A Framework for Obtaining the Ground-truth in Architectural Recovery

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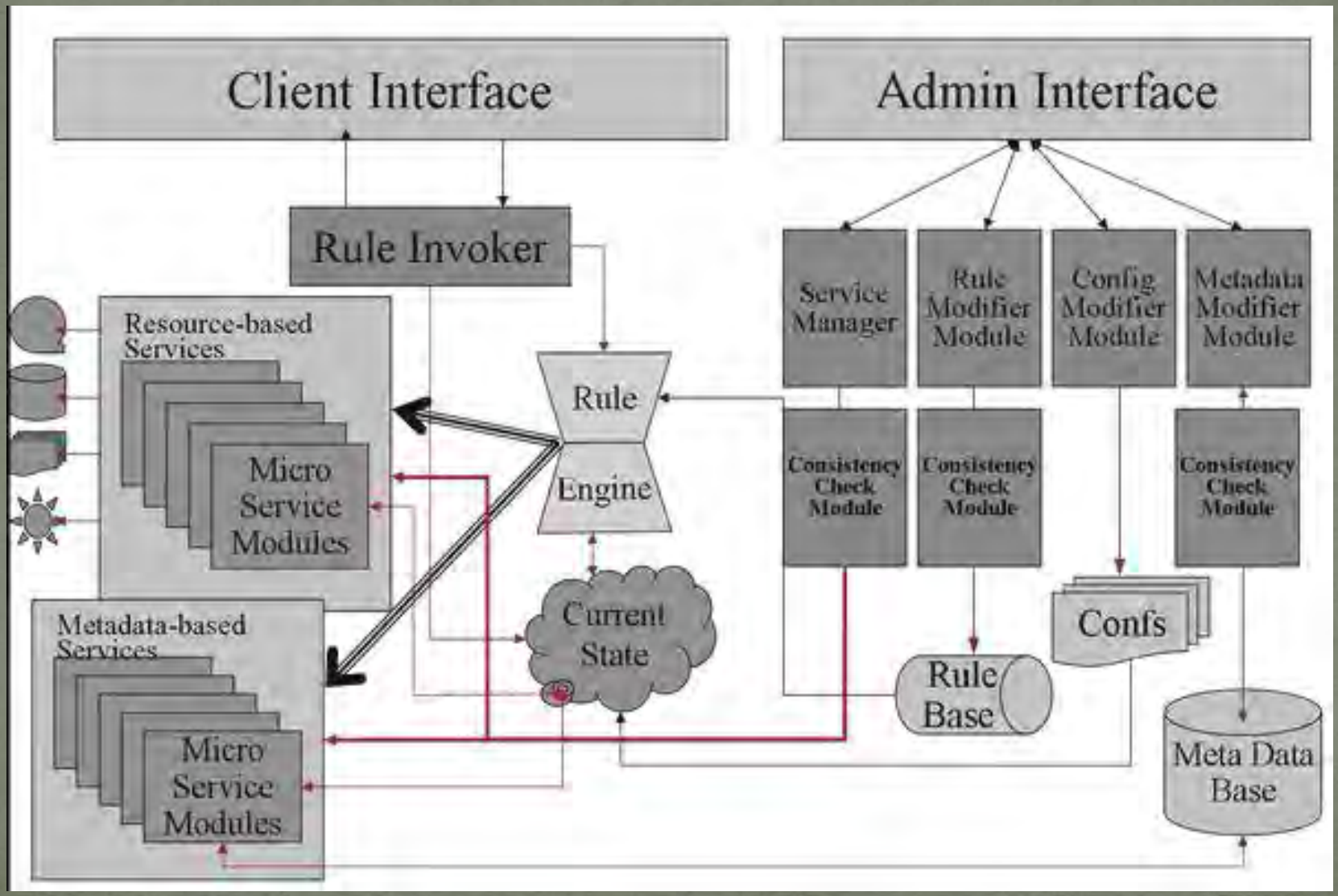
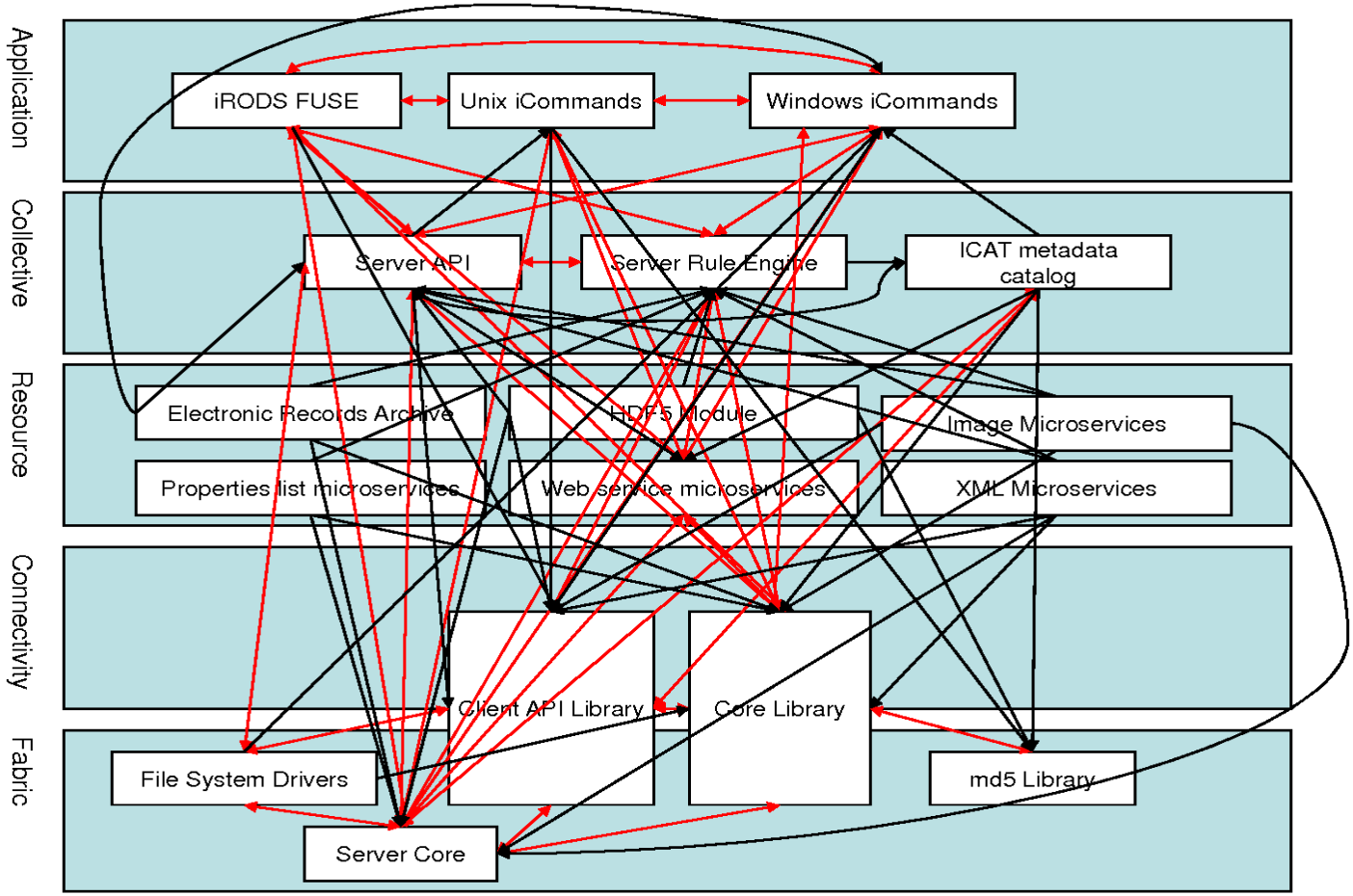
iRODS – Prescriptive Architecture



