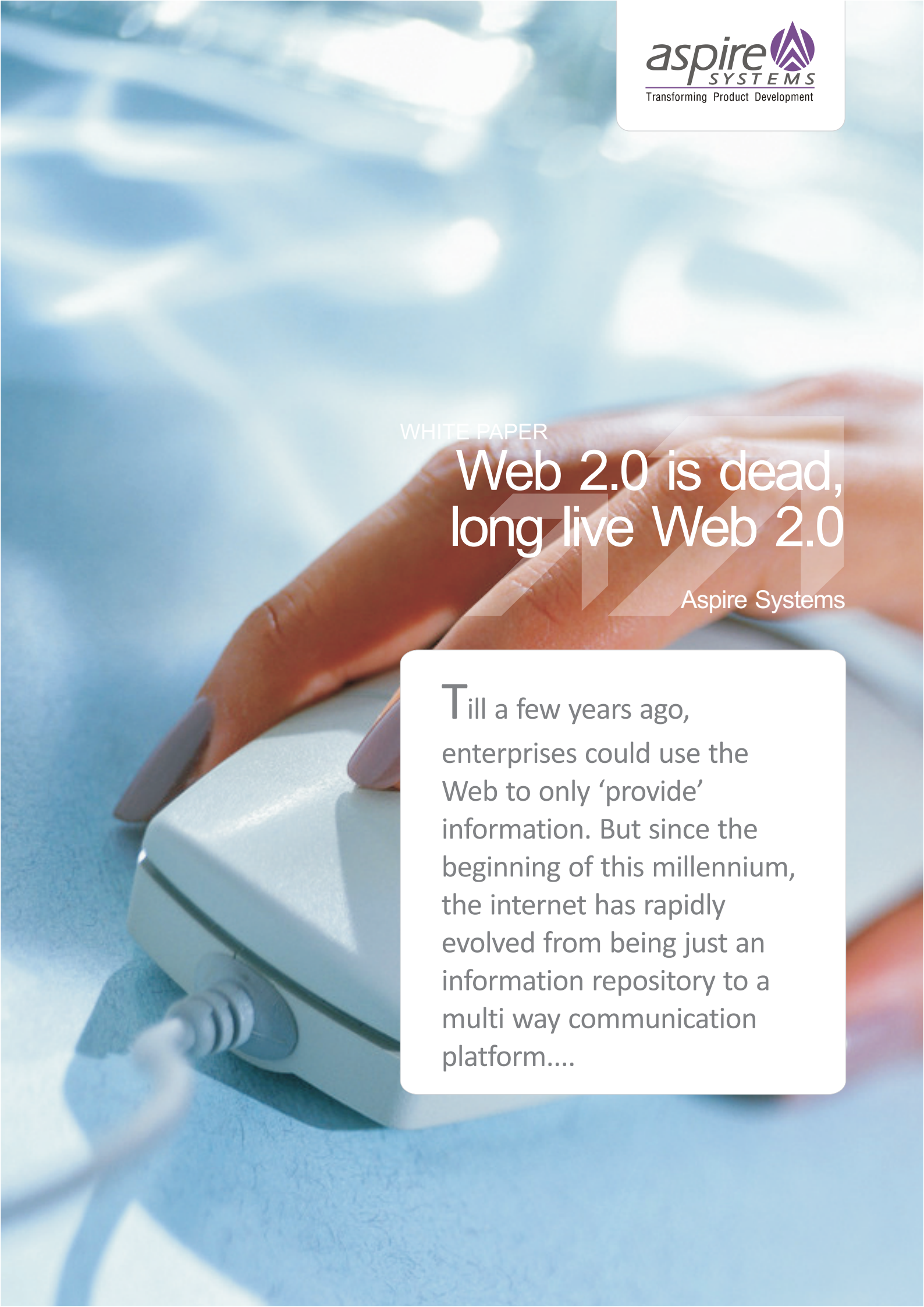

aspire SYSTEMS
Transforming Product Development

WHITE PAPER

Web 2.0 is dead, long live Web 2.0

Aspire Systems

Till a few years ago, enterprises could use the Web to only 'provide' information. But since the beginning of this millennium, the internet has rapidly evolved from being just an information repository to a multi way communication platform....

