Web 1.0

- The initial building of the Web
  - Based on posting printed media (books, news, ...) online

- Key areas of interest centered on:
  - protocols such as HTTP,
  - open standard markup languages, such as HTML and XML,
  - the first Web browsers,
  - Web development platforms and tools,
  - Web-centric software languages such as Java and Javascript,
  - the creation of first Web sites,
  - the commercialization of the Web and Web business models, ...
1999-2001 - *dotcom boom*

- Huge investments in *dot-com startups*
- Entrepreneurs, many of whom without well-founded and well-thought of ideas, use the popularity of the *dot-com* hype to get money from the investors

In 2001, the balloon bursts and starts a period of disillusion and total disappointment in the Web and its prospects
The term became popular after O'Reilly Media Web 2.0 conference in 2004

Web 2.0 refers to:

– the changes in the ways people utilize the Web, NOT to a new wave of technology

– the 2\textsuperscript{nd} generation of Internet-based services that emphasize online collaboration and sharing among users
The Internet has opened almost limitless possibilities for contributing, collaborating, & connecting.

Web 2.0

Read/Write Web
“I designed [Web] for a social effect – to help people work together – and not as a technical toy. The ultimate goal of the Web is to support and improve our web-like existence in the world.”

Sir Tim Berners-Lee, Weaving The Web
“The real world is about distances keeping people apart.

The Web is about shared interests bringing people together.”

David Weinberger
Web 1.0
“the mostly read-only Web”

250,000 sites

1996

45 million global users

Web 2.0
“the wildly read-write Web”

80,000,000 sites

2006

1 billion+ global users

Source: http://www.flickr.com/photos/popoever/234877734/
The major Web 2.0 themes include:

- social networking,
- social bookmarking,
- media sharing (social media),
- folksonomies,
- lightweight collaboration (e.g., wikis),
- mash-ups, …
## Web 1.0 vs. Web 2.0

<table>
<thead>
<tr>
<th></th>
<th>Web 1.0</th>
<th>Web 2.0</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mostly read only Web</td>
<td>Widely read-write Web</td>
<td></td>
</tr>
<tr>
<td>Focused on companies</td>
<td>Focused on communities</td>
<td></td>
</tr>
<tr>
<td>Home pages</td>
<td>Blogs</td>
<td></td>
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<tr>
<td>CMS</td>
<td>Wiki</td>
<td></td>
</tr>
<tr>
<td>Owning content</td>
<td>Sharing content</td>
<td></td>
</tr>
<tr>
<td>Portals</td>
<td>RSS feeds</td>
<td></td>
</tr>
<tr>
<td>Directories (taxonomy)</td>
<td>Tagging (folksonomy)</td>
<td></td>
</tr>
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<td>Britannica Online</td>
<td>Wikipedia</td>
<td></td>
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<tr>
<td>Advertising</td>
<td>Word of mouth</td>
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</table>
What Happens in an Internet Minute?

- 639,800 GB of global IP data transferred
- 20 New victims of identity theft
- 47,000 App downloads
- 204 million Emails sent
- 61,141 Hours of music
- 83,000 In sales
- 20 million Photo views
- 320+ New Twitter accounts
- 100,000 New tweets
- 3,000 Photo uploads
- 135 Botnet infections
- 1,300 New mobile users
- 277,000 Logins
- 2+ million Search queries
- 277,000 Facebook views
- 30 Hours of video uploaded
- 1.3 million Video views
- In 2015, it would take you 5 years to view all video crossing IP networks each second

And Future Growth is Staggering

Source: http://freepress.intel.com/servlet/JiveServlet/showImage/38-4608-2199/InternetMinuteInfographic.jpg
The emerging questions:

– What to do with this massive amount of data that the Web made available?
  • How to integrate and interpret it?
  • How to make meaningful use of it?

– Will we still directly surf the Web or will machines do that and provide us with direct answers/reports/offers?

– Will the Web look the same for me as it does for everyone else? (personalization)

– What technology will become commonplace? Obsolete?
Web 3.0

- A phrase coined by John Markoff of the New York Times in 2006

- Refers to the 3rd generation of Internet-based services that collectively comprise what might be called the Intelligent Web

- Addresses the problem of abundance of data and scarcity of meaning
The major determinants:

- Widespread use of AI-based technologies
  - Natural language processing,
  - Machine learning,
  - Rules-based inferences,
  - Personal agents,
  - Web mining,
  - ...
- Web of Data – more effective use of the data on the Web
- Personalized Web
Web 3.0

WWW

= 

World Wide Web

ili

Web Wide World

Nova Spivack
## Web 2.0 vs. Web 3.0

<table>
<thead>
<tr>
<th>Web 2.0</th>
<th>Web 3.0</th>
</tr>
</thead>
<tbody>
<tr>
<td>Widely read-write web</td>
<td>Portable personal web</td>
</tr>
<tr>
<td>Focused on communities</td>
<td>Focused on individual</td>
</tr>
<tr>
<td>Blogs</td>
<td>Activity Streams</td>
</tr>
<tr>
<td>Sharing content</td>
<td>Integrating dynamic content</td>
</tr>
<tr>
<td>XML</td>
<td>JSON, RDF</td>
</tr>
<tr>
<td>Web applications</td>
<td>Widgets, drag &amp; drop mash-ups</td>
</tr>
<tr>
<td>Relational databases</td>
<td>NoSQL databases</td>
</tr>
<tr>
<td>Tagging (folksonomy)</td>
<td>User behavior (‘me-onomy’)</td>
</tr>
</tbody>
</table>
Web 2.0 vs. Web 3.0

- Web 2.0 has been primarily focused on the advancement of the Web’s *front-end* and the users’ experience.
- Web 3.0 is primarily focused on (significant) improvement of the Web’s *backend*.

Recommendation: [YouTube video](https://www.youtube.com) in which Google’s Eric Schmidt talks about Web 2.0 and Web 3.0.
Evolution of the Web (by Nova Spivack)

PC Era
1980 - 1990

Web 1.0
1990 - 2000

World Wide Web
HTTP
HTML
Java
Javascript
XML
P2P
RDF
SOAP
HTTP

Web 2.0
2000 - 2010

Semantic Web
OWL
SPARQL
RDF
HTTP

Web 3.0
2010 - 2020

WebOS
Office 2.0
Semantic Search
Mashups
Social Media Sharing

Web 4.0
2020 - 2030

Intelligent personal agents
Semantic Databases
Widgets
SaaS
Social Networking
Lightweight Collaboration


Source: http://novaspiack.typepad.com/RadarNetworksTowardsAWebOS.jpg
World Wide Web Timeline

Since its founding in 1989, the World Wide Web has touched the lives of billions of people around the world and fundamentally changed how we connect with others, the nature of our work, how we discover and share news and new ideas, how we entertain ourselves and how communities form and function.

The timeline below is the beginning of an effort to capture both the major milestones and small moments that have shaped the Web since 1989. It is a living document that we will update with your contributions. To suggest an item to add to the timeline, please message us.

1989

- The World Wide Web begins as a CERN (European Organization for Nuclear Research) project called ENQUIRE, initiated by British scientist Tim Berners-Lee. Other names considered for the project include “The Information Mesh” and “The Mine of Information.”

- AOL launches its Instant Messenger chat service and begins welcoming users with the iconic greeting “You’ve got mail!”

1990

- 42% of American adults have used a computer.
Timeline view of Web technologies

Source: http://www.evolutionoftheweb.com/