Gravitational Attraction Within The Internet Cloud

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Summary

A defining characteristic of Web 2.0 is the adoption of the Internet cloud as a computing platform. It is the culmination of an evolutionary trend that started with mainframes, proceeded through the PC, and followed with the Local Area Network (LAN). Each platform transition provided an opportunity for new industry leaders to emerge, and the movement into Web 2.0 is no exception.

As a computing platform, the Internet yields three advantages. First, it eliminates the requirement for users to download, install, and maintain software. Second, Web-hosted programs are available to users anywhere they can find an Internet connected computer. They don't have to lug a computer around with them. Third, workers can collaborate on projects at shared work spaces on the Web.

Web-centric computing has two important implications. First, it is more of a *service* than a product. As such it takes on utility-like operating characteristics, including a non-negotiable emphasis on the minimization of downtime and latency. Second, in some instances the service might be offered without a specific fee, as in advertising-supported scenarios.

Successful Web 2.0 applications shall tend to cluster around concentration points within the Internet cloud, much like planets formed around the centers-of-gravity within the primordial gasses of the solar system. Those companies successfully constructing such platforms shall have the opportunity to become the gravitational centers around which third party developers with similar programs will tend to concentrate.

Three contenders that are assembling such platforms include Facebook.com, Salesforce.com, and Cisco-owned WebEx. Facebook hopes to become the focal point for social & business networking apps, whereas Salesforce.com is striving to host the central structure for more general purpose business Software-as-a-Service (SaaS). Finally, WebEx aspires to use its Media Tone network as the "ether" within the Internet cloud that permits geographically dispersed users of business programs to collaborate in real-time.

Web 2.0

Web 2.0 is characterized by the emergence of software on the Web as an alternative to having it reside on our personal computers. The Web-centric approach offers three key advantages.

First, it avoids the need to download, install, and maintain software on our own computers. Today the writer is reluctant to download *any* software to his PC even though the hardware is less than a year old. There are simply too many potential conflicts with programs already loaded. Sometimes a new download only results in a difficult installation process, but other times it corrupts existing

and necessary programs. The experience is similar with routine updates, even when they are from putatively trusted sources like Microsoft Corporation.

Second, programs hosted on Web servers are available to users from any Internet-connected computer. For the mobile worker this means it is not necessary to carry a laptop everywhere as would be required if the software were installed on his computer. Instead he can use whatever computer may be available on location wherever his job takes him.

Third, for some programs like word processing, projects can be shared in a common work space thereby enabling teams to collaborate over any distance. For example, if this report had multiple authors, it might have been better created in Google Docs instead of Microsoft Word, as the video here illustrates. Google Docs is a word processing program that resides on the Web and is available for free.

In short, Web 2.0 implies that the *Web* is becoming a platform for computing. Mainframe computers were the first computing platform. They were followed in the 1980s by the PC, and in the 1990s by the (LAN). Thus, in an evolutionary context, it is not surprising that the Web becomes the next platform. However, some of the implications are likely to be radical, if not surprising.

Table 1

Evolution of Computing Platforms

Era	Years	Dominant Platform	Dominant Companies
First	1950 - 1979	Mainframe Comuters	IBM
Second	1980 - 1990	Personal Computer	Microsoft & IBM
Third	1991 - 2004	LAN	Microsoft
Fourth	2005 - ?	Web 2.0	Gravitational Centers

Source: Inside Digital Media

Implications of Web-Centric Platform

There are two important implications of Web-centric computing.

First, it is more of a *service* than a product. If the service is important, it takes on utility-like operating characteristics, for which minimization of downtime becomes a non-negotiable figure-of-merit.

Consider how our homes might have been electrified over the past 100 years if power generation had evolved as a product business instead of a service one.

Initially each home owner would buy a generator. That way each assumes responsibility for the uptime and maintenance of their system.

Since lighting was the first application, many families might have selected generator capacity on the basis of the number of light bulbs expected to be used. However, as new electrical appliances were invented, home owners would repeatedly be required to upgrade the generators, or replace them with higher capacity units.

Suppose a single manufacturer of generators, named Microgen, had a near monopoly. Assume that Microgen also made household appliances like air conditioners, televisions, and refrigerators, after other pioneers had developed and popularized such products. Finally, consider that Microgen introduces a new line of larger capacity generators producing a higher voltage than the previous standard.

As a consequence all earlier appliances would have to be retrofitted or replaced, unless Microgen made special allowances within their own designs. For example, Microgen appliances might have been equipped with latent transformers that could later be activated by the consumer merely turning a switch. In such a case, woe to those who bought competitive appliances! No doubt, the reader can imagine a more up-to-date example faster than Steve Ballmer can say “operating system”.

Fortunately, the above scenario does not describe how electricity became deployed in our homes. Instead, huge generators were sold to a new class of companies called electric utilities. The utilities distributed the power to users within their operating territories and priced it as a metered monthly *service*. The more each customer used, the more he paid.

Thus, if electric power had evolved as a product instead of a service, it is likely that consumers would have confronted repeated difficulties along with seemingly never ending adaptations to upgrades. Despite its dominance as a product supplier, a company like the hypothetical Microgen would have to learn new skills if it ever hoped to provide a reliable customer experience as a service.

The second implication is that a service might be provided without charging the user an explicit fee. While the point does not apply to electric utilities, it has long been true in radio and television, which are advertising supported. In point of fact, broadcast radio alone produces about $20 billion a year in revenue in the United States and gives its service away for free. In contrast, the record label industry, which sells its merchandise as products (e.g. music CDs), producing only about $12 billion in annual sales domestically.

