EventMedia: Visualizing Events and Associated Media

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Abstract. A wide variety of past and upcoming events are announced and described by several social online services. These web sites range from general event directories to local city guides that may have illustrating media. They often overlap in terms of coverage, and provide each their own social networks features to support users in sharing and deciding upon attending events. The information about the events, the social connections and the representative media are therefore all spread and locked in amongst these services providing overall limited event coverage and no interoperability of the description. In this paper, we present a web-based environment producing and consuming linked data to provide an explicit interlinking of event-related and up-to-date information. We propose interactive and user-friendly interfaces to visualize events with the aim to meet the user needs: relive experiences based on media, and support decision making for attending upcoming events.

1 Introduction

Events are a natural way for referring to any observable occurrence grouping persons, places, times and activities that can be described and documented through different media [3]. Nowadays' mobile devices and network infrastructures enable users to easily capture and distribute rich multimedia content wherever they are located. A plethora of niche mobile applications such as instagr.am[1], color[2] or qik[3] are connected to large social network applications such as Flickr, YouTube and Facebook and contribute to the exponential growth of social media data available online. How to leverage the explosion of this vast amount of data to benefit the web user at large is, however, still an open and challenging problem.

In this paper, we present EventMedia Live, a real-time and large knowledge base containing descriptions of events and media derived from several public directories and various visualizations. We focus on data interlinking to connect events with their associated media documents, and to reinforce the cross-linking with other linked data sources. We describe a live architecture to maintain data freshness, and several visualizations enabling a powerful event browsing and search experience.

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[1] http://instagr.am/

[2] http://color.com/

[3] http://qik.com/

2   EventMedia Live

Using the Web API of three large event directories (Eventful, Last.fm and Up-coming) we have been able to scrap and convert events descriptions into the LODE ontology[4]. LODE has been designed as a minimal model representing an event through its factual aspects: What happened, Where did it happen, When did it happen, and Who was involved. We mint new URIs into our own names-pace for events (`http://data.linkedevents.org/event/`), agents (`http://data.linkedevents.org/agent/`) and locations (`http://data.linkedevents.org/location/`). We then explore the overlap in metadata between the aforementioned events directories and social media site such as Flickr and YouTube. Explicit relationships between events and photos using machine tags such as `lastfm:event=XXX` enable us to convert the description of more than 2 million photos which are indexed by over 140.000 events. To describe media entities, we use the Ontology for Media Resource developed by W3C as a core vocabulary which covers basic metadata properties.

EventMedia is a new hub in the linked open data cloud [1] that share entities descriptions with many other datasets. We have therefore carried out an event oriented data reconciliation using the SILK Link Discovery framework [2]. Through preliminary experiments, `owl:sameAs` links have been generated from EventMedia instances to other LOD datasets such as MusicBrainz, DBpedia, Uberblic, Geonames to name a few.
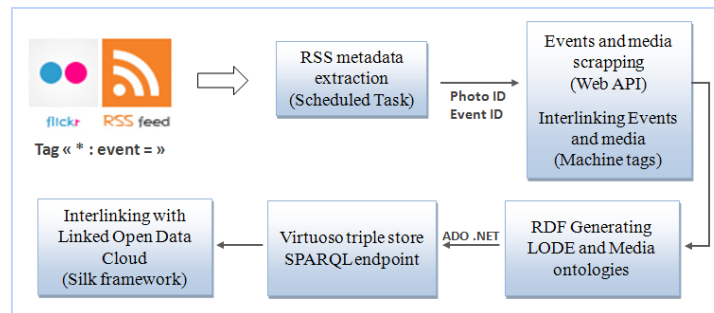

Fig. 1. Event Media live architecture

Data freshness is considered as one of the key factors of web data quality. Since events and media grow continuously, we argue for the need of an architecture that keeps up-to-date the knowledge base. Inspired by DBpedia Live[5], we develop an architecture that consumes the feeds provided by Flickr[6] as it supports filtering by a list of tags (Figure 1). This allows us to retrieve an up-to-date streams of photos that contain the machine tag `*:event=`. We then rdf-ize photos

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[4] `http://linkedevents.org/ontology/`

[5] `http://live.dbpedia.org/`

[6] `http://api.flickr.com/services/feeds/photos_public.gne?tags=*:event`

and events metadata description using a .NET module. At this stage, we harness further information from the metadata to interlink EventMedia instances with other datasets, namely: Foursquare and Musicbrainz. On an average week, we observe 1500 new photos and 130 new events which are added to EventMedia.

