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SELECTING ADS RELEVANT TO LIVE EVENTS TO AN ONLINE AUDIENCE

If an advertiser wants to select ads for an online audience for a relevant event, such as a flower seller wanting to present flower ads or a chocolate seller wanting to present chocolate ads during Valentine's Day, the selection and audience specifications need to be manually created. Advertisers have to find the set of relevant keywords (e.g. "chocolate", "flowers", "Valentine", etc.), a specified audience for the event (e.g. non-single people in countries that celebrate Valentine's Day), and an event time window (e.g. February 10 to February 14 of each year), in order to create the ad campaign for their ads to show during the event.

This manual process can be complex and time consuming, and advertisers may not be able to determine the right selection criteria or audience for the event. Furthermore, while some events may be identified well in advance (e.g. Valentine's Day), advertisers may not react as quickly to new events that are relevant to their ads (e.g. a local flower festival). Additionally, advertisers may not be able to determine a proper window for presenting the ad (e.g. whether the ad should begin being displayed one day in advance, two days, a week, etc.; as well as when the peak rate of ad presentation should occur, and when the ad presentation window should end).

A search provider may be able to provide live, real-time answers for search queries related to live events that users are interested in, such as sports, weather, finance, movie show times, and more. For example, users may initiate search queries for sports schedules with information such as a team name, location, game time, player names, etc. Such queries may be formatted as a "when is" query. Similar queries may be generated for events, holidays, award ceremonies, etc., such as "When is Mother's Day?", "When are the Oscars?", "When does daylight savings time start?", etc.

Audience measurement systems may capture or identify media being consumed on media devices of audience members who have agreed to participate in measurement panels, such as televisions, radios, or other devices. Channels and programs may be identified, providing useful context about the content. The system may also be a source for ad selection, for example, showing relevant ads online when a TV show is broadcast. Panel members may remove themselves from the panel at any time, or control how and what information is collected about them, and/or for what purpose it is used. Panel member data may also be anonymized, aggregated with other data, disambiguated, or otherwise modified to protect the privacy of members.

Live events may be used for both direct and indirect (implicit) ad selection through live event-derived signals. By bringing in selection signals from live events, ad timeslot or placement auction competitiveness may be increased, with a greater number of eligible ads in the auction. Ads may be shown during the time window of a live event, if an ad's selection criteria are relevant to the live event. For example, ads selected based on the keywords "flower", "chocolate", or "jewelry" may be automatically presented to users during a time period around Valentine's Day; and ads selecting the keywords "warm kit", "winter coat", etc. may be automatically presented when a winter storm is about to hit an area to an online audience in that area.

In one implementation, given a date and time, live events may be identified for each ad request. Live events can include holidays, sports game, weather, election, seasonal events (e.g. tax day, back to school). etc. From each event, the system may derive:

an event interest (e.g. keywords, entities, vertical categorizations) as content selection criteria;

an event audience (e.g. geographic location, language, demographics) to refine content selection for the relevant audience; and

an event time window (e.g. event start/peak/end time).

Given an ad request and a user profile, ads may be identified as relevant to a live event if the following criteria are met:

ad's selection criteria matches event interest; and

user profile identified in ad request matches the event audience.

Ads matching live events may be included in an auction as other ads, such as those matching contextual or user interest from the request. This provides a new dimension to online ad selection: in addition to contextual- and user-based ad selection, events may be used as a basis for content selection. This may also allow expanding ad coverage for time sensitive content selection signals from live events, as well as providing an automated and efficient way to provide ads or other content for relevant events.

Directly Selecting Content for Live Events

In some implementations, advertisers may select to provide ads for specified live events online, in a similar manner as they do with traditional media advertising such as TV, radio and print. For instance, when a sports game is playing, in addition to TV, radio advertising, the ads may be presented to online audiences. For example, for the Soccer World Cup, the Football Super Bowl, or local games, if TV/radio advertising is too expensive, or if advertisers want to increase their coverage/presence, event-based ad selection offers them additional online presence.

Indirectly Selecting Content through Derived Signals

In additional implementations, the system may derive content selection signals and audiences from live events, and use them for matching ads that are relevant to live events. Current systems allow specifying of keywords/entities, web sites, user interests, user lists, demographics, etc., for use in selection of ads or other

content. In some implementations, selection signals may be automatically derived from live events such as keywords, entities, user interests, etc. and ads directed to these signals may be identified. For example, given an event such as Valentine's Day, related content selection signals may be identified such as "flowers", "jewelry", "chocolate", etc. and may be added as additional criteria for requests to show ads around Valentine's day.

Deriving Content Selection Signals from Events

A search provider may generate a relatedness matrix, providing identifications of related entities, relatedness scores and/or confidence scores, for an event and the level of interest in the event over time. Once an entity or event is identified, queries and keywords related to the entity may be determined. A knowledge graph or organization of entities and categories in an ontology may be used to determine related entities and how they are related, such as sports events to sports teams to team rosters, or a sports event to a venue to a city to geographical coordinates to nearby businesses, etc.

The system can also look at entities which are related based on various signals. e.g., concurrence in web documents, in sessions, co-clicks in a media provider, how popular an entity is in search queries, using signals from various search and social network or social media products.

The system may provide a context calendar or database of events likely important to advertisers. An "event" may be broad and include occurrences such as significant weather events or spikes in a number of requests on a search provider (allowing quick identification of events related to breaking news or trending memes), in addition to events such as holidays and sporting or music events. Each event may be classified in a taxonomy to isolate events by categories suitable for advertising planning.

