

Problem

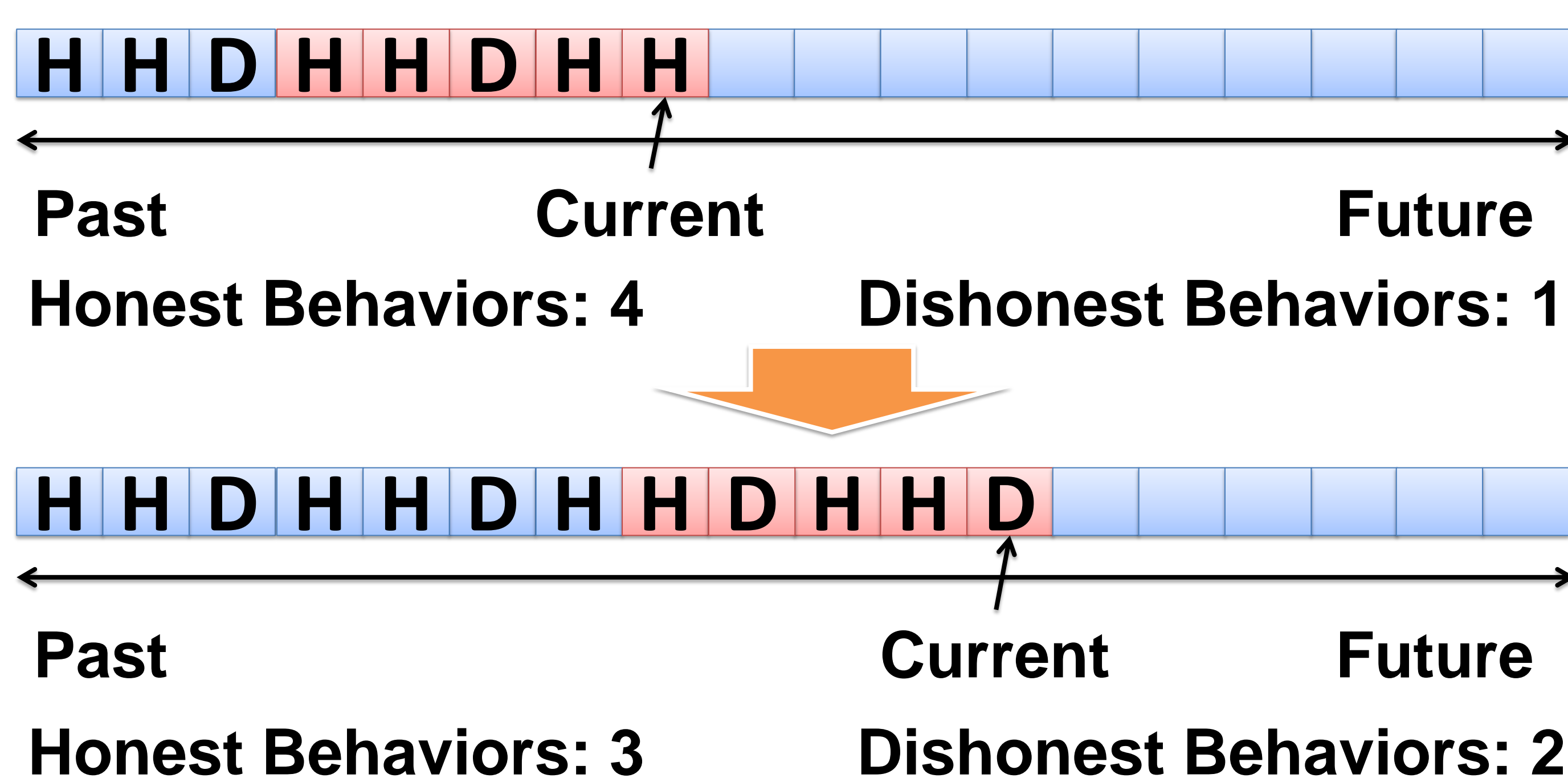
- Weakness of Trust Evaluation
 - Social Network: How much do you believe him/her?
 - Infrastructure Network: How much does a node believe its neighbors?
 - Sometimes honest, but sometimes dishonest
 - Difficult to predict next behavior

