Event-Driven Information: A Core Component of the Now Economy

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1. Introduction

The Internet has promoted an incredible increase in information sharing - today people think nothing of providing their credit card information to online stores, personal information to social networks, documents via email attachments, and daily journals to the Internet proper. But there remains a core class of information that remains locked in what have traditionally been proprietary, closed applications — time-based, event-driven information.

More and more is expected of software applications as people grow increasingly sophisticated about sharing and receiving information about themselves. The average Web site's home page has 5 to 10 more links than ten years ago. But our desktop applications, and in particular, the class of calendar applications as we know them today, have remained relatively closed to this new openness.

The trend however, is clearly towards more information-intensive applications. An example is how music players transformed from simple CD players to sophisticated networkable music jukeboxes that can purchase, share, convert, and organize music. A similar trend is due in calendar applications and personal information management systems. This is happening not because people are providing more events, but because the visibility into what people and organizations do is becoming more powerful, focused, and expected.

The problem lies with the nature of the interface. The traditional month-based grid view of today's calendar application will not hold up in a world in which people have the opportunity to view hundreds of not thousands of events. We will see the rise of hybrid interfaces akin to that of RSS readers, which allow the easy scanning and customization of large amounts of information. Today some progress has been made in event scheduling world thanks to the relatively recent adoption of standard calendar formats and publish-and-subscribe standards. But networked sharing is still not as easy or as transparent as it could be, and much of the market in shared calendar systems is tied up in proprietary enterprise systems that offer little visibility outside the organizations they are installed in.

To evolve the traditional calendar system into a networked one capable of the demands of tomorrow's world requires some rethinking about the architecture of such systems. One can create a peer-to-peer calendaring system, ala Groove networks, but it is difficult to build a global system this way without ensuring a persistent, reliable data store and global, persistent control over identities. Instead, using a hosted model, in which one or more event portals are federated and make use of distributed data stores and registries to handle security and identity appears to be a more feasible and immediately practical approach and offers several immediate wins.

2. Examining the Community

Before the hosted model is examined, it is worth discussing the overall benefits and goals of a networked events system and its impact on society. We can begin by thinking about the notion of the physical community, as it exists today.

In any given region – town, city, or state – there have traditionally evolved three major parties when it comes to communicating events. The first is the mass media, typically represented by widely circulated newspapers, mainstream radio, and television. The community depends on this media to consolidate and report on the events within the community they find important. The mass media also serve as a marketing venue for local organizations, usually in the form of advertising. Over the last two hundred years or so this class of information consolidators has thrived in a well-worn niche.

The second party is the event provider, which may range from the smaller media such as alternative, weekly, and daily papers, to typical non-media organizations such as commercial businesses and non-profits. The smaller media obtains events from the community yet has a smaller distribution, and organizations provide events to large and small media depending on

their nature and influence. Individuals may also be event providers, but at this level events are typically reported among individuals in the form of blogs, mailing lists, community calendars, and word of mouth. Their sphere of influence is the smallest.

The third party in the ecology of the community is the event consumer, the everyday consumer of communications, whether they are from large media or the neighbors. Traditionally, the event consumer does not influence the other parties other than by participating in events.

3. Where's the Pain?

There are a number of problems with the traditional model of event/media promotion and consumption as it exists today:

For a provider to promote an event they must contact multiple media, using multiple channels (Web, phone, fax, email), at great cost.

Although many newspapers allow the posting of events online, the process, interface, and quality of data varies greatly. Some media only accept mailed-in event information, some only by phone. Some accept online event submissions, but every submission process is different for different media. Should an event need to be changed or cancelled, the process must often be repeated at great expense to the event provider. This leads to untimely information, distrust in the media, and an unresponsive community.

Mass media is typically biased towards particular events, with little or no personalization.

Sometimes venues willing to pay more are given more of a say; this is a typical advertising-driven business model. But the problem with this is that the hundreds of not thousands of smaller organizations with few resources that often comprise the majority of event providers in communities remain invisible to mass media. Certain mass media are content-specific and only highlight particular events, such as politically-oriented television. But the problem here is that the individual who may be interested in the media's point of view has no control over what they determine is important other than their voice as a consumer. In the traditional model, personalization is media driven or driven via the slow cycle of indirect consumer feedback (think Nielsen ratings), rather than directly through the consumer themselves.

Smaller organizations have less of a say.

