Thru the Looking Glass

Why virtual worlds matter, where they are heading,
And why we are all here.

Dr. Larry Johnson's keynote address to
The Federal Consortium on Virtual Worlds
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Thank you, and good morning to all of you. It is such an honor to be with you here today. I think we all sense that we are at the beginnings of something very significant.

My name is Dr. Larry Johnson and I have an avatar.

That is the line I used to open my recent comments to Congress on the topic of virtual worlds, and I repeat it here because I think it is an important subtext as you consider the points I am about to make.

I have an avatar … and my avatar is me.

Through my avatar, I am able to extend myself into virtual space and engage in dialog and activities in ways that have opened dozens of new opportunities, opportunities that have brought my organization new business and new product lines, new members, and new ways of doing the work we do.

I have the privilege of leading the New Media Consortium, a 501(c)3 not-for-profit association of more than 250 world-class colleges, universities, and museums focusing on emerging technologies. Among the many exploratory projects we do, for nearly two and a half years now we have led the largest educational project of its kind in any virtual world, one that involves hundreds of institutions and over 7,500 educators and students, the NMC Campus project, which is the centerpiece of NMC Virtual Worlds.

For most of that time, and still today, the bulk of those people are working and learning in the virtual world of Second Life®, but with the January announcement of the NMC's Open Virtual Worlds Project with Sun, NMC Virtual Worlds is now engaged on two platforms — one proprietary, and one open-source — with the goal of continuing to refine what we have learned about how people use virtual worlds and the kinds of spaces that meet their needs.

I think it is important to also note that we've also been working hard on business models for virtual worlds, and since last June, the NMC Virtual Words project has been completely self-sustaining — something that I think makes us fairly unique, especially since we are a not-for-profit. We have recovered 100% of our costs to date via operations and activities conducted within the virtual spaces in which we are engaged, and have used the surpluses we've generated to produce a wide range of open content.

This is all the more remarkable as we make many of the spaces and much of the content we've created within the NMC Campus and Open Virtual Worlds projects available for free.

I'm not really here to talk about business models …. but it is important for you to know that I come here not just as someone with a casual interest in virtual worlds.

I think it is a safe bet that I am looking at the landscape of virtual worlds a bit differently than most of you. I don't have a particular problem I need to solve, or a product or solution I'm here to promote. My interests are in understanding the nature of these spaces – in learning what is quintessentially new here – because as I will make clear, I believe something very new is unfolding.

You might say that I don't just visit virtual worlds. I drink the water.

I have spent enough time in them that I think I am beginning to understand not only how, but why people choose to spend time here, and why they even seem to look for reasons to learn and work in virtual space.

Let me introduce you to Larry Pixel, the virtual me …

Those of you who are fans of the *Matrix* trilogy will recognize the title of my remarks as being drawn in part from the conversation, illustrated here, where Morpheus gives Neo the choice of two pills, one red and one blue. I'm sure you remember the story … if he took the blue pill, he'd wake up in his bed the next day, as if nothing had happened.

If he took the red pill, however, like Alice in Lewis Carroll's 19th century classic, he'd leave all he knew before and embark on a remarkable journey to a place like none he had ever knows. Unlike Alice though, Neo's choice led down a path from which there was no return.

For someone who never spent any time in virtual worlds or games before embarking on the NMC's Educational Gaming Initiative in January 2006, while I felt like I taken that red pill, my early experiences there were closer to Alice's:

> *"But I don't want to go among mad people," Alice remarked.*
> *"Oh, you can't help that," said the Cat:*
> *"we're all mad here. I'm mad. You're mad."*
> *"How do you know I'm mad?" said Alice.*
> *"You must be," said the Cat, "or you wouldn't have come here."*

We might all laugh at that, but the Cat's point speaks to the notions of reality and unreality that permeate the perception of virtual worlds. These are amazingly flexible spaces and the virtual lab we are in -- the NMC's experimental presentation laboratory -- is meant to illustrate that.

At the same time, even in a conceptual space like this one, the importance of a sense of place is paramount to the kinds of activities that happen there, and that is not at all different from the notions of place to which we have always been accustomed.

