

WANT TO READ A REVOLUTIONARY document? Just visit www.slideshare.net/whitehouse/charting-a-course-for-transformation. The text is written by Vivek Kundra, U.S. Chief Information Officer, and it breaks down the White House information mission step-by-step, as follows.

The challenge going forward will be to:

- Foster adoption of Web 2.0 functionality in government
- Move beyond a horizontal approach to a networked approach
- Focus on mission-critical activities, and
- Drive towards simplicity.

But what exactly does the Obama administration mean by “adoption of Web 2.0 functionality?” The term “Web 2.0” has been bandied about so often in recent years, in so many different contexts, and in so many articles laden with techno-geek prolixity, that the very mention of the term tends to make one’s eyes glaze over. As a result, many are embarrassed to say that they really don’t have a *deep* understanding of it – and that’s not exactly a fact they want to broadcast to their colleagues. Sure, they know it’s about collaboration, and sure, they know that social networking is a prominent part of it. But beyond that, there is a great yawning chasm between what Web 2.0 really means – in all its glittering dimensions – and what they actually know. We’re going to put an end to that in this

article, by breaking everything down into simple concepts, right from the start, which predates the ubiquity of personal computers. – *The Editor*.

WEB 2.0 - IN PLAIN ENGLISH, FROM THE BEGINNING.

It’s been almost seven years since the term “Web 2.0” began its ascent into the mainstream. Over this time it has become a frequent watchword for innovative new ways of using the network (intranet or Internet) in our own personal and business lives to create, collaborate, and share information.

Web 2.0 promulgates a vision of the next-generation Web as a place where billions of people will interact online as the most potent creative force in history. This unfolding story is routinely found in the headlines of traditional media even now: Virtually everyone is familiar with the hugely popular, rapidly expanding social networking sites like Facebook and Twitter. But what really sets them apart? How can they grow by tens of millions of users in just a few years with little or no marketing? This is what the mainstream media often leaves out.

A RISING PHOENIX FROM THE ASHES OF THE DOT-COM BUBBLE BURST

Things in the online world seemed pretty stark after the dot-com bubble-burst of 2000. But by 2003, it was clear that the Web hadn’t really imploded after all, and that the winners which emerged from

the rubble were doing something far different than almost everyone else.

It was in the process of capturing the answers to these questions that ended up defining what we know as “Web 2.0” today. We will see that there are indeed some core principles at work, including a central concept that has tended to be ignored by businesses outside of the Internet industry, something known as a *network effect*. This phenomenon has deeply affected the way we use the Web, giving us better ways to interact with each other and create shared value.

The adoption of next-generation digital business models based on these new approaches have begun to have a real impact on our institutions, particularly as the participatory and open aspects of Web 2.0 begin to move in and have routine operational impacts on businesses today. Can we measure how large the total impacts really are at this moment? These days we can. This year a number of leading industry sources have found that about half of all businesses today now use Web 2.0 in one form or another.

WEB 2.0 - A SET OF BEST PRACTICES

When we talk about the specifics of Web 2.0, it often devolves into a technology discussion about how the browser is becoming the center of attention in personal and business computing. In other words, it's about how we experience the Web today that seems to drive the Web 2.0 conversation.

Terms like Software-as-a-Service (SaaS) and rich Internet applications (RIA) are only two of the broad technical trends driving Web 2.0 that major software vendors

have recently begun to embrace. Yet not only is Web 2.0 still somewhat misunderstood, it's actually part of an even larger way of thinking about how we use the network in our lives and businesses – and the biggest impacts go beyond the merely technical, to the societal and even cultural.

What matters most is not so much the underlying software that makes Web 2.0 possible but how it enables us to organize and work together as communities. The new technical vision of Web 2.0 includes re-use and “building on the shoulders of giants” as one of its core principles. Consumers and businesses can now build applications on top of existing applications (so-called software mashups) with relative ease; remix data from multiple sources, creating ad hoc supply chains with business partners; harness user-generated content; participate in communities of individuals with similar affinities; aggregate global knowledge; and much more.

Web 2.0 has come to represent a set of best practices to get the most value from the Web by taking advantage of its intrinsic power to reach people and then distribute and aggregate work.

WHO COINED THE TERM?

The very term, “Web 2.0,” was coined by O’Reilly Media’s Dale Dougherty in 2003 to describe the forces behind the continued success of Internet companies like Google, eBay, Amazon, and iTunes, as well as non-commercial, emergent Web phenomena such as *Wikipedia*, *Craigslist*, and *BitTorrent*, that succeeded despite the dot-com bubble-burst. O’Reilly used “Web 2.0” to

describe Web experiences that fundamentally engaged users by:

1. allowing them to participate (often socially) in sharing information and enriching data freely,
2. readily offering their core functionality as open services to be composited or “mashed up” into new services and sites,
3. using the Web to create an open, data-driven software experience where the strategic value lies in maintaining control of valuable sets of data, and
4. building in feedback loops that create a virtuous cycle of self-sustaining enrichment and data growth.

