

3D Internet

By Sukruth Harish

ABSTRACT

3D Internet is also known as virtual worlds, the 3D Internet is a powerful new way for you to reach consumers, business customers, co-workers, partners, and students. It combines the immediacy of television, the versatile content of the Web, and the relationship-building strengths of social networking sites like Face book. Yet unlike the passive experience of television, the 3D Internet is inherently interactive and engaging. Virtual worlds provide immersive 3D experiences that replicate (and in some cases exceed) real life.

People who take part in virtual worlds stay online longer with a heightened level of interest. To take advantage of that interest, diverse businesses and organizations have claimed an early stake in this fast-growing market.

EVOLUTION

WEB 1.0

Companies publish content that people consume (e.g. CNN). In web 1.0 a small number of writers created web pages for a large number of readers. As a result, people could get information by going directly to the source: Adobe.com for graphic design issues, Microsoft.com for windows issues and CNN.com for news. As personal publishing caught on and went mainstream, it became apparent that the Web 1.0 had to change.

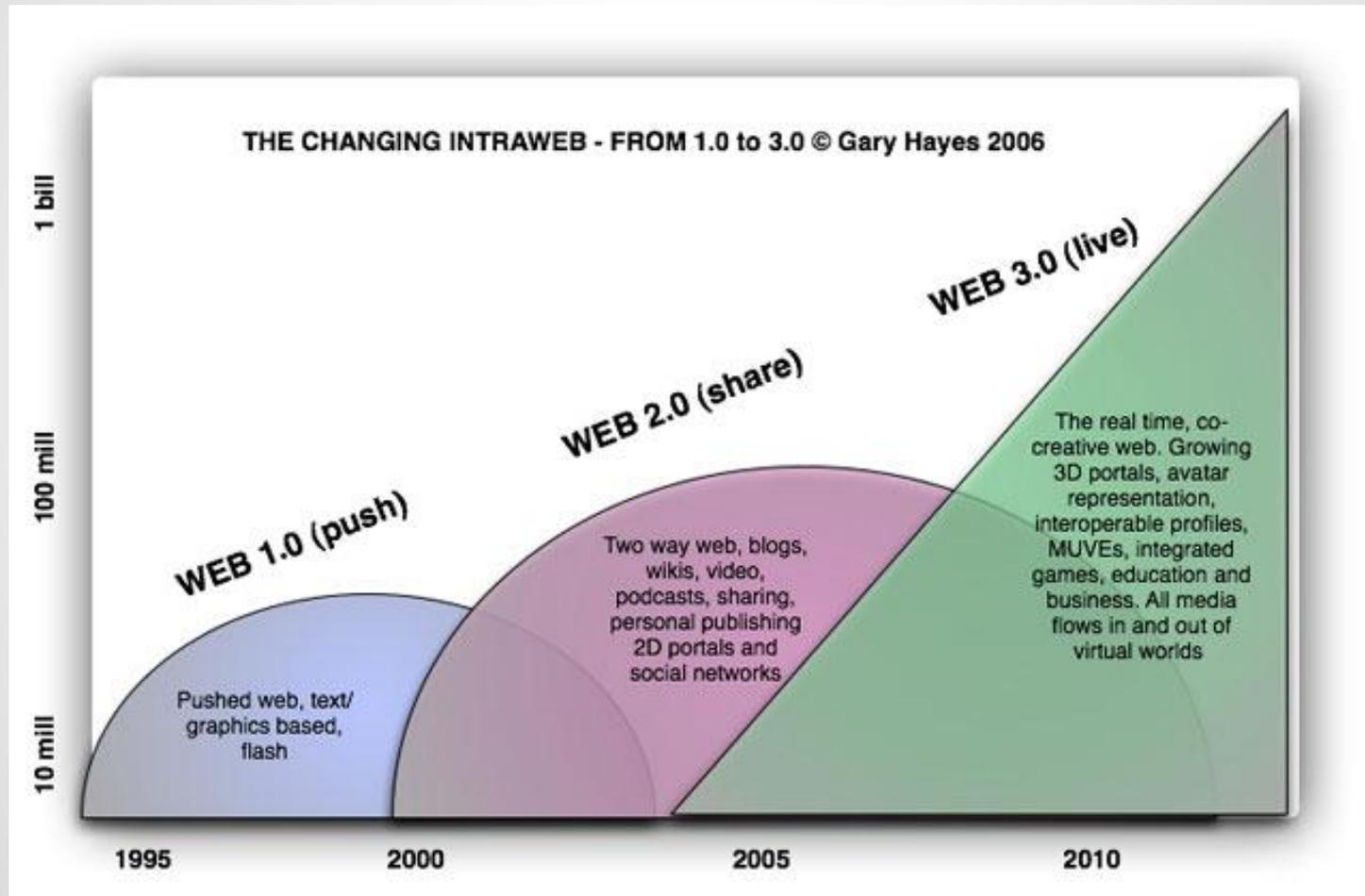
WEB 2.0

People publish content that other people can consume, companies build platforms that let people publish content for other people(e.g. YouTube, Wikipedia, Blogger, MySpace, Flickr, RSS). Web 2.0 sites often feature a rich, user friendly interface based on Ajax, OpenLaszlo, Flex or similar kind of rich media. Web 2.0 has become popular mainly because of its rich look and use of the best GUI's.

WEB 3.0

With web 3.0 applications we will see the data being integrated and applying it into Innovative ways that were never possible before. Imagine taking things from Amazon, Integrated it with data from Google and then building a site that would define your shopping experience based on a combination of Google Trends and New Products. This is just a random (possibly horrible) example of what Web 3.0 applications will harness. Web 3.0 also aims at Integrating various devices to the Internet, the device include cell phones, refrigerators, cars Etc. Another major leap in the Web 3.0 is the introduction of the 3D Internet into the web, hence these would replace the existing Web Pages with the Web Places.

