There and Back Again: The Story of Subspace

Zhichun Pu
STS 145 Case Study

In the fast-paced world of computer games, titles spring forth and fade out in a matter of months, leaving only a handful of brilliantly designed ones behind. It doesn't take a seasoned veteran of computer games to name some of the hit titles such as Doom, Dune, Sim City, or Starcraft. But none of these games have gone through the amazing trial of demise and resurrection — indeed, death is a final sentence for the vast majority of computer games ever (and will ever be) produced. This rule, however, does not apply to one extraordinary game called Subspace.

The story of Subspace began when Virgin Interactive Entertainment's North American branch (VIE) hired producer Rob Humble in 1995, who had "worked on the boxed version of Kesmai's arcade hit, Air Warrior. They asked him what kind of game he wanted to make. 'Internet-only,' was his reply and they said, 'Sure, go ahead and here's the money.'"[1] Rob Humble hired his programmer friend Jeff Peterson to create a simple prototype for testing purposes. After one month, Jeff Peterson created an asteroid clone with a 2D overhead perspective. The game engine incorporated simple Newtonian physics — most notably, the feature of inertia. Code named "Sniper", the test program was put on a website; Rob and Jeff waited for player feedback. The plan was to gather what information they can from Sniper, and incorporate the players' suggestions into a (to be created) game of a much larger scale.

After four months of testing and modification, the experiment was declared over. But when Jeff and Rob tried to shut down the website, they were flooded by acerbic remarks from "perplexed and addicted"[1] beta testers. Surprised to see how far their experiment has gone, VIE decided to keep Sniper around for further development. The little test program was renamed "Subspace", and it was here to stay, for good.

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[1] Sengstack, Jeff. Subspace.
Note: all subsequent information regarding the production of Subspace in its beta stage are acquired from this article.

True to its roots, Subspace's beta testing period depended heavily on player feedback. Modifications of the game were made on a daily bases, and new patches were released on a weekly basis. After more than two years of beta testing, the game was commercially released to local retailers for sale in October 1997; its publisher, VIE, had high hopes for its newest investment.

In Subspace, a player can select from eight (the eighth ship, the Shark, was added after the commercial release of the game) distinct spaceships, each with its own unique characteristics[2]. For example, the Warbird is the most maneuverable ship in the game, while the Javelin is the fastest ship in the game, the Spider and the Shark can cloak, the Lancaster's bombs can bounce off of walls, etc. Due to the highly specialized nature of each ship type, most players tend to use one type of ship exclusively.

Subspace is organized into various zones a player can choose from. Each zone has its own unique style of gameplay. For example, the Speed Zone (no longer in existence) features a fast-paced game of carnage in which every player competes to get the most number of kills in a 20-minute time frame, the Dueling Zone is a place where players can engage in one-on-one combat inside an enclosed area, the Warzone is an on-going game of capture the flag, etc.

In a standard zone, the player's ship starts off with minimal capabilities, and he will have to capture power-ups (known as "greens" for their green color) to upgrade his ship to its full potential. Combat is usually engaged between teams of players (either randomly assigned or willfully formed), which makes turf wars the most common battles in Subspace. Players have at their disposal bombs (which have proximity detonation), bullets, mines, and a variety of other tools called "specials". An example of a special would be Thor's Hammer (known simply as Thor), which is a very powerful bomb that can go through walls. Other standard ship functions

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[2] For a full description of the elements of the game, visit Subspace's Online Manual at http://guide.subspace.net/

are Stealth (invisible on radar), Cloak (invisible on the game screen) X-Radar (penetrates stealth and cloak), and Anti-Warp.

In addition to the basic in-game elements, Subspace features a wide range of rich multiplayer faculties. Its sophisticated in-game chatting function is a crucial part of gameplay, as it allows players to communicate with one another with great efficiency. Players can send messages to the entire zone, to his own team, to his own squad, or another team, to another squad, or to someone in another zone. Players can also choose to ignore all messages or the messages of a few particular people, they can also pre-set macros into hotkeys, which greatly facilitates coordination between team members during combat (e.g. "Help needed at %coord" is a macro that will automatically output your current position using the "%coord" variable).