And that is the first point I wish to underscore this morning. Whatever happens in a virtual space, the space itself simply extends our notions of the real world. A virtual world like Second Life or Project Wonderland or Active Worlds or There is not a game, serious or otherwise – there are some very well-developed simulation platforms that have many characteristics of a virtual world, but when I speak of virtual worlds, I am talking about spaces that do not have a simulation or game as the central focus — but rather spaces that convey a sense of place. A game or simulation may be layered onto that place, but my interest lies in the place itself, and how place both governs and affects our interactions within it.

At the NMC, we distinguish virtual world technology from gaming – while the technologies have a similar visual aspect, games have predefined goals and behavioral outcomes that virtual worlds do not. Referring to the work done in these virtual spaces as games limits the frame to only one type of virtual world application – and by extension both the potential for the technology and the work it is enabling.

That distinction is critical to understanding my and the NMC's perspective, because after two years of focused research and demonstration projects, we see these spaces as nothing less than the evolution of the Internet from the flat two-dimensional web into three dimensions, with all the richness, depth, and extendibility that implies.

Now what does that mean?

It means that what we are talking about has ramifications far beyond gaming, although that is a very important area of work. It means that the emerging landscape of virtual worlds represents as profound an opportunity, as profound a driver of changes in the ways we think, learn, and work, as any technology that has ever preceded it — and more so.

Virtual worlds are already bridging borders across the globe to bring people of many cultures and languages together in ways very nearly as rich as face-to-face interactions; they are already allowing the visualization of ideas and concepts in three dimensions that is leading to new insights and deeper learning; and they are already allowing people to work, learn, conduct business, shop, and interact in ways that promise to redefine how we think about these activities — and even what we regard as possible.

Just as the world wide web has unfolded over the last 15 years to erase boundaries between us and become part of the very fabric of our lives, over the next 15 years, I am convinced that virtual worlds will rapidly evolve into a rich three-dimensional extension of ourselves that will have as important impacts on the ways we go about our lives and the evolution of the 2D web that preceded it.

I am reminded of similar times from the past when our nation has stood on the edge of opportunity, and of the bold leadership and vision that kept our nation on the track to greatness at those critical points.

When the country was expanding westward, the *Morrill Act* set aside lands for universities, ensuring that education would flourish as the country expanded; when it was clear commercial interests would only provide electricity to the cities, where profits were easy, the *Rural Electrification Act* brought the modern age to all Americans. When television was new, the FCC ensured that channels would be set aside for education and learning; in 1991, when the world wide web was still just an idea, the *High Performance Computing and Communication Act* ensured that the United States would have the infrastructure in place that ultimately allowed it to lead the world in information technology throughout that decade.

The question I posed to Congress was "Where is that kind of vision today?" Who will step up to ensure that we not only allow but encourage these new developments to prosper?

We need leaders today like Frieda Hennock, who as the Commissioner of the FCC in the late 1940s "became impatient for the day when television would become an electronic blackboard, a 'classroom of the air,' serving American students as the proscenium from which culture was to enter the living room of every home."

Some people might observe that television never really found its place in the classroom. I think that is a great point — there were sure a lot of dusty TVs in the classrooms where I went to college. That perspective highlights why we need to be careful bolting on our current notions to new ideas. I would argue that television succeeded in bringing learning into the home tremendously, but it happened in a way none of us might have predicted. It did not find its way to us as an add-on to traditional learning, although telecourses can be very effective and do have their place — where it has entered the mainstream is via hundreds of niche cable channels, each focusing on some little slice of interest.

That is one of a handful of points I want to leave you with today. However virtual worlds develop over the next decade or so, the one thing we can count on is that the technology will develop in ways that are hard to project. I see the current landscape as reminiscent of 1993, when for most of us the Internet was just coming into view – and our platform to access it was likely to be CompuServ or America Online. Who then could have ever predicted that we'd be using the Internet to make phone calls and watch TV? Who, in fact, would have predicted that the Internet would be replacing television for an increasing portion of the population? Who could have seen the complete upheaval of the music industry that has been driven by digital music – and as a result, Apple becoming the number two music retailer in the US?

