# Performance Score Delay Issues

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# Identified Issues

- The performance score does not adequately reflect impact of delay on the usefulness of the Reg-D response.
- 10-second sampling interval for performance scoring penalizes resources that respond faster than 10 seconds
- Many resources responding to RegD are working against system control
  - Evidenced by RegD oscillations as signal moves to correct delayed response

# Useful Response

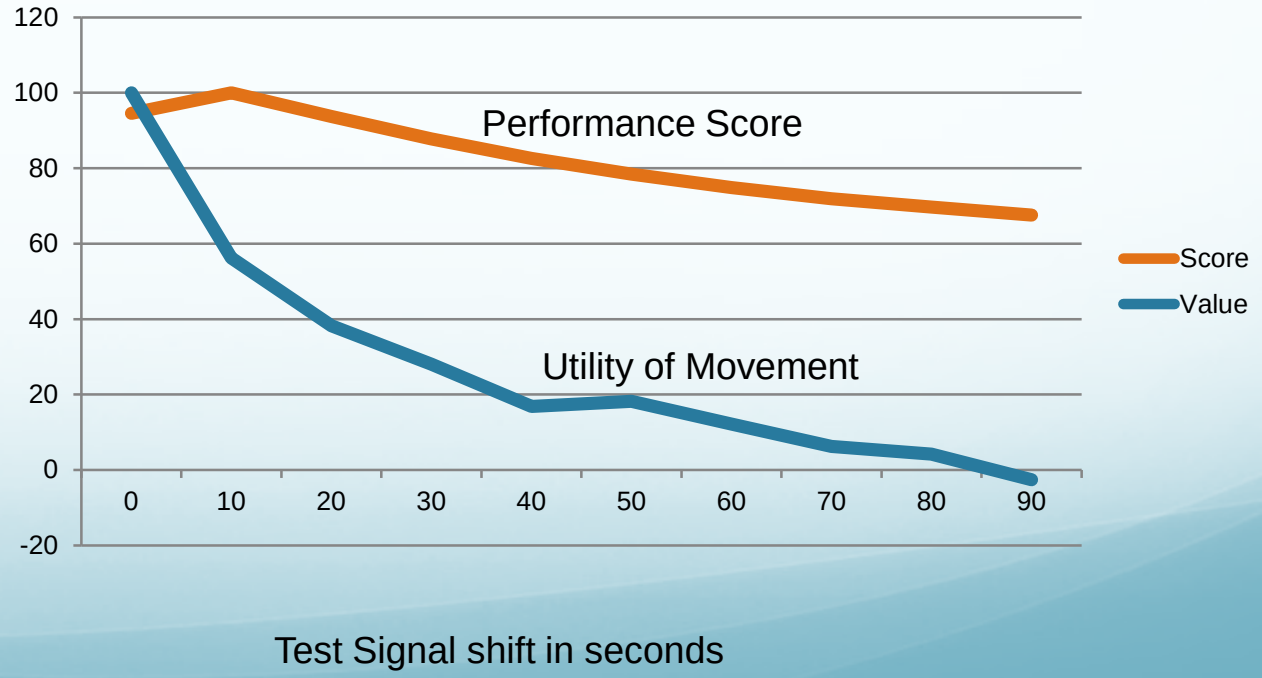
- Ideal:  Response should move in the direction of the signal over each 10-second scoring period
  - 50% movement with signal is 0% useful because ½ the time movement is against control, no better than random

Current performance test:

