

Making Second Life a More Complete Development Platform

Voice: Introduces the “proximity based” usage model—voice usage that is based on and altered by changes in physical in-world proximity. Allows the ability to talk to other avatars on “voice-enabled” land, when you see a microphone icon. Requires stereo headphones with a microphone. Currently in beta.

Mono: An open-source implementation of the .NET Development Framework. Provides the ability to export API calls to programming languages other than C—Python, Perl, Ada, and Java, to name a few. Will allow languages other than LSL in world. Expected within several months.

Sculptable Prim: A prim with a shape determined by a texture—its “sculpt texture.” Sculpted prims can create organic shapes that are not currently possible with Second Life’s prim system. Currently in beta.

SLlib: An open-source project that provides a communication API for packet transfers between SL and the 2D web. It’s an effort directed at understanding how Second Life works from a technical perspective, and extending and integrating the metaverse with the rest of the web. Press announcement expected this month.

Search engine: Google-like search capabilities inside of SL. The Electric Sheep Company currently has a beta bot that “basically crawls the (Second Life) grid and then figures out what we want to pull, what we want to save.” Cory Ondrejka (CTO of Linden Labs) said in an in-world town hall meeting in December: “We are in the early technical and interface design period on search, but expect to be hearing more about it in (the first quarter of) 2007 with a goal of rolling (out) new search in” the second quarter.”

Text-on-a-prim: Create and edit text on a prim. Currently text must be captured as an image and uploaded. Currently expected along with Web-on-a-prim.

Web-on-a-prim: Display and interact with a web browser on a prim. Currently in the LL “new feature” queue and prioritized below scalability and grid stability according to a recent statement from Linden Lab.

Enhanced security: Enhanced encryption, secure private channels, and more fine-grained permissions. Currently, privacy is an issue on “mainland” parcels (shared server space) unless you own an island (dedicated server). Currently in the LL “new feature” queue.

Easy backup and restore of objects: Maintenance of object inventories integrity and the ability to export inventories (possibly by parcel) to off-world media storage. Mentioned by Alem Theas during his talk.

Web services interfaces: To/from SL to the 2D Web—longer-term APIs expected to become available to developers as open source through SLlib. This may include APIs that allow the connection of non-LL servers to the grid.

On the road to the Metaverse

by Surfdaddy Orca



Surfdaddy Orca, editor-in-chief of The Seventh Sun, is a real world surfer with a love for science and technology writing. A former Intel employee, he is a veteran of several Internet startups and specializes in software quality infrastructure.

This article covers the recent Dr. Dobb’s Life 2.0 Fall Summit held in Second Life (SL) Sept. 15-21, 2007. See D2 for an exclusive interview with Dr. Dobb’s host John Zhaoying.



Jerry Paffendorf of the Acceleration Studies Foundation (formerly a “Sheep” with virtual content creator The Electric Sheep Company) says he likes to fall asleep looking at images projected onto the ceiling of his room. And no, not just another episode of “As the World Turns.” Jerry talks about watching the patterns of web traffic go back and between Europe and the United States using mashups of Twitter superimposed on Google Earth. He also talks about “life blogging” and what’s it’s like to live with a virtual person in your house.

Jerry also spoke about the Metaverse Roadmap (<http://www.metaverseroadmap.org/>) during the Dr. Dobb’s Life 2.0 Fall Summit held September 15 – 21, one of many absorbing presentations exploring “themes” related to virtual world development. And, interestingly enough, Jerry’s evening viewing activities tie directly to keynote speaker Wade Roush, Chief Correspondent for Xconomy, and author of Second Earth

—a cover-story in the July/August issue of MIT Technology Review—who sees the “mashup” of virtual worlds like Second Life with products like Google Earth. As Wade said, “Components are coming together right now to create the ‘metaverse’ of science fiction.”

