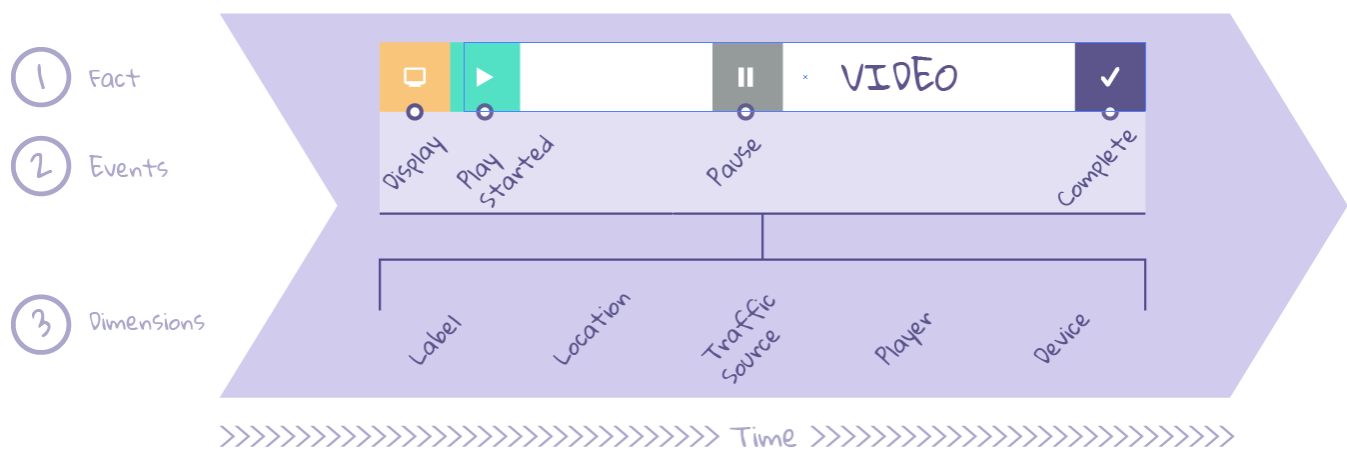# HOW OOYALA ANALYTICS WORKS

In a nutshell: during playback, video players send event-based metrics that are recorded along various dimensions, summarized, and aggregated for reporting and analysis.

After presenting some key concepts, this overview describes the three major parts of Ooyala Analytics so you can understand how it works.

KEY CONCEPTS

The simplified conceptual diagram below relates three ideas that are essential to understanding Ooyala Analytics: 1) facts, 2) events, and 3) dimensions.

1. All information measured by Ooyala Analytics is tied to an asset (usually, a video or live stream). In traditional analytics terminology, the video is called a *fact*. Every video has a unique identifying number, called an *identifier*.

2. As a video is played, video players record *events* (such as "display", "playStarted", or "complete") over time in the life of the asset. Your videos (facts) and their associated events are the basis for all metrics.

3. Every event/asset combination also has predefined aspects called *dimensions* (or *attributes*) that relate to the fact, such as traffic source, player, location, label, and device

Ooyala Analytics records data from events over time along these predefined dimensions during playback. You can also add your own custom dimensions.

Dimension	Description
Device	What kinds of devices it was played on
Geo	Where the video was played, such as country, state or region.
Label	Which Ooyala-type labels are associated with it.
Player	Which video players it was played on. You can define these players' names yourself.
Traffic Source	Where the video was served from.

Time	Time is a "hidden" dimension that represents when events occur. All events have an explicit time stamp recorded by the system.

THREE STEPS OF OOYALA ANALYTICS

Ooyala Analytics has three primary steps or parts. Of the three steps, you do steps 1 and 3, and Ooyala does step 2.