The reason the Internet developed as it did is that it captured our imaginations and made us think differently. There was strong bipartisan support for the *High Performance Computing and Communications Act*. The bill was sponsored by a Democratic senator, and promoted by a Republican president who predicted it would help "unlock the secrets of DNA," open up foreign markets to free trade, and encourage cooperation between government, academia, and industry.

And it did that, and a lot more.

You may not know that one hugely important result of that legislation was the development of Mosaic in 1993 — the world wide web browser that launched the Internet as we know it. It changed the world in the process.

The kind of leadership that came together to create and pass that legislation is at the heart of what has made America the country it is, and we need to encourage it today.

Earlier this week I had the good fortune to talk with someone with that kind of vision, a person that is pushing his organization to take the same risks we took with the *Morrill Act,* and with the *High Performance Computing and Communication Act.* Major General Erv Lessel, who is on the program immediately after this session, is working on a vision that will completely redefine how all of us think about educational delivery from almost every angle. The *MyBase* concept he and his team are developing weaves precision training, quality awareness, social networking, real-time collaboration, and collective intelligence into a sort of social glue that will put learning at the center of everything the Air Force does.

It is a vision of staggering scope, and … it will use a virtual world platform as the unifying technology to create a new sort of enterprise software environment in which almost any sort of education and training scenario, certification, or course would be instantly at your virtual fingertips, whenever and wherever you needed it.

What General Lessel and his staff see as the rationale for placing a virtual environment at the center of *MyBase* is the product of a lot of thinking and research, but I strongly agree that this is the right approach, and I strongly agree that now is the right time to be crafting such ideas. The reason I mention the MyBase concept is because it highlights the first of my three themes — why virtual worlds matter. The Air Force project is unique not only for its scope, but because it recognizes that a flexible virtual environment is central to its success.

Virtual worlds matter because for the first time, we have a tool that not only allows for what I call high-fidelity interaction, it easily enables it between people that might be anywhere on the planet.

Mitch Kapor, the inventor of Lotus 1-2-3 and until just recently chairman of the board of Linden Lab, commented on the experience of being in the virtual world of Second Life, saying that it "touches something deep in people." My own experience, gleaned through the NMC's research and work in that particular virtual world, echoes that observation, and the idea is part and parcel of why this new technology is so compelling.

A snapshot of the experience across just one aspect of virtual worlds illuminates this well. There are many ways one might engage in real-time interaction at a distance, such as via a webinar, instant messaging, or even high-definition video conferencing, but in each of these,

one never lets go of the essential reality that you are not together. Even with the best of these, a piece of glass separates the participants. One can do a very simple test to discern this — if you move close to the screen in a video conference, no one on the other end steps out of your way. They know that you are not really there.

In a virtual world, on the other hand, the participants each make a choice to move through that glass and meet in the middle, and in so doing, extend their physical presences into the virtual space. If you conduct the same test of moving your avatar closer to another person's avatar, he or she will move away, just as he or she would in the real world. Not only has that person extended his or her physical presence into the world via an avatar, but a sense of personal space as well. The two of you both know intuitively that you are somehow actually together. You have met in the middle.

It is this simple yet profound sense of being in the same place at the same time, seeing and doing the same things, that is at the center of what is new about this technology. Nothing else has this compelling characteristic. The applications for it and for bridging time, culture, and distance are endless.

Nowhere among virtual worlds can one see this aspect so clearly as in Second Life, which we at NMC regard as the most currently evolved of the virtual world platforms today. Wherever this technology takes us, Second Life will be seen as the seminal first instance of what the 3D web might look like.

The reasons for that are clear.

Second Life sits at the intersection of three deeply significant trends, and it is here that one should start in order to understand why this technology offers such profound potential. The first trend is an increasing focus on people as the organizing principle of the network, which has been fueled by hundreds of social networking applications, the anytime, anywhere access of wireless networks, and the clear desire of people to connect seamlessly in real time via these networks. At its core, a platform like Second Life is a social space, and it is that platform's success in meeting the need of people to come together that has driven its success and popularity.

