Enhancing the Fault Tolerance of Replication: Another Execise in Constrained Convergence

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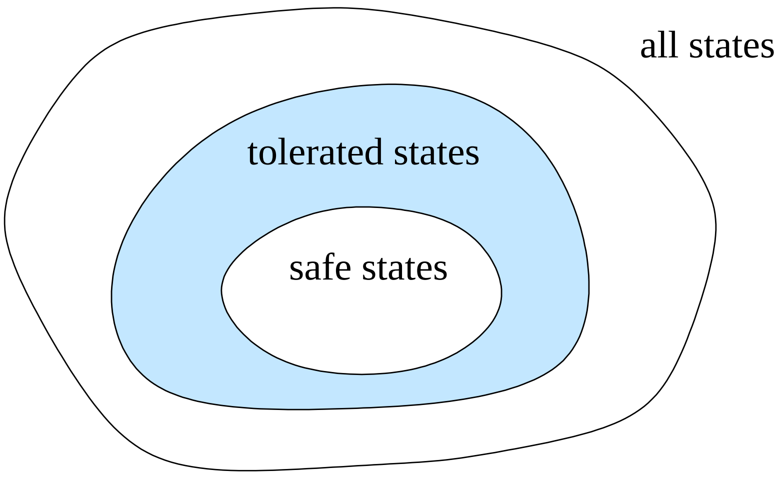
Central Goal:

Draw attention to the concept of *self-stabilization.*

Traditional (masking) approach to fault tolerance:

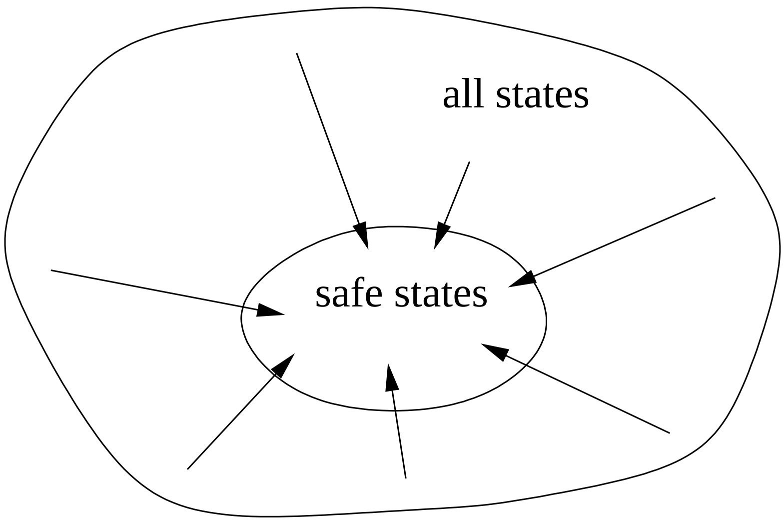
1. Specify faults to be tolerated

2. Enhance intolerant design to tolerate anticipated faults



Concept of Self-Stabilization

Starting from any state, system eventually reaches a safe state



+ ability can be added mechanically if the problem allows it (example of mutual consistency)

− approach is non-masking

+ add fault tolerance abilities that supersede traditional approaches

Research:

- some problems can be handled better than others
- looking for cooperation in academia and industry to evaluate approach in practice