The story behind
Cloudcity

by Filip "MisterBister" Coulianos

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1.0 Foreword

For your information, you've come across this article, written by me, from somewhere in cyberspace. Before I get completely lost in boring analyses and strange conclusions, I think it would be good if you knew who I am, and what this article is all about.

Let's start with me. My name is Filip "MisterBister" Coulianos and I am currently the editor-in-chief of the Swedish mapping site LevelDesign.nu. I am studying computer game development with a focus on graphics at the University of Skövde in Sweden. I'm very interested in computer games, especially creating them. I'm currently employed at the University, as the graphic artist of a project to make a BA rescue simulator for firemen. If you have any questions, or if you would like to enlighten me with your wisdom, you are very welcome to do so. My email is the following: f_misterbister@hotmail.com

This article will treat the creation of Dm_Cloudcity, a map for Half-Life 2 Deathmatch I made in my spare time. I will be focusing on the graphics, but I will also talk about layout and the workflow. I've tried to structure the article so you can skip the parts that don't interest you.

2.0 The story behind the map

The classical question you can ask when you play a deathmatch map is "Why the hell is everyone running around like idiots trying to kill each other?" I've tried to answer that question by making up the most stupid background story.

The map's timeframe right after an attack against a research lab in the CloudCity district which had been launched by a terrorist group trying to overthrow the regime. The attack damaged some equipment containing a virus which spread and twisted everyone's mind and made them bloodthirsty murderers. The slaughter began. Police were soon scrambled since the council thought that it was a common uprising, however, the police got infected as well. The district was closed to isolate the virus, and to let the slaughter continue until there was only one survivor left.

3.0 Layout

Despite bad planning, I managed to make some interesting scenes in the map.

I tried to add as much vertical combat as I could. One of the most extreme examples of this is an elevator shaft, in which the players are right above each other. It proved to be a very fun place during the tests, and it didn't take long before the players started to invent new tactics to quickly get the upper hand.

I also tried to make the layout dynamic, so that you could play the map even if there were very few players on the server. I solved this by adding a large outdoor area in the middle of the map.

I also tried to follow Benjamin Bauer's theories (See Ben's Small Bible of Realistic Multiplayer Level Design) and tried to make the map attractive for all the different types of players. The rusher could easily charge into the fray in the outdoor area. The sneakier player could move in the shadows around the warehouse. There is also a spot for snipers, but it's quite unsafe, and even the most skilled sniper will have trouble holding the area for a longer period of time.

3.1 Distribution of weapons

The weapons in CloudCity are placed in a fairly typical manner. The less valuable guns are easier to get and evenly spread around the map, but the more powerful ones are placed in the outskirts, and require precious time to reach. I also placed ammunition for the powerful weapons in the exposed outdoor area, which makes it difficult for players to hold on to these weapons for long periods of time.

Although the placement is quite classical, it took lots of testing to get the balance right. Competitive players have an interesting ability to find routes to get hold of a staggering arsenal in a very short period of time. During the testing I quickly found out that it is very easy to misplace a weapon. Deathmatch may be the easiest mode to balance, but even this isn't always easy. If it weren't for my friends at LevelDesign.nu the weapon placement would probably still be unbalanced and untested.

3.2 Teamplay

The story in this mode is different. An uprising has started at the Cloudcity district, and police have been called in to stop it. The thought behind the team Deathmatch mode is that the rebels start in a slum area at one end of the map, and the Combine at the other end. The players can chose to confront each other in the middle, or try to get past the firefights and out on the flanks to get the upper hand.

I haven't had the possibility to try this mode out, so it is very possible that this mode is unbalanced.

4.0 Graphics

In this part I will go through the thoughts behind the graphics, and then I will talk about each area of the map, and my thoughts behind them.

4.1 The basic idea

The basic idea behind the whole project was that I wanted to create a futuristic city that is so big and tall that it stretches up past the clouds. I have always been a big Star Wars fan and I have been greatly inspired by these movies. Sadly, there are lots of people who mistake CloudCity for being Cloudcity in the Star Wars universe, which is quite far from my original concept.

