Container Timing

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Element Timing API

Allows to obtain the rendering timestamps for a specific HTML element, using the PerformanceObserver API.

It supports image and text elements.

Element Timing API

Main problem

We need to add the `elementtiming` attribute to all the painted elements we want to observe.

No aggregate monitoring of a part of the DOM document.

What about LCP?

It is page-wide, not suitable for specific areas of the web page.

What can we do?

Container Timing API

A variation of Element Timing, that monitors an HTML element **and** its descendants.

It aims at providing information about the area that has been rendered, and the time span from first to last paint.

Container Timing API

```
interface PerformanceContainerTiming: PerformanceEntry {
  readonly attribute DOMString entryType = 'container';
  readonly attribute DOMString name = 'containerpaints'; // From
  readonly attribute DOMHighResTimeStamp? startTime; // Start of event (last paint)
  readonly attribute DOMString identifier; // Value of containertiming attribute
  readonly attribute DOMRectReadOnly intersectionRect; // Minimal rectangle
                                                       // covering all paints

  readonly attribute DOMHighResTimeStamp? duration = 0;
  readonly attribute DOMHighResTimeStamp? firstRenderTime; // Time of first paint
  readonly attribute unsigned long long size; // Sum of the area of the damaged areas
  readonly attribute Element? lastPaintedElement; // Last element that was painted
};
```

Container Timing API

Selecting a tree to monitor:

```html
<div id='img_id' containertiming='ct_img_id'>
```

Observing:

```javascript
const observer = new PerformanceObserver((list) => {
   const entries = list.getEntries();
   console.log(entries);
}
observer.observe({type: 'container', buffered: true);
```

Container Timing API

Discussion in progress in the WebPerf WG.

Polyfill, examples and a Chrome extension provided in the explainer repository, to test the feature.

Some ideas being experimented:
- Hide a subtree, with the `containertiming-ignore` attribute.
- Nesting policy with the `containertiming-nesting` attribute.

Container Timing API

I wrote an experimental native implementation in Chromium.

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🎉

Basic implementation landed!

➔   Under the feature flag `ContainerTiming`.

➔   Experimental attributes will follow.

1. Read the [Explainer](#).

2. Play with the implementation.

3. Provide feedback!

My work has been sponsored by Bloomberg.

Thanks!