Similarly, Google is competing with Microsoft Word (the Microsoft word processing program) with its Google Docs free service. Presently, Google Docs

is merely available at no charge, but it is thought likely that it will ultimately be advertising supported as it gains traction in the market place. Such has been the pattern at Google properties from the beginning, including at YouTube where some observers initially presumed that the company would refrain from advertising.

In short, the transition to a Web-centric platform constitutes a discontinuity in the evolution of the computer industry that is likely to induce a new era like the three earlier ones delineated in Table 1. At such points of discontinuity new industry leaders can emerge. IBM dominated the first era. In the second period Microsoft and IBM shared dominance. In the third interval Microsoft alone was pre-eminent. The leaders of the fourth epoch are likely to concentrate around centers-of-gravity on the Web.

Gravitational Centers

Over time the most popular Web 2.0 applications may tend to concentrate within the Internet cloud much like the planets formed from the primordial gasses of the solar system.

The accepted scientific view is that the solar system was once a spinning disk of such gasses. Gradually, however, points of concentration began to take shape owing to variations in the density of the disk. They slowly became centers-of-gravity thereby attracting nearby particles with ever-increasing momentum. The more particles captured within its spherical field, the more significant the concentration point.

Eventually they evolved into the physical platforms that have come to be known as planets. Some, like Jupiter, are massive, and others, like Mercury, are only relevant within a small neighborhood. Being a particularly favored one, Earth evolved in such a way as to enable an entirely new capability well beyond the intrinsic characteristics of the platform itself, *to wit*, life.

Today, Web 2.0 applications are spread across the Internet in a similar random pattern. Each Website is like an asteroid in the vast belt of countless irregular rocks between Mars and Earth. For the past four years many have been interviewed on *Inside Digital Media*. Generally they offered useful capabilities, yet most names are easily forgotten and consequently it's hard to rediscover their Websites.

By analogy, it is thought likely that Web 2.0 will gradually organize itself into a system of focal points where a relevant class of third party programs shall tend to concentrate. Such locations will become centers-of-gravity attracting Web 2.0 applications germane to their spheres of influence. One such location might be for social networking while another could be for business programs, and a third could become a platform for linking participants together in collaborative

experiences. Representative examples are Facebook.com, Force.com (provided by Salesforce.com), and WebEx Connect.

Representative Contenders

Three companies aspiring to provide platforms around which related third-party Web 2.0 programs might cluster are (1) FaceBook.com, (2) SalesForce.com and (3) WebEx (now owned by Cisco).

Facebook.com appears to be an early center-of-gravity taking shape in social networking. Even though it currently trails MySpace in popularity and is a younger company, Facebook is not merely a social network. It is also a *platform* open to third-party software developers. By analogy, it is like a proto-planet that is increasing its mass and influence by attracting nearby particles into its gravitational field.

Similarly, developers within the Internet cloud focused on social networking are attracted to Facebook. Just as gravitational force is proportional to mass, the more developers becoming active on Facebook the more momentum the platform gains relative to competitors.

Independent software developers (ISVs) who gain traction with the Facebook membership can jump to a big lead over their own competitors. For example, there are a number of Web 2.0 applications enabling consumers to share personal musical tastes with friends, but iLike has developed a version for Facebook.

If they had not done so, it would necessary for iLike to entice users to their own Website, just as their competitors must do. Even after joining, the new users would have to persuade their friends to join as well. Instead, iLike is readily available at Facebook. Therefore, any Facebook member who chooses to use iLike automatically sends notice to his “friends list” via the Facebook news feed when he initially adopts the application.

While Facebook.com concentrates on social networking, Salesforce.com offers a platform for more conventional business applications. Although the company originally became successful as a provider of Customer Relationship Management (CRM) Software-as-a-Service they anticipated that the advantages of SaaS might apply to business software in general. However, instead of trying to reinvent the wheel themselves, they developed a *platform* labeled Force.com. The Force.com structure permits ISVs to offer their own programs as Software-as-a-Service. The concept is more fully explained in this video.

Finally, WebEx Connect utilizes its Media Tone network as a structure enabling third-party software innovators to integrate real-time collaborative sessions into their programs. Much like the imaginary ether that permits communications at a

distance, even throughout the solar system, Media Tone can become the ether within the Internet cloud. It will permit remote users to work collaboratively on shared programs in real-time.

For example, WebEx Connect empowers users of Oracle's CRM software to launch Web Conferencing sessions from within the program itself. There is no need to exit the Oracle software, separately launch a WebEx session, and then invite the targeted users into the conference. Instead, users of Oracle's CRM can initiate a Web Conference spontaneously by merely choosing an option within the CRM program. This avoids the need for users to lean Web Conferencing dedicated-application software.

Since a communications platform is highly dependent upon real-time performance, the Media Tone framework will likely benefit by Cisco's acquisition of WebEx. As the leading supplier of routers and other data communications equipment, Cisco is in a position to minimize the latency in Media Tone as well as to optimize its overall performance as a communications *service*. By contrast, companies like Microsoft may be disadvantaged because their historical emphasis is on *product* sales. They have comparatively less experience with provisioning real-time services across the Internet.

Conclusion

As software becomes increasingly Web-centric the successful vendors must find ways of achieving a critical mass of users. Drawing consumers to destination Websites is likely to be difficult since there will be numerous competitors.

Instead popular applications are likely to cluster on development platforms within the Internet cloud. Such platforms will function like centers-of-gravity for ISVs developing similar applications. Facebook.com is thought to be a leader in the social networking sphere, whereas Saleforce.com seems to be in similar position for general purpose business SaaS. Cisco-owned WebEx has the opportunity to become the unifying platform enabling remote users of business software to collaborate over any distance.

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