I wanted the architectonic expression to represent the oppressors that ruled this city. So I made the buildings as big as the Source engine would allow, to make the player feel really small and insignificant. The building you can see from the outdoor area was supposed to be huge, sharp and bare. Cold steel was the way to go. The bad thing about steel is that if you build a whole environment with it, it easily becomes very colourless. I tried to avoid this by adding lots of colorful computer screens, advertisers and signal lights in green, red and blue throughout the map.
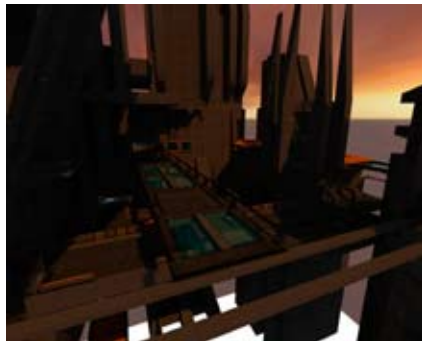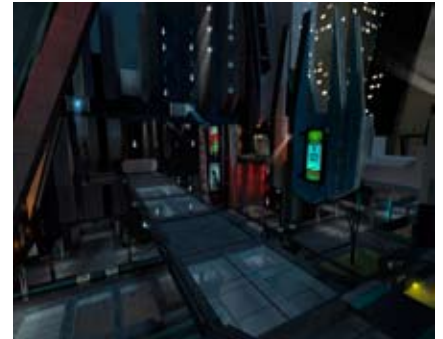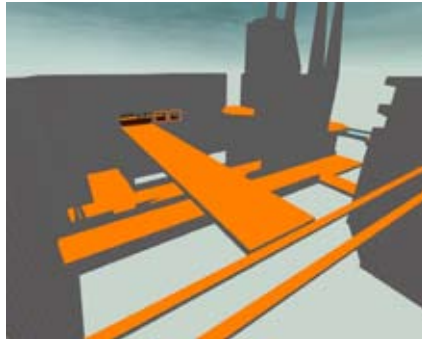
4.2 The outdoor area

One of the most important places to get right was the outdoor area, since this place is the main hub of the map, and everything is connected to it. The players spend lots of time in this area for this reason. However, the problem that arose because of this is that all the other areas happened to get in the shade of the outdoor area seen from a performance point of view. All areas which were directly connected to this area therefore became quite bare and low on detail. A big mistake that I could have avoided if I spent more time planning.
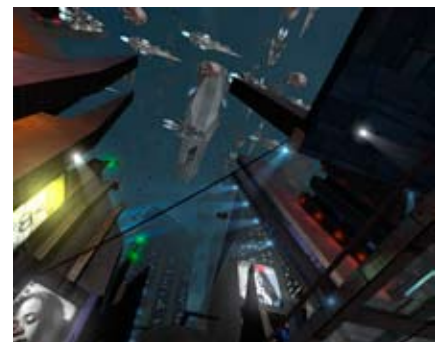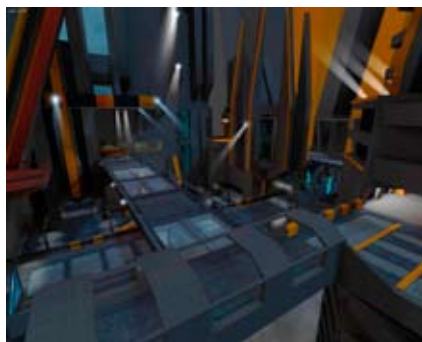
I wanted lots of life and movement in the scene. Spaceships seemed like the obvious solution to this from the outset. The question was how I could add them in a relatively economical way. I found the solution in another sci-fi map called Dm_neon, where the maker, IZaNaGI, had added spaceships as a scrolling texture on a plane. I received a great amount of help from Teddy "Teddybear" Bergsman, who taught me to paint the spaceships of my own. I actually put lots of time into painting these, as I think they play a major role in the outdoor area. Given my limited 2D skills, I'm quite happy with the result.