iRODS – Descriptive Architecture



Architectural Recovery

- Architectural recovery techniques
  - “The” architecture
  - Inaccuracies
- Criteria for evaluating recovery techniques
  - Authoritative recovery

Ground-Truth Recoveries

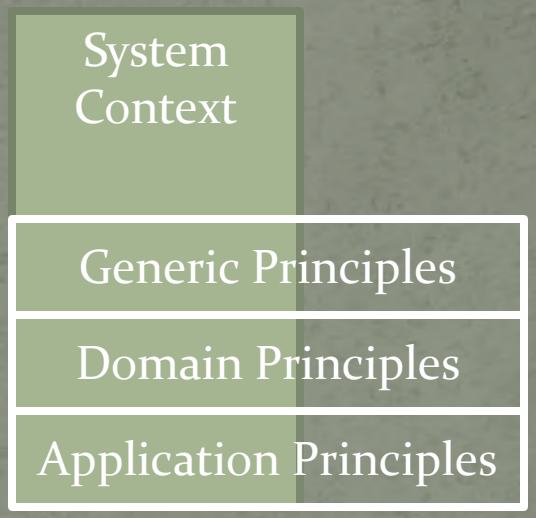
- Ground-truth recovery
  - An architect or engineer of the system
- Existing ground-truth recoveries
  - Smaller systems
  - Very coarse-grained
- Build a repository of ground-truth recoveries

