

Online Games

- Reference:

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Introduction

- In this lecture, we shall consider design considerations specific to online games.
- The discussion is relevant to multiple game genres.

Advantages of Online Games

Player Socializing. Online games offer opportunities for social interaction. Of course, chatting by typing text can be awkward — particularly in a fast-paced game — but we are starting to see online games with voice communication. In the future, we may see video used for social interaction. Perhaps players will then start to dress appropriately to their roles in the game so they'll look cool on camera.

Human Intelligence Instead of AI. In an online game, you don't need any AI. The players can provide all the required intelligence, which means that the game will likely be much easier to build.

Of course, you can still use some AI. You can still have some intelligent nonplayer characters (NPCs). You could have all the players cooperatively attempt to defeat an artificial opponent.

Online vs Local Multi-Player Gameplay. In local multi-player play, all the players play the game on the same machine and look at the same screen.

Local multi-player play has serious drawbacks:

- there is no hidden information; each player can see what the others are doing (not great for RTS games for example)
- there are limits on the number of people who can play at once

Online games solve these problems.

Disadvantages of Online Games

Technical Issues. High-speed connections often translate to a gaming advantage. To address this problem, you could make your game turn-based or try to match players based on their connection speed.

It's harder to Suspend Disbelief. Some players won't stay in character or will talk about real-world events.

Misbehavior. Playing with strangers — particularly anonymous ones — can result in misbehavior that can ruin the game for others. Such misbehavior includes: rudeness, harassment, cheating, and fraud.

The Need to Produce Content. To keep people interested, you will likely need to produce new content on an ongoing basis. This is expensive.

Customer Service. All game companies require customer service staff to help players with problems, but online games need many more of them.

With online games, players expect to get help immediately and for a much larger number of issues (e.g., not just for technical problems, but also to explain the user interface, answer questions about game content, and enforce justice by investigating and punishing misbehavior).

Arriving Players

- Players can arrive at any time.
- For some games, it won't be fair if people join later (e.g., people who enter a Monopoly game late would be at a significant disadvantage — the others would have already grabbed the best properties).
- In such games, you can start new matches at frequent intervals and have a waiting area where the players can hang around while they wait for a game to begin.
- In some games, players can join almost immediately without any disadvantage (e.g., poker). Each hand takes little time, and new players can join as soon as the current hand is over.
- For games of indefinite duration (e.g., persistent worlds), players who were there the earliest and who have the most time to play will have an advantage.

Possible solutions:

- get rid of victory condition (not really a game though since there are no winners and losers)
- discourage competition between old-timers and newcomers
- be sure that direct competition is consensual: if old-timers do get the chance to compete directly with newcomers, the newcomers should have the option to refuse to play

Disappearing Players

- Players can log off at any time.
- If the game requires a fixed number of participants, you can have an AI opponent take over the missing player or you can shut down the game.
- In many games where players compete against one another in a free-for-all, the disappearance of one player doesn't matter much.
- For example, in a racing game, if a player logs off in the middle of a race, then his car can simply disappear.
- If the game is played in teams though, then the disappearance of one player could put his team at a serious disadvantage.

Logging Out as a Form of Cheating

- A player might deliberately choose to log out rather than lose a game — which also denies the other player victory.
- How should we handle this?
 - **the vanishing player forfeits** (not fair if it was due to a bad connection)
 - **have a penalty for disconnections that is less severe than forfeiture** (e.g., in EverQuest combat, your avatar remains in the game for a minute, taking additional damage; it doesn't fight very well by itself!)
 - **award victory to the player who is ahead in the game** (but whenever someone goes ahead, she can disconnect to prevent her opponent from catching up)
 - **record it as a tie** (but still, the player who is behind in the game can disconnect intentionally)
 - **record it as a “disconnected game”** (if the records are visible to the players, they might notice when someone has a suspiciously high number of disconnections and avoid playing with that person)
 - **abandon the game entirely** (again, this is not fair to the leading player)

Real-Time vs Turn-Based Games

- Turn-based games seem old-fashioned, but there is still a demand for them.
- For turn-based games to work smoothly, you could do the following:
 - **limit the number of players in one game** (four or five is a good maximum; with more player, players will have to wait too long between turns)
 - **set a time limit on the length of a player's turn** (they must not be allowed to hold up the game while taking their turn)
 - **determine a reasonable default action if the player runs out of time** (perhaps skip the move if that is possible, or just make some ok move on behalf of the player)
 - **let players do other things while waiting their turn** (they should be allowed to chat with one another, study the battle-field, organize their units, etc.)
 - **allow simultaneous turns** (A few games such as Age of Wonders II allow all the players to take their turns simultaneously. The turn ends, and the results are computed and displayed when all the players have input their moves.)