4.3 The laboratory

The "laboratory" was meant to be the place for the actual attack and the spreading of the virus which I mentioned in the background story. I've always found it very difficult to make laboratory environments in games, and this one was no exception. A long way into the development cycle, I had only added a few computers along one of the walls, but then I got a suggestion about adding pipes in the ceiling which where damaged and leaking some kind of gas to get the impression that something was wrong. As there is no lab equipment present, and I didn't really know how to add it, the scene actually failed to fulfill its purpose.
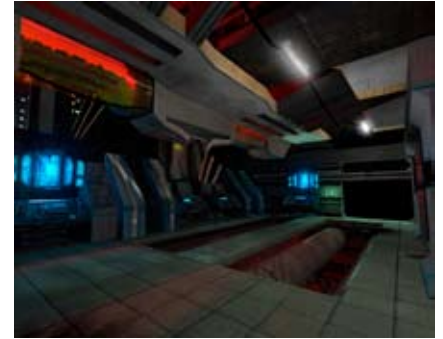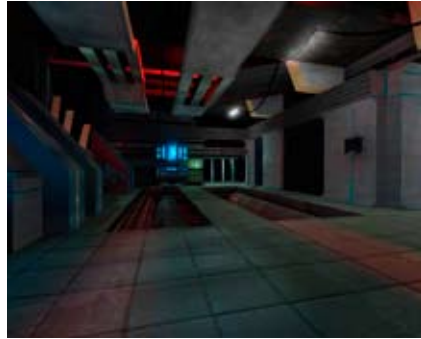

4.4 The warehouse

This area was one of the more successful areas of CloudCity. The reason is probably because it's never hard to make a player understand that he is standing in a warehouse; just add crates everywhere. In the early versions of the warehouse I only had a flat floor and very little detail, which I got critique for. So I decided to add another dimension by cutting a hole in the ceiling and in the floor and adding multiple floors with more crates and shelves. If I had the possibility, I would probably add even more floors into the scene, but the engine wouldn't allow me since the warehouse is connected to the outdoor area and players who were standing in the outdoor area looking into the warehouse would get severe performance issues.

4.5 The shaft

This scene has always been a bit special. In the beginning I thought it wouldn't matter if the area was a bit grey, since you never bother making elevator shafts beautiful to look at.

However, I discovered that some players had trouble finding the ladder that connected the floors. To solve this issue I added a string of cold blue lights along the ladder as a guide. The result actually looked good, as well as solving the problem.
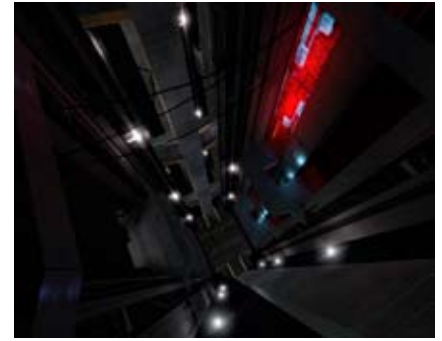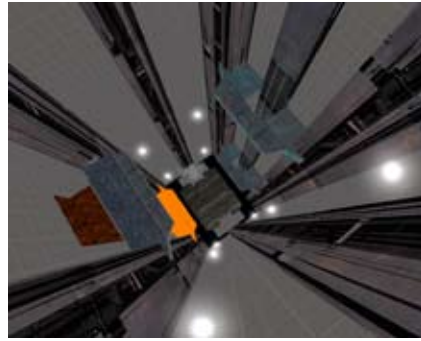