EVOLUTION OF WEB



3D INTERNET : WHAT? & WHY?

- Combination of two power full tools
 - Internet
 - 3d graphics
- The result will be interactive 3D service delivered over the web.
- untill recently there were two problems
 - slow connections
 - slow computers
- downloading would take a lot of time and once downloaded it would run very slow and had a poor graphics
- All these has been overcome by modern 3G technology for faster connectivity and portability everywhere and also with fast processors and with high definition graphics

3D COMPONENTS

WORLD SERVERS:

Provide user- or server-side created, static and dynamic content making up the specific webplace (3D environment) including visuals, physics engine, avatar data, media, and more to client programs. A world server has the important task of coordinating the co-existence of connected users, initiating communication between them, and ensuring in-world consistency in real time. They may also facilitate various services such as e-mail, instant messaging, and more.

AVATAR/ID SERVERS

Virtual identity management systems containing identity and avatar information as well as inventory (not only in world graphics but also documents, pictures, e-mails, etc.) of registered users and providing these to individual world servers and relevant client programs (owner, owner's friends) while ensuring privacy and security of stored information. Avatar/ID servers can be part of world servers.

3D COMPONENTS

UNIVERSE LOCATION SERVERS

virtual location management systems similar to and including current DNS providing virtual geographical information as well as connection to the Internet via methods similar to SLurl. They can also act as a distributed directory of the world, avatar servers and users.

CLIENTS

Browser-like viewer programs running on user's computers with extensive networking, caching, and 3D rendering capabilities. Additional components of the 3D Internet include webplaces (replacing websites) and 3D object creation/editing software, i.e. easy-to-use 3D modeling and design programs such as Sketch-Up and standardized mark-up languages and communication protocols. Emergence of new software and tools in addition to the ones mentioned should naturally be expected.