Players can also form squads among themselves. A squad is headed by a captain, who controls membership in the squad with a password. Squads are usually formed to compete in player-run league (e.g. Professional League, Powerball League, 2 vs. 2 League, etc.), which are highly organized entities fully equipped with league councils, referees, and seasonal schedules. In short, the internal organization of squads and leagues is no different than that of any professional sports teams and league such as the NBA or the NFL — with the exception, of course, that the players do not get paid (although some of them should be).

Gameplay in Subspace is fast and furious. Usually there are more than 20 pilots in one zone, darting back and forth, preying or being preyed upon. Bullets, bombs, mines, and Thors are everywhere. Bombs explode into a ring of menacing shrapnel, taking out any unaware bystander. Due to the simple implementation of basic Newtonian physics, Subspace is an incredibly easy game to learn, but at the same time extremely difficult to master. A "newbie" will often go through an extended and painful period of hazing, during which he is continuously killed by

more seasoned players. However, if approached with a diligent attitude, a novice pilot can gain a respectable skill level in a matter of months.

A game like Subspace is bound to attract players by the thousands — and it did. By the time VIE released Subspace as a commercial product, the game already had an impressive 150,000[3] player base — a feat that can only be achieved by the best of computer games. But what makes Subspace a good game? A careful examination of Wolfgang Kramer's objective criteria in conjunction with Geoffrey and Elizabeth Loftus' (for simplicity, the authors will hitherto be referred to as "Loftus") will review that Subspace exhibits every characteristic, physical and psychological, of a truly great game.

In their book, Loftus proposed the concept of variable-schedule reinforcement[4], in which a player is reinforced, or rewarded, through some type of interaction with the game at the end of variable intervals. Subspace is a perfect example of a game with variable-schedule reinforcements. The player is reinforced whenever he defeats another player in combat, but this can happen in almost an innumerable number of ways. Victory can be achieved by actively hunting another player, have your teammate or squad mate avenge your death for you, accidentally killing someone with stray bombs and bullets, defeating someone in a duel, defeating a team in a match during the playoffs, winning one round of capture the flag or King of the Hill, etc. etc. The number of avenues towards victory is limited only by the imagination of the player and the zone designer's creativity, thus creating a highly variable and yet reasonable waiting time[5] before the next dose of reinforcement is delivered. Furthermore, Subspace offers a

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[3] Sengstack, Jeff. Subspace.
[4] Loftus, Mind at Play   p.18
[5] Kramer, Wolfgang. What Makes a Game Good?
Note: the following is a partial list of Kramer's objective criteria for a good game: reasonable waiting time, creative control, originality, surprise, equal opportunity, no early elimination, no "kingmaker" effect, replayability. Any mention of these components should be attributed to Kramer's definitions.

highly creative level of control[5], in that the player never has full control over what takes place in the game. However, the degree of control a player has over the game will increase with time and experience.

In addition to being a good game, Subspace also exhibits a high resistance towards extinction[6] — a term used by Loftus to denote the permanent loss of interest for the game. Due to the fact that Subspace is a multiplayer game, its potential in surprising[5] the player is near infinite; place 30 sentient pilots in the same zone and no one will be able to accurately predict their behavior within any given time span. Each combat the player engages in is always new, always original[5], for no two situations are exactly alike. Similarly, each player has, theoretically, an equal opportunity[5] to achieve victory if he has dedicated the same amount of time and effort into the game as his opponent. And finally, no one can become the "king"[5] of Subspace for the simple reason that no single pilot is able to defeat every one of the 150,000 players in the game across hundreds of zones. All of these factors combine to make Subspace a highly replayable[5] game, a fact that complements Loftus' theory of alternate worlds[7]. An alternate world is an imaginary place in which victory is attained. In terms of Subspace, a player can easily imagine what went wrong in his last encounter with another player which resulted in his defeat. Moreover, the blemish can be easily rectified by simply pursuing his opponent immediately after he re-spawns. The alternate world created by the defeated pilot is very close to reality, due to the fact that he can indeed recreate his most recent battles minus the mistakes. As a result, Subspace will never fail to recapture the player's interests, and is highly unlikely to face extinction.

