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22C:169
Computer Security

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Internet Voting?

By 2000, an ideal who's time had come!

Internet Technology Voting Alliance
IVTA

Internet Voting Technology Alliance

From the start, includes opponents, proponents, and uncommitted vendors.

Geneva begins Internet Voting Project

California Internet Voting Task Force:

Issues Report: Jan 18, 2000

Recommended Phase 1:

Stage 1: At voter's polling place
Stage 2: At any polling place in county

Recommended Phase 2:

Stage 3: At unattended govt-owned kiosks
Stage 4: From any Internet connection

Security problems

Recognized, leads to conservative view of standards for moving to next stage.

National Workshop on Internet Voting

Issued Report: March, 2001

Conclusions:

-*Poll site Internet voting systems offer some benefits and could be responsibly fielded within the next several election cycles.*

-Remote Internet voting systems pose significant risk to the integrity of the voting process, and should not be fielded for use in public elections until substantial technical and social science issues are addressed.

National Workshop on Internet Voting

Conclusions (continued):

- Internet-based voter registration poses significant risk to the integrity of the voting process, and should not be implemented for the foreseeable future.

- However, remote Internet voting may be appropriate in the near-term for special populations, such as the military and government employees and their dependents based overseas. Such exceptions should be evaluated on a case-by-case basis.

Internet voting for the US Military

Secure Electronic Registration and Voting Experiment

Pilot project, 2002

very few ballots cast

Major project intended for 2004

Killed after Security Analysis of Jan 2004.

Jefferson, Rubin, Simons and Wagner

Replacement could be worse than SERVE!

Military absentee voters allowed to Fax ballots to processing center in US that then Faxes them to appropriate county.
Processing center run by private contractor!

Geneva:

State mails ballot to each voter

Voter may take it to polls
Voter may mail it back absentee
Voter may vote it by Internet

Ballot carries random authorization key

Key printed under scratch-off paint
Voter must transcribe key to voting app.

On receipt of paper ballot

Inspect for scratched-off paint
If scratched, check that not voted by net

Geneva post-election audit

Phone random sample of voters

Did you vote by mail, net, or in person?

Answer can be verified against:

Polling place registers

Postal ballot envelopes

Verification does not endanger privacy!

So long as many voters vote each way

This makes ballot forgery difficult!

Relies on honest answers to phone call

Geneva Scheme Weaknesses

Attack from voter's PC

- *Could eavesdrop on vote being cast*
- *Could interfere with vote*

Attack from intermediary

- *Reasonable defenses*
- *In case of denial of service, go to polls*
  - Unless you are out of town!

Attack from inside election headquarters

- *Elaborate split UNIX/Microsoft architecture*
- *Still vulnerable to insider attack*

How can observers tell system is honest?

- *Suppose you were asked to observe?*