The Coming Virtual Web

In the future, the Internet is almost certain to look more realistic, interactive, and social—a lot like a virtual world

by Robert Hof

Ever since Neal Stephenson published *Snow Crash* in 1992, the virtual world he described in his seminal dystopian novel has been the Holy Grail for a generation of tech whizzes. The metaverse, as Stephenson called it, was essentially the Internet.

But in place of the flat, two-dimensional World Wide Web that had just been invented, he imagined a completely immersive and highly social 3D online world. People's avatars, or virtual representations of themselves, could interact using facial expressions and body language so richly textured that for many the metaverse became more compelling than the real world.

Now, 15 years later, the glimmers of a real metaverse are coming into focus. You can see it in the popular online role-playing game *World of Warcraft*, which is revolutionizing online games with sophisticated graphics and complex team strategy.

Virtual worlds such as There, Entropia Universe, and Second Life let you create avatars, buildings, and even virtual classrooms and businesses. With Google Earth and Microsoft's (MSFT) Virtual Earth 3-D, you can transcend the map layout and zoom into satellite-mapped locations around the world.

All these developments have one thing in common: They suggest that before long, the Internet of the future, and the vast wealth of information and services on it, will look different: slicker, more realistic, more interactive and social than anything we experience today through the Web browser. "Three-dimensional virtual worlds will, in the near future, be pervasive interfaces for the Internet," says Bob Moore, a sociologist who studies virtual worlds at Palo Alto Research Center, or PARC, the legendary Xerox (XRX) lab in Silicon Valley.

TRAPPINGS OF A BIGGER CHANGE

This Internet of the future won't just look different. It will work differently, too.

In a sense, it could become not just a portal into various media, entertainment, and communications services but a window into a much richer virtual life. It may become the place where we engage not only in familiar real-world activities such as family reunions and shopping trips with friends but also new, only-in-cyberspace adventures such as online games and virtual economies.

For all the visual appeal of avatars and slick 3D graphics, they could prove to be mere trappings of a bigger change in how people use the Internet—one only hinted at by the current crush of so-called Web 2.0 companies. Above all, virtual worlds hold the potential to transform social interaction online: In contrast to the Web, where there's almost no assumption of a human heartbeat behind the Web page, virtual worlds are inherently social settings. "You go up to an avatar and you know there's a real person on the other end," says Joe Miller, vice-president for platform and technology development at Second Life creator Linden Lab.

That's why the growing appeal of virtual worlds may prove to be much more than the fad some folks think it is. Social interaction, after all, is the key driver of people's use of the Internet today. From social networking sites such as Facebook and News Corp.'s (NWS) MySpace to participatory projects such as Wikipedia to sharing services like Google's (GOOG) YouTube video site—not to mention such old standbys as e-mail and instant messaging—social activity dominates what people want to do online.

DEFINING THE 3D INTERNET

And it's clear that Internet users crave richer ways to interact. "This is the mode of communication that we're gravitating toward," says Chris Melissinos, chief gaming officer at Sun Microsystems (SUNW), which offers a computing platform for running online games and virtual worlds. "It's really going to change how we communicate and view information."

Eventually, at least. *World of Warcraft* and Second Life may be all the rage now, but they still touch relatively few people's lives, in no small part because they're primitive and awkward to use.

The Metaverse Roadmap, formed by the Acceleration Studies Foundation, a nonprofit tech research group, has set out to define the 3D Internet. But even Metaverse Roadmap assumes much of its vision won't materialize until 2016—and some participants think even that date is ambitious.

For one thing, many people don't even have personal computers that can handle the often heavy processing demands of virtual worlds. The amount of data required by 3D environments also can tax even high-speed Internet connections.

And all these virtual worlds are relatively closed systems, requiring people to download and learn special software, and then hope their friends do the same. One software company, Multiverse Network, is trying to push a "world browser" that would allow people to traverse many different worlds.

COMPETING VISIONS OF THE FUTURE

Even if that's successful, 3D technology won't fully replace the current Web. Fact is, a lot of information, such as search results, lists of products, e-mail, and most of what we do online today may always be most efficiently accomplished with existing tools. Melissinos is a lifetime video and computer gamer, but even he concedes: "Not everything needs to be put in a 3D interface."