Our Framework

- Solution approach:
  - Framework for obtaining ground-truth recoveries
    - Mapping principles
    - Recovery process
- A case study on Hadoop

Mapping Principles

- Generic
- Domain
- Application
- System Context
  - Spans across other principles



Ground-truth Recovery Process

- Ensure consistency
- More informed intermediate recoveries
  - Different types of information and principles
- Roles
  - Recoverer
  - Certifier
    - Minimize burden
    - Maximize time and expertise

The Eight Steps of the Process

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Step 1: Gather domain & app. principles

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Step 3: Extract implementation info

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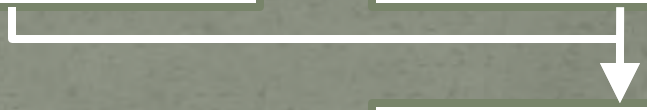

Step 4: Apply generic technique

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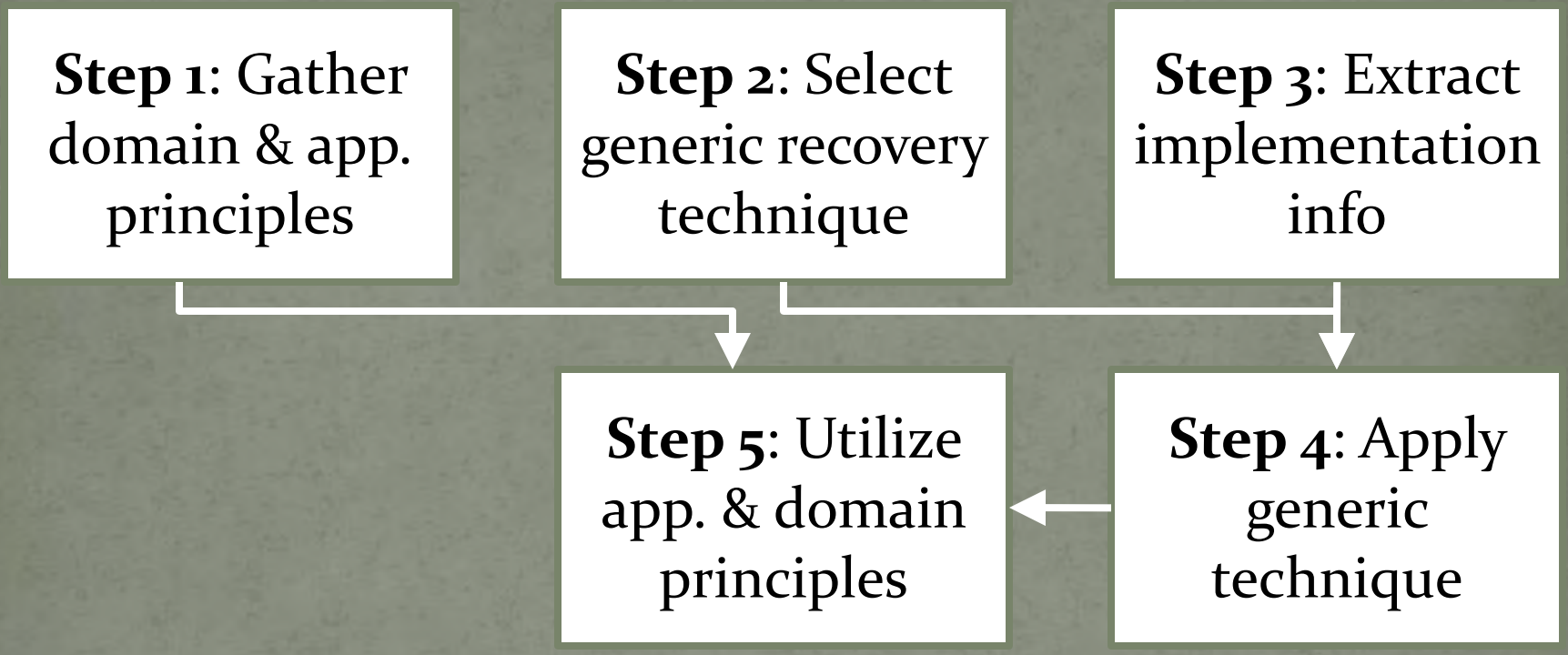

