used within the TPE, I can only assume the manner in which they we meant to be applied, which simply isn't good enough to proceed forward. This option provide individual definitions that are useless in there disjoint presentation.”

As noted previously, merely articulating definitions does not presume substantive outcomes, and if certain terms are not used with the TPE, the editors should ultimately remove those definitions. In this particular case especially, we deem this concern to be less substantial since currently only one definition, “(network) interaction” is used in the TPE and the usage does not require tying the other definitions together. If the group subsequently decides on adding additional elements that utilize the terms “user action” and “subrequest” within TPE, we now have a common basis of understanding from which to discuss what rules would be appropriate.

Result

In conclusion, the ISSUE-217: Terminology for user action, interaction, and network interaction (<https://www.w3.org/2011/tracking-protection/track/issues/217>) and the related ISSUE-228: Revise the Network Interaction definition (<https://www.w3.org/2011/tracking-protection/track/issues/228>), are hereby closed, and the following definitions represent the Working Group’s consensus:

A **network interaction** is a single HTTP request and its corresponding response(s): zero or more interim (1xx) responses and a single final (2xx-5xx) response.

A **user action** is a deliberate action by the user, via configuration, invocation, or selection, to initiate a network interaction. Selection of a link, submission of a form, and reloading a page are examples of user actions.

A **subrequest** is any network interaction that is not directly initiated by user action. For example, an initial response in a hypermedia format that contains embedded references to stylesheets, images, frame sources, and onload actions will cause a browser, depending on its capabilities and configuration, to perform a corresponding set of automated subrequests to fetch those references using additional network interactions.