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Web 2.0 is dead, long live Web 2.0

1. Introduction

About 15 years ago, having an informative website was the most significant use of Internet in business. Today, having just a static website can ruin a company's reputation among customers and prospective buyers. In the evolution of the World Wide Web, Web 2.0 has created a revolution. The advent of this concept has made the Web no longer just an information repository – it is now all about interaction. It is about empowering users to generate content and share information seamlessly. It is about enabling collective intelligence using collaborative and participative tools. It is about creating advanced methods of business intelligence and search tools to enable easy access to information.

Web 2.0 has gained popularity among both consumers and enterprise users. But, unfortunately the term "Web 2.0" has been abused extensively in the industry. Many users refrain from using the term anymore; although they are very much part of the ecosystem and use the technologies provided by Web 2.0. Its influence has been profound enough for it to be placed as the one millionth word in the English language.

2. The Evolution

Like any other technological innovation, the transition of Web 1.0 to Web 2.0 can also be explained with the help of Moore's Law. The traditional Web was created to serve the purpose of a one-way information portal. However, as the web users began to demand better control for creating content and accessing information, better technology had to evolve. Information retrieval was time consuming - users had to wait for the data to load before they could do anything else on that page. Web had to change from being just static web pages to allow users have personal accounts, share information, and build communities and so on. The existing technology became inadequate to manage this demand for extensive utility and that is when the dot.com bubble popped.

There were several other challenges in Web 1.0 that needed resolution with better technology:

Availability – Due to high volume traffic calls to server, which in turn increases the CPU's new request processing time, there were issues with server availability

Information – Static information required server requests every time to get additional information

Productivity – Web 1.0 or Desktop applications had multiple page loads, many application views, more interface screens which resulted in productivity loss and dissatisfaction among users

Network Efficiency – Web browsers control the data exchange between client and server, and users do not have many options to control the data

Operational Cost – Packaged software, User Training, Accessibility with VPN, remote desktop, high bandwidth usage and more loads on server increased the operational cost of the software which required heavy IT infrastructure resources.

Intelligence –Web 1.0 required navigation with web pages to complete a business process or deliver the information requested by a user.

Usability Engineering- Web 1.0 did not have sophisticated menus, tabs, or scrolls, which could have made data retrieval easy for the users.

Real time Experience – Web 1.0 did not have the flexibility to provide real time experience to users. For example, the experience users get when shopping for apparels or a car on a website was not the same as visiting the store. However, many believed that Internet had the ability to create the real time experience.

User Participation – Web 1.0 did not allow users to create content, or share data. It allowed them to only consume data.

Integration – Web 1.0 had complex integration challenges both for within as well as external to the organization.

These challenges resulted in the innovation of technologies such as AJAX, Open APIs, XML, Flex, Flash, Silverlight, RSS, JSON, Mashups, and so on, which empowered users to add content as well as store information. Static web pages became dynamic user driven sites, personal websites became blogs, content management systems became wikis, and now, traditional on-premise software products are starting to become web-based SaaS solutions. In other words, Web 2.0 came about!

3. Key Characteristics

The generic attributes of a Web 2.0 application can be explained with the help of Andrew McAfee's acronym **SLATES** – Search stands for the access to information, *Links* stands for the creation of an information ecosystem, *Authoring* stands for empowering the users for content creation, *Tags* stands for the categorization of content generated by users, *Extensions* stands for making the Web an application platform and *Signals* stands for the syndication of content and making it available for the users.

These attributes are typically achieved using 3 forms of Web 2.0 technologies called the 3 Ps of Web 2.0 – a) Presentation b) Participation c) Platform

3.1 Presentation

Rich Internet Application (RIA)–

Rich Internet Application brings in combined features of desktop applications and low cost web application deployment which results in intuitive, responsive and rich user experience for your customers, partners and employees. RIA brings in the desktop features for the web, allowing access to your applications anytime and any where on the Web (Internet and Mobile App).

An RIA can provide the following benefits:

- Deliver users what they want by reducing the time required for actions
- Enhanced User experience with client side and server side Intelligence
- Real time experience to user which increase you sales revenue

3.2 Participation

Collaboration –

Social Collaboration enables multiple people to interact and share information to achieve a common goal. In an organization, social collaboration tools enable collective intelligence.

Social collaboration has given rise to concepts like crowdsourcing – the possibility of outsourcing a particular task or set of tasks to a group of people or community. The nature of the task could be the development of a technology, a document or anything that can be collectively developed by a set of skilled people.