Indeed, some Web experts think all this talk of virtual worlds supplanting the Web is hooey. "3D interfaces always seem more glamorous," says Web usability expert Jakob Nielsen, a principal with product development consultant Nielsen/Norman Group. "But they're rarely useful for managing information." Nielsen contends that while 3D excels for a number of applications, such as medical scans, architecture, and chemical modeling, most information is best accessed and analyzed in more mundane, 2D fashion.

Controversial as these visions of the future Internet are, attempts to create metaverses for the masses keep sprouting up. Not surprisingly, they're most intense in gaming, thanks to the success of *World of Warcraft*, which now has more than 8 million paying subscribers. And for the next few years, that's likely to remain the focus of virtual worlds.

A BIG BANG OF POTENTIAL APPLICATIONS

But that doesn't mean they'll remain a niche. Gaming companies are aiming to forge more links between their world and the so-called real one. Viacom's (VIA) MTV Networks, for instance, has several virtual environments, such as Virtual Laguna Beach, that connect to its television shows.

Virtual worlds also are providing new online venues for education well beyond posting class notes and reading lists. Dozens of universities are conducting classes and other activities inside Second Life. At Ball State University in Muncie, Ind., for instance, some freshmen are taking the English 104 composition course partly inside the world, writing about field trips they take inside Second Life. A sign of how compelling the notion is: The first class drew 300 applicants for 18 slots.

If virtual-world visionaries have their way, those are just the start of a coming Big Bang of potential applications. Take shopping. It's no secret that the same efficiency that drives e-commerce also makes it a boring and lonely pursuit. "What missing from online shopping is the social and recreational experience," says PARC's Moore. "That's exactly what you get with virtual-world shopping."

MAPPING REAL FACIAL EXPRESSIONS

For instance, Apple (AAPL) could run virtual dance or jazz clubs that let visitors buy music from its iTunes store as they listen to music with friends, he says. "Virtual worlds will be bigger in five years for shopping than the Web," contends T. Sibley Verbeck, CEO of Electric Sheep, which helps businesses market in Second Life and other venues.

Likewise, virtual worlds also could inject real-world richness into online business negotiations and collaboration. Jeremy Bailenson, an assistant professor in Stanford University's Communications Dept. who works on motion-capture technologies for virtual reality research, suggests that avatars could be made much more expressive by mapping people's real facial expressions and body language onto them in virtual meetings.

Even more interesting, and not a little spooky, avatars could be manipulated subtly to give one an edge in business negotiations,

Bailenson says. Research has shown that people are more influential when they look directly at their counterpart. In other research, people who view pictures of other people that have been even faintly morphed to incorporate their own facial features say they trust those people more. By applying the same idea to avatars in virtual-world meetings, Bailenson says, "you can optimize your negotiations in business."

SETTING STANDARDS FOR VIRTUAL WORLDS

Still others hope to apply to business the intrinsic appeal of various features of online virtual worlds and games. Startup Seriosity, for instance, is testing software that creates a virtual currency that will be used to reduce e-mail overload.

People may spend five Serios to send an e-mail they consider a high priority for the receiver, while they might spend only one Serio on an e-mail to tell people the office fridge will be emptied Friday. "When you look at how addicted people get to these games, you realize there's a psychology that you can apply to real-life business situations," says Seriosity CEO Ken Ross.

Before most of these visions can be fully realized, a lot of heavy lifting has to happen. PCs need the benefit of a few more rounds of graphics-chip improvements, as well as faster broadband speeds.

Not least, standards for connecting these worlds need to be developed. After all, the Web took off in no small part because browsers could access any site that adhered to basic standards. Just as they did with the Web, such standards likely would involve a lot of experimentation.

The main challenge, though, isn't technical. It's conceptual. Today's 3D interfaces are a work in progress. "They're dragging too much of the baggage of the real world into online," says Multiverse Marketing Director and Executive Producer Corey Bridges, citing virtual stores built by the likes of Circuit City ([CC](#)) and Sears ([S](#)) in Second Life.

"The last thing I want to do is shop for a crappy visualization of a washer," says Bridges, who's also a Multiverse co-founder. Ultimately, the key to virtual-world technologies spreading far and wide will be just what Neal Stephenson displayed in the first place: imagination.

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