

# Requirements and Evaluation Techniques for Online Voting Systems

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# Outline



- Motivation
- Object of assessment
  
- Requirements
- Evaluation techniques
- Common Criteria
  
- Conclusion / future work



# Motivation

More and more (legal binding) online elections

How have the systems been evaluated?

- Some without evaluation / sometimes unpublished reports
- Evaluation depend on the group of involved experts

„Own“ requirements

Level of detail of the requirements

Different evaluation approaches

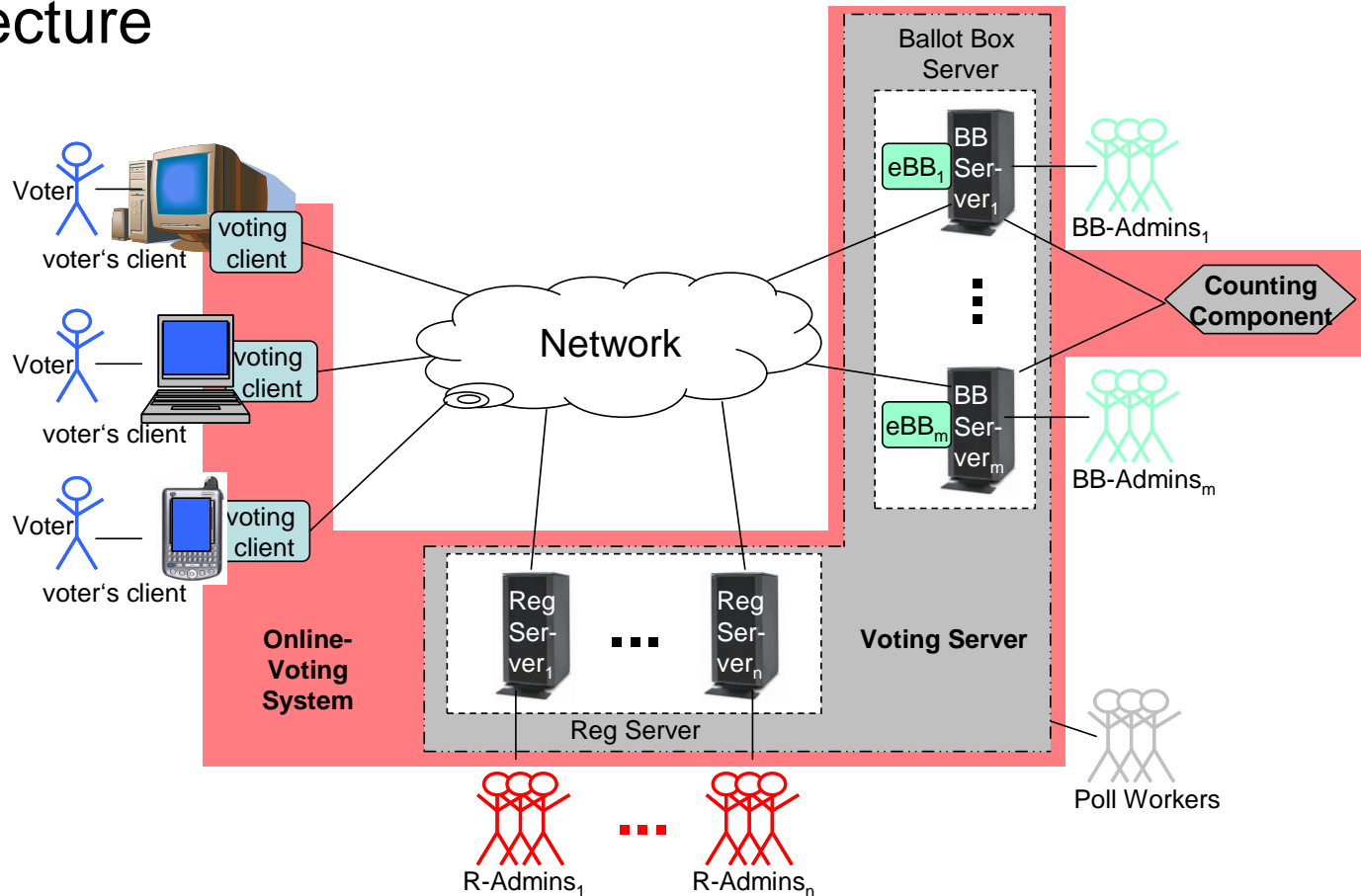
Different evaluation depth

**Standardizes Requirements  
and Evaluation Techniques**



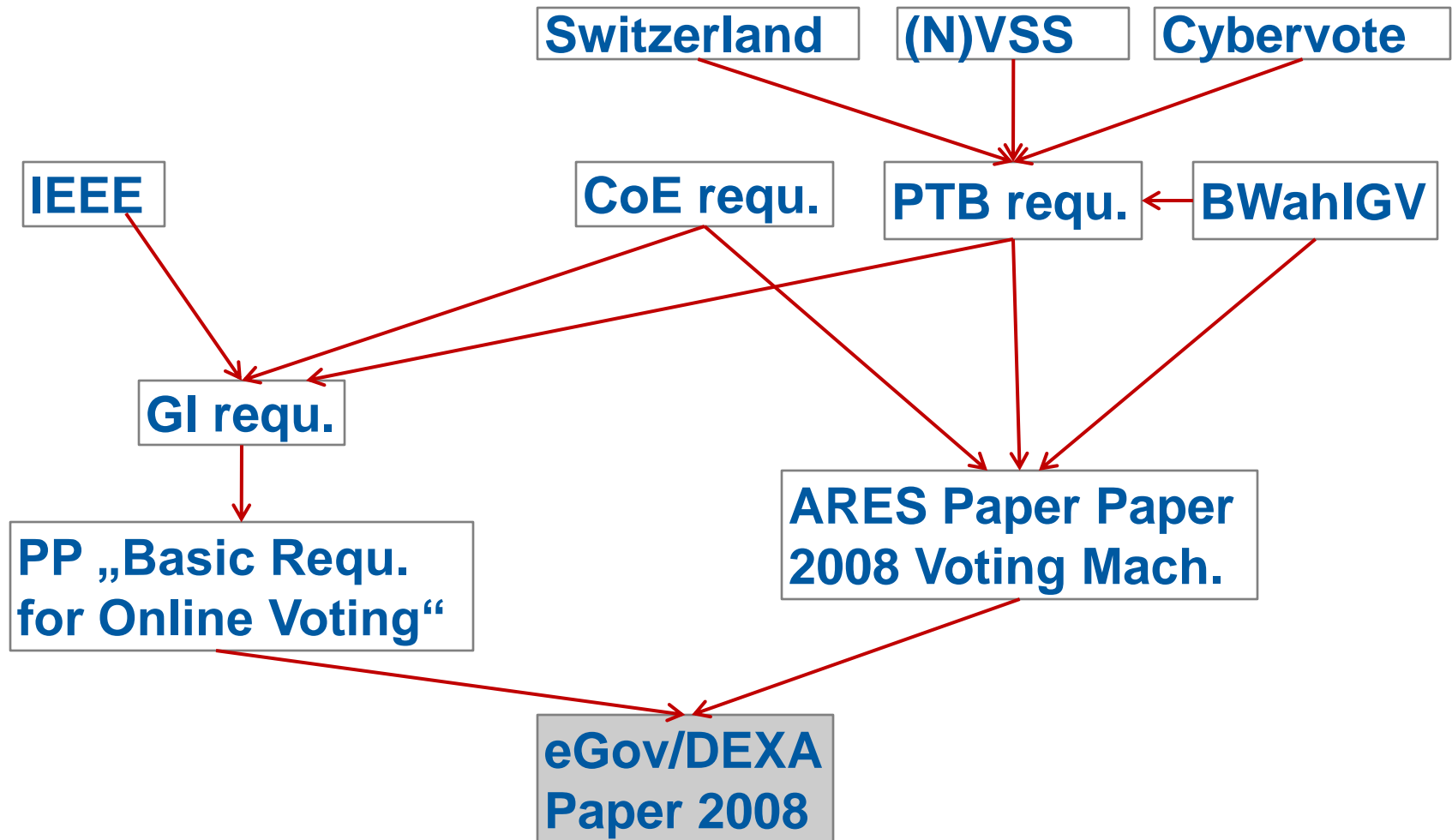
# Object of Assessment

## Only vote casting and vote counting Architecture





# Related Work (Requirements)





# Requirements

Concentrating on security related requirements

Referring to requirements from existing lists

- Achieving completeness

Linking the requirements to the five principles

- Showing the lawyers the necessity of the requirements

Collecting possible threats

- Goals
- Attackers capability

Distinguishing two classes of security requirements

- Those deduced from possible threats
- Those deduced from organizational security policies



# Requirements Related to Threats

R/T<sub>6</sub>[fr] The *·online-voting system·* shall not provide any information in transmitted protocol messages, which allow to construct the link between a particular *·voter·* and his *·vote·*. *{breaking election secrecy}, {outside intruder}*



# Evaluation Techniques

## Application of the Common Criteria

- Find corresponding security functional requirements (SFR)
- Chose the Evaluation Assurance Level (EAL)

Lack in the current approach

*R/T<sub>1</sub> The voting server SHOULD be tamper-resistant.*

- Situation: talking about one voting server
- But goal: separation of duty
- Difficult to cover with the CC → Assumptions: voting server is trustworthy.



## Conclusion / Future Work

First step to standardized security requirements

CC as recommended evaluation technique

Future plans: application to systems in use

High level CC evaluation of two systems finished



# Contact

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