Collaborative tools such as Sharepoint help:

- In idea sourcing, and may become one of the best tools to source ideas within organization
- enhance current organization practices with less cost
- enables Green IT

Social Media Networking–

Social networking is about building connected networks through user participation and interaction. One of the wide influences of Web 2.0 is in the social networking space. There are several unique social networking tools available like Linkedin, Facebook, etc. that empower users and enable active participation.

Some of the benefits of such Social Networking tools:

- Build personal and business connections
- Empower users and enable them to publish information at anytime, which would have never been possible earlier
- Social media marketing is less expensive and reaches farther than other mediums
- Customer interaction and customer support is usually very efficient

3.3 Platform

Mashup –

An application that combines functionalities from 2 or more sources and creates a single new service

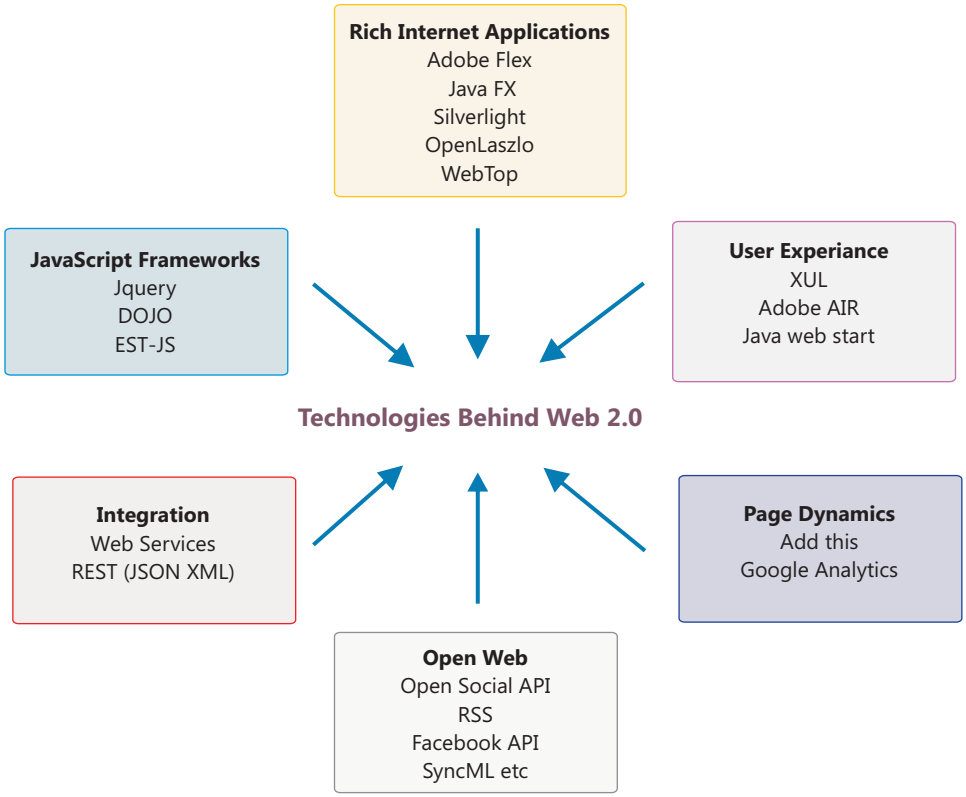
WOA/Restful Open API -

Enable your application as a service based and get the advantage of newer trends and newer markets by business through services. B2B Integration with open standard implementation which allows business to access API's without investing for API integration. Provide seamless integration to achieve the application collaboration feature.

Mobile Apps -

Enabling social media applications on portable devices like Mobile, Kiosk etc.

4 . Tools & Technologies of Web 2.0



- Portlets – In any application, portlets are used to readily integrate content from varied sources, applications and process them into portals. The aggregation capability allows applications to be integrated in a portal or within the webpage. Portlets can be positioned using drag and drop. The content of individual portlets can be refreshed independently and resized without having to update the entire portal page.

- Mashups – In Web 2.0 technologies, Mashups are one of the major trends when portability of data is considered. Mashups enable data to be taken from one source and then used elsewhere, in another application, on another website; most commonly for purposes of visualization. Ex: Google Maps

- Widgets – Widgets are primarily used for user personalized content aggregation. They can be integrated in a web page, blog or profile by inserting a small chunk of code without the need of technical knowledge. Widgets give user-friendly and easy access to personalized content to grab 'live' content from web sites and stay up-to-date with the latest information. Ex: Widgets like current news, weather update, date & time that can be used in personalized iGoogle home page.