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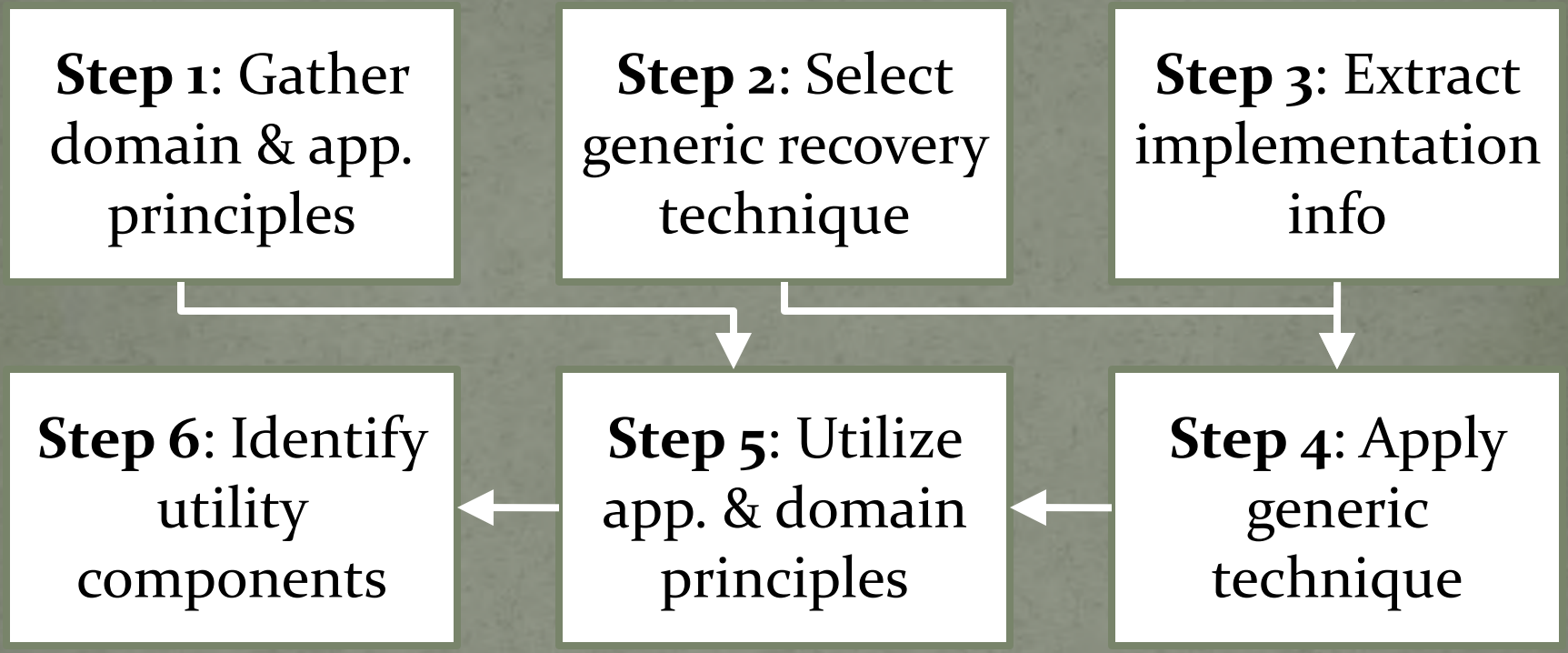

