

Opening a Branch in Narnia

You have no idea what's going on the virtual world

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Sony have just announced the new Sony Station Exchange. This is a new exchange for the trading of currencies and commodities that have a vital difference from commodities such as tin, dollars and oil: they don't exist. This new exchange is for magic swords, custom cloaks and platinum pieces. But don't laugh. The trading of virtual currencies, virtual properties and virtual identities in virtual worlds will exceed one billion dollars this year. What on Earth is going on?

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ABSTRACT

It is possible to imagine a rich and interconnected online business environment of the future, where bots, avatars and other kinds of "virtual identities" are sent out on behalf of individuals and organizations to interact in sophisticated ways. For the virtual identities to do real business, however, contracts, signatures, money and other concepts that crucially depend on identity and authentication in cyberspace must enter the picture. Then some kind of "virtual commerce" can develop.

We understand how this technology will work (public key cryptography, smart cards and the like) but what does it mean? How might virtual identities grow and interact and what implications might this have? One place to look for inspiration and early indications is the world of online games, where vast virtual worlds are already inhabited by millions of virtual characters. While they might be "only" games, they may contain some real insights into the future relationship between real and virtual identities. Some of the differences (conflicts, even)

between real and virtual commerce are thrown into sharp relief in this world, where vast virtual countries are already inhabited by millions of virtual characters and they already engage in significant real commerce.

I think that a look at the economics of the worlds in online games delivers real insight into the future relationship between real and virtual identities and could be a better window into the future of online business (and, for that matter, online society) the existing e-business and e-government structures, whether Amazon's book shop, Barclays' Internet banking or the Inland Revenue's online self-assessment.

It is therefore interesting to consider how these worlds—and the transaction technologies that they exploit—are developing and consider what the economic structures (and business models) of the future online environment—a cross between *Lineage II* and eBay—might be in order to gain some insights into strategies for virtual commerce.

VIRTUAL WORLDS

They may be unfamiliar to the majority of CSFI members, but virtual worlds have been around for a long time. When I was at University, the first mainframe multi-user dungeons (MUDs) were being played. When I got my first personal computer, an Apple IIe, I spent many happy hours playing (text) adventure games such as *Hitchhikers' Guide to the Galaxy* and so on. Over the years, graphical interfaces transformed the interaction between player and game and then (more importantly, in my opinion) networks transformed the interaction between players and each other. Simple text adventure games have, over time, evolved into fully-fledged virtual worlds.

As broadband becomes ubiquitous, the dynamics of virtual worlds appear to go into overdrive and the number of people with one or more “virtual selves” explodes. These virtual selves, generally known as avatars, are clearly more than just playing pieces in a game. The psychological link between people and their avatars is a complex one, more the domain of sociologists than computer technologists, but it is very interesting in one specific context: it may be an indicator of the future relationship between our physical and virtual identities in social, organisational and business “games” in an online economy.

South Korea provides the case study. Nearly three-quarters of homes have broadband: thousands of online fantasy worlds are inhabited by people interacting virtually, often representing themselves with animated characters in a blend of game play and chat, and at times hundreds of thousands of people (appearing as beautiful women, warriors, half-human beasts and the rest of the “normal” range of fantasy creatures) are communicating, fighting and even embracing [1].

Developers are working to enhance the interface between virtual characters even further. An example is *There*, another online community [2]: avatars in *There* convey emotions through both facial expressions and body gestures. When an avatar frowns, shoulders sag along with the corners the mouth *etc.* The prototype version offers more than 100 different emotional states to choose from, everything from surprise to anger, and the company plans to add ten a month. This

highlights another key point: these games aren't all about paladins battling gryphons. Noted venture capitalist Bill Gurley recently invested several million dollars in *Second Life*, a non-violent game in which players lease virtual land (512-square meters costs \$9.95 per month, while an entire island will run you \$195 every 30 days) and build and decorate their own virtual properties [3].

These virtual worlds have already crossed some sort of line that we didn't know was there: in some of the largest worlds, a small number of avatars earn a living for their "owners". Avatars from Sony's massively multiplayer online game *Everquest* trade for \$100–\$700 and while Sony Online Entertainment opposed the trade, there wasn't much they could do about it [4]. Although they negotiated an agreement with eBay to prevent the trading of *Everquest* items (eg, castles, magic potions, swords, that sort of thing), it didn't stop the trading: in Internet fashion, it immediately moved elsewhere.