- Social Network – In this current dot-com world, social networking is the key to get connected with people of common interest. It facilitates user interaction and collaboration between businesses to consumers, consumers to consumers and businesses to businesses which would have been unlikely otherwise. The highlight is that all the components in Web 2.0 are built for the growth and sustenance of social networks.

- Tagging & Book marking – Tagging is part of the collaborative nature in Web 2.0. Tags/labels are used to enable bookmarking and organize web content for easy access by everyone. For stronger identification of the content/web page, tagging is recommended in any Web 2.0 solution. Ex: del.icio.us, Digg

- Wiki – Wiki allows users to share content on a particular subject from the set of co-related pages. They are very easy to create and maintain. This feature in Web 2.0 will help replace the complex data management system within an organization.

- Syndication - Syndication of the content is the departure-point in Web 2.0 business. Since the amount of content accessible using web-browsers is vast, it is necessary for the content-originators to make identification easy for those interested in knowing about any content from your business. Though search engines exist for easy access of content, syndication enables users to get email notification each time a web-page is changed or any new content of their interest is made available in the web. Ex: RSS

- Blogs – Blogs have captured the interest of both people and organizations. From the latter's point of view, it has become a strategic business communication tool enabling collaboration within a community. Frequently updated blogs are also considered an important SEO factor.

- AJAX –With the emergence of Web 2.0, AJAX has gained importance from a technical perspective. It utilizes well established tools like HTML, CSS, XML and JavaScript. With these tools, AJAX enables data retrieval from the server without forcing a refresh of the entire browser-window.

5 What Web 2.0 means to the users?

Since Web 2.0 evolved to resolve a wide variety of challenges and issues of the traditional web, it has had different implications for different users, and there is no single agreed upon definition for Web 2.0. Web 2.0 provides limitless opportunities to different user groups and continues to expand its boundaries endlessly.

Consumers:

For regular Internet users (or Internet consumers), the opportunities lie in utilizing the social media applications. It is unimaginable today to visualize the Internet without applications such as Facebook, Youtube and Twitter that allow the users to build communities and share information with friends and acquaintances. The use of social media tools by Barack Obama during his presidential elections is a classic example to explain the reach of social media among Internet users. Today, there are millions of wikis and blogs maintained by individual users that allows them to add content, have a personal profile and build communities to share their interests.

For Enterprise users, Web 2.0 implies more than just the application of social media tools. It involves effective use of collaboration tools to enable better communication among employees. It is also about providing a single cohesive experience for enterprise users and ecosystem by enabling inter-departmental technology integration using Open APIs and OpenIDs. It involves the usage of RIA technologies to enhance user experience and easy information retrieval from corporate websites and portals.

Some of the other common applications of Web 2.0 in Enterprise include:

- Knowledge Management - Collaborative tools such as Sharepoint, knowledge management software and corporate Wiki-portals to enable collective intelligence and crowdsourcing.
- Marketing – Use of social media tools like Blogs, Twitter, Facebook, etc. to generate leads, build thought leadership and reach out to a larger focused audience.
- Sales – Companies like Dell have generated about $3 million worth of revenue using Twitter.
- Customer support/product support - Many organizations engage customers online using tools like live instant messaging, discussion forums and communities to provide extensive customer support.
- Training and Education – Employee training as well as customer training is provided using tools such as online demos, podcasts, webinars and virtual interactive sessions.
- Integration - Use of technologies such as SOA, Mashup, RESTful API, WOA to enable integration of seamless and provide a single cohesive user experience for enterprise users.

Creators:

For Internet Consumer oriented companies (also called Software enabled Businesses), it is about creating portals or websites that excite consumers. Websites such as Facebook, Twitter, Google, LinkedIn, and so on fall under this category. They are about building social media sites that enable consumers to create content and share information. RIA technologies such as Flex, Silverlight, JQuery, etc. are used to build user-centric portal. Typically, the revenue model of such companies is based on advertising.

For Independent Software Vendors, it is about using exciting Web 2.0 technologies to create innovative next generation software that will be consumed by Enterprise users. The use of Rich Internet Application helps software vendors differentiate them from competitors and provides better access to information for the consumers. Building SaaS based solutions is one of the recent evolutions in the software industry and these solutions are likely to replace many of the on-premise software. This enables users to access the software from anywhere on the Internet. Software built as services and integration made easier with Open APIs are some of the benefits of SaaS. Creating Mobile Web Applications is another emerging area among software vendors. This allows consumers to access applications from anywhere using their mobile phones such as Blackberry or iPhone.