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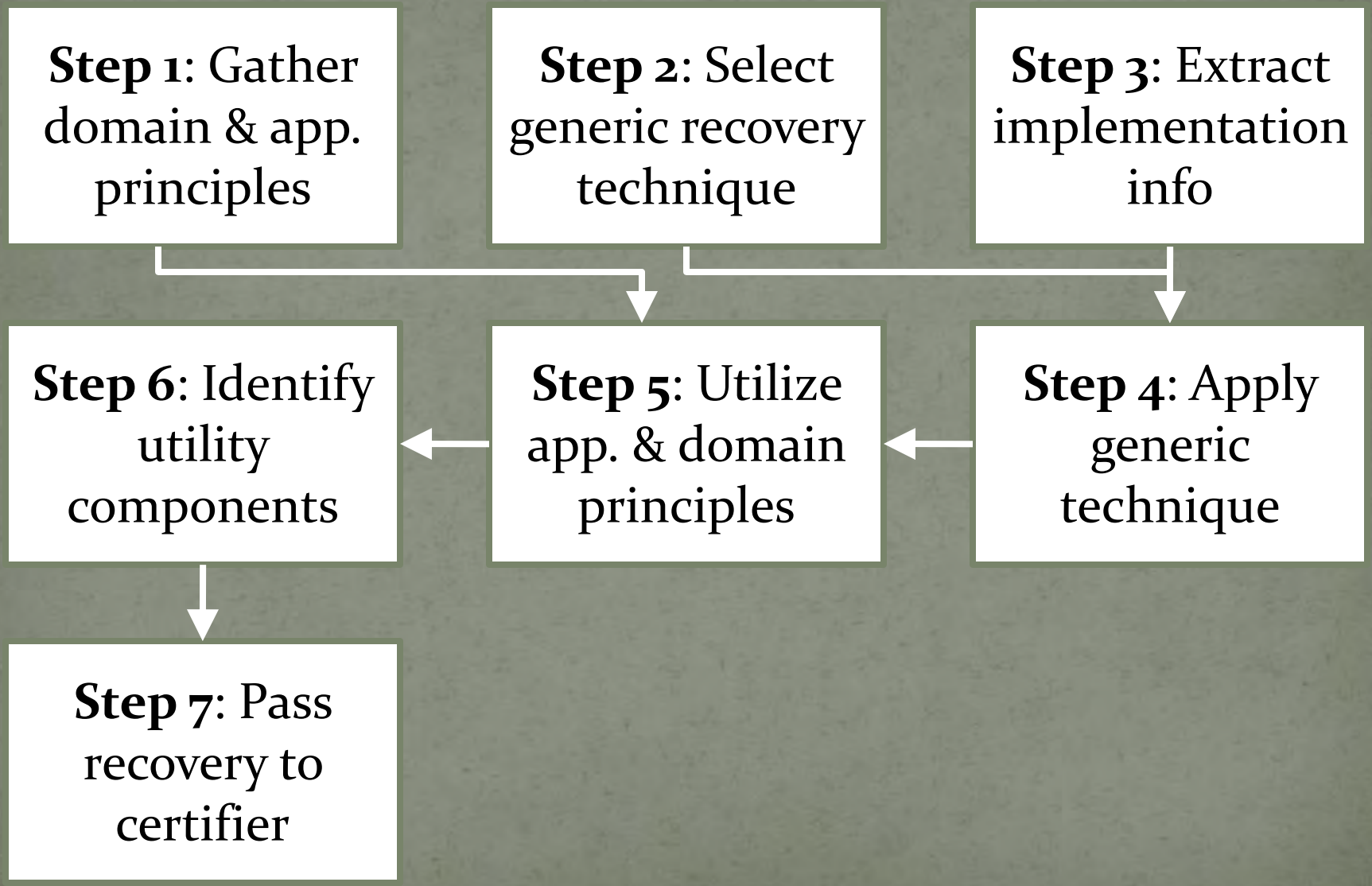