Solution

- Observation of previous behaviors
 - How many times it has met your expectation in previous behaviors
 - How many times it has disappointed you in previous behaviors
- Dynamic Sliding Window (DSW)
 - Fixed Window** Observes honest behaviors in a specific number of previous behaviors
 - Dynamic Window** Observes dishonest behaviors in a dynamic number of previous behaviors
 - When the trust is low, remember more previous behaviors
 - Allowing trust redemption
 - Many consecutive honest behaviors will fill the fixed window and the dynamic window with honest behaviors

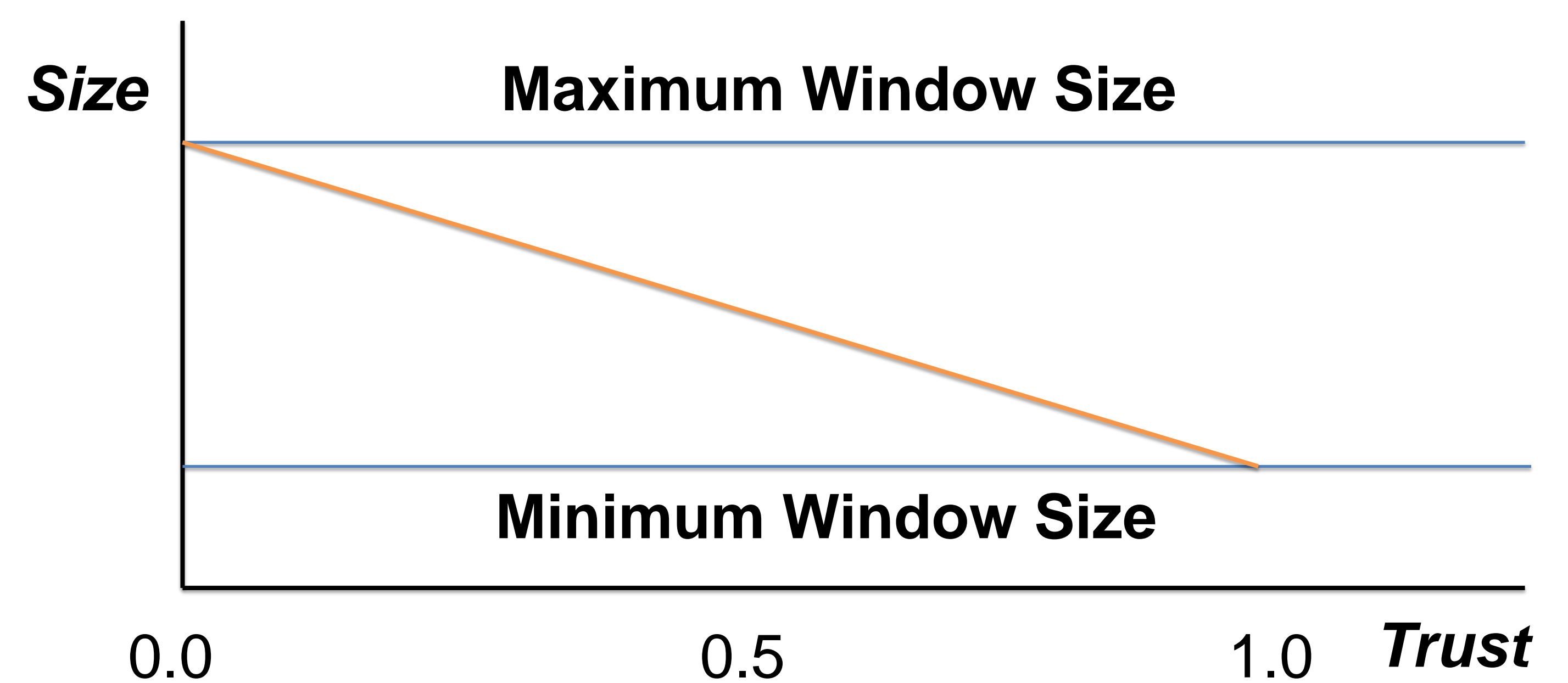
