Blind Slashing Mechanism Simulation Strategy

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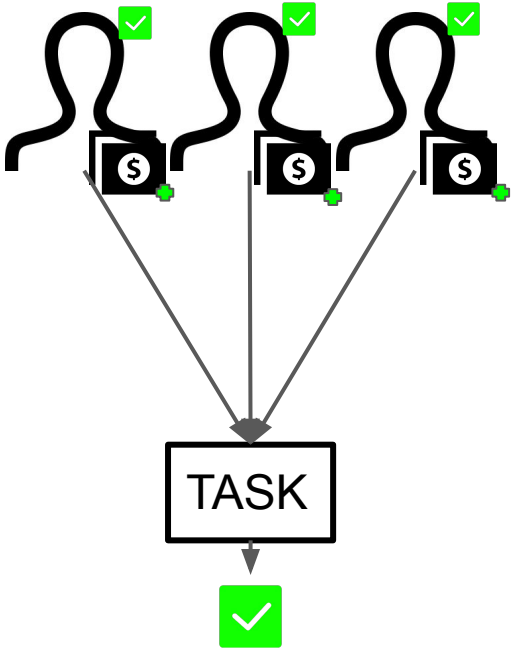
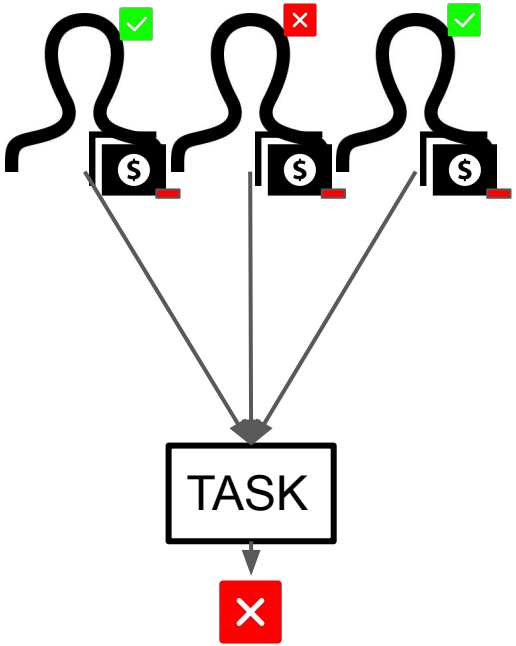
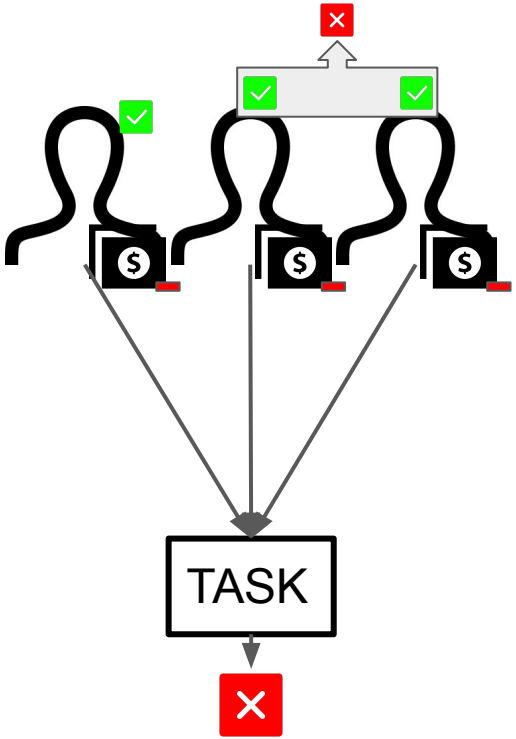
Blind Slashing: Context



