



A Security Analysis of the Secure Electronic Registration and Voting Experiment (SERVE)

Dr. Jefferson, Dr. Rubin, Dr. Simons,
Dr. Wagner; January 21, 2004.

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Summary

- This article does an in-depth analysis of the security problems and vulnerabilities involved in trying to implement the Internet-voting system SERVE in the United States.



Appreciative Comment

- Good in-depth analysis of denial-of-service attacks.
 - Described how they work and different ways of producing them.
 - Show how they pertain to SERVE.
 - Show why it's a major risk.



Denial-of-service Attacks

- Two major forms of denial-of-service attacks.
 - Network flooding
 - Computer-overloading with valid requests.
- Denial-of-service attacks, along with distributed-denial-of-service attacks, are easy to do and happen fairly often.
 - Zombie networks
- Very difficult, and sometimes impossible, to defend against these sort of attacks.



Denial-of-service Attacks

- Distributed-denial-of-service-attacks have brought down major web sites in the past.
 - CNN, Yahoo, Ebay
 - Internet voting site for a Canadian election.
- Would be easy for an attacker to create a denial-of-service attack on the SERVE website to cause it to unavailable for registered users to use, especially on Election Day which is when most users vote.



Denial-of-service Attacks

- Denial-of-service attacks can be used to influence an election.
 - Attackers can try to create problems in areas where it is known that voters will oftentimes vote a certain way.
 - Make it difficult for users to access the Internet in their area by knocking out network services.



Appreciative Comment

- Takes into concern voter disenfranchisement.
 - Targeting of specific voters or groups of voters to either deny their right to vote or to alter their votes.
 - Can be a key problem of Internet voting that can easily change the result of an election.
- Many possible ways to do this.
 - Man in the Middle attacks.
 - Controlling the voting environment.
 - Denial of service attacks.



Critical Comment

- Structure and layout of the paper rather poor.
 - Hard at times to find specifics.
 - Reads less like a technical paper and more like an editorial.



Thought provoking question

- With all the problems associated with Internet voting in general elections, would Internet voting be more suitable, or even work, for small elections such as those for a city?