Science fiction or science fact? That no less a respected institution as Dr. Dobb’s—with thirty years of experience covering all languages, platforms, and tools—has created a forum for virtual world developers that links real-world coders with the latest in-world developments, says that something very real (well, actually virtual) is going on. Second Life (SL) summit host avatar John Zhaoying says, “There are some stellar presenters and well-known thinkers in the metaverse now, and you just know that whatever they talk about, it’s going to be riveting.” (See the associated exclusive Seventh Sun interview with John.)



A panel discussion of “Wikitecture” with Keystone Bouchard, Clear Ink and Theory Shaw

The idea of merging Google Earth with Second Life was only one of the themes explored during the summit. Other major themes built on the presentations from Dr. Dobb's previous summit last May. (See "Dr. Dobb's Life 2.0" in the May 2007 edition of the Sun.)

The amount of material presented at Life 2.0 is almost daunting in its breadth and scope and can only be highlighted here. It ranges from scripting basics, sculptyies (sculpted prims), collaborative agile software development using virtual worlds, and virtual world platforms such as Sun Microsystems' Projects Darkstar and Wonderland (used for MPK 20), Duke University's open source Croquet, Forterra Systems' OLIVE, and Multiverse—to future-looking technology such as bots (AI agents) and David Orban's presentation on genetic algorithms. The application of metrics and tracking in 3D spaces was explored in several panels, most notably with Jared Freeman of Code4 Software. To Dr. Dobb's credit, machinima videos of all presentations are being put on the web at <http://www.life20.net>

Each day of the conference started with a "networking breakfast," and many days ended with tours and evening programs (including live entertainment by vocalists Starr Singer and Kim Seifert). Most presentations included parallel chat sessions with streams of avatar-generated questions, debate, and commentary. The number of avatars in attendance appeared to be much higher than last May's summit, and parent company CMP offered up a second sim for the presentations. Dobb's Island staff did an admirable job of dealing with sim instability and griefing. (Crashes were infrequent and coordination with Linden Lab staff was apparent.) Most presentations went on without any problems largely due to Rissa Maidstone's diligent monitoring and friendly reminders.

In addition to Wade Roush of Xconomy, the keynote speakers included Chris Melissinos, Chief Gaming Officer for Sun Microsystems; Scott Ambler, Practice Leader, Agile Development, IBM Rational; and David Intersimone, Senior VP Developer Relations for Borland Codegear. Never at a loss for creative thinking, long-time SL avatar and mentor Tateru Nino gave a special keynote with the weighty title "Diverse Ruminations on Human Factors in Virtual World Experiences, not Limited to the Unexpected Value of Misconceptions." Says Tateru, "Whether you step in to Second Life with no background in virtual worlds, as a keen observer/commentator/critic who is spending their first time on the inside, or even coming from another virtual world—you're wrong. I was wrong. We were all wrong. That's just how it is."

Chris Melissinos, a "hard-core gamer," has the dream job of a generation of video gamers. He oversees Sun Microsystems' Darkstar and Wonderland projects. Project Darkstar (<http://www.projectdarkstar.com/>) is an open source fault-tolerant software server that is "game and platform agnostic." Project Wonderland (<https://lg3d-wonderland.dev.java.net/>) is a downloadable 3D scene manager for virtual worlds. According to the Project Wonderland web site, "users can communicate with high-fidelity, immersive audio and can share live applications such as web browsers, OpenOffice documents, and games." You can download pre-compiled versions and source code for Linux, Windows XP, Solaris x86, and Mac OSX.

Chris and Sun Microsystems' architect Rupert Key talked about MPK20 (short for "Menlo Park Office #20"), Sun's virtual workplace, built using Project Wonderland. (See <http://research.sun.com/projects/mc/mpk20.html>.) According to Rupert, on any given day, over 50% of Sun's workforce is remote. MPK20 is a virtual 3D environment in which employees can accomplish their real work, share documents, and meet with colleagues using natural voice communication. Inhabitants of the virtual MPK20 office building can work together in planned meetings, or can talk informally in unplanned virtual hallway and water cooler-type meetings.

