



The domain consists of **devices** which visit **URLs** at moments in **time**. The visiting of a URL yields a **page**. Pages have attributes, such as a **title**.

Pages can embed versions of **videos**.

They do so by in two ways:

1. By including a video tag with a `src`.
2. By embedding an `iframe` that includes such a video.

Videos on third-party sites — the usual definition of "embedding" — are usually `iframed`. The `iframed` document sometimes provides a **canonical URL** explicitly (Vimeo), and sometimes implicitly (YouTube).

The `iframed` document URL itself is hard to use as a canonical identifier, because it usually includes attribution, `autoplay`, `offset`, or other metadata, mixed in with key parameters like which video to play. Sometimes these parameters will result in different representations of the same video (e.g., different resolutions or HD).

All kinds of pages can embed videos: a "today's video" page, the front page of Reddit, or indeed a permanent canonical page for the video. We thus can't use the source document URL as an identifier.

A "video", then, can have multiple embedding URLs (typically some arbitrary CDN address), can exist in multiple pages (various player URLs with various query parameters), and ideally has one canonical URL.

A "video" can even have multiple player URLs — Vimeo has both HTML5 and Flash URLs for each video.

A video can, via its embeddings, be played on various pages. Sometimes pages can embed multiple videos.

The canonical page can provide metadata about the video itself, such as the director or the title. The title of the video is rarely the same as the title of the page, even for the canonical page.

We establish identity of the video via its canonical URL. Recording (and, potentially, examining) its various `embedURLs` and linking them to the canonical URL allows us to recognize when the video has been encountered on more than one page, avoiding duplication.

Playback events point to the video (whether or not anything more is known about it) and to the page on which it was played.

Additional playback metadata, such as attention, timestamp offset, pause events, etc. can be modeled similarly.