

Security (part 2) 2001

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You are developing a multiuser computer game, and wish to make it harder for players to cheat. Discuss the possible benefits of using

- encryption / authentication
- virus detection technology
- intrusion detection techniques

What might be the advantages and disadvantages of issuing players with a smartcard and reader?

Model answer

Main problem with games like Quake is use of modified clients or proxies that improve aim, see round corners etc.

- encryption can make proxies harder to write, though can usually assume that the keys can be got out of the client by a persistent cheat
- virus detection technology, such as a checksummer, can be used to detect trojan clients; but as with antivirus software, the lack of a trustworthy platform leaves things open to stealth, "vmware" etc
- intrusion detection tricks can be used to detect players whose aim becomes suddenly much better. However, a smart cheat would tune up his proxy or trojan client slowly

The use of smartcards could greatly improve authentication (which isn't really a problem, though; users are motivated to keep their passwords private). It could be used to prevent key-extraction attacks that would help proxies, but this would be harder than it looks because of performance penalties. It might help somewhat with detecting trojan clients - by doing a crypt checksum on the software - but again this is not completely infallible. On intrusion detection, it would have little effect. Finally, the cost would be a significant disadvantage. Not only would there be a cost of a few dollars per player (very significant with a \$24.95 game), but the hassle factor would put some people off and network economics would work against the adoption of such a system.