Explicit Content Selection for Events

In some implementations, a new event criteria type may be created, and advertisers can select to provide content for such events directly, e.g. provide content for "valentine's day" between 2/7/2015 - 2/14/2015. The system may provide an event browser for pre-defined events that will happen in the future. Advertisers may choose to explicitly select an event, either positively or negatively (e.g. during the event or any time except during the event, same as other criteria types), with a time window, and audience restrictions if any (e.g. an audience of a sports game for specific geographic locations during the game day). Event-based content selection can also be combined with other selection criteria, for example, selecting "Valentine's Day" and "Device type = tablet", and with restrictions such as geographic location, language, etc. In some implementations, advertisers may create custom events by working with a sales/marketing team, so that they can provide content for custom events.

Implicit Content Selection for Events

The system may make ads eligible to show if their selection criteria/audiences match selection signals/audiences automatically determined from live events. For example, "Valentine's Day" is relevant to "flowers" (keyword) and US/English (audiences), so the system may match/show ads that include "flowers" as a selection criteria in US/English on 2/14/2015.
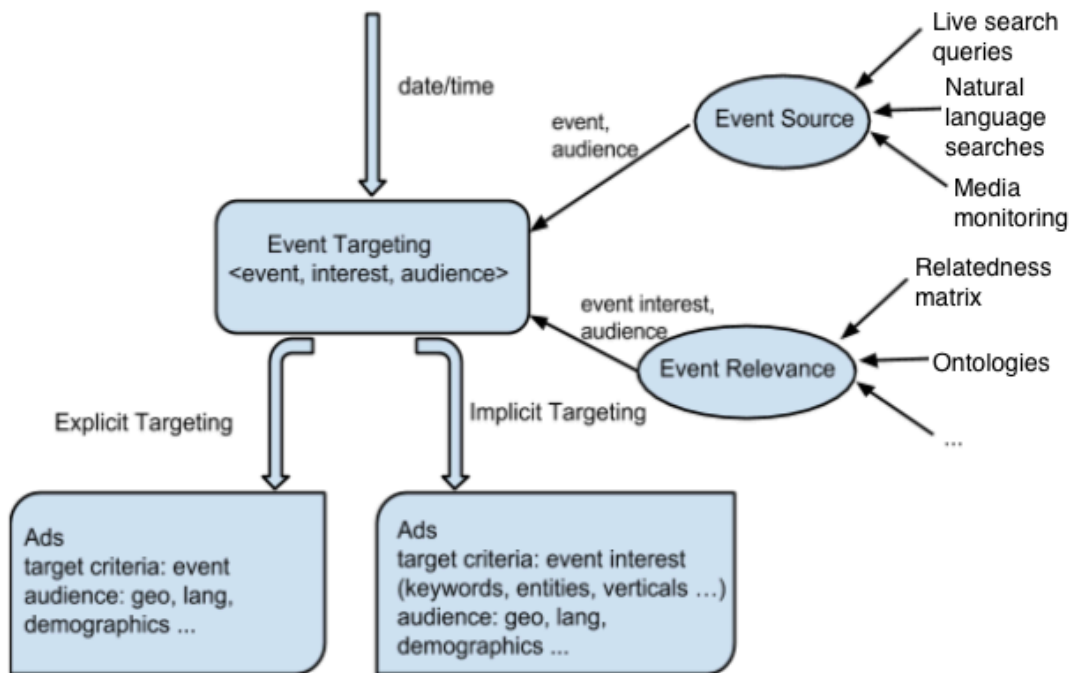
The diagram above shows the flow of event-based content selection. For explicit event-based content selection, given a date/time, the system retrieves events at the time. Ads matching the event are identified and restricted to the event audience. For implicit event-based content selection, given a date/time, the system gets events and event relevance data at the time. Ads are matched to the event interest (from relevance data), and restricted to the event audience.

The system includes an Event-based Content Selection module, which pulls events from event sources such as live search queries and media monitoring data. Each event is also annotated with audience information such as geographic location, language, etc. (if available). The Event-based Content Selection module gets event relevance data from sources such as relatedness, Context Calendar, etc. Event and relevance data are aggregated and made available for content selection with the following information:

event: event id, description, event type (holidays, sports, weather, etc.), event start/end time, content selection start/end time (may be different from event start/end time)

event interest: relevance data derived from event for content selection, such as keywords, entities, verticals

event audience: locale, audience derived from event to restrict content selection to relevant audiences. Audience data include geographic location, language, demographics etc.

In a further implementation, keyword quality modules may be utilized to derive more relevant content selection signals from events:

Predictive Content Selection: predictive content selection mines aggregated user sessions using machine learning models to predict user interests and use them for content selection. In some implementations, the system may predict user interests based on events (e.g. users who are interested in the World Cup tend to be interested in specific merchandise, etc.).

Criteria Server: once event content selection signals are derived such as keywords, entities, etc., a Criteria Server may be used to perform further keyword selection that are suitable for content selection.

Universal keyword scoring: A universal keyword scoring server aggregates keywords from different sources (contextual, user, predictive content selection), scores and selects best keywords for content selection. Event–based keywords may be utilized alone or in any combination with these other sources.

Accordingly, this disclosure provides details regarding implementations of systems for implicit and explicit matching of advertisements to events, including custom events, known events, and dynamically identified events.