What does all this trading add up to? Let's come back to that later on, but note here that in a famous study, economist Edward Castronova¹ calculated that the GNP per capita of *Norrath*, the imaginary world in *Everquest*, is somewhere between Bulgaria and Russia [5]! Incidentally, he's since discovered that the gender gap extends to *Norrath*: female avatars are bought and sold for some 12-16% less than male avatars [6], despite the fact that in this imaginary space there are no functional differences between the sexes.

So there is a truly cyber-economy growing in these cyber-worlds. The proof of the reality of the cyber-economy is surely the existence of cyber-crime. Forget *phishing*: in South Korea, more than half of the 60,000+ cybercrimes committed last year were connected with virtual worlds (there were 10,000 arrests and half of them resulted in convictions) as players hacked into each others' accounts and stole money and magic weapons [7]. An recent case of "crime 2.0" was the Japanese woman who used her ex-boyfriends username and password² to access his *Lineage* account and chucked away the magic swords and so forth that he'd spent countless hours accumulating³: she's now facing a computer hacking charge [8]. This, incidentally, was what first led me to look at virtual worlds back in 2003. I was looking for businesses where a small improvement in authentication would generate significant benefits for both service providers and service users: if banks get their act together on two-factor authentication, it may be Sony rather than the government who come knocking on the door to use it.

There are some interesting strategies for dealing with crime in the virtual world that are not available in the real world. In Lucasfilm's *Habitat* virtual world, subscribers complained about the killing and corpse-looting that was going on and the company responded by changing the software to remove death: at a stroke they proved Lawrence Lessig's famous aphorism that *code is law* in cyberspace [9]. This kind of development opens up the general issue of laws, and law enforcement, in the virtual world.

¹ Who has said that pounds, yen and dollars may become shadow currencies to the gold piece if human society continues to migrate to virtual worlds.

² The security in virtual worlds is as bad as it is in online banking.

³ I'm guessing that's why he's the "ex-".

VIRTUAL PROPERTY

This is about more than games, of course. Economists, lawyers and social critics have been turning their attention to the world of multi-player games because they believe that they are an important vehicle for communications [10]. As more and more people go on line, and more and more of the economy goes with them (just look at the eBay phenomenon to see how quickly this can happen), virtual worlds force the re-examination of some fundamental questions. One easy way to focus such a debate—while avoiding getting sidetracked by virtual sex, the almost inevitable fate of such discussions—is to look at property rights. Does Leadbelly Gutbucket, my *alter ego* in an online *Dungeons and Dragons* type of game, “own” his magic axe in the same sense as I “own” the computer I’m typing these words on?

My bet is that he does, and some lawyers are coming out and saying the same thing. A working paper from the University of Pennsylvania Law School [11], looking at this issue in some detail, concluded that on the basis of economic accounts that demonstrate the real world value of the virtual world objects and the exchange mechanisms for trading them, virtual world property interest are indistinguishable from real world property interests. If the basis for prosperity is property rights enforced by courts, then it’s clear that some virtual worlds will experience economic growth much higher than many third-world countries where property rights are less well-developed: in December 2004, a virtual island in a game called *project entropia* sold for \$26,500 [12]. In other words, there are people in the world, right now, who are prepared to spend more on a non-existent real estate in an imaginary place that exists only in software than they could spend on actual property in the real world.

More evidence for the reality of virtual property comes from an unlikely source: Communist China which, having embraced the fundamentally capitalist notion of private property only recently, has already had its first court case to establish virtual property rights [13]. In December 2003, a Beijing court ruled in favour of one Li Hongchen. Mr. Li had spent two years and more than a thousand dollars playing the online game *Red Moon* before a hacker got in to the system and removed his virtual money and virtual weapons. He complained to the game operator but was told that his virtual goods had no real value: so he sued them. The court said that because the virtual goods had been acquired using Mr. Li’s labour, time, cash and wisdom they therefore belonged to him.

It can be argued that property rights are the first step on a ladder of law that will confer rights on avatars as well. Once avatars and cryptography come together—introducing authentication, digital signatures and so on—then the scene is set. Ultimately, we’ll stop distinguishing between a person’s “real” identity and the identity of their avatars (and possessions) and simply grow accustomed to the idea that a physical individual has a number of digital identities and that Dave Birch the employee of Consult Hyperion is not the “same” as Dave Birch the private citizen or Leadbelly Gutbucket, mightiest of the Dwarven heroes of Ravenscrag Pass. It will be Leadbelly’s reputation within trusted relationship groups that is his critical attribute, not who he “belongs” to [14].

