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A Study and Future of 3D Internet

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Abstracts

The Internet is a living, dynamic "wizard" who is constantly and rapidly evolving, reshaping and transforming and consequently .The world wide web which has started as a document bank is rapidly transforming to full fledged virtual environment that facilitates services ,interaction, and communication However, Internet was designed and primarily used by scientists for networking research and for exchanging information. Here we going to implement 3D internet against 2D technology and present 3D methodology .

Keywords: 3D Internet, Content Network Architectures, Immersive Environments.

Introduction

3D Internet as an interactive virtual environment for services, interaction, and communication. The Internet is evolving to become the de facto cyberspace or virtual environment facilitating communication , business , and entertainment on global scale . It is now the world's largest public information network. Many applications—such as video conferencing, Web searching, electronic media discussion boards, e-commerce and Internet telephony—have been developed at an unprecedented speed. Similar to the explosion of textual content in the Internet, can easily observe a dramatic increase of network-based audiovisual material (networked media) that has been produced by professional and amateur users. Today, over one billion of use access the Internet on regular basis, more than 100 million users have downloaded at least one (multimedia) file and over 47 millions of them do so regularly, searching more than 160 Exabyte. A typical 2D website is an extremely abstract entity and consists of nothing but bunch of documents and pictures. In the near future these numbers are expected to exponentially rise. In this evolving environment, machine-to-machine communication (including RFIDs and audiovisual sensor networks), rich 3D content as well as community networks and the use of peer-to-peer (P2P) overlays are expected to generate new models of interaction and cooperation. In this paper an attempt is made to collect, review and evaluate the related existing technology with the aim to give research directions towards redesigning the Future Internet, having in mind the obstacles posed by the Current Internet, and the provisioned new applications. Within the website, at every level of the interaction, the developers have to provide the user immediate navigational help. Otherwise, the user would get lost sooner or later. Thus 3D internet is actually a much better alternative way of organization data which everybody knows and uses.

3D Internet

We present and discuss a 3D Internet architecture as an illustrative example. It shares the time-tested main principle sand underlying architecture of the current Internet as well as many semantic web concepts. respectively.
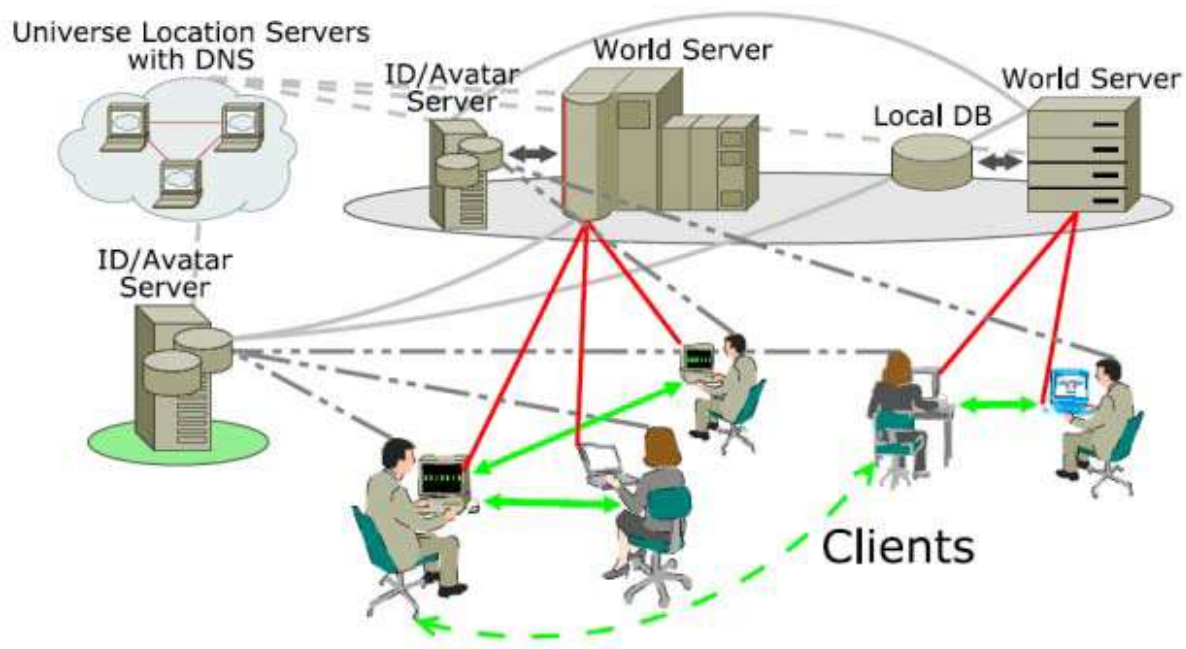
Architecture

