

## TechCast Article Series

# The Metaverse Life in 3D Virtual Environments

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This study explores the rise of “virtual life” on the Internet, and forecasts when it will become mainstream. A 3-dimensional, virtual reality format is emerging that was first defined as the “Metaverse” by Neal Stephenson in his 1992 novel, ***Snow Crash***. Today, the concept is used to describe the vision behind current work on fully immersive virtual spaces. The Metaverse is a single entity that will be formed by many different versions of virtual reality all able to communicate with each other. Just like the Internet is comprised of nodes or hosts and the Universe is comprised of galaxies, the Metaverse represents a set of environments where humans interact with each other and with software agents in virtual cyber space representing the real world, but without its physical limitations. To make the concept successful, users have to be able to create and own content, compete freely in open markets to promote innovation, and create virtual wealth that can be convertible to real wealth. .

## Driving Trends

Four major trends are driving the emergence of the Metaverse:

**Broadband** Adoption of DSL, TV cable, Ethernet, wireless, optical fiber, and satellite communications has passed the 30% level is expected to 50% of homes in industrialized countries by 2010. The rise of broadband is especially significant because it allowed new applications requiring huge data volumes to be used, as seen in the recent explosion of web 2.0 sites.

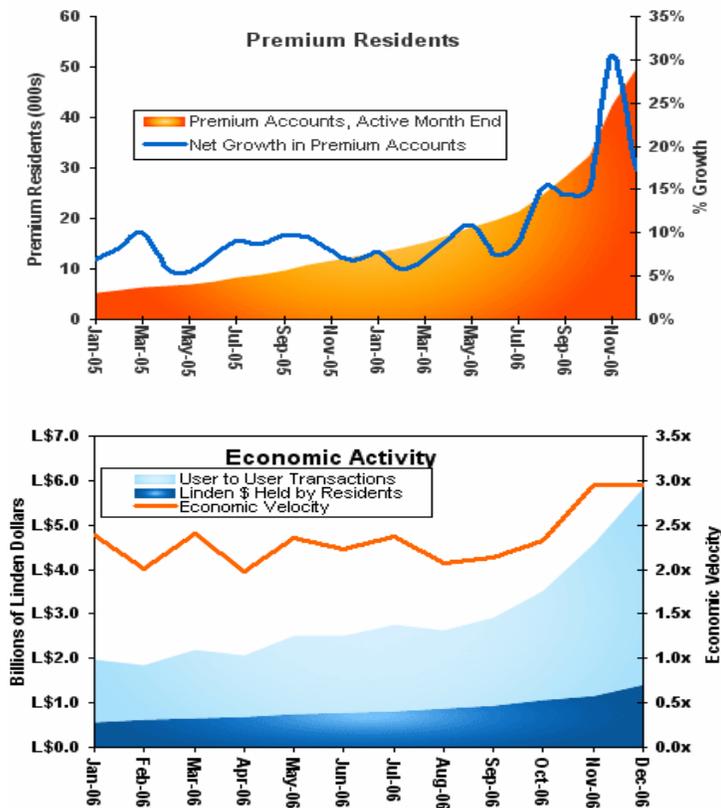
**Virtual Reality** The ability to immerse oneself in an artificial environment that simulates the sensory experiences of commerce, warfare, education, medicine, architecture, entertainment, and space is expected to be used by 30% of the public by 2015. VR is still costly and unwieldy, but it is proving a very useful

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technology; supporting technologies are improving; and the number of applications is growing.

**Online Worlds** Early versions of the Metaverse, such as Second Life, have become very popular, however, at least two other commercial online worlds now compete with Second Life: Active Worlds and There. In addition, the Open Source Metaverse Project is developing an open source Metaverse engine because of strong user demand. The following graphs from Second Life indicate this growing interest and suggest that users are willing to spend time and real money on them.

Figure 1  
**Growth of Second Life**



A related trend is the popularity of 3D mapping software, such as Google Earth and Microsoft's Virtual Earth 3-D. Google Earth has registered millions of downloads since it was released in 2005 and has inspired endless mash-ups by posting pictures, make comments, and other references to locations.

**Capital Investment** One of the most striking trends is the increased investment in these worlds from companies, such as IBM. As part of its \$100 million InnovationJam initiative, IBM is researching existing virtual worlds as

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well as creating its own version using open standards. IBM's intent is to collaborate with clients and partners to find ways to solve business problems in a new and better way. As IBM's chief technologist put it, "We view virtual worlds at a very early stage, both technically and culturally. The user experience will improve as we do more experimentation and figure out how to better apply them to solve real problems in business and society."<sup>1, 2</sup>

## What Experts Are Saying

**Reuben Steiger, CEO, MillionsOfUs** "People understand that this is going to be the future, that people are going to be living in spaces like this, online. It won't replace entirely the Internet as we know it today, but it will be large"

**Philip Rosedale, CEO, Second Life** "In SL, if you're listening to music there's a very good chance that there's someone next to you listening to the same music, and so you're able to turn to them and say, "What do you think?" Or "Have you been here before? That is what makes the potential of the 3D Web different."

**Ray Kurzweil, Author, Inventor.** "It will be routine to meet in full-immersion virtual reality for business meetings and casual conversations in 2010."

## Conclusion

Several problems need to be solved before the 3D Virtual Internet becomes mainstream. Not all content is easily transferred to 3D, as the search engines demonstrate. Some experts suggest that 2D content will be combined with 3D content, as we see today in Google Earth. And the standardization issue could be a huge barrier. So far we have seen independent initiatives, but there is a trend towards standardization and collaboration. On the cultural side, the fact that 3D Internet relies on a different paradigm than the regular Internet will require user education/adaptation efforts.

Taking into consideration the forecasts that enabling technologies will mature between 2010 and 2015, the end of that period should see the needed developments, standards, and applications to produce a mainstream form of the Metaverse. In addition, it will take an extra 1 or 2 years gain popularity among Internet users, so I conclude the most likely forecast is about 2017.

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<sup>1</sup> IBM to fund "3-d Internet" project, vnunet.com, Nov. 13, 2006

<sup>2</sup> IBM Research, <http://domino.research.ibm.com>, May 2, 2007

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