While Subspace does indeed exhibit all the right characteristics that make a great game, it never became the financial success that VIE had hoped for. After its commercial release,

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[6] Loftus, <u>Mind at Play</u>   p.16
[7] Loftus, <u>Mind at Play</u>   p.30

Subspace attracted new players continuously through the word-of-mouth amongst gamers. Unfortunately, word-of-mouth was the only medium through which Subspace proliferated through the gaming community. Upon Subspace's release in 1997, VIE launched what was perhaps the worst marketing campaign in history: there were no advertisements through any medium and no shelf promotions at local retailers. As sales figures trickled in, Subspace became a financial disappointment[8]. Rather than changing their business strategy, VIE instead blamed low revenues on software piracy, and soon moved to implement a CD-check copyright protection. It was a costly move for VIE, for the number of players in Subspace took dropped sharply[9] after the copyright protection was implemented. Fortunately, the decline was only temporary: just months later, a crack[10] was available on the Internet to counter the CD-check. VIE then released another version of Subspace, which rendered the crack impotent. But sure enough, a new version of the crack soon ensued in a matter of hours after VIE released its new patch. The cop versus robber game continued on for over a year, and finally, VIE caved in. Its North American Branch was in financial ruins by late 1998, and was acquired by Irvine Entertainment[10]. The acquisition, however, did not include Subspace. In this interesting twist of events, Subspace suddenly lost its owner and became, for all practical purposes, public property.

Something else happened when VIE was acquired. On December 16, 1998, at 5:00 PM EST, VIE shut down all of its Subspace servers. As Kevin Jenkins put it, this meant "no more usage tracking, cross zone chatting, point tracking, or squad maintenance"[11]. All the old VIE zones were either immediately shut down or deserted by players. The central server that provides the IP addresses of various zones was also shut down. Though there were still a few player-run

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[8] Alex Zinner email interview #1
[9] BD Vine email interview #2.
[10] The term "crack" is used to denote a program that modifies the normal functionality of another program — used most often to denote those programs that bypass copyright protections.
[11] Jenkins, Kevin. The Passing of Subspace

zones operational, they were excruciatingly slow and the players simply had no way of locating them without the central server. By the end of 1998, the player base had shrunk from 150,000 to a mere 16,000, a near 90% drop[12]. Subspace began to fade away rapidly from the gaming community in a very unremarkable way.

Subspace's fate was certainly not caused by any design flaws in the game itself, but rather by VIE's poor business practice. To understand what VIE could have done to save itself from financial ruin, a simple comparison can be made with another massively-multiplayer game called Everquest. Released 2 years later than Subspace, Everquest is a 3D online RPG. Not only did it charge the players $30 to purchase the game, it also included a $10/month subscription fee[13]. When Subspace was on sale in the stores, it was priced at merely $10, with no subscription fee. While Everquest thrived today with over 375,000 subscribers[14], Subspace's following is little over 40,000 as of today. Of course, Everquest is in a completely different genre than Subspace, but its success nevertheless proves that the subscription business model not only works, but is extremely profitable. Ultima Online is another example of a subscription-based multiplayer game that has attained quite a high degree of success.

But there are successful multiplayer games that are played for free, notably, Diablo II and Starcraft. Both of these games are produced by Blizzard Entertainment, both of which are wildly successful, and both of which support multiplayer over Blizzard's proprietary Battle.net. The difference, however, between Blizzard and VIE is that Blizzard actually staged massive marketing campaigns. For Diablo II, Blizzard used prime-time TV to reach the mass audience; for Starcraft, a game that is published in 1998, articles about the game were appearing in game

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[12] BD Vine email interview #2
[13] Kasavin, Greg. Everquest: The Shadows of Luclin.
[14] http://everquest.station.sony.com/press.jsp

magazines as early as 1995[15]. Such persistent (and undoubtedly expensive) marketing strategies brought Blizzard's games unparalleled publicity even before they were released.

