Independent Dual Verification Update and Next Steps

John P. Wack

Computer Scientist

NIST

Topics

- IDV Review

- IDV in the EAC VVSG

- IDV Research Issues

- Maryland's IDV Study

- Next Steps

Review: What is IDV?

- IDV = Independent Dual Verification
- Voting systems that create one or more records of ballot choices that are
  - Also verified by the voter (along with voting system's electronic record)
  - Once verified, cannot be changed by the voting system
  - Useful in efficient comparisons with voting system's electronic record
  - Efficiently handled, resistant to damage, accessible
- VVPAT is one example using paper as 2nd record

Why is IDV important?

- 2nd record essential for meaningful audits and recounts
- 2nd record essential because voting systems are computers, which can
  - Be very difficult to assess and test for accuracy
  - Fail for a myriad of unknown reasons
  - Be compromised or attacked

EAC VVSG and IDV

- The VVPAT requirements in the EAC VVSG are an instantiation of IDV
- IDV discussion contained in appendix D
- Begins with core IDV definitions (characteristics)
- Lists more specific definitions for
  - Split process
  - Witness
  - Cryptographic
  - Op scan

IDV in the marketplace now

- 2 + witness systems available
- 4 + VVPAT systems (25 states now require a verified paper trail)
- Some ballot marking/op scan systems are split-process
- 1 + cryptographic systems available
- None meet *all* IDV definitions but are *mostly* in IDV

IDV Issues

- Usability of multiple representations in comparisons and audits

- Usability for both voters and election officials

- Accessibility of multiple representations

- Interoperability of record formats to facilitate 3rd party audits, IDV add-ons (e.g., Witness devices)

State of Maryland IV Study

- IV = Independent Verification, similar to IDV

- Focuses on add-on technologies to existing Diebold DRE systems

- Under consideration: VVPAT, Witness, crypto approaches

- Study focuses on
  - Usability of record formats for comparisons
  - Usability for votes AND election officials
  - Accessibility issues with record formats
  - Security issues

- NIST will observe and possibly consult

Next steps

- The EAC has requested that requirements for other types of IDV be developed in future VVSG iterations
- Core IDV and Witness requirements are needed in near-term to guide marketplace development
- More research on usability of multiple records for election officials required
- Issues with accessibility in some IDV approaches need further study

Technical Guidelines Development Committee September 29, 2005 Plenary Meeting

Discussion?

John P. Wack

NIST

john.wack@nist.gov