1. RECORDING METRIC DATA
2. AGGREGATING AND SUMMARIZING DATA
3. REPORTING, ANALYSES, AND DATA VISUALIZATION
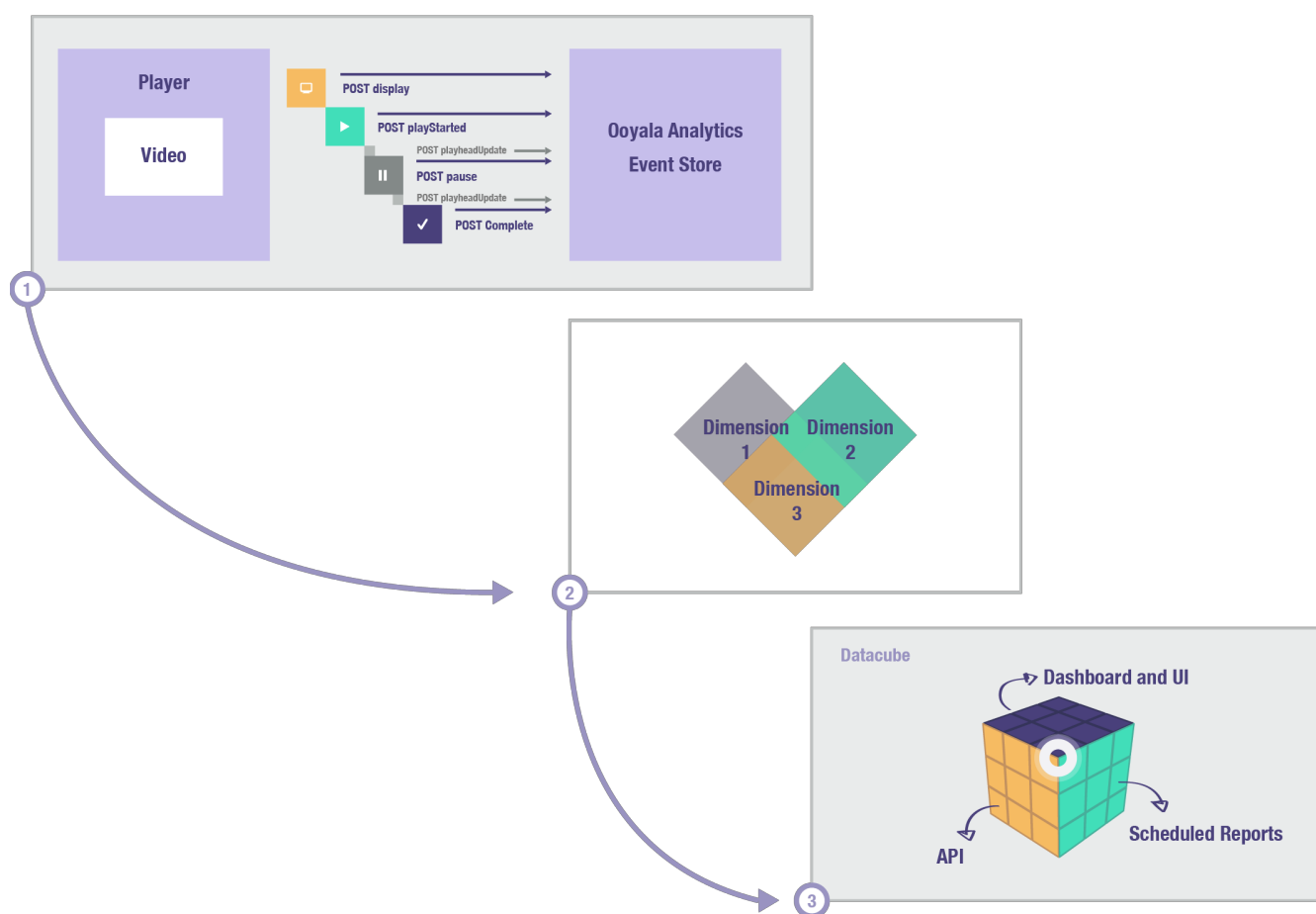
Each step is discussed in the remainder of this section.