Any given community has scores of smaller event providers in the form of individuals, non-profits, small businesses, and ad hoc groups that typically do not have the infrastructure or resources to effectively market their events to the community at large the way that mass media can. As a result the tendency is for large media to stay large, small organizations to stay small, and for local culture to be less self-defining or unique, leading to groups of communities that appear essentially the same without a sense of place.

**Too much infrastructure and resources must
be invested for timely communications.**

Faxing, phoning, and entering event data on multiple sites takes time and money. Corporate scheduling solutions typically make use of expensive, proprietary, closed solutions that do not even allow selective visibility to the outside world. Small organizations, even ones with only a Web site, blog, and mailing list, must still contend with developing or using one-off software that provides event information via multiple channels. Even when they do, there are format mismatches, programming errors, event marketing techniques, and contact lists to develop.

**There is very little collaboration in the process,
between either individuals or organizations.**

To describe the world of time-based collaboration between organizations and individuals today is akin to describing the business world before the advent of the World-Wide Web. Two or more individuals or organizations that wish to coordinate a meeting today typically have no visibility to each others' schedules, even in a limited fashion. Proprietary, expensive scheduling solutions within firewalled organizations cannot talk with each other when desired. The entire area of organization-to-organization (or O2O) communications lies in the dark ages — it's often done through personnel such as office assistants or marketing departments, always at a distance.

Perhaps this is the preferred way for traditional corporations, but what about public organizations such as government? What about organization-to-individual communications, as in the case of small businesses? What about B2B scheduling needs, as in the case of supply chains, multi-organization projects, outsourcing, and large-scale event planning? Today many have their schedules in their cell phones, PDAs, daily planners, notepads, desktop computers, and laptops, and all must be referred to continually, synchronized continually, and maintained continually. It's certainly not as easy as it could be.
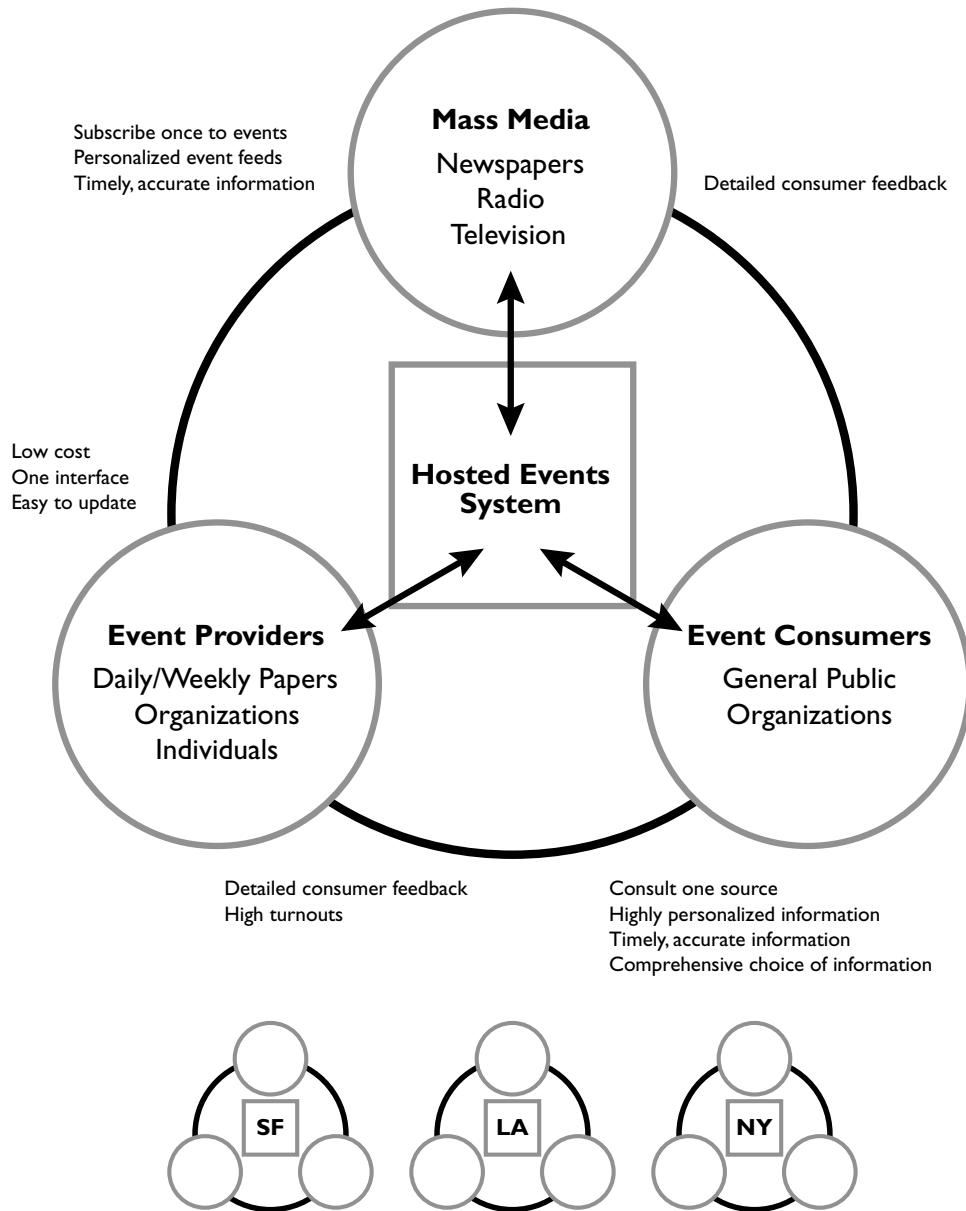
**The process does not take advantage of the variety of
interfaces and channels now provided via the Internet.**