VIE, on the other hand, staged literally no marketing campaign to promote Subspace. Nor did it adopt the subscription fee model like Everquest or Ultima Online. While the executives at VIE wondered why Subspace is such a financial failure, players were sifting through piles of outdated (3-4 years old) games to find Subspace in a disgracefully unattractive white box. The cover art was so ridiculously simple and banal that a 6-year old could probably have created a more appealing design[16]. VIE's inactive marketing strategy has essentially banished Subspace into commercial oblivion. But as sales were rapidly turning into an unviable source of revenue, it never occurred to VIE to start charging subscription fees to save themselves from financial ruin. Instead, they persisted with their business model. When the Subspace contract expired and the company was bought out, VIE simply pulled the plug, leaving the game to fend for its own survival.

And survive it did — with the help of the Subspace community. Along with the commercial release of the game, VIE also released a public version of its billing server. A billing server is "a user database with information regarding player's usage of the game service… Player registration information is kept in it, and the zones connecting to it share the same user and squad information."[17] The public release of the billing server was a scaled-down text-based database, as opposed to VIE's main server, which was based on ODBC[17]. This simplified version of the billing server allowed individual players to set up their own Subspace server. During the years

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[15] Information regarding Diablo II's televised ads and Starcraft's game reviews are from my own knowledge. I was not able to find any reliable sources to corroborate my claims, but these facts are considered common knowledge amongst seasoned computer game players.
[16] These experiences are generally reflected by the Subspace gaming community (of which I am a part) during in-game conversations and in postings on message boards many years ago. Again, I was unable to find any written resources to corroborate these claims, but they are commonly-shared opinions in the Subspace community.
[17] BD Vine email interview #1

when VIE's main servers were up, these home-brewed Subspace servers were a small fraction (less than 20%) of the overall player base[12]. In addition, these private servers were usually afflicted with slow connections, thus causing a high rate of packet loss and latency, two terms that are collectively known as "lag" by the online gaming community. By the end of 1998, however, VIE was a thing of the past. These small-time private servers suddenly took on the burden of being the backbone of the Subspace community. Many server administrators disconnected their zones, but a resilient few were determined to keep the game alive.

Somewhere in Finland was the Subspace Sonera[12] server run by two Subspace fans by the names of "BD Vine" and "Baudchaser"[17]. After VIE's servers were shut down, BD Vine contacted two other major Subspace servers and convinced them to connect under the Sonera billing server. The three servers gathered together what was left of the scattered player base and worked together to write a new chapter in Subspace's history.

During the Fall of 2000, an organization emerged from BD Vine's coalition of servers, it was known as the Subspace Council (SSC)[8]. The SSC is a loose collection of server administrators and zone operators. Servers under the SSC were not required to abide by any written standard of quality, but their connections were vastly improved from the VIE days. Old players were returning, and for the first time in years, a handful of new players were trickling in.

Amongst the members of the SSC is a brilliant programmer known as "Priitk". The Sonera billing server was originally running on the text-based database distributed with the game. As the number of player logins increased, the server began to slow down due to the inherent inefficient nature of the database. BD Vine wrote programs that would clean up unused accounts and fix user data inconsistencies in order to boost speed[17], but it wasn't enough. Priitk joined the group and rewrote the entire billing server, and integrated into it an enhanced version

of BD Vine's distributed banning system[17]. To understand the significance of the banning system, there is no better example than an infamous little program called Twister.

Sometime after VIE and before the SSC, a high school student wrote a program called Twister that allowed players to cheat. It can give any pilot infinite energy, rapid-fire bombs, and basically render the cheater invincible. For a while, Twister proliferated throughout Subspace, making the game almost unplayable. During Twister's reign, the player base began to waiver once again, and the newly constructed community was again threatened by a massive exodus. A banning system allowed the server administrators to effectively block out any user who is spotted cheating, and the new system written by Priitk was very efficient in placing such culprits into exile.

