Electronic Poll Books: Data Standards, and Interoperability
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  • VSSC/1622.7 - Electronic Poll Books
  – Member
  • VSSC/1622.2 -Election Results Reporting
  • VSSC/1622.4 -Election Data Modeling
A Pollbook for the 21st century

– The Promise
  • Easier and Faster
  • More Accurate
  • Integrates well with VRDBs
  • Handles data updates well

– Vote Centers
E-Poll books are becoming more popular

- Used in jurisdictions in thirty states
- Various requirements
  - No federal certification
  - 5 states require certification: Connecticut, Indiana, Ohio, Pennsylvania, Virginia
  - Ten states have statutes that explicitly authorize the use of e-poll books: Arizona, Arkansas, Florida, Iowa, Minnesota, Missouri, North Carolina, South Dakota, Tennessee, Texas
Design Principles

• Interoperability
• Auditability
• Symmetry
Data Standard

- More than just a replacement for pen and paper
- Interfaces with many different systems
  - VRDBs
  - EMSs
High Level Modeling

- Identify the external entities (scope)
- Identify supported processes (use-cases)
- Identify data flows
- Elaborate subprocesses as required (top-down)
High Level Modeling (Example)
Data Modeling (Example)
End Product

- A data model (UML)
- Data Interchange Format
  - XML
  - JSON
  - SQL / DDL
Data Standards and Interoperability

• We want vendors to provide data in a standardized format
• Data standards are (too) flexible
• Need a language to say what we mean
Requirement...

“The Election Management System must provide an export of election data in the VSSC/1622.2 format.”
Is this what you meant?

<Root>
ElecionReport
Is this what you meant?

```xml
<?xml version="1.0"?>
<ElectionReport>
  <Issuer>Ohio Secretary of State Jon Husted</Issuer>
  <IssuerAbbreviation>OH</IssuerAbbreviation>
  <GeneratedDate>2015-05-06T03:48:49Z</GeneratedDate>
  <Status>Certified</Status>
  <Format>SummaryContest</Format>
  <Sequence>0</Sequence>
  <SequenceEnd>0</SequenceEnd>
  <VendorApplicationId>Ohio-ENR 1.0.01</VendorApplicationId>
</ElectionReport>

File C:\temp\P1622_2.xml is valid.
What went wrong?

- XML Schema not enough
- Validation Frameworks
  - XML Schema Assertions
  - Schematron
  - CAMV
  - etc.
- Example Files
Questions?

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Thank You!