Today organizations can use multiple online technologies for sending information and making functionality available to the public: email, Web sites (HTTP/HTTPS), FTP, RSS, and Web Services. Each requires an array of tools to develop, and each has their own conventions regarding use. These barriers to development make it hard for all but the most savvy organizations and individuals to use these channels to send announcements to the community.

4. What's the Solution?

Many opportunities exist for online hosted calendar solutions. Because time-driven information is typically limited to a physical region (people that need to know about events typically need to travel to them), it is only natural that region-specific calendar portals will grow in popularity. As an example of regional portals that provide information on local resources, one need only to point to the success of Yahoo! or Craigslist. But traditional regional portals have not and do not deal with scheduling, event personalization, event-based transactions, or multi-channel communications. They do not allow people to plan; they have no concept of time-driven information. They cannot broadcast one's plans, receive others' plans (except crudely via interfaces akin to classified ads), communicate desired plans, or offer an array of alternative plans. They are stuck in the world of describing "now" and "later" in black-and-white terms.

Let's imagine a traditional community from the three-party view, but with a regional events system in the middle and see how each of the aforementioned pain points are addressed:

Subscribe once to events
Personalized event feeds
Timely, accurate information

Detailed consumer feedback

Low cost
One interface
Easy to update

Detailed consumer feedback
High turnouts

Consult one source
Highly personalized information
Timely, accurate information
Comprehensive choice of information

This model can be replicated in other communities
Databases can be federated

Providers must contact multiple media at great cost.

Once organizations have a hosted set of events, those events can be subscribed to once and in a real-time, customized fashion once by other parties such as mass media. Because events can be entered via the events portal, rich event schema can be captured and communicated, such as location information, notes, event-related docu-

ments (such as flyers), and ecommerce links. Any organization need only edit an event once at the portal to have the change propagate to all subscribing parties. Mass media now has a rich, more correct source of event information; people get more timely, accurate information, and publishing organizations do not need to go through third parties or multiple interfaces to market their events effectively.

Mass media is biased.

Because a hosted calendar system contains many different events from multiple organizations, powerful personalization techniques for finding events that one desires can now be used. The system can allow questions such as:

- Given the events I've liked in the past, which ones am I likely to enjoy?

- Given these topics, and/or blogs I've read, which events do you recommend?

- Which events do my friends like? The friends of my friends?

- I'm only available at certain dates and times. Which community events can I attend?

- Of the events I might like, which will fit in my budget?

- Who else likes the types of events that I do? Can I meet them?

In addition, media can make use of the massive amount of event data that hosted systems generate and in turn get a better snapshot of the community, allowing them to be more relevant and in touch. Organizations can ask:

- Which of my events are popular? When?

- What types of events are popular? Which ones are not?

- Which events are highly or poorly rated?

- Which events are liable to generate more revenue? Which ones do?

Smaller organizations have less of a voice.

Hosted systems can treat all parties as nothing but event producers without regard to size or resources. Events in turn can become popular on their own merit or as judged by the community, rather than by their marketing budget.

Too much infrastructure must be invested.