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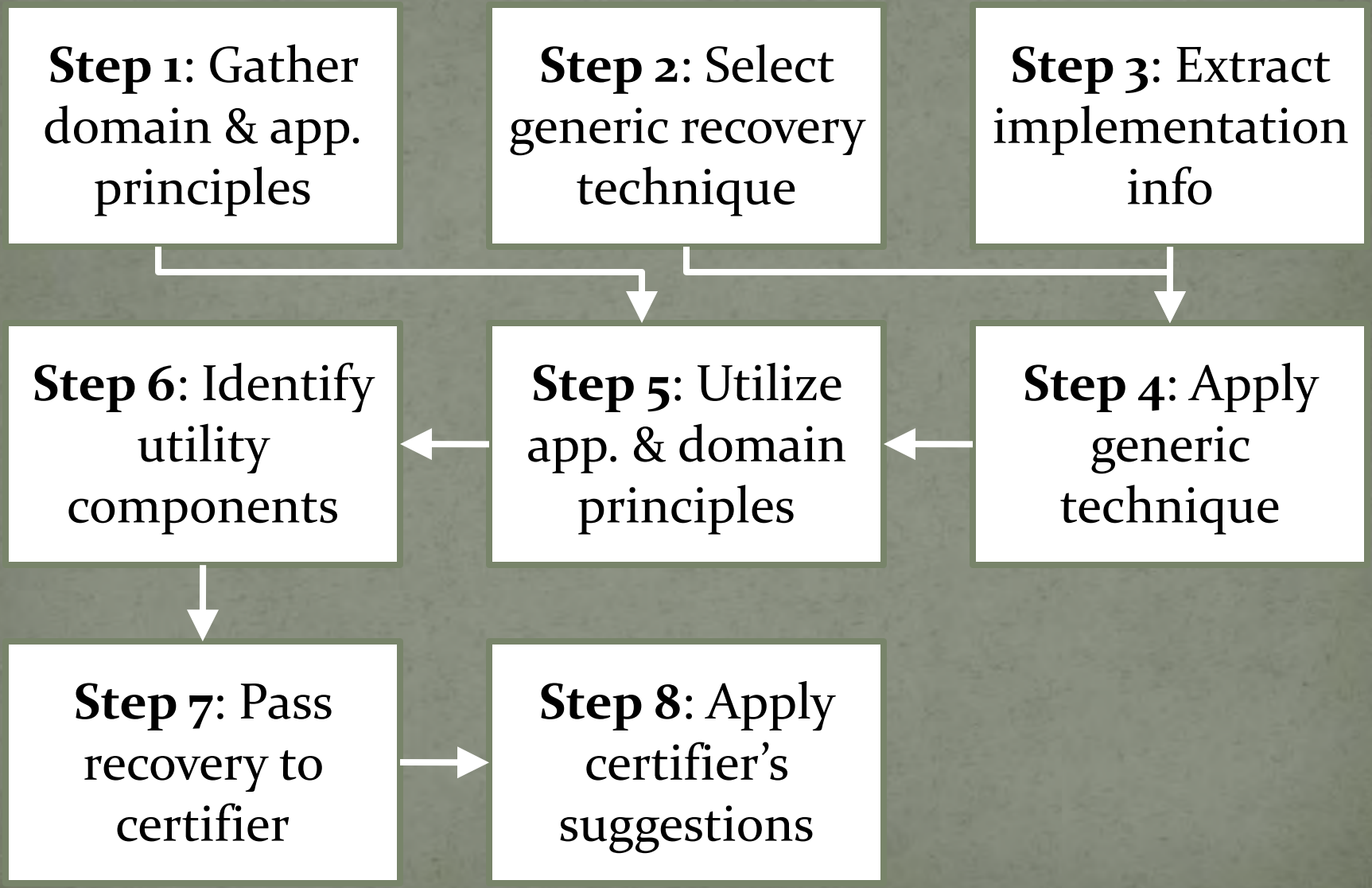

