



What went wrong?

- Product roll out foreshadowed disaster
 - Last build happened just two days before caucus
 - De facto beta-testing was happening on caucus day
 - ☛ Over a hundred defect reports on caucus day
- So what were the problems?
 - Functional
 - Logging in (from certain phone devices)
 - Faulty data (sometimes partial data sent)
 - Non-functional
 - Performance (inordinate delays in data reporting)
 - Security (unencrypted data sent over open network)

Why did it happen?

- So why did it happen?
 - No details released because “other caucuses may use similar apps”
(Worried that hackers will take advantage of flaws)
- But what has been filtering out ...
 - Lack of stress testing (stressing system with peak expected load)
 - Lack of penetration testing
 - Lack of acceptance (beta) testing by end users
- Why haven't these problems been brought to light?
 - Party insisted on “security through obscurity”
(The bogus idea that talking too much about the app will alert hackers)
 - Department of Homeland Security offered to audit but party refused

Weakest Link is the Human Link ...

- Managers disallowed volunteers to bring phones
 - But phones were required for the two factor authentication
 - Volunteers had to pass around a single iPad to authenticate
- Many election managers didn't know how to use spreadsheets
 - Had to take photos of paper worksheets and send by email
 - Sometimes photos were taken sideways and people had to crane their necks
(Of course, they didn't know how to rotate photos either)
- Lesson: User training is an important part of software delivery