4.6 The construction site

This area was without a purpose for a very long time. Eventually, I got the idea to make the scene into a construction site, and instantly ran into lots of issues. To be able to add more detail, I had to try to cut this part of the map off from the outdoor area, so I added big chunks of metal as a big wall facing the outdoor area. I also had trouble placing building materials and rubbish into the scene without hindering the players' movement in the area, so I placed all the stuff along the walls. Since there was no real lighting installed yet I, added ground oriented spotlights to illuminate the area. I actually got critique for this lighting from people who didn't really get the construction site concept, so I added automated robots working on some steel bars, preparing them for further treatment and assembly. Despite my efforts I'm not really happy with the construction site. It ended up very bare and low detail since I never managed to completely seal this area off from the outdoor area. Something I would have been able to avoid if I planned ahead.
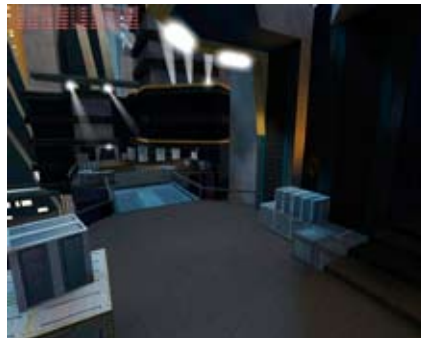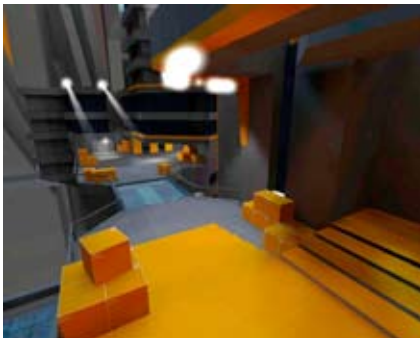
4.7 The waiting room

The thought behind this area was that travelers would wait for transport here, and then get out on the catwalk to catch their flight. I wanted to have a luxury feeling to this area, which I tried to achieve with a expensive carpet. However, nobody found this solution credible, and I received lots of critique because of it, so I replaced the carpet with an expensive marble floor instead. I was also considering adding real-time reflections into the floor, just like the water in Half-Life 2, but I scrapped the idea because of the huge performance issues that would arise as a result. Like all the other areas in this map, the waiting room was directly connected to the outdoor area, only a door separated them, so I couldn't really add very much detail into this scene either. In the end, I don't think this scene's purpose was clear to the players. If I had made my own computer screen with arrival and departure times and added more seats, the purpose would have been much more clear.
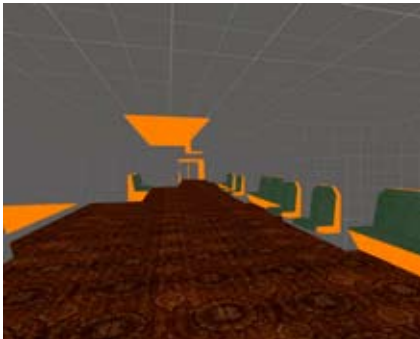
5.0 The workflow

I had the theme and all the ideas done when I started with the layout which forced the layout to be adapted to the theme. I had to tie together all the cool places I wanted to add to the best of my ability, which led to a layout which was far from optimal. I was also too eager to start making the map on the computer to actually think everything trough, I just made a very quick sketch of the map on paper before I started.

5.1 The first months
Despite these fatal mistakes it went very well in the beginning. I managed to create a very rough sketch of the map in a few hours, and then spent a few months adding detail to the sketch by working about 20–30 minutes a day. However I quickly realized that I needed help with texturing if I were to be able to make this unique theme that I was striving for.

5.2 Texturing
"Skurmedel" made some textures for me, though the job went very slowly at times. I also got permission from IZaNaGI to use his textures from Dm_neon, which had some similar elements.

About this time I displayed the map on the internet for feedback and I continually updated the forum threads I created with updates and images throughout the project.

As I was fighting with texturing I continued adding the geometry of the map, until one day, when the major part of the map was done, and I still had very few textures.