RECORDING METRIC DATA

In the first step, to gather metrics, certain events that happen during playback are recorded by the video player as they occur, such as "playStarted", "pause", and others. These events are "data ticks" sent via

a Representational State Transfer (REST) application programming interface (API) over the Hypertext Transport Protocol (HTTP).
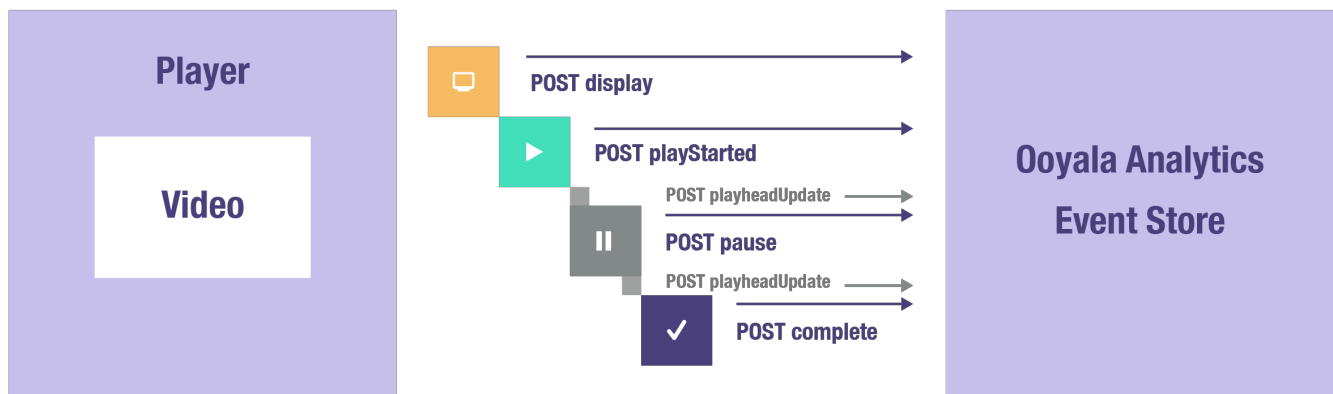

A single event or group of events sent in a single request is sometimes called a *ping*.

Events are recorded in a database called the *event store*.

Note: Custom players must be programmed to send these events. Events are sent automatically by Ooyala-provided players.

AGGREGATING AND SUMMARIZING DATA

In the second step, throughout the day, Ooyala Analysis summarizes and aggregates these event-driven metrics into 15 minute "chunks". Finer time granularity is also possible, such as one minute or five minutes.
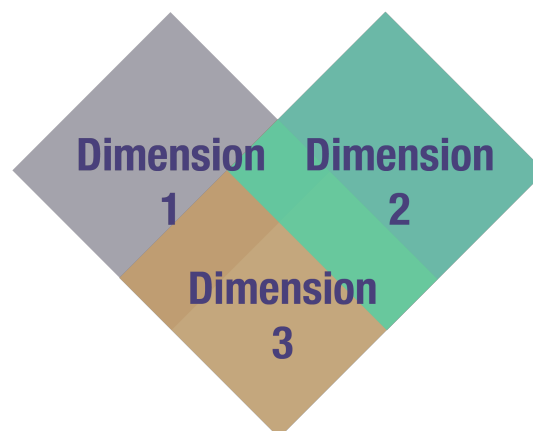

Aggregation means that the intersections among the various dimensions are precomputed so that reports are faster. For instance, aggregation anticipates that you will want to ask questions like "Which devices were used in which locations?" or "Which players were used on which devices?" These "overlaps" are the intersections parts of the diagram above.

Other data transformations can also occur, such as deriving (calculating) other metrics based on the raw data.

The end result of aggregation, summarization, and other transformations is *datacubes* that store these precomputed intersections.