NO NEW CONCEPTS?

Although Web companies as well as individuals like Tim O’Reilly (arguably the most influential industry figure driving the Web 2.0 vision forward) dominated the early discussion, most of the concepts themselves are not actually new. Instead they were well-known aspects of networks or that predated Web, and whose importance was not fully understood.

That’s changing quickly now and the concepts of Web 2.0 are increasingly dominating the online world’s collective consciousness, to the point that by some estimates, Web 2.0-style applications are more popular than all other Web activities (even e-mail) combined, except for search, in most developed countries.

ARCHITECTURES OF PARTICIPATION

So why do Web 2.0 approaches create more value more rapidly than other models? The key appears to be in something

What is a network effect?

A network effect (excerpted from *Wikipedia*) is the effect that one user of a good or service has on the value of that product to other people. When a network effect is present, the value of a product or service increases as more people use it. The classic example is the telephone. The more people who own telephones, the more valuable the telephone is to each owner. This creates a positive externality because a user may purchase their phone

without intending to create value for other users, but does so in any case. Over time, positive network effects can create a bandwagon effect as the network becomes more valuable and more people join; in a positive feedback loop. Telephones, e-mail addresses, and now websites powered by data all have an intrinsic value that grows exponentially with the amount of information or network connections contained within them.

called architectures of participation, which is the combined network effect of pervasive two-way participation (blogging, wikis, media sharing, social networking, etc.) which allows value to be built quickly from a collective wave of contribution. A Web 2.0 application often consists of nothing but a framework to elicit widespread input from thousands or even millions of potential contributors.

The open source movement of the 1990s was part of the genesis for this, demonstrating that very complex and high-value outcomes could occur if anyone and everyone were encouraged to contribute and the community around the effort ensured that quality was maintained. This model has since moved from software to almost anything you can imagine from YouTube videos to crowd-sourced gold prospecting (see goldcorp.com) or *Wikipedia*, an encyclopedia written by contributors from across the globe.

As this decade closes, architectures of participation are now routinely embedded into product development, customer service, marketing, line of business, and just about everywhere workers must come together in teams. Now let's take a look at the tenets of Web 2.0 in more detail and then examine the business implications.

O'REILLY'S EIGHT CHARACTERISTICS OF WEB 2.0

While large, traditional software companies such as Microsoft, IBM, and Oracle deliver traditional prepackaged software on development cycles that are usually years in length, a newer generation of companies like Google, Yahoo!, Amazon, Facebook, and Twitter) are delivering lightweight, zero-footprint software in the browser that is entirely online.

This agile new way of providing functionality as a service over the Web provides a nimble, continuous experience with no software upgrades and no synchronization of data or programs among work, home, or mobile locations. Equally important is that it provides a way to build new capabilities on top of existing functionality that becomes larger than the pieces and in a context where the users on the network form the most important input over time.

Tim O'Reilly of O'Reilly Media famously provided eight classic characteristics of Web 2.0, that are described in the subsections below.

1. The Web as Platform

The Web has evolved into one of the world's dominant platforms, and not just for content but for media, communication, and even software. The Web is where most software is moving because of economy, convenience, agility, and increased overall value.

2. Harnessing Collective Intelligence

The network effects of millions of users make the collaborative Web a much more potent force than stand-alone software. *Wikipedia* (see more in sidebar, page 28) says network effects "cause a good or service to have a value to a potential customer dependent on the number of customers already owning that good or using that service." Put another way, online collaborative entities such as *Wikipedia* are a network effect of the combined contributions of their users. This is a classic example of the high-value emergent properties of Web 2.0 forces.

3. Data Is the Next "Intel Inside"

The core functionality of many modern information systems is not software but the valuable data within it. Consider Google's search database, Amazon's products and associated reviews, or YouTube's videos. While the services these sites provide are also important and integral, the data they possess is their most valuable asset and their first-order differentiator in the market.

The businesses of the future will maintain control over a difficult-to-recreate strategic database that their workers and especially their customers help them build.

4. The Coming Demise of the Software-Release Cycle

When software is on the Web, upgrading becomes a different experience. Discrete changes become less obvious while continuous improvement becomes the norm. Because services are available 24/7 to anyone connected to the Web, upgrades and improvements to service are instantly available and less disruptive.