The second trend is the ever-improving ability of our computing and communications devices to represent data and information visually across three dimensions, and to distribute that information in real time over the network. Because of the huge success in the gaming market (which is nearly doubling each year and is predicted to top US $69 billion by 2011), most new computers now have the capacity to render three dimensional images of startling fidelity. Second Life's contribution here has been to extend this capacity over a grid network based on thousands of servers so that a virtual world of considerable size and complexity can be rendered in real time and shared among tens of thousands of simultaneous participants.

Second Life is unique among the emerging virtual worlds because it also capitalizes on a third major trend — allowing users to generate content — which is also the driving force behind such Web 2.0 phenomena as YouTube, MySpace, and Flickr. This has fostered a tremendous sense of ownership and pride among participants that in turn fuels the growth of the community.

Despite the relative immaturity of the technology, virtual worlds are clearly compelling to a large and growing number of visitors. At any given moment, more than 50,000 people from countries across the globe are actively engaged in Second Life, and that number is growing steadily. Just in the past week, nearly a half-million people spent time in that virtual world; add to those numbers the tens of thousands of people using other virtual world platforms at any given time for which published data are not available.

The NMC's usage and tracking data show that these visitors are devoting considerable time to the virtual expressions of their lives, especially compared to the amount of time one commonly expects people to spend on a web page, which is measured in seconds. In contrast, as these data show, the average stay of a visitor to the NMC's virtual campus in Second Life is an astonishing 42 minutes.

In terms of typical engagement studies, spending three-quarters of an hour on any activity is consummately rare in today's fast-paced world. More than any other aspect of virtual worlds, it is the ability of the technology to keep people's attention that is driving interest in virtual worlds within the education and training sectors, and that interest is widespread.   Over the past two years, an estimated 4,000 educational projects have emerged within Second Life alone, and of the 13,400 regions in Second Life that were active at the time of this writing, more than 1,400 of them were being operated by bona fide educational institutions. Add to this more than a hundred other projects on open-source platforms like Project Wonderland, Qwak, and Croquet.

Education is growing so fast in virtual worlds that it is no longer possible to maintain an accurate list of all the examples of education and training that exist.   Immersive, high-fidelity examples can be found in dozens of fields and disciplines, and the list grows daily.

Why is interest so high?

It is the simple yet profound sense of being in the same place at the same time that I mentioned a few moments ago — the perceived experience of seeing and doing the same things. This subtle change in perception is deeply significant. The emergence of this dynamic is perfectly timed for it to converge with an equally important trend.

Increasingly, virtual worlds are becoming people's "third place" of choice (the first and second places being home and work) where people connect with friends, watch television, listen to music, build a sense of togetherness with people across the world. This is a hugely important

trend, and one that helps explain why the NMC Campus project has been so successful — and one of the reason's I am so excited by *MyBase* — it would tap that very same dynamic.

Togetherness — that sense of being in the same place doing the same things, coupled with people's increasing desire to gather with friends via the network is why virtual worlds matter. Nothing has let us capitalize on those dynamics so forcefully before.

So… where is all this going? I wish I knew, because there is definitely some money to be made on the right bet here.

While I can't help us all get rich, I have spent some time reflecting on this question and have some insights that I feel very certain will be part of where things will go over at least the next four to five years. In a few moments, there will be a chance for you to share your thoughts on all this, but here is my list

We're going to see the same sorts of convergence and steady enhancements that have made the flat web so productive and useful being applied to the 3D web — tools will improve, there will be more social networking, people will continue to be at the center of the most successful platforms. We'll see lots more integration between the 2D and 3D components of the web, and mashups — like the kind NOAA is working on — that bring real life data into virtual spaces in real time.

Everyone will continue to keep their eye on Linden Lab I suspect. They have been the early leader in this space, and an important innovator. They have a new CEO as of 2 days ago, and are clearly in a refocusing phase. They've repositioned their marketing, lowered the cost of virtual land, and they are very smart people. They are absolutely aware of some of the shortcomings of that platform today, and I am sure they are working to build solutions. The recent pilot with IBM to overlay that company's internal security over a portion of the Second Life grid is a great example.