3D INTERNET ARCHITECTURE

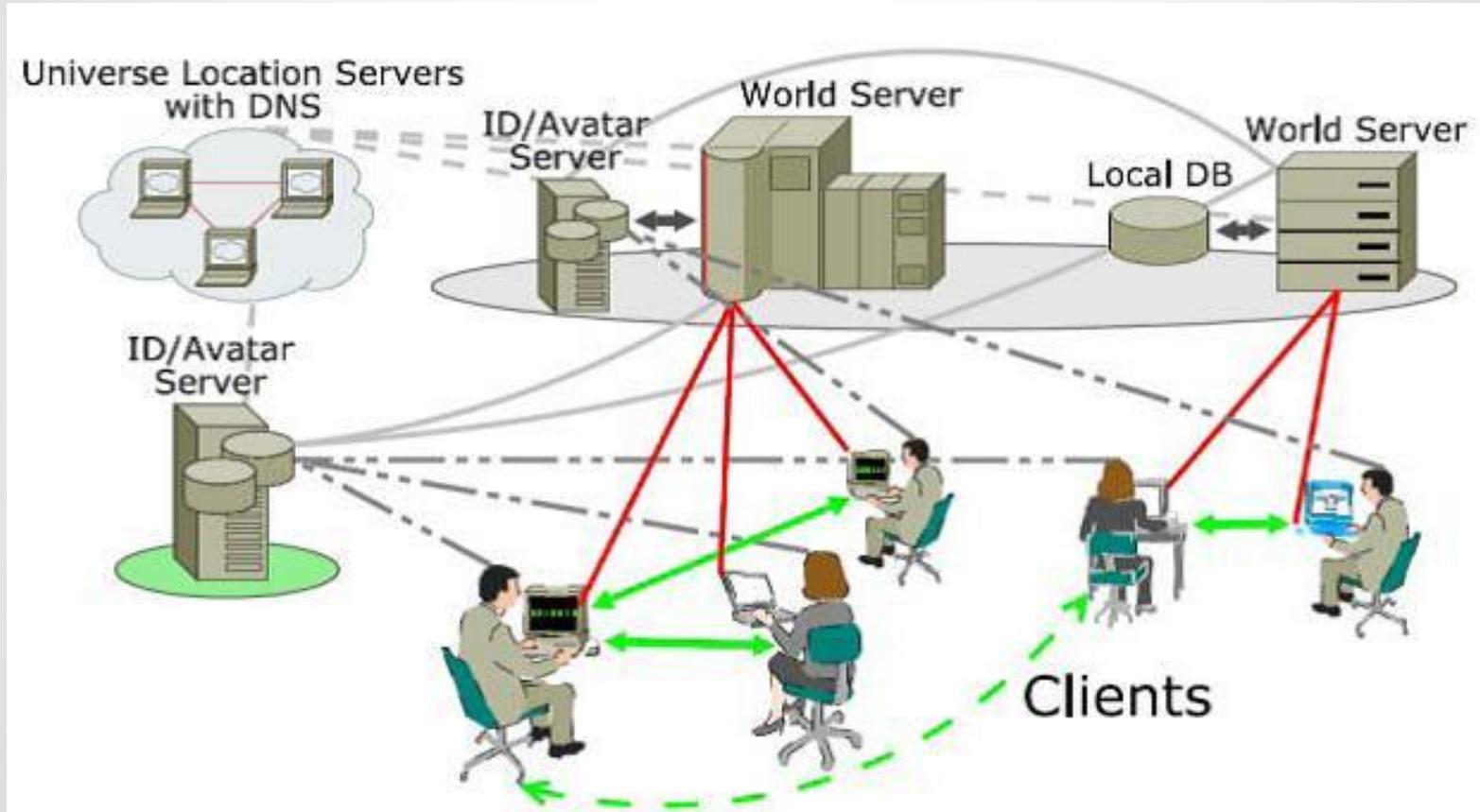


Figure 1. A graphical depiction of the proposed 3D Internet architecture.