Even with a new billing server and banning system, Subspace as a game was still static. Without the source code, bugs inside the game cannot be fixed, and new features cannot be implemented. The SSC tried in vain to obtain the source code for Subspace, but they eventually gave up. Motivated by his determination and fueled by his brilliance, Priitk re-engineered Subspace from scratch. The new version is known as "Continuum", undoubtedly symbolic of Subspace's everlasting endurance. With the arrival of Continuum, the Subspace community for the first time received a breath of fresh air — the game was brought back to life once again, and its growth is now being directed by its original progenitor: player feedback.

In the end, the Subspace community saved the game from its demise. What is it about the game that it should inspire such determination in the community to keep it alive? The answer can be found within the rich multiplayer features that facilitated the formation and perpetuation of a unique virtual community.

The Subspace universe is governed by a fixed set of rules different from that of real life[18], thus creating a separate reality. However, unlike traditional communities (e.g. a residential community), membership in the Subspace universe is determined more "by commonality of interests and goals than by accidents of proximity."[19] Thus, ever since the beginning, the community that evolved around Subspace would have been more cohesive than most if not all geographically-based communities in the real world. Furthermore, players inside Subspace also enjoy the benefit of having a pre-established common ground from which they can initiate their conversation. The topic, of course, doesn't have to be game-related, but Subspace nevertheless offers a natural and un-intimidating starting point toward friendly (or not so friendly) conversations. To facilitate in-game communication, Subspace is equipped with tools that allow a player to engage in conversation in his team or squad's frequency, in a special interest channel, in a private chat channel with another player or another group of players, in a private arena inside the zone, in the public chat channel of the entire zone, or even in a channel to players in other zones. In short, Subspace allows myriad levels of communication that can be used to include, exclude, and organize players into sub-categories. Best of all, a player does not even need to play the game to enjoy the benefits of the Subspace community — he can simply be parked inside a safety zone or switch on the spectator mode. Both options take the player out of the game, but at the same time, still keeping him in touch with the community.

Not only is the mode of conversation different in Subspace, the atmosphere is also drastically different. Subspace as a medium of communication "dissolve[s] [the] boundaries of identity"[20] in addition to space and time. Bu this mode of "depersonalized"[20] interaction creates

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[18] Sempsey III, James. <u>Psyber Psychology</u>, first block quote from Calstrom
[19] Rheingold, Howard. <u>The Virtual Community</u>. Chapter 1, quoted from Licklider
[20] Rheingold, Howard. <u>The Virtual Community</u>. Chapter 5

the interesting effect of "disinhibition"[21]. Subspace creates a world devoid of many of the

normal social boundaries that delineate the boundaries of acceptable and unacceptable

behavior[22]. Even when one has breached the laws of this new reality, a simple change of his alias

will erase the past and allow him to start anew. So attractive is such unrestricted degree of

freedom, players flock into the Subspace universe by the thousands everyday, which constitutes

the very capital needed for the construction and maintenance of a community. Subspace as a

medium has turned the art of socialization into an accelerated, systematic and streamlined

process. Consequently, such an environment fosters a unique community that can be found

nowhere else.

Evidence of such a closely-knit community can be seen from the very beginning of

Subspace's history. A prime example can be taken from the nature of the copyright protection

VIE implemented with the commercial release of Subspace. Instead of a custom user alias,

unregistered players are simply assigned the tag "~demo###" (the ### is the number of

unregistered players currently logged on to VIE's servers). Furthermore, the unregistered player

will be unable to form squads, join squads, or be a member of any player-organized institutions

(such as the Professional League or the Dueling Ladder). Despite the fact that an unregistered

copy of Subspace is a fully functional game, this rather innovative (other games such as Starcraft

or Command and Conquer simply disabled the game altogether if the original game CD was not

present) copyright protection scheme worked remarkably well as an incentive for players to

purchase the game[23] — merely playing the game in an existential isolation is deemed

unacceptable by most players. In order to enjoy the game, a player must feel that his existence is