A hosted system by its nature provides a common infrastructure for its clients to make use of. By allowing events to be posted, maintained, and broadcast from one source, the reliance on multiple tools and systems is removed.

There is very little collaboration.

Once organizations can view the events of others – the same way that any individual can – incredible collaborative possibilities now open up. Multi-event and multi-organization events can be coordinated, with greater effect. Consider the traditional art fair or music festival planning using such a system. Now expand this to more business-oriented events such as job fairs, and finally to supply chains and outsourced business relationships.

Multiple channels are not used.

Because the infrastructure is hosted, the portal need only implement the ability to publish and subscribe to events via a given channel once for it to be used by the entire community in general, eliminating the need for redundant tools. Parties can now subscribe to events using multiple channels, all in a customized fashion:

- Emailed event digests
- Event RSS feeds
- Web-based event views
- Calendar subscriptions in multiple formats (such as iCalendar)
- Web Services API for events

5. Using the Interfaces That Make Sense

A problem with many traditional portals is that there is typically little integration with existing applications and devices, and what integration exists is not at the application level, but at the device level via the Web. For instance, I can access Friendster via a Web browser on my PDA, but I cannot automatically create a group of my friends in my address book application or have their information update automatically.

However, when it comes to events there is a great opportunity for integration with existing software tools. One should not force people to have to go through a portal to enter events – they must be able to enter, view, and plan their schedules using the interfaces that they are used to – the calendar applications on their computers. Via plug-ins and leveraging the publish-and-subscribe capabilities of existing calendar applications (such as Apple's iCal, Mozilla's Sunbird, and Evolution), this can be accomplished, removing any learning curve.

Imagine being able to personalize your own calendar made of community events in a dynamic manner at the portal - "I like these categories of events, within 5 miles of me, that are free, and show no more than two a week". By selecting a link, this calendar now appears in Outlook, and as event information changes or meet or do not meet your criteria, they change accordingly. Think of this as the equivalent of "smart playlists" in iTunes – they change automatically as your criteria changes.

Desktop applications in general must evolve to be more aware of the Internet, developing interfaces that can take advantage of subscribed content and publishable preferences. Today's calendar tools are a great place to start.

6. Looking Beyond "Events"

The traditional notion of an event is a physical activity attached to a date. However, in the online world, one can go far beyond this limited notion:

**Once documents and other media can be attached to events,
they can be media-centric events**

> Now one can use the system as a true marketing tool – press releases can be sent out as events and subscribed to using real-time channels. An organization can say, "show me this quarters' press releases from all organizations in the biotechnology sector." and subscribe to a custom personalized RSS feed. This is not the same as a PR Newswire service, as PR Newswire only deals with press releases – how boring! Press releases can come with press media kits (photos and audio) and hyperlinks. Why should the traditional method of PR be stuck in the paper world?

Non-physical events such as media schedules can be created

> Organizations can use events as schedules – TV schedules, radio schedules, and business schedules. I may want to know when certain shows or media are being broadcast or made available (in my local area or on the Internet), and I want the time and date to appear in my calendar.

Multiple events tied together can be seen as one event

> Take the example of a book signing, which actually can encompass a number of events: getting information about the book, showing up to hear the author speak, talking with the author, and buying the book. In effect this is a mini marketing campaign with many aspects but can be seen as one or more calendar events, each which can contain links to extra information, sample chapters, ecommerce links, images, and so on. Separate events can appear for publishing house PR, chat room schedules, other signings, and author blog posts.

Events can leverage multiple online value-added services

> If an event is sponsored by Ticketmaster, I should be provided a link to allow me to purchase the ticket. The current partnerships between event calendars and ecommerce providers is woefully inadequate. But hosted solutions can leverage their sheer number of events to get bulk discounts for value-added online services such as payment processing. Events could also one day include the following information, thanks to partnering with other content providers and services:

- Related blog posts and mailing lists

- Ratings from friends and/or strangers (event quality rating)

- Potential date or friend information (event affinity rating)

- Event discounts (which may be time limited)

- Your horoscope on this day, week or month

- What happened on this day in history

- Alerts of upcoming birthdays

- New music and movie releases

7. New Business Models

This new type of system has many revenue streams and there are enough business development strategies to allow niche applications, as long as information sharing is open enough that market fragmentation is prevented. It is in event systems' best interests to be aggressively open.