CHARACTERISTICS OF 3D INTERNET

- Intelligence
- 3D and Haptic
- Interactive
- Live or real time
- cross model
- Iteratively and cooperatively negotiated in communities of professional and amateurs
- Publicly opened and controversial
- Collaboratively edited/filtered

Intelligent Environments

Intelligent Services

- Underlying communication protocols and enabling services & user centered services.
- In the inherent P2P nature, paradigms such as intelligent routing.
- Network topology and information structure allow for flexible and context-dependent distribution of traffic can be used.

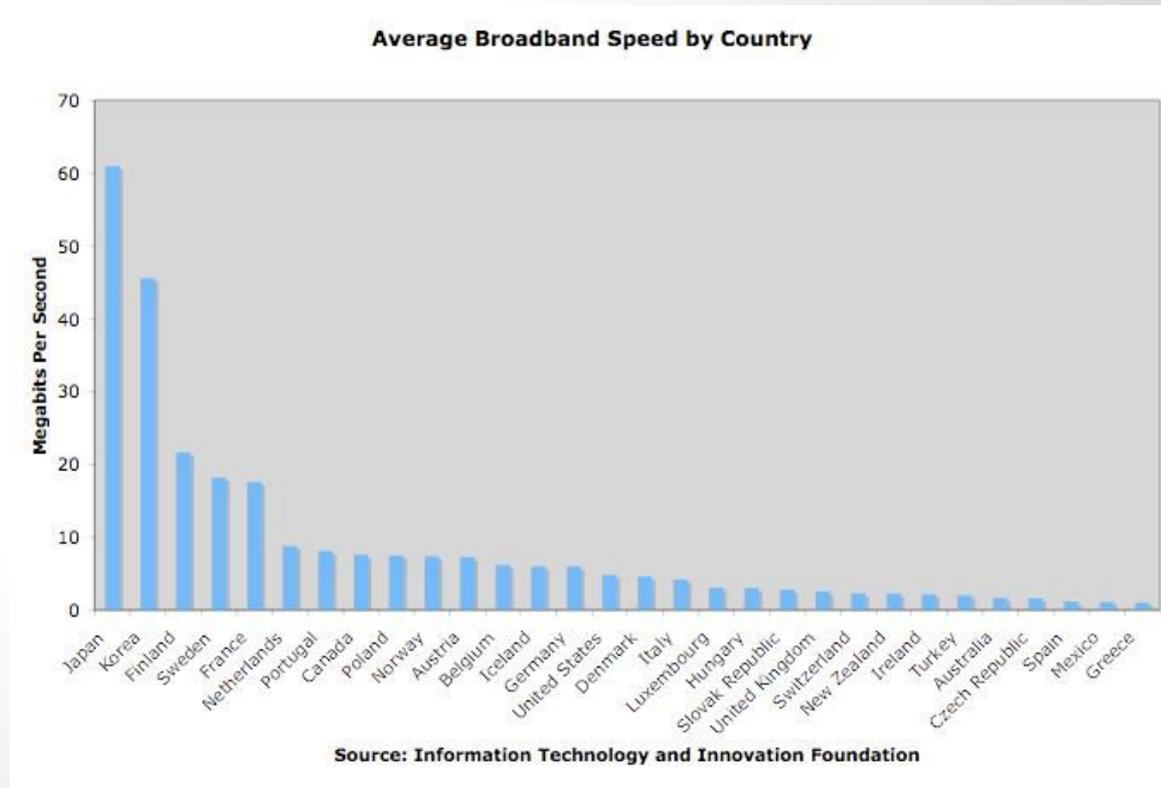
Intelligent Agents and Rendering

- Not just have to be personalized but also be presented and accessible in a way users will consider natural.
- This would lead to the problem of modeling artificial agents and avatars that act life-like.
- First attempts in this direction have already been made in the context of computer games.
- Corresponding approaches can be applied to improve on the quality of virtual clerks and information personnel.