So what do you do? Well, I started to learn the art of texture making on my own. I had no earlier experience of texturing, and I learnt quite quickly, but I wasn't satisfied with my results. By this time Teddy "Teddybear" Bergsman (a texture artist at Black Widow Games), showed up at my place like a knight in shining armor and gave me a crash course in texturing in just a few days. Because of this crash course, most of the textures got done. Strengthened with confidence I continued the work on my own, and managed to re-texture the Half-Life 2 barrels and crates so that they fitted the environment.

I still remember the day when I sat, tearing my hair and screaming out of frustration as I was trying to decompile and recompile the models. It took me about five hours, and after that period I must have burnt at least 20% of my brain cells out of all the frustration.

5.3 Testing
Another reason for my frenetic work with the texturing was that it was soon time for Level Design-LAN in Gothenburg, and I planned to arrange a major play tests during the event. Sadly, I managed to add a bug that crashed all the clients when a barrel fell over the edge of the roads of the map. Ironically, I managed to address and fix the issue about fifteen minutes before the LAN was over and almost everyone had already left.

After the LAN I started to arrange play tests over the internet, together with my friends from LevelDesign. nu. These play tests occasionally got out of hand, our thorough bug searching leading to some bizarre experiments. I am extremely grateful for all these hours of play testing. It was a blast, and very constructive too.

5.4 Audio

During the latter stages of development, I started to think about what sounds to add. I started to listen through the soundscapes that Valve originally made for Half-Life 2 and found that I could use some of them in the indoor areas. However, the outdoor area needed something custom made. I actually managed to mix a recording from a highway in Texas to sound something like spaceships. Together with other sounds from Half-Life 2 the result was, I think, quite good.

5.5 Towards the end

The last few months of the project were on the slow side when it came to development. I moved to Skövde and started to study at the university here, so I had very little time to devote to finishing the project. A month after school started, I finally got around to releasing the "Final beta", and got lots of great feedback about exploits and such. Hopefully they all got removed prior to the release. The whole project took about 14 months to complete.

6.0 Issues

6.1 Bad planning

The biggest issue I had was that the whole idea was very badly planned. Lots of things where added and changed as the project continued, and this made it impossible to have any sort of schedule. I was also naïve enough to think that lots of people would gladly help me with texturing, which didn't happen. Lots of time was spent just waiting for someone to show up and volunteer.

6.2 No documentation

I didn't document my work at all, which wasn't much of a problem until the end of the project when it could take a few weeks between the work opportunities. Because of this I had a hard time remembering what needed to be done, and it actually happened that bugs emerged that I thought I had fixed weeks earlier.

6.3 What was done right

The one thing that I really did right was that I always saved a new map prior to a compilation. This resulted in me having 108 versions of the map, totalling about 2 gigabytes in size. I'm very thankful of that because it happened a few times that I did something crazy and the map crashed, then I only had to go back one version and compare the two maps to see what I did wrong. It also made it possible for me to check how the progress was going during the entire process, from build one to 108 and actually present that to you in this article.

7.0 Final words

Its time to wrap up... something that I found very difficult to do with CloudCity. There are about a hundred things I would like to improve, but I guess an artist is never finished with his work. I hope these ten pages have given you some insight in how to plan and make a bigger project, or that you've had a pleasant read. Hopefully both.

I have listened a lot to the feedback I've gotten, and therefore I think it's very important that everybody who was a part of the project should be acknowledged for it. I would like to especially thank the following people:

Jimmy "Lonedog" Forsberg: For all hours of testing, and for the good feedback.
Björn "Kobi the leopard" Claesson: For all the testing.
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Viktor "Xlator" Jackson: For helping me with the layout, proof reading and translation of this article.

Furthermore, I would like to thank all these people for their contributions, in the form of feedback, thoughts, testing and other things that has helped make CloudCity what it is today:

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Bladesinger
Majestic XII

Interlopers
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dragonfliet
DreAz
compy905
Serever
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InvestmentBanking
reeke
JamesL
Generalvivi
Persol
BeefnCheez
Woe_Kitten
KILLA-COW
Jman
Jest@
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Agent Smith
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Myrk-
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Nz-Nexus
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