REPORTING, ANALYSES, AND DATA VISUALIZATION

In the third step, after the metrics have been gathered, summarized, and aggregated, and the datacubes created, the data is ready for you.
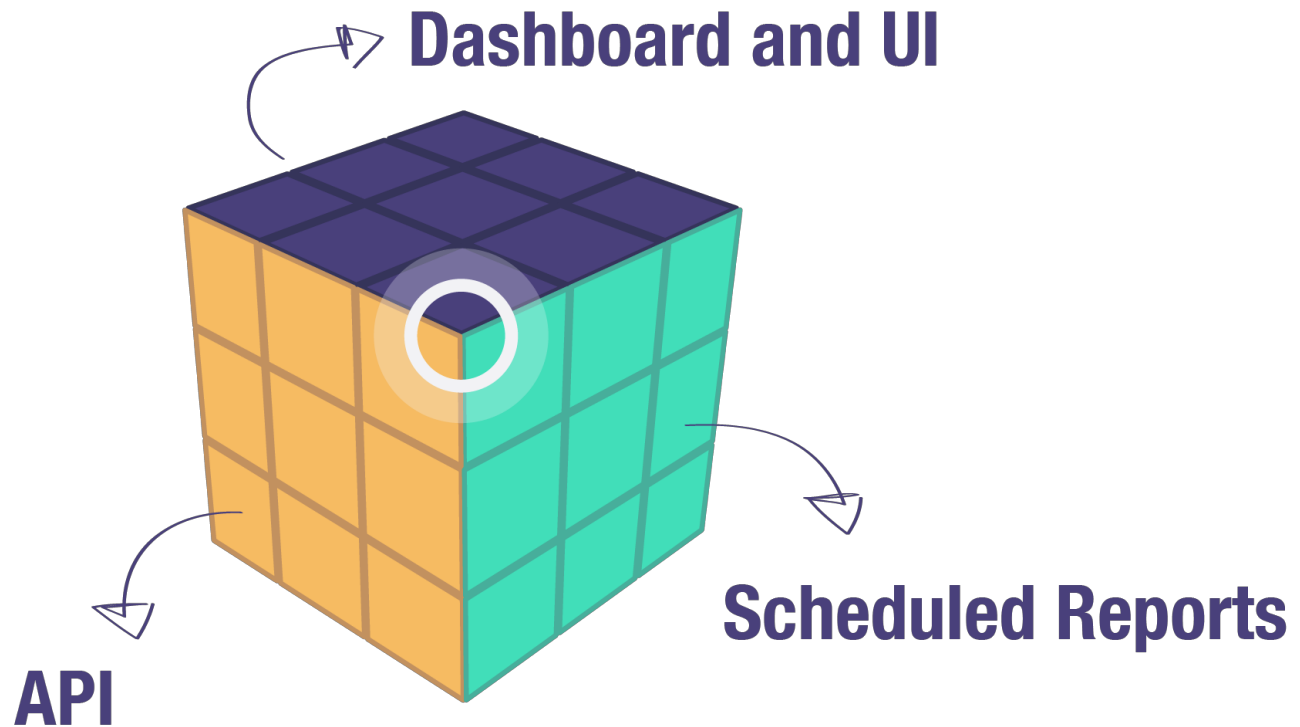
So you can zero in on the particular relationship of the data that you are most interested in, you can access analytics data in several different ways:

- The GUI, which includes the following:
  - The at-a-glance dashboard for near real-time analysis.
  - The content panel, where data can be filtered (constrained) by the various dimensions or manipulated in other ways.
  - The custom reports page, where you can create intersections of the data of your own choosing.
- A REST-over-HTTP API, which can be used for data downloading or for feeding into your own reporting systems.
- Scheduled reporting, which distributes data in comma-separated value (CSV) format via email.

You can create *multidimensional* analyses to visualize intersections of the data. *Multidimensional* means more than one dimension. As mentioned in the previous section, you might want to answer the question "Which devices were used in which locations?" or "Which players were used on which devices?" Both questions are answered with multi-dimensional analyses.

Analyses with two dimensions rely on the precomputed datacubes described above. Analyses with more than two dimensions are called "ad hoc" and can take longer to generate than analyses with only two dimensions.

You can also constrain the data by *filters* (such filtering is sometimes known as *slicing and dicing*).

You can apply filters such as date, geo, and so on, so that the amount of data you view becomes more and more sharply focused. You can thus view only the subsets of the data that interest you.

CONCLUSION

This conceptual introduction has provided you with the key ideas and components that underpin Ooyala Analytics:

- Event-driven metrics
- Data aggregation and summarization
- Reporting, analyses and data visualization

You should now be able to begin your useful work with Ooyala Analytics, whether you are a programmer or business analyst.