At the same time, history has shown us it is unlikely that a proprietary platform will maintain the lead for very long. The open source sector is much slower than other parts of the market, but it is here that I think the long-term winners will be found. There are a substantial number of platforms vying to be the "Apache" of the 3D web, and just as that tool is now the webserver of choice for most of the Internet, we will see the emergence of some very credible stable open source platforms for virtual worlds and simulations. Indeed, that is already happening.

We are already seeing a plethora of platforms that seek to address what I call the "Trinity of Troubles" — security, privacy, and intellectual property — a set of concerns that plague most of the commercial platforms and typically are cited by those who are not interested in virtual world solutions as the reason behind their stance.

At the same time, these issues are already largely solved via tools that operate at the infrastructure level, and all we really need are platforms that make use of what we already have in those regards. For that reason, custom solutions aimed to deliver these features as their primary attributes will almost certainly be short lived.

The big winner in the rush of development will be the platform that combines a facility with things we already know how to do well -- document and application sharing, VPN and other ways of securing access, single sign on – with the stream of hugely interesting developments around social networking, web 2.0, mashups, and user-generated content.

Add to that mix the ability to work with a wide range of 3D development tools, and to both import and export objects, avatars, and other components of these worlds, and you have a game-changing killer app.

So where *is* it all going?

Imagine with me, if you will, a future where conversations like this are routinely held in a virtual world, and so common that the technology becomes transparent….where the space not only provides dozens of settings and forums for dialog, learning, and business, but where using them is also widely seen as an energy-saving strategy, a cost-saving strategy, and a strategy for security and personal safety.

Imagine a future in which learners did not just read about scientific and mathematical principles, or simply solve problems and equations, but were able to see and manipulate them in real time and space — a future where the elegance, beauty, and consummate practical applications of these disciplines are easy to see.

Imagine a future in which the disabled, sick, or simply frail easily interact with able-bodied people on the same terms, with the choice to set the wearying challenges of their conditions aside — a future where even the autistic can find a voice, and barriers of illness or infirmity fall away, even if only for a time.

That future is here today. Each of these scenarios can be matched to work that hundreds of talented passionate people are doing right now in virtual worlds, and the extraordinary things they are accomplishing highlight the profound potential of this technology.

The future of virtual worlds that is yet to unfold is one that promises an exponential leap over what is possible with the technology today. Cinematic quality graphics are just over the horizon, as well as seamless integration with business and other applications.

Advances in social operating systems, mobile devices, and wireless technology will extend the 3D web in ways that will weave it transparently throughout our lives. That web will connect us to each other, to goods and services, and to knowledge and information in ways we can only begin to imagine today.

We stand at the frontier of that soon-to-come future now, and opportunity lies before us in every direction.

That opportunity is why we are all here.

We are here because we all sense the profound potential of virtual worlds – and even if the ultimate path they might take is still foggy, the way is still clear enough for us to tell we want to take that journey.

No doubt that there is still plenty of work to be done – we need demonstration projects, tools, ideas and more – and there is still plenty of credibility-building to be done. We're all looking for answers, entry points, ideas, places upon which we can put energy and vision.

We are here, because we all see a future that we want to be a part of.

We are here because there is so much going on already, and we want to learn as much as we can.

One does not have many of these moments in a career, and collectively we are on the cusp of one that will surely be significant.

We need bold and effective leadership — and look around. We are in a room filled with leaders.

Let's make the most of it.   Thank you.

Laurence F. Johnson, Ph.D. *(Larry) is Chief Executive Officer of the New Media Consortium (NMC), an international consortium of more than 250 world-class universities, colleges, museums, research centers, and technology companies. The NMC dedicates itself to finding ways for new technologies to inspire, energize, stimulate, and support learning and creative expression. Dr. Johnson is an acknowledged expert on the effective application of new media in many contexts, and he has worked extensively to build common ground among universities, museums, and research centers across North America and in more than a dozen other countries.*

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