TECHNICAL IMPLICATIONS

SPEED

Internet speed is one of the most significant implications that are being faced by the 3D Internet. A research shows that not many countries in the world are in a state to fulfill the internet speeds that are required for the implementation of the 3D Internet. Here, in the below chart we can see the average broadband speed in various countries.



HARDWARE

Hardware implications are not quite serious implications to be thought of, because the main Hardware implication that we face to implement the 3D Internet is that the display device used to display the images are 2D in nature, but with the inclusion of the 3D internet there would be great difficulty to view the 3D objects in the 2D devices.

SOLUTIONS

SPEED

3G is the third generation of tele standards and technology for mobile networking. 3G networks are wide-area cellular telephone networks that evolved to incorporate high-speed Internet access and video telephony. It is expected that 3G will provide higher transmission rates: a minimum speed of 2Mbit/s and maximum of 14.4Mbit/s for stationary users, and 348 kbit/s in a moving vehicle. Hence, with the introduction of the 3G technology, the speed implications involved with the 3D Internet would be solved in the near future.



SOLUTIONS

HARDWARE

- Use of 3d glasses
- use of vision station as monitor display for 3d internet



3D MOUSE



3D GOGGLES



VISION STATION

TECHNICAL ASPECTS

HARDWARE

- WEB 3.0
- JAVA APPLET
- HIGH SPEED NETWORK

CODING LANGUAGE FOR 3D INTERNET

3DMLW (3D Markup Language for Web) is an XML-based Markup Language for representing interactive 3D and 2D content on the World Wide Web. It serves as a cornerstone for a broader platform also referred to as 3DMLW.

3DMLW is an XML standard 1.0 based markup language that allows for data exchange between applications linked with 3DMLW plug-in interface. A schema definition is provided for verifying the notation with 3rd party software such as jEdit or other XML editors capable of checking XSD constraints.

EXAMPLE

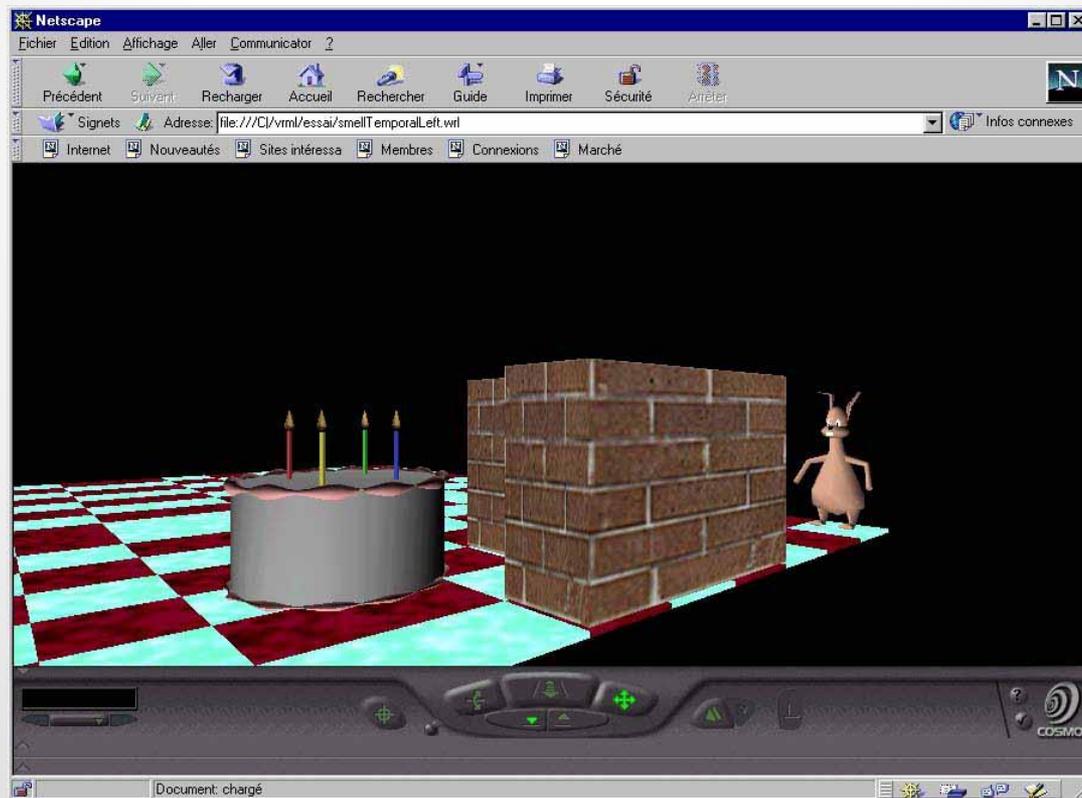
A 3DMLW file is a simple text file containing instructions confined to 3DMLW language syntax:

```
<?xml version='1.0' standalone='no'?>
<document>
  <content2d>
    <area width='200' height='100' color='#C0C0C0FF'
texture='flower.png' />
  </content2d>
  <content3d id='content' camera='{#cam}'>
    <camera id='cam' class='cam_rotation' y='10' z='40'
viewy='10' />
    <box name='ground' width='100' height='2' depth='100'
color='green' class='ground' />
    <box name='dynamic' y='20' width='10' height='10' depth='10'
color='blue' />
  </content3d>
</document>
```