5. Lightweight Programming Models

When the clients of Web software are numerous and diverse, complex standards can get in the way, reduce interoperability, and stifle connectivity. Web 2.0 realizes that demand for services will route around unnecessary impedance and leverage the easiest methods that work well. This has led to simpler services such as REST (Representational State Transfer) and RSS (Really Simple Syndication) instead of SOAP (Simple Object Access Protocol) and WS-* (a

Definitions:

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There are many buzzwords used with Web 2.0 and Enterprise 2.0; here are some of the more important ones.

Peer Production: A new model of economic production in which the creative energy of large numbers of people is loosely harnessed (often with the aid of the Internet) into large, meaningful projects mostly without traditional hierarchical organization.

Mashups: Applications created using emerging new techniques that let data and functionality be quickly and easily remixed into new forms.

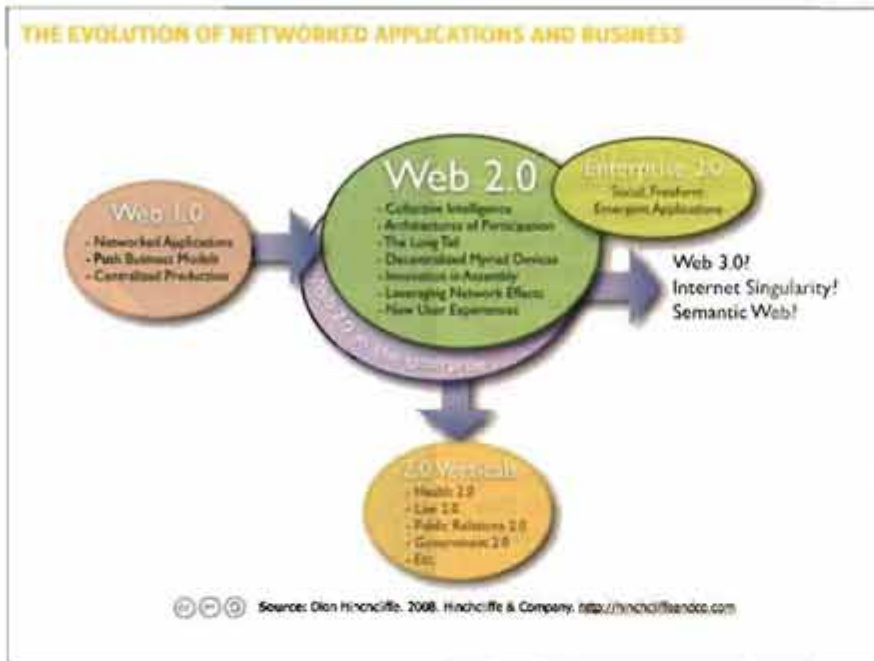
User Generated Content: A form of peer production where the content is contributed in a feedback cycle that ensures more content is added and more value is accrued for everyone by default as the data gets richer.

prefix for Web Service Specifications) standards. Remixing and compositing of services is also much easier with clean, clear, simple models, and this has also promoted loose coupling and supplier services. Dynamic programming languages that support rapid change are becoming more popular too.

6. Software Above the Level of a Single Device

PCs are an increasingly smaller aspect of

Figure 1: The evolution of the Web, Web 2.0, and Enterprise 2.0



the Web. With so many different devices such as mobile phones, PDAs, and even digital video recorders and personal media servers becoming connected to the Web, both providing and consuming functionality and content, the Software as a Service landscape of the Web now includes these in the picture.

7. Rich User Experiences

The Web has grown from traditional, static Web pages into richly interactive software applications in the browser. Static content still exists, but is not the central focus of Web 2.0. More central to today's Web are rich user experiences that immerse the user in interactive applications that load on demand from anywhere. The AJAX browser model is a now-famous Web 2.0 technique that uses the raw ingredients of modern browsers to provide the full interactive experience of native applications to the user while leveraging XML Web services on the back end to provide access to data and services.

8. Innovation in Assembly

The Web has become a vast source of small, reusable pieces of data and services, loosely joined, enabling the possibility of infinite recombination to suit user needs and create unintended uses of systems and information. A great many sites today are actually composites of many different sites

and their data. This has begun to move into the workplace with something called enterprise mashups.