3   Interactive Visualization of Events

We are developing and evaluating several interactive visualization interfaces for browsing and searching vast event-related information spaces. Based on two user studies, we aim to support users in re-living past experiences and in making decision upon attending future events.

Users wish to discover events either through invitations and recommendations, or by filtering available events according to their interests and constraints. Therefore, the interface allows constraining different event properties (e.g. time, place, category). Mechanisms for providing this desired support include restricting a time period through a timeline slider control input and a map grouping markers (Figure 2). After an event is selected, all associated in-
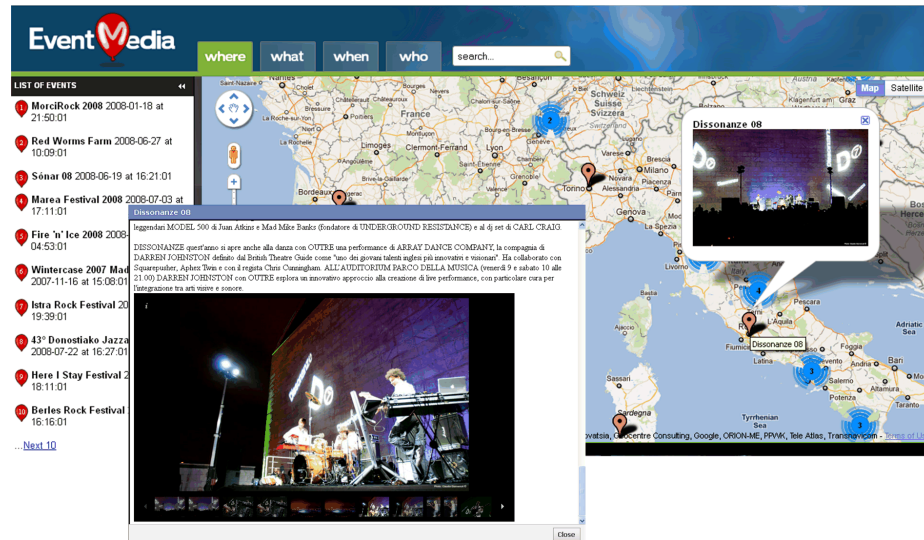

Fig. 2. Interface illustrating the festival *Dissonanze* in 2008

formation is displayed. Media are presented to convey the event experience, along with social information to provide better decision support. Media have different sizes to convey their popularity in terms of views count. We explore these different views according to the basic event properties defined in the LODE ontology (what, where, when and who). The demonstration is available at `http://semantics.eurecom.fr/eventmedia/`.

The Silverlight PivotViewer[7] control offers an easy interactive visualization of large amount of data. It supports a fast and fluid navigation where the gallery objects can be filtered and sorted, and it leverages a Deep Zoom technology enabling a smooth zoom in/out on images. We have created an EventMedia staged pivot collection where the photos and the events can be filtered using simple keywords and some properties such as the date, attendance, geo-coordinates, city and country. The Zoom in enables the user to focus on one photo where its correspondent panel shows some details such as the related event, the involved agents, the venue, etc. The figure 3 depicts two snapshots of Event-Media browsing using PivotViewer technology. The demonstration is available at http://semantics.eurecom.fr/eventmedia/pivot.html.

Fig. 3. EventMedia browsing using a PivotViewer control

Acknowledgments

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[7] http://www.microsoft.com/silverlight/pivotviewer/