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

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.

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 SL URL. They can

also act as a distributed directory of the world, avatar servers and users.

Clients: browser-like viewer programs running on users' computers with extensive networking, caching, and 3D rendering capabilities. Additional components of the 3D Internet include web places (replacing websites) and 3D object creation/editing software, i.e. easy-to-use 3D modelling and design programs such as Sketch-Up and standardized mark-up languages and communication protocols.

3D Internet! Why?

- To converge physical world and virtual world.
- Ease of use.
- To get rid of flat and messy documents , surfing a natural way.
- Get everything at your finger tip.
- Natural organization of objects and data.

Applications

- 3D Internet as an interactive virtual environment for services, interaction, and communication.
- Social Networks: Face book, My Space, Linked-In, ...
- Web2.0: wiki's, blogs, communities ,....
- Web as a distributed computing platform : Face book , Games.
- Embassies for tourist and virtual guide.
- Live sport stadium experience.

Evolution of 3D Internet

- **WEB 1.0 :** In Web 1.0, a small number of writers created web pages for a large number of readers.
- **WEB 2.0 :** In Web 2.0,companies built platforms that let people publish content for other people using best graphical user interfaces.
- **WEB3.0** : With the use of web 3.0, data is integrated and applied in innovative ways not thought of earlier. A majar leap here is the introduction of 3D internet.

3D Internet Implemented

- Using available virtual platform.
- By using artificial intelligence.
- By using eyewear like google glass.
- Using sensors and holographic image projection.

The googles...

- Provides 3-Dimensional view.
- Voice commands made possible.
- Record and share videos
- Interesting "visual search" technology for smart phones.

Technical Implification

- Use of vision station as a monitor / display for the 3D Internet, vision station is a computer

display technology developed by elements that provides 180 degrees of viewing angle for its users.
- A user using a vision station to internet to interact with the 3D word.

Characteristics of the 3D Internet

- **Intelligent**: able to be adapted to the users with respect to their preferences(personalisation), devices (terminals) and access networks. for a good user experience regarding the media content, this content should be adapted to the user.
- **Interactive for all different terminals (PC, Set-Tosp Box, mobile, etc.):** The user should be able to interact with the media objects by modifying and/or render them using multiple views and perspectives. Real-time interactivity with other users through the media will be required in order to achieve the maximum level of collaboration.
- **Live or real time (live recording, live performing):** the most attractive media types tend to be preformed or generated in real-time circumstances. Therefore, FIM would need to facilitate live multimodal media, such as video, events in virtual worlds and live music performances to users and in addition, enable collaboration in distributed environments.
- **Cross modal:** Future media would need to be intuitively inter-linked and accessible. Therefore, they need to support cross modal approaches to media creation, retrieval and consumption. Just as the humans easily identify a song with a film, or smell with particular environment and time, FIM needs to inherently

facilitate cross modality of the content and its tasks.
- **Publicly opened and controversial:** It should not be closed, but open for public participation and even be supportive of establishing communities across controversial issues and incorporating stakeholders with conflicting interests.
- **Collaboratively edited/filtered:** In order to have media professionals making maximum use of the internet, the media content should be edited/filtered/written/manipulated in a collaborative way. Furthermore the content delivery of the FM3DI network should:
- **Able to Transport 3D multimodal :** The *3DI content network*s should be able to adapt the content to the user and device characteristics coping with scalability from low resolution to real 3D video multimodal media formats and allow for creation, modification, search and sharing of the new media objects.
- **Real time:** Due to a strong demand for real-time quality of Future Media, it will need to deliver media in real-time throughout the whole pipeline of communication: from the source to the user, regardless of the network architecture.
- **Network content and user context-aware:** User context should go beyond network parameters at user premises to real content aware-networks which can provide real-time adaptation and user context personalization of 3D Media heterogeneous services ranging from simple 3D IPTV to real 3D multimodal.