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[21] Sempsey III, James. Psyber Psychology, quote from Kiesler, Siegal, & McGuire, 1984; Turkle, 1984; Serpentelli, 1993; Odegard, 1993; Bordia, 1994; Brown, 1995
[22] Sempsey III, James. Psyber Psychology, quote from Kiesler, Siegal, & McGuire, 1984
[23] BD Vine email interview #2, mentioned how the copyright protection significantly reduced the player base

acknowledged by the rest of the Subspace community and that he can become a part of it. For those who do not have access to the community, the game loses its appeal; for those who are a part of the community, Subspace becomes the greatest game on Earth.

From its humble beginning as a digital guinea pig to Continuum, Subspace has traversed the road of death and resurrection, of fame and ruin. Endowed with an ingenious game design, Subspace has overcome all obstacles caused by VIE's poor marketing strategies to be once again embraced by its players. As a game, Subspace is remarkable; but as a social phenomenon, it is awe-inspiring. Now at 6 years of age, Subspace is still being actively played and developed by its dedicated community of fans. Today, Subspace has a respectable 40,000[12] player base. Although it is a far cry from the game's heydays when it commanded a 150,000 player base, it is nevertheless a leap from the 16,000 after the passing of VIE. But most importantly, the player base for Subspace has been steadily growing over the past few years, and with the SSC and Continuum in place, the future of Subspace looks brighter than ever.

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Email Interviews

All email interviews are attached and numbered accordingly.

Alex Zinner Interview #1

From: Alex Zinner [alexziii@flash.net]
Sent: Friday, January 25, 2002 6:03 PM
To: Zhichun Pu
Subject: Re: Questions about SS History

  Best of luck to you in your course. I'd be glad to help out where I can.
  Let me start with the questions you already asked.

> 1. How were VIE's servers organized? In other words, was the company
> responsive towards player feedback?

  Initially there were only 2 zones, beginner and expert, they eventually
added a 3rd and the 3 zones were Alpha, Chaos and Running Zone. Player
feedback was always a big factor in SS, especially during the Beta testing,
which of course lasted for over 3 years.

> When did VIE decide to release the server software package so players can
> host their own SS servers?

  When VIE released SS, they knew already about the acquisition of VIE and
that eventually, they would no longer be able to support the company based
servers as the game will have already made what money it could, and the
servers would be a financial drain on the company. So as other games had done
(Diablo, Halflife), they made the server code (not exactly what VIE had been
running) available to the users who bought the game.

> 2. Why and when did VIE decide to drop Subspace? (I thought it was due to
> the fact that they weren't turning up enough profit, but someone else
> mentioned something about the expiration of a contract).

  There were several reasons. The beta went on forever. The game was
inadequately (<?sp) marketed and did not sell well. The assets of VIE were
bought out, but that buyout didn't include SS. For all those reasons and more,
Subspace as a commercial project died. But the game didn't :)

> 3. When was the Subspace Council formed?

  The SSC was formed about Fall of 2000.

> How was it formed?

  It was formed as a better communication medium for the major hosts and
sysops under the Sonera Billing server system.

> Were there standards placed upon the quality of the servers that were
> members of the SS Council? (if I remember correctly, there were a time when
> the SSCE servers had terrible lag).

  There were no minimum standards as in ping/ploss for server operators. It
was mostly a loose collection of the larger server hosts and the billing
server people and the larger more stable established zone sysops.