VRML



VRML (Virtual Reality Modeling Language) is a standard file format for representing 3-dimensional (3D) interactive vector graphics, designed particularly with the World Wide Web in mind.



ALTERNATE LANGUAGES

- **3DMLW:** 3D Markup Language for Web
- **COLLADA:** managed by the Khronos Group
- **O3D:** developed by Google
- **U3D:** Ecma International standard ECMA-363
- **Unity3D:** a game engine which can be used online via a browser plugin
- **X3D:** successor of VRML

APPLICATIONS

- Education
- Religion
- Embassies
- Live sport
- Entertainment
- Arts
- E-Commerce
- Training
- Social Interaction

OBSTACLES TO COMMERCIAL SUCCESS IN 3D INTERNET

- The limited effectiveness of traditional media techniques such as Fixed location billboards when applied to virtual worlds. In the 3D Internet, participants have complete control over where they go and what they do and can move their avatars instantly through virtual space. What is required is a means for making content readily available to people not only at specific points, but throughout virtual worlds.
- Lack of an effective way for enabling people in virtual worlds to encounter commercial content that enhances their virtual experience. Because participants have a choice in whether to interact with an offering, it is essential that it be viewed as relevant and valuable to their particular goals in the 3D Internet.
- An inconsistent means for enabling in-world participants to easily interact with and access video, rich multimedia, and Web content.

CONCLUSION

3D Internet, also known as virtual worlds, is a powerful new way for you to reach consumers, business customers, co-workers, partners, and students. In today's every expanding and demanding world there is always need as well as scope to enhance the capability of an individual, with the help of technology. In today's world computers are used extensively so as to speed up the various processes. Hence this project of ours tries to confront some problems faced. 3D Internet combines the immediacy of television, the versatile content of the Web, and the relationship-building strengths of social networking sites like Facebook. Yet unlike the passive experience of television, the 3D Internet is inherently interactive and engaging. Virtual worlds provide immersive 3D experiences that replicate real life.

REFERENCE

- [1]N. Li, J. C. Mitchell, and W. H. Winsborough. **Design of a Role-Based Trust Management Framework**. In Proc. IEEE Symp. on Sec. and Priv., May 2002.
- [2] A. Pashalidis and C. Mitchell. A taxonomy of single sign-on systems. In Proc. 8th Australasian Conf. in Inf. Sec. and Pri. (ACISP), July 2003
- [3]Justin Rattner. The Rise of 3D Internet. Intel Corporation 7.3D Internet. Centre For Internet Excellence, March 2010
- [4]Future Media and 3D Internet Task Force, 2008, Research On Future Media And 3D Internet, European Commission, Information society and media,

THANKYOU