

# Panel

# Voting System Testing & Certification

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# Why Test or Certify

- **Objective:** Develop **Trust or Confidence** a specific target of evaluation performs as described
  - Manage Risk To Acceptable Level
- Two Basic Factors to gain Trust
  - Validation of System Characteristics
  - Assurance – Level of Confidence
- **Challenges**
  - Complexity is the enemy of assurance
  - Manage level or scope of negative and “open” testing

# Traditional Test Structure

- **Operational Tests** (system still works as planned)
  - Logic and Accuracy
  - Audits and Cross Checks
  - Self tests
- **Acceptance Tests**
  - Production Units perform to design
- **First Article**
  - Does a production unit match the approved design
- **Design Characteristics (Floor – VVSG – State Cert)**
  - Features and Functionality
  - Design Qualification Tests (reliability/environmental)

# Potential Strategies

- Explore and Develop Quantum Improvement Leaps
- In Parallel Implement All Opportunities to Improve Current Certification
  - Lower Cost
  - Faster
  - Maintain Confidence (assurance)

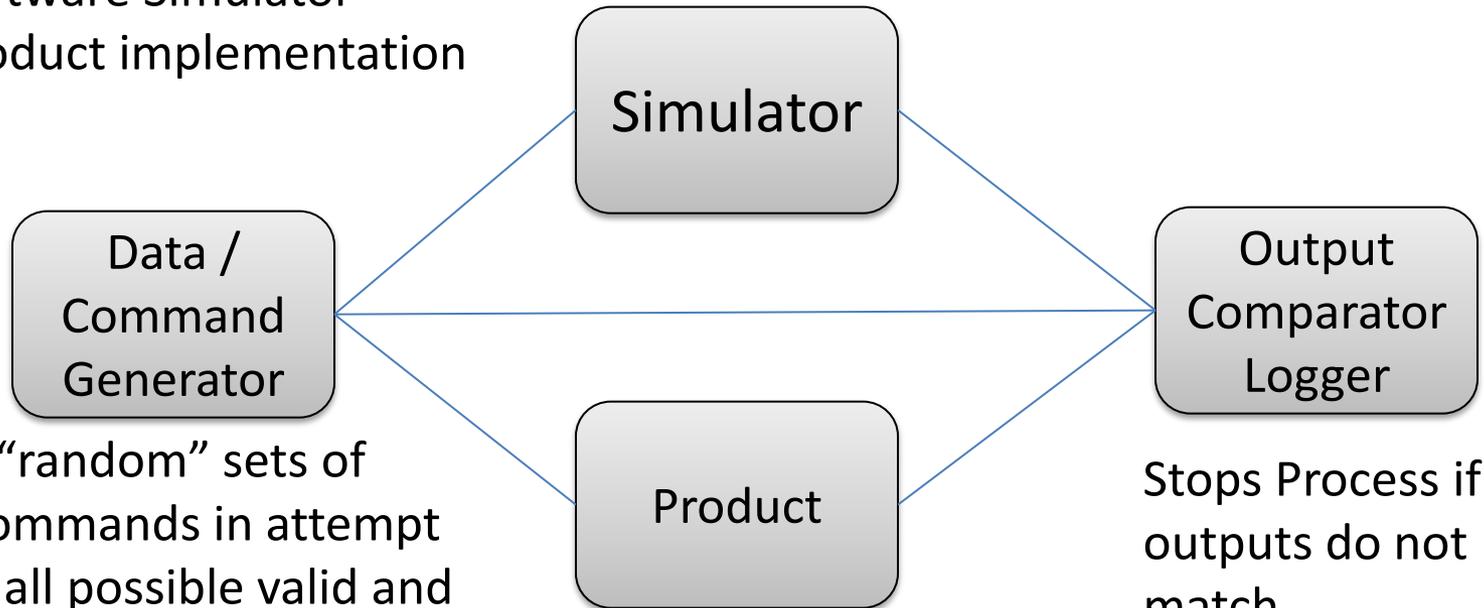
# Potential Strategies

- **Promote Test Consistency**
  - Common Test Cases
    - Repeatable      Lab to Lab      Test to Test
    - Results more comparable
    - Use/Reuse promotes Process (test) improvements
- **Promote Modularity**
  - Common Data Format
  - Enables Improved Testability
    - Reduced Time/Cost
    - Improved Test Thoroughness

# Potential Strategies

- **Automation**

- Self Tests
- Build in Test Interfaces and strategies during the design
- Parallel development Separate teams to same req.
  - Software Simulator
  - Product implementation



Generates “random” sets of data and commands in attempt to exercise all possible valid and invalid inputs

Stops Process if outputs do not match

# Summary

- With focus and working together we can improve Certification Testing to better satisfy our mutual customers; the local jurisdictions and voters.
  - Reduce Cost
  - Reduce Time
  - Improve Thoroughness
  - Improve Trust