Chat

- Multi-player games should include a chat feature (assuming a keyboard is available).
- Players should be able to:
 - send private messages to another individual
 - send messages only to members of their own team (if any)
 - broadcast messages to all other players who might reasonably be interested; these should only apply to the player's local vicinity
- Unfortunately, chat has problems: rude, abusive, and/or harassing behavior.

Potential Solutions to Chat Problems

Dirty-Word Filters. People can get around such filters by misspelling words. If you do implement a dirty-word filter, be sure to back it up by other means, such as online customer service representatives.

Complaint and Warning Systems. Players can push a “complain” button whenever they receive an offensive message. The message is then forwarded to someone (e.g., an online customer service person) who can investigate and take appropriate action.

Ignoring Other Players. The player simply selects the person he wants to ignore, and he will no longer receive chat messages from that person.

Moderated Chat Spaces. The moderator (e.g., an online customer service agent) has authority to discipline players at all times.

Collusion

- Collusion is a form of cheating where players who are supposed to be opponents work together in violation of the rules.
- Consider a (non-computer) board game such as Monopoly. What prevents collusion? Several things do:
 - the players' agreement to abide by the rules
 - the potential damage to friendships if they don't
 - the fact that they're all watching each other to prevent it
- In an online game, you can't depend on any of these to prevent collusion. That's because:
 - some players will join a game with the intent to cheat
 - since they're playing with strangers, there are no friendships to worry about
 - since they're physically far apart, no one can see them do it

Examples of Collusion

- Consider an **online multiple-choice trivia game**, with three answers per question. Feedback is given immediately to the player as to whether his/her answer is correct.
- Four players can easily collude to guarantee that one of them will win.
- When a question appears, players 1, 2, and 3 enter answers A, B, and C, respectively. Each of these players will then immediately know whether their choice was correct. Player 4 can then find the correct answer from the other three players.
- This form of collusion is defeated if you don't reveal the correct answer until the time has run out to enter it.
- Other forms of collusion can be more insidious.
- For example, if you offer a prize for the player who wins the greatest number of chess games in a certain length of time, two players can collude to play each other, with one always trying to lose to the other as quickly as possible.

Dealing with Collusion

- Some ways for minimizing the effects of collusion:

Sharing secret knowledge. Does the player ever have secret knowledge that she can share to someone else's benefit? In the trivia game described previously, some players are given the correct answer before the time runs out. Withholding this information makes collusion pointless.

Passing cards under the table. Does the game include mechanisms to transfer assets from one player to another? Is there any way to abuse these mechanisms?

Taking a dive. What are the consequences if one player deliberately plays to lose?

Persistent Worlds

- In a persistent world, players play in permanent environments, retaining the state of their avatar from one session to another.
- Persistent worlds have a number of special problems and design requirements, which we discuss next.

Persistent Worlds: Story

- Because persistent worlds involve so many players and continue indefinitely, you can't take the player by the hand and lead her through an experience of your designing.
- Consequently, rather than being a story, a persistent world is a playground.
- While it's up to you to build the environment and give players things to do, how they spend their time is for them to decide.
- However, you can still incorporate two elements from storytelling in a persistent world:
 1. the **setting** and the overall conditions of life in the world (e.g., it can be a dangerous place or a safe one, a rich place or poor one, a tyrannical place or a democratic one)
 2. a **quest** that the player undertakes as an individual or collectively with others. These can be small-scale (e.g., like eliminate the pack of wild dogs that has been marauding through the sheep flocks) or large scale (everyone in the town gets together to rebuild the defenses in anticipation of an invasion).

Persistent Worlds: The Player's Role

- In a persistent world, the player doesn't have a single storyline to follow, so he needs a larger variety of things to do.
- Because the world continues indefinitely without coming to a narrative conclusion, you can't expect the player to want to play the same way forever.
- It's important to supply an assortment of roles the players may play and to make them meaningful in your world.
- You should give the player the freedom to change her role.

Persistent Worlds: Gameplay

- **Without a victory condition**, you have to decide what challenges the player does face and what kinds of things she can achieve.
- Most persistent worlds are designed like **role-playing games**, and the player's objective is to advance her character.
- This is (usually) accomplished by fighting AI-controlled "monsters".
- However, there are many other things she might attain as well: wealth, political power, fame (or notoriety), and so on.
- In a single-player game, the player is trying to read the designer's mind, to figure out what she wants him to do and then do it; his play is often **reactive**, a response to challenges thrown at him.
- In a persistent world, the player is deciding for himself what he wants to do; he seeks out challenges if he feels like it, but he can spend all his time socializing if he prefers; his game play is **expressive** and **active** rather than **reactive**.