  Have fun, also I will include JeffP's email in my next reply as NO ONE knows
SS better than its creator :)

  Alex Zinner
  Ghost Ship

<u>Alex Zinner Interview #2</u>

Date: Fri, 1 Mar 2002 10:13:46 -0600
From: Alex Zinner <alexziii@email.msn.com>
To: Zhichun Pu <s42@Stanford.EDU>
Subject: Re: Subspace Prospectus

This looks very good, only trouble I have is with the SSC/BD Vine and VIE
collapse time. BD Vine was running the iNET servers when VIE went down, iNET
as an individual entity remained running, both servers and billing when VIE
collapsed. In forming a new coalition of server ops under the iNET biller, he
FORMED SSC, not contacted or got in touch with. Also in your narrative, you
might mention that part of why SS became a community and has remained one is
the fact that its messaging engine (chats, etc) are VERY easy to use, and a
player can enter the game and never play it, yet have the full communications
abilities at their fingertips. Sometimes working better than the best IRC or
IM program.

Also, I have no Problem with you using my real name along with my SS nick as a
reference to your paper.

I will check the dates for accuracy this weekend.

Alex Zinner
Ghost

<u>Alex Zinner Interview #3</u>

From: Alex Zinner [alexziii@flash.net]
Sent: Wednesday, March 13, 2002 9:17 PM
To: Zhichun Pu
Subject: Re: First Draft

This is excellent work, very representative of the game, the genre, and the
history. The only error I find is minimal. It concerns the joining of the SSCE
SSCX, SSCU servers into the SSC, those servers has no SSC based names until
the forming of the SSC, My server the SSCE one, was simply Verio at the end of
the zone name, meaning that was my ISP host, eventually and still is now
Exodus. When we formed the SSC, we gave our servers SSC based names. Perhaps
it would be more accurate to just say the major zone servers joined and were
renamed to SSCE etc etc, so that the timeline is a bit more accurate :)

Nice work.

Alex Zinner
Ghost Ship

BD Vine Interview #1

Greetings.

> SSC history page credits you for updating the Billing Server
> (something that I do not quite understand). But I do know of its
> importance, since it is the central database in which all
> player-related records are kept.

Perhaps "updating" is a bit strange choice of words. My role was mainly to
provide all the zones struggling to survive after Virgin Interactive
Entertainment's bankruptcy with a new central billing database.

> Do you think I can email you occasionally with questions about Subspace?

I have absolutely no problem with that.

> 1. What exactly is the Billing Server? How was it built before the SSC
> came into being? How was it improved?

Originally the billing server is, as the name tells you, a user database with
information regarding player's usage of the game service (for billing
purposes). Player registration information is kept in it, and the zones
connecting to it share the same user and squad information.

This is what Virgin's billing server software did, at least. It was programmed
for Windows and it used ODBC to keep the user and squad data in a database.
The retail version of the game had a simpler version of the billing server on
the game CD that used text files to store all the information into, so that
people could set up their own zones. We did that too.

Then VIE went bankrupt. At that time me and Baudchaser aka Robert Restad had
already a dedicated Scandinavian player base using our small Subspace setup
involving two or three zones and our own user database that used the retail
billing software.

After VIE was gone, Robert and me started persuading the other two independent
server groups to connect to our billing server so that people could still use
their own pilot names across all the servers in these three groups. That group
is the SSC. This was both a good and a bad thing. The good part was that it
pretty much helped keeping the game alive. The bad thing was that the
limitations of the billing server software became quite obvious - when the
number of created accounts in the biller passed three hundred thousand, it
started slowing down. Score reset times grew exponentially, and the memory
usage pretty soon did that too. I wrote a tool that could be used to fix the
inconsistencies in the user data that the faulty billing server created and to
clean up unused accounts, etc.

Then PriitK came along. First he rewrote the distributed banning system that I
had programmed and set up for the three servers SSCU had at that time. And
soon after that he rewrote the billing server completely from scratch and
incorporated the banning system into it. Our current billing server runs on
UNIX, uses a database (again) to store the user/squad data, and has both an
inbuilt banning system and other anti-cheating features. It's much more
efficient, much easier to maintain and has a lot more features than the
original one.

> 2. How do the Bots work? Are they direct extensions of the Billing
> Server (as I mentioned before, I know nothing about this subject) or

> are they a part of individual zones?