Traditional Marketing

Such a company can focus on traditional online marketing methods such as selling banner ads and sponsoring events. However, someone will always pay for better, more timely information, and an opportunity exists to sell customized event feeds to media. In addition, statistics on events can be sold as a service to both media organizations and event providing organizations.

Events Lists

Custom event lists can be created, marketed, and subscribed to. This mechanism would work similar to the way that celebrity playlists do in the iTunes music store – imagine the New Yorker Magazine's "top events of the week" list, or celebrity-related events.

Region-by-Region Growth

It's more natural for a hosted events system to grow region by region, slowly building strong communities, market share, and mindshare before continuing on, in the model of Craigslist. A strong community that makes use of the system will be its own PR, and having an entire town or city behind your product can go a long way.

Vertical Industries

The system can choose to expand into vertical industries, such as travel scheduling (providing information on events from the airport and hotel all the way down to food, entertainment, and other activities) and conference planning (a large industry in itself).

Selling Services

Toolkits, APIs, and services can be sold to other application and service providers to allow them to become event-aware. For instance, MoveableType with an event service can allow people to post and browse community events in blogs, and send blogged event reviews back to the system. Amazon can use event services to provide extra information with products: book signings, product recalls, music events, and manufacturer discounts.

Partnering With Services

Mutually beneficial partnerships can be forged to add value to events, such as reviews and ecommerce links from providers such as Ticketmaster and Friendster.

Selling Hosted Infrastructure

The system could become an open, hosted Microsoft Exchange for businesses, allowing them to offload infrastructure and expensive software licensing costs. Particular attention must be paid to privacy and security issues, however.

Selling Marketing Infrastructure

Marketing services can be emphasized, selling the system as a hosted marketing and PR infrastructure for businesses. Additional services such as fax gateways and address book integration can be added to make the offering more complete.

8. Scenarios

8.1   The Dentist

It's November. Bob is sitting in front of his computer and calls 1-800-DENTIST. "Sunday is my only free day," he says. "Are there any dentists in my area that work on Sunday?" The company goes to the hosted calendar site and searches for all community dentists available on Sundays. It then emails Bob with a list of potential dentists.

Bob goes to the dentist and afterwards he gives them his email address - there is no negotiating over the next appointment. At home an email arrives from the dentist with a link to his appointment schedule. He clicks on the link, and his appointment schedule is added to his calendar: December 19, January 16, February 13... but he can't make it on January 16. He calls the dentist's office and asks them to move it to the 21st. The change is made on his calendar immediately.

8.2   Travelling

Richard and Jane have booked a flight, hotel, and rental car from Travelocity. In the resulting email confirmation there's a link to a calendar subscription, which contains all dates related to their travel: when the flight's leaving, when it's arriving, what the hotel dates are, when checkout time is, when to return the rental car, and so on. In the email they also get a password which they can give to third parties so they can post events to their itinerary. When they call places to go scuba diving or make a reservation for dinner, they supply their unique password and the events are added to their calendar, which Richard syncs up to his cell phone.

8.3   A Night Out

Emily decides to plan a night out. She goes to the calendar portal and looks for events on Thursday from 7pm to 3am, involving movies and dancing. Thanks to a service provided by Orkut, she learns that her friend Tina is going to a movie around that time. She selects a link and purchases the movie ticket from Fandango.com, without having to enter any other information (she already entered that information when she made an account on the portal).

The system suggests a number of places to go dancing afterwards. She browses through the events and looks at the related DJ flyers and audio samples. She hears a groove she likes and decides to go to DNA Lounge. A link takes her to the map, with driving directions. Another click, and the venue is added to her address book application.

9. Summary

The potential for applications that make use of networked, time-driven information is huge. Today's portals have no concept of event personalization or collaboration. Today's applications have only the most basic concept of integrating with or subscribing to time-driven data. And there are no providers of horizontal event-based services.

The hosted calendar model deserves exploration and development – it can make communities stronger and more vibrant, and organizations better informed. Software and the Internet has freed online music from its proprietary data and application jails, why not do the same with events? The traditional calendar interface and how it affects what we think about what we do with our time and our lives has been with us for decades and deserves a overhaul.

Perhaps one day we will think about planning differently: the question of when will be answered by our tools, and instead we can concentrate on what, who, and where – what do we want to do? What are our goals? Who am I working with? Where do we meet? With the little time we have, we cannot be slaves to it; we must concentrate on living instead. A little thinking about the future will help us do that.