Four Types of Players

killers. People who enjoy **acting on** other players.

socializers. Players who enjoy **interacting with** other players.

achievers. Those who **enjoy acting** on the world.

explorers. Those who **enjoy interacting** with the world.

- “**acting on**” means manipulating, exploiting, or controlling
- “**interacting with**” means learning about and communicating with
- A persistent world is a sort of ecology in which the players’ styles of play influence their population.
- You might want to have a certain proportion of each of these types of players.

World Models

- The world model consists of:
 - the things that you give players to do and
 - the rewards they earn for doing it
- Here are five classic world models:

Scavenger model. Players collect things and return them to places of safety. The game is primarily a large treasure hunt.

Social model. The world is primarily an expressive space. The fun comes from role playing in character; most forms of achievements are social achievement (political power, adulation, notoriety, and so on).

Dungeons & Dragons model. The player is primarily in conflict with the environment, fighting NPCs for advancement and doing some scavenging along the way.

Defeating enemies advances the character, which requires the game to offer tougher enemies next time.

Such worlds tend to include quests as a form of narrative and as a way of offering challenges to the players.

Player-versus-Player model. Players advance by defeating one another at contests of some kind, often characterized as combat.

For this to work successfully, they need to be reasonably evenly matched; you can't have the old-timers beating up the newcomers all the time.

Builder model. Players construct things and actually modify the world in which they play.

People are rewarded for their aesthetic and architectural skills, both intangible qualities.

Avatar Death

- If you allow the player's avatar to die, you should have some form of disincentive (otherwise players won't care if they die).
- Find a disincentive that is appropriately proportional to the likelihood of their dying:
 - If the avatar can be killed easily through no fault of the player (e.g., through ignorance or bad luck), then the cost of dying should be low.
 - If the player really has to be stupid to get his avatar killed, then the cost can be high.

Avatar Death

Permanent Death. The player is forced to start over from scratch with a new avatar. This makes sense in games of short duration, but not in persistent worlds. Players put too much time and effort into building up their avatars to do this to them.

Resurrection with Reduced Attributes. This is a common way of penalizing death. It sets the player back a bit (e.g., in terms of strength or skills) in her quest to grow a powerful avatar.

Resurrection with Some Property Missing. When a player dies, he loses his money, gear, clothes, etc. How much of it he loses and what becomes of it can vary from game to game.

The Player-Killer Problem

- Should players' avatars be allowed to kill one another?
- Most persistent worlds are designed as role-playing games in which players advance in skill and power through combat.
- **It's generally more interesting if this combat occurs against another player rather than against an NPC.**
- Ultima Online:
 - Initially deigned to allow players to kill one another without restraint (except in towns). The designers hoped that players would establish their own justice mechanisms within the game. However, the result was random violence, feuds, continual victimization of the weak by the strong, etc.
 - No satisfactory solution arose from the players, partly because the software did not offer any painful punishment mechanisms for them to take advantage of.
 - (In real life, we either lock murderers away for very long time or kill them permanently.)

Justice Mechanisms

No automated regulation. Anyone can attack anyone, and only administrators or social mechanisms (vigilante justice) are available for dealing with rogue players. You will lose some of your potential audience, those who don't like Player vs Player (**PvP**).

Flagging of criminals. The server automatically detects criminal behavior and flags the criminals, who become fair game for others to attack. The system can also reduce the attributes of criminals. This can be used for thievery and other crimes as well as murder.

Reputation systems. This is similar to flagging, except that players decide when to report someone for criminal behavior and can choose not to do so.

“PK switch”. Players can indicate whether they are willing to fight other players.

Safe games; no PvP allowed. Note however that players will still find ways of abusing one another. For example, a player could lure an unsuspecting newcomer into an area where he will be attacked by a monster. Moreover, it will cost you some of your potential audience, those who like PvP.

The Nature of Time

- In combat flight simulators, players often speed up time when flying to and from combat zones, and then slow it down to real time when they get there.
- In a multi-player game, it would be difficult to have some players moving through time at different speeds than others.
- However, research has been done on providing a bullet time effect in a multi-player game:

<http://portal.acm.org/citation.cfm?id=1016540.1016551>

The Nature of Time

- Since it would be difficult to have some players moving through time at different speeds than others, you need to be careful about designing time-consuming activities!
- Example:
 - EverQuest has a mechanism called “meditation” in which players have to wait to restore their magic powers.
 - There’s no way to speed up this process.
 - The developer eventually built in a mini-game for players to play while they are waiting!
 - If your game contains features that are so boring that you have to distract the players, you need to rethink the features.