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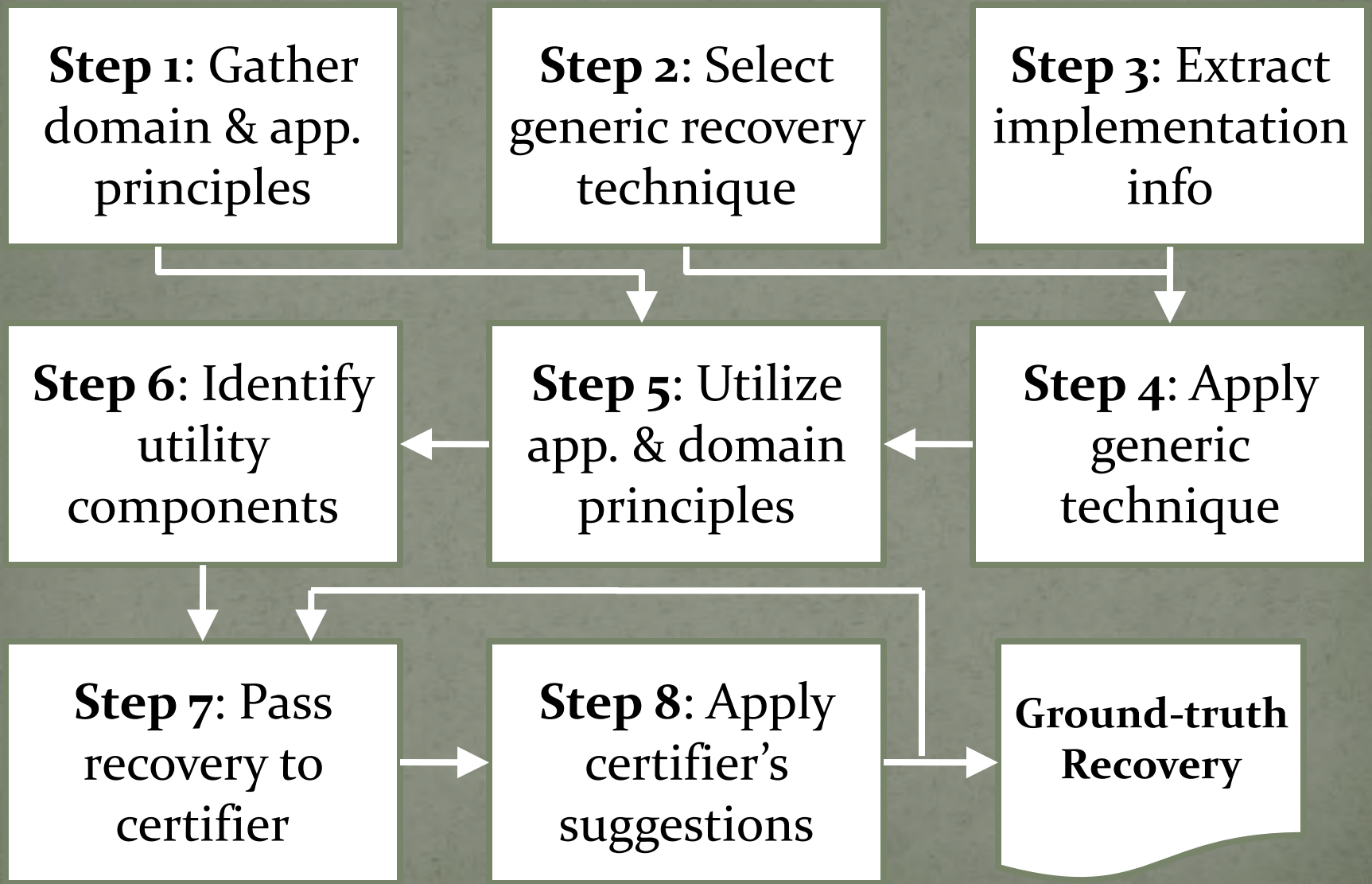
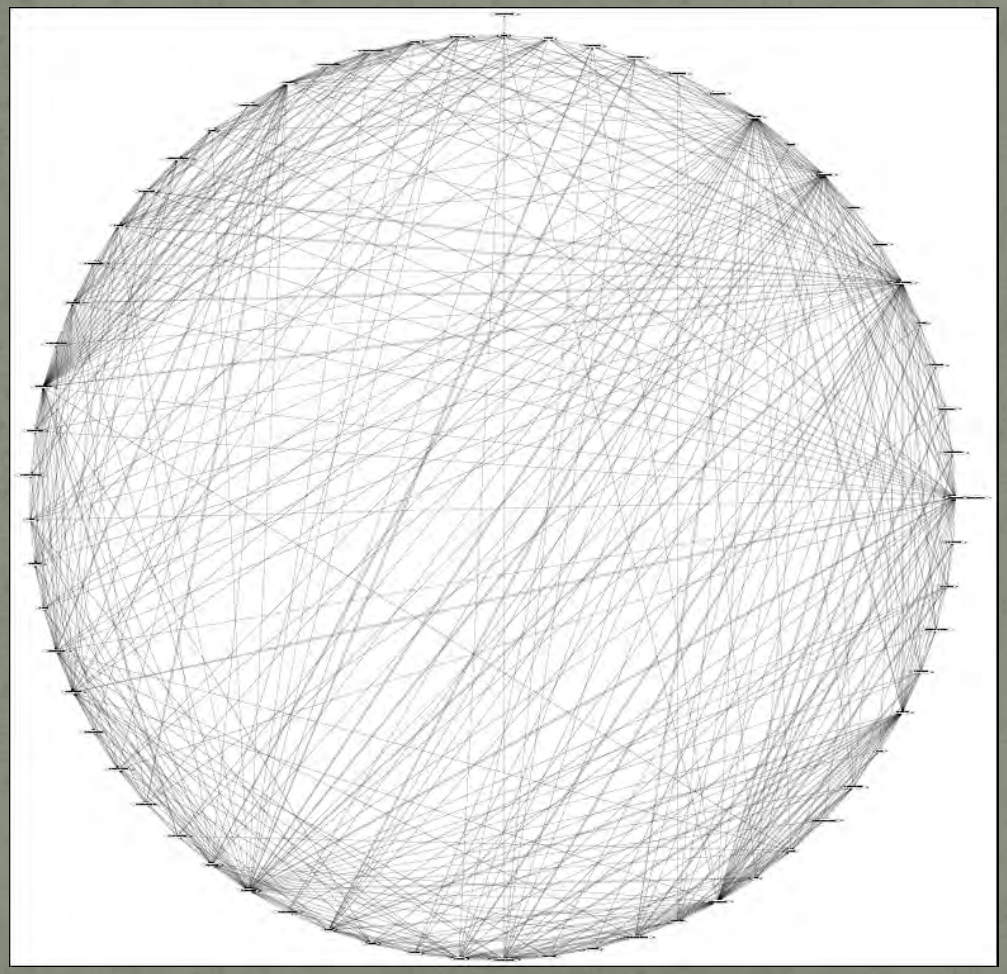
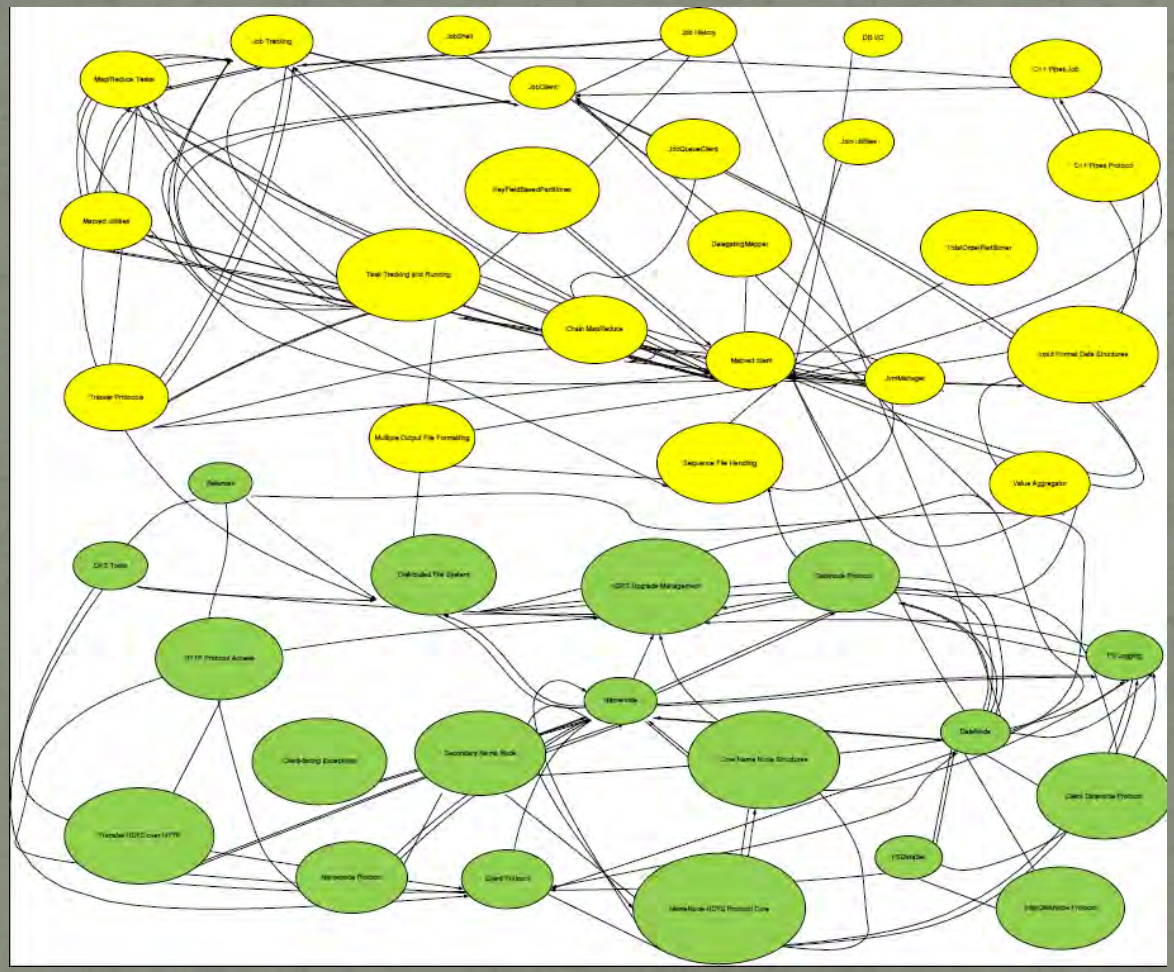


Full Ground-truth Recovery of Hadoop



Removal of Utility Components



Conclusion and Future Work

- Contribution: A framework for the recovery of ground-truth architectures
  - Mapping principles
  - Process
- Repository of ground-truth recoveries

Thank You