6. Measuring the success of Web 2.0

While there are questions and concerns around measuring the actual ROI of Web 2.0 investments, it is imperative for organizations to measure the success to justify any endeavors. The success of Web 2.0 can be measured based on the business value they create. And hence, associating business goals like increased sales revenue to a Web 2.0 initiative will help in measuring success.

- Metrics have to be collected that indicate success like revenue generated from a certain medium or qualitative metrics like the number of responses to a particular blog, etc.
- Surveys should also be conducted to gather data on key metrics affecting measurable business objectives.
- Companies also use traditional methods like web analytics and qualitative feedback to measure success.

Needless to say, data should be gathered both before and after the implementation of the web 2.0 technologies to realize the success.

7. Criticism of Web 2.0

Web 2.0 is a revolutionary concept encompassing numerous technologies and designs. There have been instances where its reference has not been entirely accurate and usually over-hyped. Moreover, some aspects of Web 2.0 have had more difficult times than others, as can be observed below.

Renowned Web 2.0 guru Andrew McAfee said in the Enterprise 2.0 Conference 2009 that he has never come across a word that has more negative connotations to a busy pragmatic manager than 'social'. Social networking, as we saw already, is a deeply embedded Web 2.0 concept and it is not finding much favor amongst organizational management. As an emphasis to the point made, Andrew McAfee in fact coined the term "Enterprise 2.0".

Salesforce.com has tried negotiating this issue by replacing the word "social" with "collaboration". While unveiling Chatter, an Enterprise 2.0 tool, Salesforce.com CEO Marc Benioff stated that they were positioning it as a collaboration tool and not a social one.

Web 2.0 as a term itself has gone past all the hype that was generated around it. Its use across technology blogs, forums and news sites has been decreasing gradually. Tangible evidence comes from analyzing its performance on Google Trends since mid 2005, when search queries started to pick up. It peaked towards the end of 2007 and since then has gradually gone downhill. Today, it is on the same level as it was in early 2006.

8. The Future

Although it is clear that Web 2.0 is maturing, it would be inaccurate to dismiss it as obsolete. Opinions about the future of its various facets are quite diverse but beyond the brouhaha, some concepts and technologies have performed consistently and show a promising growth in the future. We have already looked at Mashup, WOA and API; some of the others are

- The Mobile Enterprise- Apple's iPhone store recently crossed the 100000 apps mark and Google's Android Market is catching up fast. IDC has predicted that 1 billion mobile devices will be connected to the internet by 2013. With this prodigious growth, enterprises will have to seriously focus on business through smart phones, netbooks and other sub-notebook mobile devices thus bringing about the Mobile Enterprise

- SaaS Integrations- Integrating multiple third-party applications into platforms and BI dashboards with information retrieval from multiple sources are expected to find favor with more enterprises.

- VoIP- Although it has been around for quite sometime now, the increasing WOA adaptation is expected to provide it a second wind. A large number of applications are expected to enter the market soon. Market movements like Google's acquisition of Gizmo5 and an imminent Avaya-Skype partnership also bode well for VoIP's encore.

9. Conclusion

Web 2.0 is disruptive in nature and influences almost every single user on the Internet one way or the other. Although it's been only a few years since it has come about, it is very difficult to imagine the Internet without tools such as social media sites, blogs and wikis, Mashups, RIA-based websites, and so on. Both consumers and enterprise users have been heavily influenced by this evolution.

According to a recent McKinsey's executive survey, 70% of respondents agreed they are using some combination of Web 2.0 technologies for communicating with their customers, and nearly two-thirds of them agreed that Web 2.0 is essential for Company's market position. Gartner's Hype Cycle places Web 2.0 as 'transformational', which means it less than two years away from mainstream adoption.

The effect of "Web 2.0" as a technology evolution has been profound and despite some recent setbacks, more collaborative and open unparalleled experience to the users is in store for the future.

ABOUT ASPIRE SYSTEMS

Aspire Systems is an Outsourced Product Development firm committed to helping our customers build software products better and faster. We work with some of the world's most innovative Independent Software Vendors and software-enabled businesses, ranging from start-ups to established industry leaders, transforming the way software is built.

Aspire provides complete product lifecycle services, ranging from new product development and product advancement to product migration, re-engineering, sustenance and support. Our product development teams are spread between our Global Innovation Center in Chennai, India and offices in the United States.

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