2 Sec Delay
  94% score for 95% useful

10 Sec delay
  100% score for 50% useful

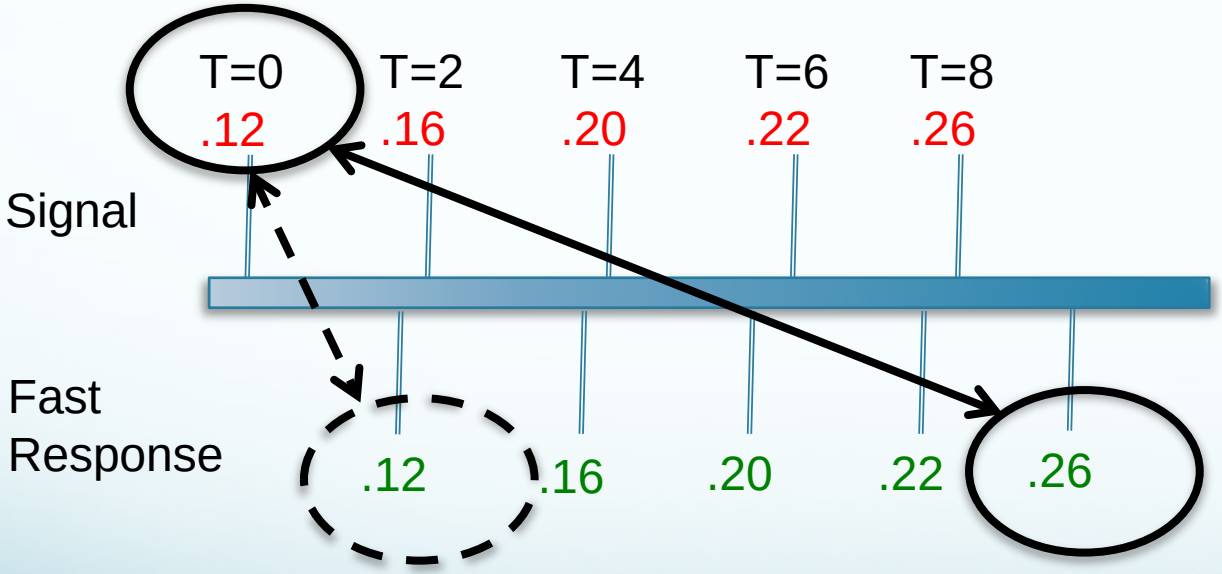
30 Sec delay:
  80% score for 28% useful

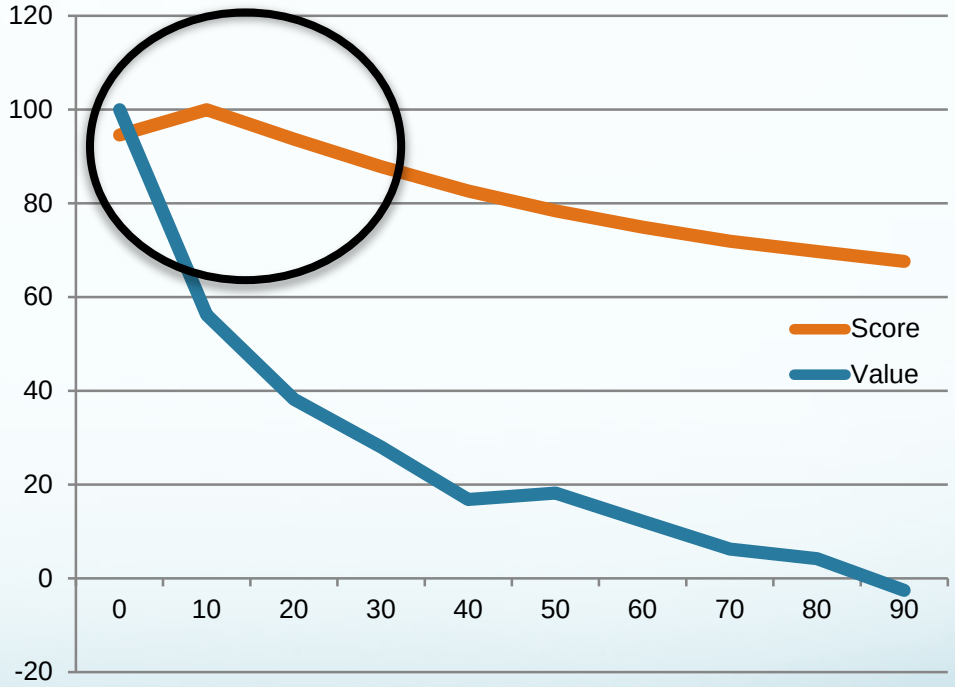



* Representative operating hour

# Scoring Delay

- Current test awards perfect score for 10 second latency, penalizes faster response




scoring interval compares current response to 10-second old set-point

# Oscillation

- Excessive delay by “fast” resources are pumping an oscillation in the RegD signal
  - RegD signal has typical peak to peak interval of 120 seconds
  - Oscillation pumped by effective response of about 20-30 seconds
  - RegD signal moves to correct response error