Dr. Dobb's Life 2.0 Fall Conference Agenda

Day 3

Keynote Address: "*Second Earth*"
Wade Roush, Chief Correspondent, Xconomy

"Metaverse Roadmap"

Jerry Paffendorf,
Acceleration Studies Foundation

"OLIVE"

Chris Badger, Forterra Systems

Panel Discussion: "*Second Life Search*"
Felix Wakmann, Navillus Batra, Joshua Linden,
Robbie Kiama, John Zhaoying

"Metaverse Metrics"

Jared Freedman, Code4 Software

Day 4

Keynote Address: "*Many Worlds, One Planet*"
Chris Melissinos, Chief Gaming Officer,
Sun Microsystems

"Wikitecture"

Keystone Bouchard, Clear Ink and Theory
Shaw

"MPK 20, A Virtual Workplace"

Rupert Key, Sun Microsystems

"Virtual PCs"

aEoLUS Waves

Panel Discussion: "*Metrics and Analytics*"

Hiro Pendragon, Joel Greenburg,
Jared Freedman, Spin Martin, Aimee Weber

Sun Microsystems Mini-Summit:

"*Interview with Chris Melissinos,
Dr. Joseph Bianco, and Rupert Key*"
John Zhaoying

Tour and Reception at Sun Island

Rissa Maidstone and John Zhaoying

Day 5

(SL Update Day)

Day 6

Keynote Address:

"Agile Programming"

Scott Ambler, Practice Leader,
Agile Development, IBM Rational

Panel Discussion: "*Bots*"

Eddy Stryker, otakupope Newmann,
John Zhaoying

"Croquet"

Julian Lombardi, Croquet Consortium

"EOLUS Island"

EOLUS McMillan

"Metrics and Analytics"

Hackshaven Harford (MayaRealities)

"Developer Communities in the Metaverse"

Jay Clarke, IBM

Tours: IBM, EOLUS, Weather Channel

Tours: Intel, Cisco, Amazon

Day 7

"*Diverse Ruminations on Human Factors in
Virtual World Experiences, not Limited to the
Unexpected Value of Misconceptions*"

Tateru Nino

Keynote Address:

"Collaboration Using Virtual Worlds"

David Intersimone, Senior VP Developer
Relations, Borland Codegear

"The Multiverse Platform"

Corey Bridges (CMO, Multiverse) and
Raphael Cedeno (CTO, Multiverse)

"Bringing the Desktop In-World"

Cherub Spectre, PixelTrix

"Metrics and Genetic Algorithms"

David Orban, Questar

Tours: Intel, Cisco, Amazon

Dr. Dobb's LSL University Agenda

Day 1

"Program Structure and States"

MikeG1 Schumann

"Data Types, Lists, Memory"

Vyrnox Ming

"SL Orientation"

Rissa Maidstone and John Zhaoying

Day 2

"I/O and Object Communications"

Bradford Russell

"Physics, Movement and Rezzing"

MikeG1 Schumann

"LSL and the Web"

MikeG1 Schumann

Sculpty Day Mini-Summit:

"Introduction to Sculptyies"

Qarl Linden

"Tools and Techniques"

Anjin Meili

"Tyrell Corporation's Latest"

Spider Mandala

"SculptyPaint"

Cel Edman

"Prim use in Furniture"

Aminom Marvin

"Sculpt Studio"

TheBlack Box

"Techniques used by The Electric Sheep Company"

Xenius Revere

"Rokuro and Coiled Sculpts"

Yuzuru Jewell

► Metaverse

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Chris collects games (he says he has 43 or so) and sees kids “finding their own voices through games and social sites.” With the availability of low-cost, high-performance, high-bandwidth multimedia computers, he sees people engaging in “multiple modes of communication,” for example combined IM, chat, and presentation audio. He says that Sun is interested in learning from gamers. He sees a future where virtual humans use “augmented reality spaces” like MPK20 on a regular basis.