Successful execution



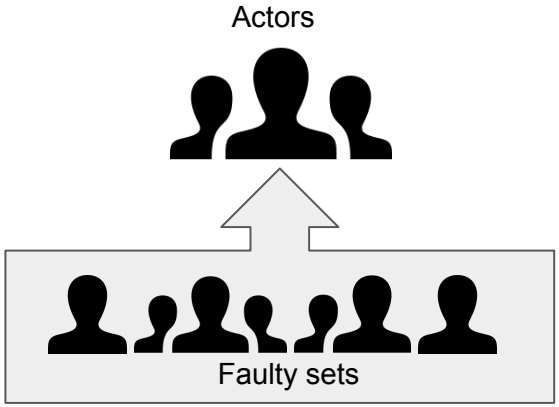
Individual failure



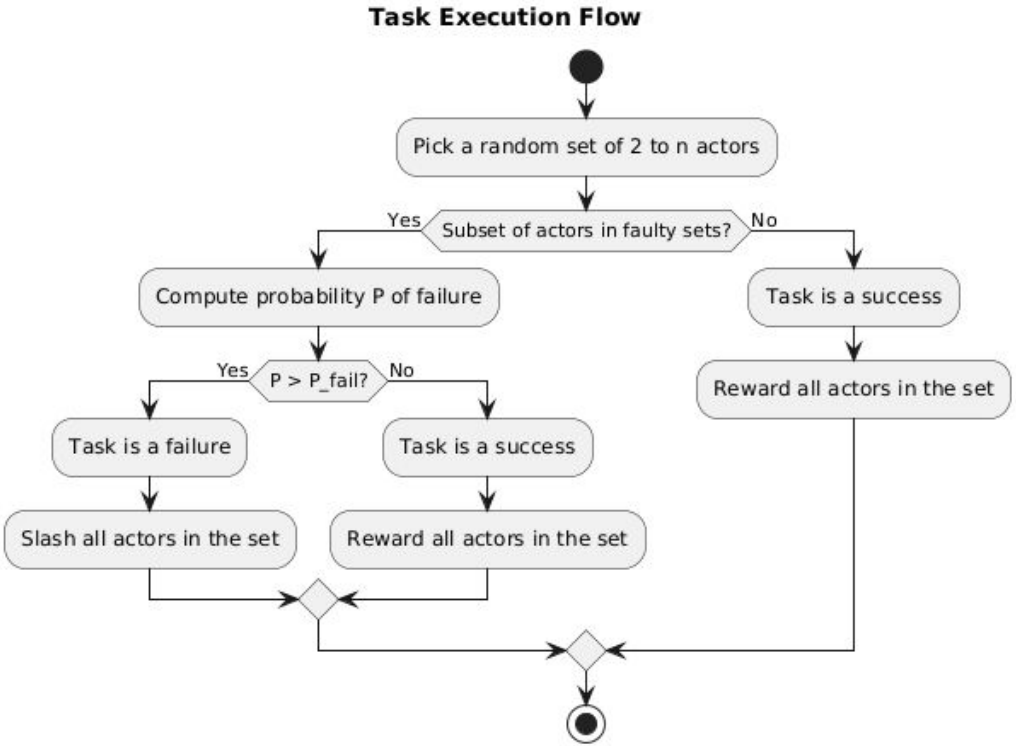
Combination failure

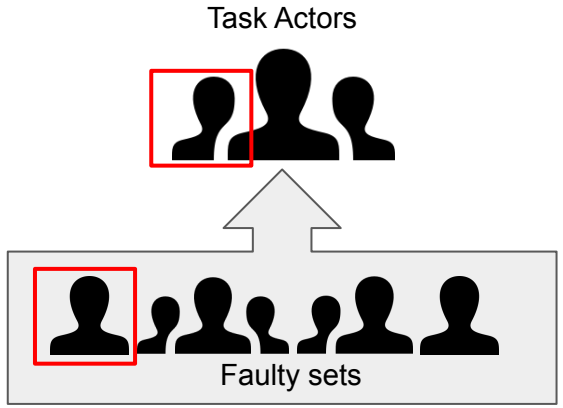
Core elements of the Simulation

- A list of **n** actors, with each actor having:
  - An initial stake $\mathbf{S_0}$
- A list of faulty sets of actors, with each set having:
  - Between **1** and **n** actors.
  - A probability of failure.



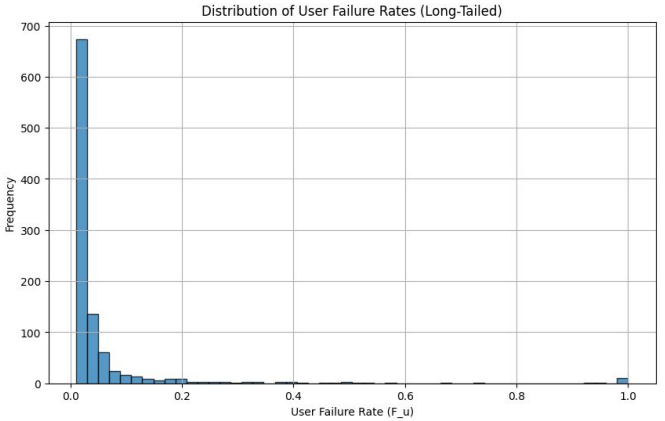
Task Execution





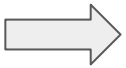
Actor Lifecycle

- Actors are removed when their stake reaches 0.
- New actors are added regularly using normal distribution of fault probabilities.
- New incompatible combination including fresh actors are regularly added using normal distribution of fault probabilities.



Expected results

- Do actors with failure rate below our threshold survive ?
- Is the system overall reliability improved after some time ?
- With what rate of arrival of faulty actor can the reliability be sustained ?



- We will execute a task several time picking random actors.
- We will punish or reward actors depending on the outcome.
- We will track actors stake depending on their failure probability (by bucket of 0.1 probably).
- We will track system mean failure rate over time.

Scenarios to simulate

Scenario 1 - witness: No blind slashing, Binary behavior, single actor faults.
Scenario 1 - blind slashing: Blind slashing, Binary behavior, single actor faults.

Scenario 2 - witness: No blind slashing, Continuous behavior, single actor faults.
Scenario 2 - blind slashing: Blind slashing, Continuous behavior, single actor faults.

Scenario 3 - witness: No blind slashing, Binary behavior, multi-actor faults.
Scenario 3 - blind slashing: Blind slashing, Binary behavior, multi-actor faults.

Scenario 4 - witness: No blind slashing, Continuous behavior, multi-actor faults.
Scenario 4 - blind slashing: Blind slashing, Continuous behavior, multi-actor faults.