Bots are currently separate programs that have the required logic to mimic a Subspace client. They react to things they recognize in the server-to-client protocol. The earliest bots were probably just hacked Subspace clients, but since the game protocol has been relatively well-known for years, all the bots for the past couple of years have been their own separate executables.

I hope I answered your questions. In case you come up with more, don't hesitate to mail me - I'll be glad to help in any way I can.

--
BD Vine, Subspace server administrator, SSCU/eDome, Sonera Corporation

<u>Alex Zinner Interview #2</u>

From: BD Vine, SSCU [bdvine@sonera.inet.fi]
Sent: Monday, February 18, 2002 3:36 PM
To: Zhichun Pu
Subject: Re: Player Base Statistics

Hello again. This time answering took more time - I've moved to another
apartment and that has taken most of my time for the past weeks - and I cannot
give exact answers right away, but I'll do my best.

> Since you are the administrator for the Billing Server, would you
> happen to have a log of the number of players that are registered
> and/or active at any given year? This information would be invaluable
> to my paper, as they lend credibility to my claims on the
> effectiveness of the copyright protection and the influence of a
> player-controlled community, among other things. Rise and falls in
> player activity and membership will help me to seek patterns in these
> shifts, thus allowing me to establish cause-effect connections.

I have the user database backups from late 1997 to this day, but analyzing the
older databases will take some time - I will have to first fix a broken hard
drive to find the tools for that, and then the data itself needs some
analyzing before any reliable results can be given.

> I am interested in the years that span the entire SS history. From its
> early release in 1996 to the present. I am especially interested in
> the shift in player registration/activity during the time when the
> copyright protection was implemented, the time when VIE shut down, and
> the time when the SSC was formed.

What I do know is that back in 1996 and 1997 when the game was in its beta
stage, it was not uncommon to see all the original VIE zones peak at way over
one hundred pilots. When the game went commercial in late 1997 (if I remember
correctly), the player amounts dropped only for the short while it took
someone to crack the CD protection. Non-VIE zones were minor players at this
point, some zones occasionally getting over 20 people at the same time. But
when VIE started abandoning zones one by one and finally went bankrupt, most
people saw the situation as hopeless and quit. I cannot remember how many
people we had in our user database at that point, but we had been running it
for a year, partly in parallel with VIE so lots of European pilots had user
accounts on both VIE servers and ours. My guess is (and that's what it is -
there's no base in anything thanks to the lack of data at this moment) that
the player base dropped to as low as a few thousands. Thanks to a quick
decision from SSCE and SSCX to join forces with us at Sonera, the three major
server networks managed to gather together what was left of the user base. I
remember that somewhere close to the end of 1998 the user database had passed
460 thousand unique logins of which perhaps 20 thousand were active (and new
logins were getting created at a pace the billing server had a hard time
dealing with). After that the user amount has been steadily increasing, except
for the short period when Twister became such a big threat that it started to
cause players to quit. And, as the statistics show, now we have about 42
thousand unique logins during the two week score reset period.

As said, the data about this is not directly accessible to me, but I can check
some backups for the exact numbers, that's if I can find them. From the VIE
period the best source of information would be Jeff Petersen, one of the guys
from the original Subspace dev team. From the top of my head I would say that
even now that we have 40k unique logins per reset, it's at the most 1/3 of
what VIE had back in the beta days.

> If this information is not available or impossible to extract, do you
> think you can give me some kind of rough estimates in the shifts of
> player registration/activity during those 3 turning points in SS

> history? (copyright, VIE shutdown, and SSC) Your words will be in any
> case much more credible than those of anyone else I can think of.

A short version of above (with a lot of guessing involved) - during VIE days
1996 - time after release in 1997 way over one thousand unique pilots, without
the copy protection causing massive loss (as the cracks were available within
hours of the release). VIE shutdown almost killed the whole game, my estimate
is that over 80% of the population was lost if not more. During the existence
of SSC the player amounts have been steadily rising from around 16 thousand to
the ~42 thousand we have now.

I hope the answer isn't too late, and that my rough estimates of the user
amounts are of help.

-- BD Vine