IBM’s Scott Ambler’s keynote address provided a glimpse into IBM’s use of the “agile” software development methodology and how it can be applied remotely on a distributed basis between teams in the U.S., India, China, and Brazil. Agile was developed so that software teams can deliver high-quality software “with minimum ceremony” to keep up with rapidly changing markets and technologies on “Internet time.” Unlike the classic “waterfall model” of development, agile developers create frequent small, interactive, and incremental releases using customer-based “stories” to represent what needs to get done. The stories are given “velocity” — the time for a developer or development team to “get the story done” — and then assigned a duration for an “iteration” to actually build and test the software. The customer is involved at each step to pick what and how much gets done based on the engineering-assigned velocities. “Thousands of IBM engineers are using agile” says Scott, and IBM’s software products “get done more quickly in working increments.” “It is a great way to manage rapid change in requirements,” he says.

The final keynote address was given by David Intersimone of Borland Codegear. He talked about the use of virtual worlds as collaborative platforms for developers, “The coding process remains at the center of software development, translating requirements into code. You want an orchestrated process.” He used the analogy of a jazz band seamlessly blending together while each of the individual members have the freedom to improvise. “How do you make it all fit together with team members in different time zones? You need an infrastructure to encourage collaboration.” He said that development can be accomplished by small or large teams, or what IBM Fellow Grady Booch refers to as “teams of teams.” In an era of

specialization (for example security, threading, and scripting languages require specialized skill sets), he visualizes “rent-a-coder” online distributed, virtual teams where a coding specialist, regardless of geographical location, can be pulled quickly onto a team for short-term assignments. He sees a time when virtual companies and virtual teams will collaborate online using common Integrated Development Environments (IDEs) such as Eclipse using virtual worlds for standups, walkthroughs, refactoring sessions, and quality assurance testing.

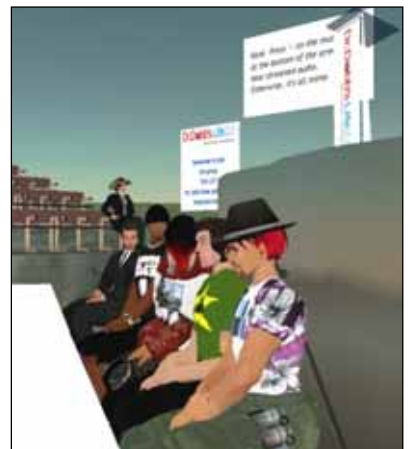
So, how far along are we on the Metaverse Roadmap? Certainly most of us aren’t quite as “virtual” as Jerry Paffendorf, who freely admits that he is a metaverse guinea pig. And how do platforms such as Darkstar, Multiverse, Croquet, and OLIVE end up sharing interoperability protocols? Not to mention the SL Grid itself, which continues to morph and grow with a reported 20,000 new residents daily. Will the protocol standards being developed through the SL architecture wiki (caps, chhttp, eventlet, and mulib) end up being adopted by other platforms? Trackable metrics in 3D spaces are still in their infancy with factors like viewable range (of avatars), impressions (who can see an advertisement), and requests (when an avatar clicks on an ad) just getting defined.

And, like the browser wars of the 1990s, does an 800-pound virtual gorilla lie in wait in the bushes? King Google, perhaps? According to a September 28th post to internetnews.com by Mike Elgan, “Google has developed or acquired a huge portfolio of companies, products and services in recent years, including AdScape, an in-game advertising company; Dodgeball, a Maps-oriented cell phone social networking service; Sketchup, a tool for building 3-D objects on top of Google Earth; Socialstream, a Carnegie Mellon University research project sponsored by Google designed to extend Orkut personal content to other social networks. Because Google controls all these projects, the wild-eyed speculation is that Google will combine some or all of them into a giant new service.”

What is clear is that Dr. Dobb’s Life 2.0 Fall Summit took place in Second Life. Kudos to CMP’s newly formed Metaverse group and Dr. Dobb’s for creating a place in SL where real-world developers and business people can come together openly to listen to presentations, chat, and debate the latest in-world developments and best practices on the road to the Metaverse. ☼



Tateru Nino



“Metrics and Analytics” panel discussion



Chris Melissinos, Sun Microsystems
“Many Worlds, One Planet”