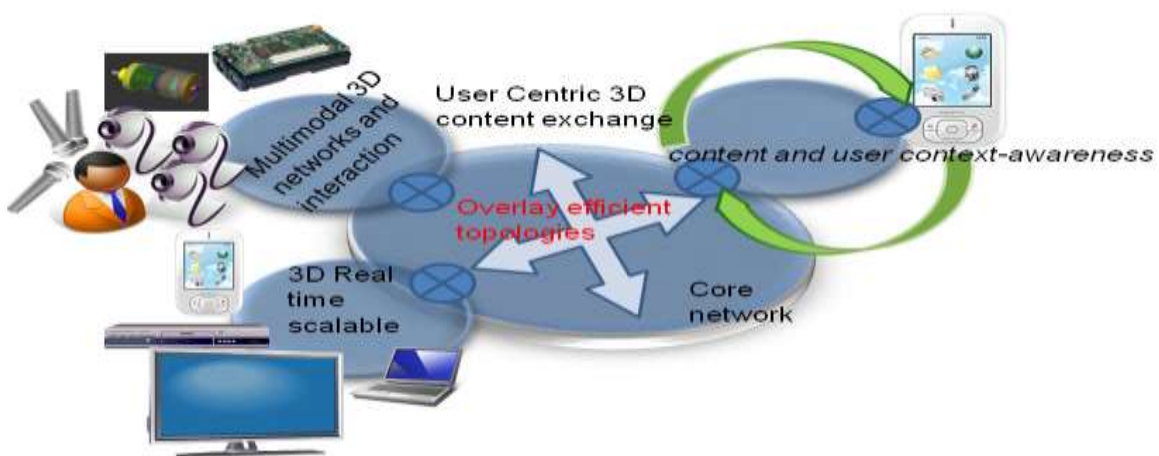The network vision described above, is depicted in Fig. 1

Fig. 2. Representation of the 3DI network

The 3DI network should combine the characteristics mentioned above to both network and content to produce a real "Content Centric Network" enabling on-the-fly content enrichment and adaptation of the content to the network, the user and its context, without disturbing the normal content delivery. In summarising, the Future Network should avoid being only a mean of information transport but should also support 3DI applications and services which can enable new 3D personalised experiences to the users, adding a support to future concepts after 3D services will become a reality.
The 3D mouse :

THE 3D MOUSE..

- Time saving.
- Easy to handle.
- Increased Design performance.
- Sensitive controller cap.

3D Internet and possible research directions

The Internet is rapidly transforming into a fully fledged virtual environment that facilitates services, interaction and communication. These concepts require extensive research endeavours on finding optimum methods for capturing the visual appearance of the real world, including 3D/multi view, high dynamic range and high frame rate. Further, efforts should devoted on developing rich interfaces allowing for multimodal interaction 3D navigation and strong personalization, on the extensibility, scalability, distribution and availability of the content anywhere, anytime and in any terminal and on new mechanisms for native searching.

Fig.3. Characteristics of the FM3DI [12]

Conclusions

3D internet is a step ahead to future which could serve for not only as metaverse but will change the way we perceive internet of today.The main goal of this paper was to present our vision for the 3D Media Internet with After an in depth analysis of the current technologies and limitations posed by the CI we concluded that more research efforts should be devoted to realise the vision of the 3DI for both the content and the networks. Short-term endeavours, like for example the Next Generation Networks, seem not to be adequate for serving the demanding applications of the Future. It provided an overview of concept of 3D internet. There are still many research challenges on the way.

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