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VIRTUAL MARKETS

Where there is money and property rights, one might reasonably expect markets and (eventually) secondary markets to evolve. Such has been the case in virtual worlds. The benchmark for this emerging economy is eBay category 1654 *Internet Games*: hard cash for virtual stuff of all kinds ranging from \$700 virtual castles to \$2000 specialist avatars such as Jedi knights [15]. In 2004, at least one person (a Mr. Julian Dibbell) reported to the US Internal Revenue Service that he earned more from this virtual world than from the real world.

The scale of these virtual markets is surprising to most people. Hong Kong-based IGE is one of the biggest virtual currency dealers and their monthly revenue exceeds \$1 million. The company began in 2001, with 50 staff working 24 hours a day, seven days a week, buying and selling virtual currency and other objects in online games [16]. There are already operations in China and Mexico where low paid workers tap away at keyboards for hours on end to mine virtual gold to sell through exchange to players in rich countries: they're called *goldfarmers*.

Given the scale of the trading, Sony has now taken the only sensible course of action open to them. Instead of going down the record industry route of filing lawsuits against their best customers, they've decided to set up their own trading centre. The Sony Station Exchange will open in June [17]. Not only will it benefit Sony (since 40% of their customer service calls are related to fraudulent trading) and the players who want to trade, I suspect it will spur the development of wholly new games where a secure trading exchange is integral to the platform and actively encourages secondary markets between financial institutions. Some will see Sony's move as legitimising this kind of virtual market, so why shouldn't my online bank offer me Platinum Pieces as well as Euros? And if it does, how far away are futures and other derivatives? Come to that, how far away is the FSA?

It seems to me that virtual economies are developing in ways that members of the CSFI will find familiar, even if they are entirely unfamiliar with the *World of Warcraft*, *Runescape* and *Ultima Online*. All of virtual life is here. There has already been an incident in World of Warcraft (one of the newest and largest UK games) where a couple of budding Bunker Hunts bought up the entire stock of weapons, armour and the like and the resold them at a profit to desperate players!

Let me reinforce the scale of these virtual economies. Professor Castronova points out that, just as in the real world, most consumption is domestic. He calculates that only 5% of "GDP" is traded across the border to the real world and so is bale to estimate that size of the virtual economy. For the worlds he studied, the virtual economy is the equivalent (in GDP per capita and population) of Namibia which has about two million people and, according to World Bank figures, a gross national income of \$1,790 [18].

Further note that the virtual worlds in the US and Europe, such as Everquest, are small in comparison to their Asian cousins. *Lineage II*, for example, currently has three million players (who pay around £15 per month [7]). Since we know that about \$400 million was traded in Asian virtual worlds last year, this makes their economy in the region of \$8 billion! And the boundary with the real world is getting blurred. In South Korea, gift cards for the virtual

currency used in Cyworld, known as dotori (“acorns”), are sold in more than 10,000 retail outlets as well as online and via mobile phones. Players use the currency to buy avatars and media to decorate their virtual space. I can understand why banks and other financial institutions don’t take this kind of thing seriously. After all, one dotori is only about ten cents, so the market is obviously small: only \$200,000. Per day [19].

ONLINE FUTURE

The digital divide of the future may well not be between people who use the Net and people who don’t, but between people whose primary sphere of interaction is virtual (Sony have added a link to Pizza Hut so that Leadbelly can order real pizzas [20]) and people whose primary sphere of interaction is real. Many people will have multiple personae inhabiting multiple worlds. Sometime I’ll be Dave Nice in one space, other times I’ll be Dave Nasty in another space (in fact I already do this on messageboards). These personae will be “real” to other personae and other people. It won’t be too long before there will be TV shows based on virtual worlds will be compelling enough to be watched concurrently by people who aren’t playing [21]. Imagine watching—live—32,000 orcs in Paris battle 32,000 elves in Los Angeles for the honour of their city!

The attraction the virtual sphere of interaction, to interacting and earning a living in the virtual world are obvious once the virtual personae become economic agents. One could imagine a flight to virtual communities, where mathematics (in the form of cryptography) provides a defence against crime and disorder that the metal barriers of a gated community cannot. If the community decides on a new law—no swearing in public places, let’s say—then they can enforce it instantly and 100% effectively by downloading a patch. If there are members of the community who don’t like it, they can go to another community instead. The designers of virtual worlds have a power that Mr. Blair can only aspire to. He might want to build a society founded on respect for the individual and their property but he cannot bugix the code and make it happen!

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