ENTERPRISE 2.0: WEB 2.0 FOR BUSINESS

Since the terms Enterprise 2.0 (E2.0) and Web 2.0 are often used interchangeably without a crisp understanding of the difference, let us now define E2.0: Enterprise 2.0 is the application of Web 2.0 technologies to workers using collaborative software within an organization or business. Andrew McAfee at Harvard Business School was instrumental in defining the term and providing a clear, clean explanation of E2.0 as free-form social software that lets workers self-organize dynamically to share information and solve business problems, letting the best solutions compete and emerge naturally. He introduced his "SLATES" mnemonic to help guide those creating or acquiring E2.0 software understand what the key elements are:

S.L.A.T.E.S.: SEARCH, LINKS, AUTHORSHIP, TAGS, EXTENSIONS, AND SIGNALS

"SLATES" describes the combined use of effective enterprise search and discovery, using links to connect information together into a meaningful information ecosystem using the model of the Web, providing low-

barrier social tools for public authorship of enterprise content, tags to let users create emergent organizational structure, extensions to spontaneously provide intelligent content suggestions similar to Amazon's recommendation system, and signals to let users know when enterprise information they care about has been published or updated, such as when a corporate RSS feed changes.

While SLATES forms the basic framework of E2.0, it does not negate all of the higher-level Web 2.0 design patterns and business models. And in this way, the new Web 2.0 report from O'Reilly is quite effective and diligent in interweaving the story of Web 2.0 with the specific aspects of E2.0. It includes discussions of self-service IT, the long tail of enterprise IT demand, and many other consequences of the Web 2.0 era in the enterprise. The report also makes many sensible recommendations about starting small with pilot projects and measuring results, among a fairly long list.

For simplicity's sake, however, this is what we normally use to provide the most straightforward definitions of all things Web 2.0:

- **Web 2.0** – The continuously changing, participatory Web with a focus on building collective intelligence on myriad devices and primarily servicing The Long Tail. (From Wikipedia): The Long Tail or long tail is a retailing concept describing the niche strategy of selling a large number of unique items in relatively small quantities – usually in addition to selling fewer popular items in large quantities.
- **Web 2.0 in the Enterprise** – Web 2.0 as applied to business and not consumer activities.
- **E2.0** – The social, collaborative network with emergent behavior and structure (a subset of Web 2.0 in the Enterprise).

WHAT ARE THE BENEFITS OF WEB 2.0 AND E2.0?

Today's business environment is very different than it was even two years ago. If Web 2.0 and E2.0 can help us create value for businesses more cheaply and easily, what then are the outcomes? The current economic climate, combined with the steady march of technological progress, is positioning organizations to think about how to not only survive the

current business environment, but how to fundamentally transform what they're doing for the better. The era of get-rich-quick Internet startups has begun to give way to a quiet new pragmatism, rethinking what we're doing in the world of business today – for both online and traditional businesses – to achieve qualitatively different and better outcomes, especially ones that aren't exclusively financial.

Here are some advantages of Web 2.0. Organizations may use it to achieve all of the following (See more detail in Figure 2).

- **Create growth** – Use Web 2.0 to rapidly acquire new customers and incorporate their productive inputs directly into the business.
- **Transform the customer relationship to drive revenue** – Build customer community relationships, such as SAP has done with its more than one-million community members, helping drive forward better results (lower costs, better outcomes) in key activities such as product development and customer service.
- **Drive operational costs down** – The costs of creating high value data, integrating systems, or even just searching for knowledge can be reduced systematically with Web 2.0 and E2.0.
- **Improve worker productivity** – Increase levels of collaboration, adopting browser-based applications that are always up-to-date and don't require installation. Use of more asynchronous and less-interruptive forms of communication. Provide environments where needed data is shared and expertise can be found to drive forward more efficiency in today's fast-paced, knowledge-hungry workplace.
- **Incorporate new business models and sources of revenue** – This includes monetizing previously unexploited data streams, understanding and incorporating digital business models, including advertising and peer production models for using customers and potential customers to help create new value directly over the Web.

Figure 2: The four axes of Web 2.0 value: Growth, Cost-Reduction, Transformation, and Innovation



- **Leverage/harness innovation** – Connect directly with workers internally or the greater marketplace online to gather key inputs, designs, opinions, needs, and desires. For most organizations, the process of transition to Web 2.0 and E2.0 will be surprisingly automatic. Today's software applications are increasingly incorporating the ideas directly and many businesses will get them automatically as they upgrade. But the strategic aspects of these ideas, particularly as they require opening up the creation and flow of information and knowledge to a larger audience, will require cultural change (see figure 2, above). The cultural changes will be the hardest for many organizations to deal with. In the years ahead, as social software, open collaboration, and peer production become more widely understood as a leading creator of business value, we will see businesses figure out the best ways to manage and think about their workers, customers, and partners using these new models to create the products and services of the future. In this sense, the 21st century has led us to a new era of business where we are all much more deeply connected together

and can work in ways that we could not have imagined just a few years ago. Web 2.0 and E2.0 are two leading change agents that are showing us the way to a brighter and richer future for both our personal lives and our businesses. |



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