Fixed Sliding Window

- Observes previous behaviors
 - Case of Fixed Window



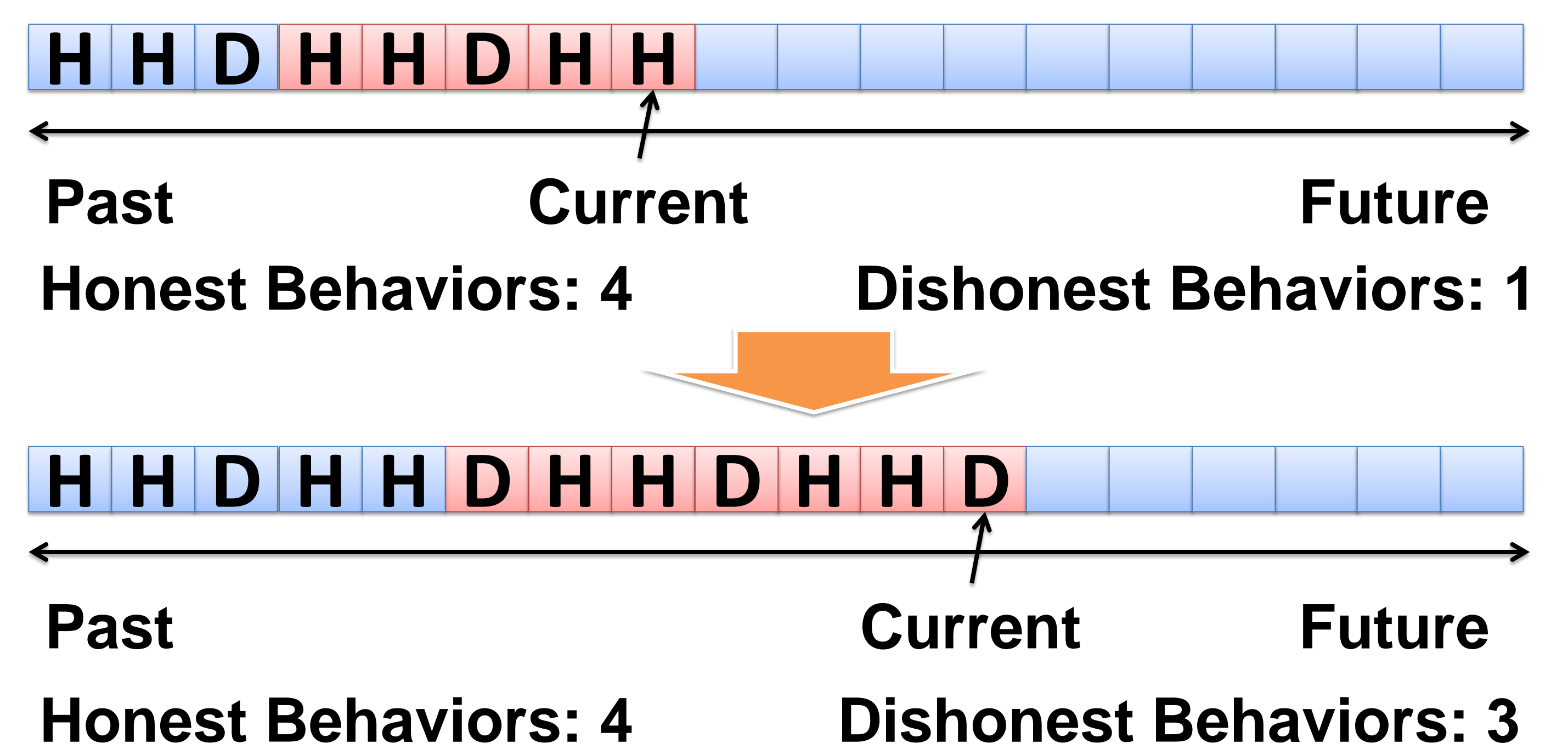
Dynamic Window Size

- Depends on current trust



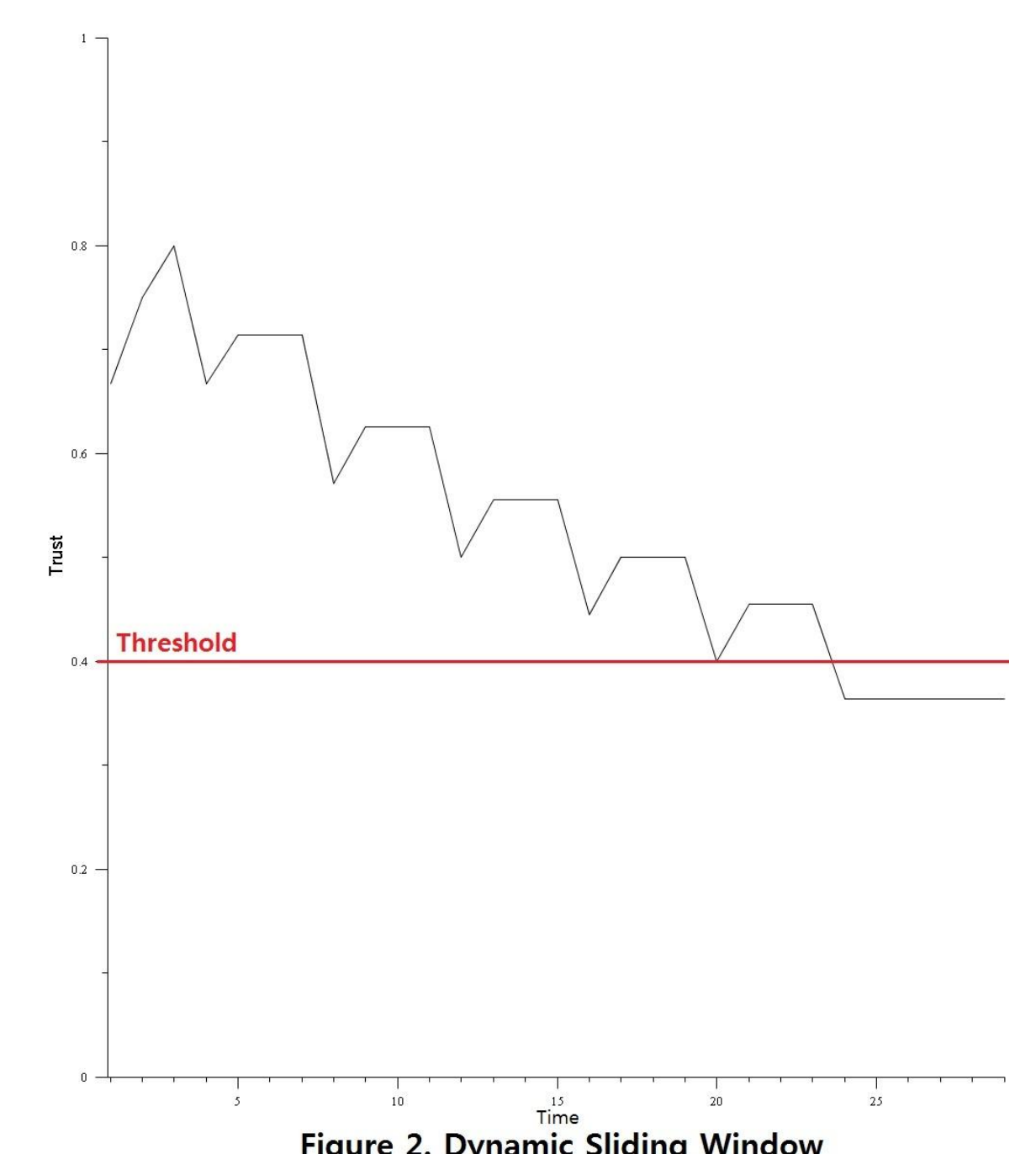
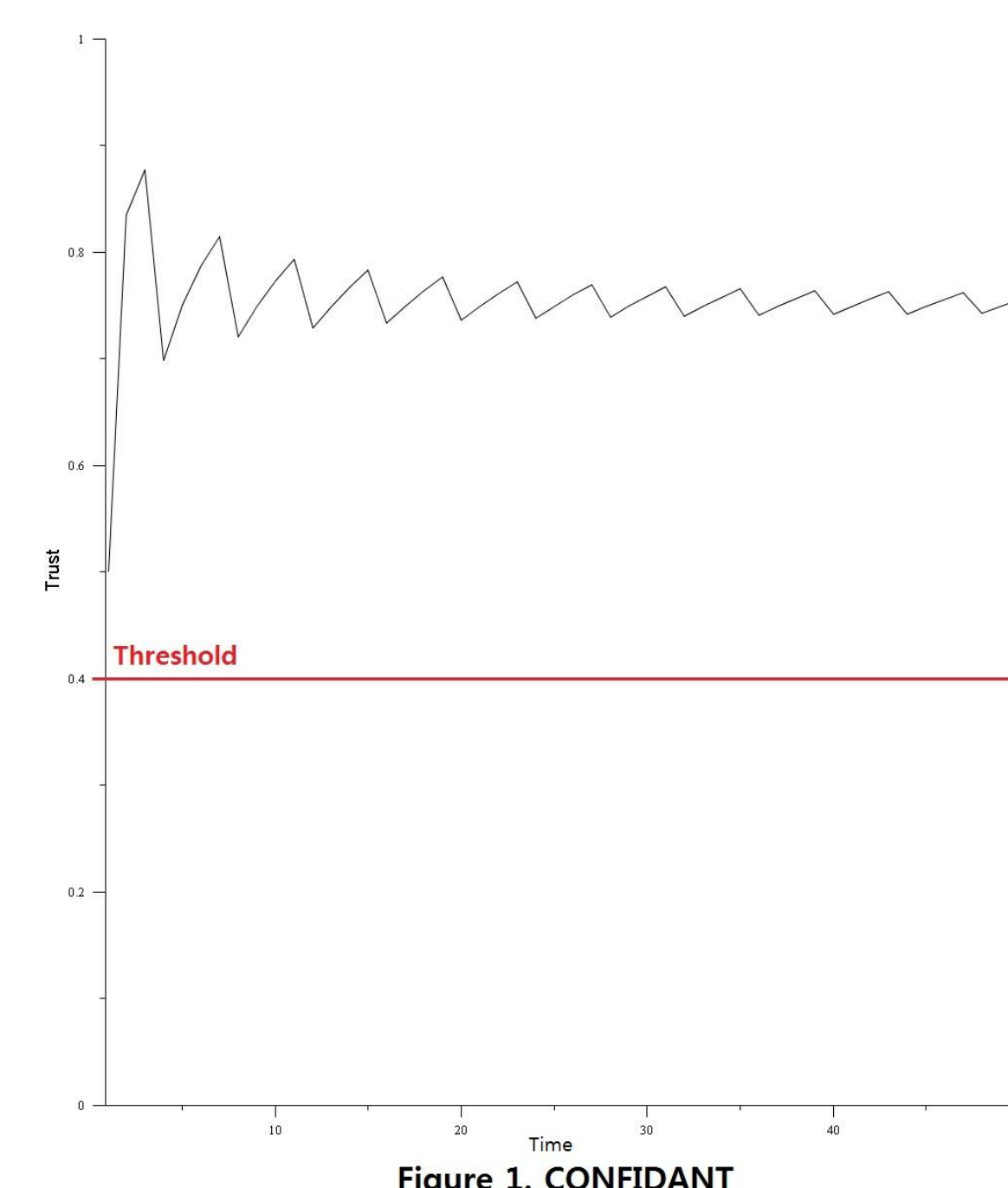
Dynamic Sliding Window

- Low Trust doubt an Attack
 - Observe more previous behaviors



Result and Impact

- Trust Value over Time with On-Off Attack
 - 3 Honest behaviors and 1 False behavior
 - Threshold : 0.4



- CONFIDANT will never achieve trust of the node below the threshold.
- DSW allows for detection of sophisticated On-Off attack on many kinds of networks

