Architecting System Performance; Robust Performance

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Abstract

Performance should be robust. The performance should be reproducable and it should be well-behaving in extreme conditions.

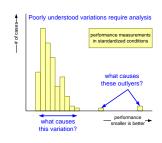
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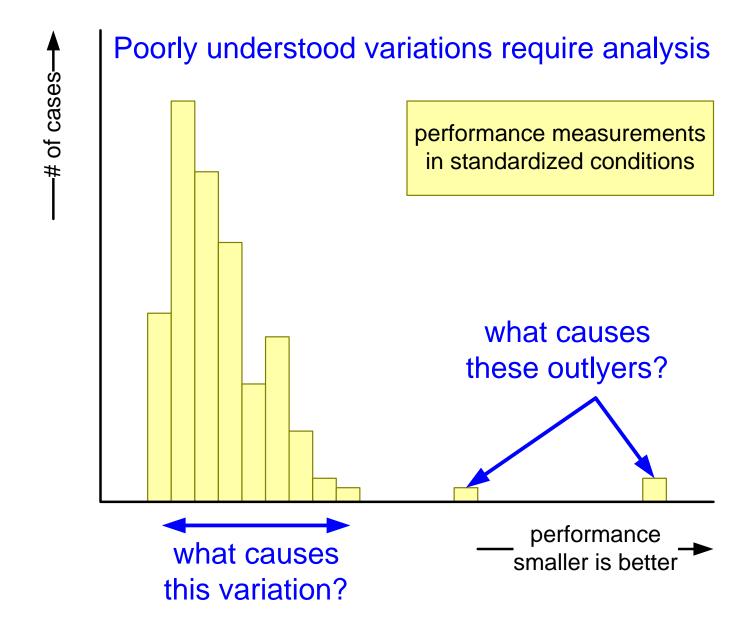
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version: 0.2



Variations are Suspect

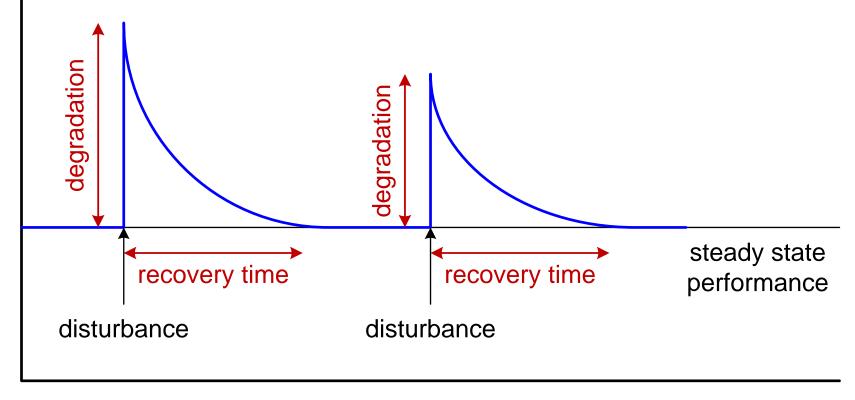


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Coping with Disturbances



How does the system respond to disturbances? How quickly does it recover? How far does performance degrade?

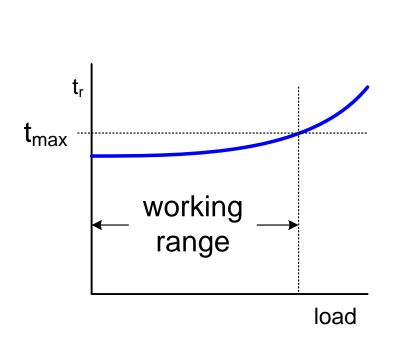


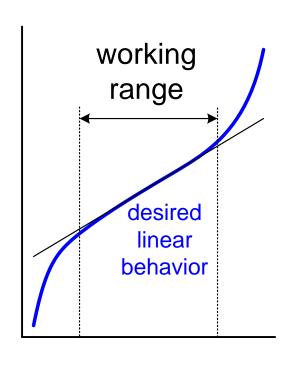


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ASPRPdisturbances

Measure to Validate Working Range





A system design assumption is often: the performance of this function { is constant | is linear | doesn't exceed x | ...}

The working range is the interval where this assumption holds

Validate Understanding of System Performance

Characterize the system

use the system in varying conditions measure performance as function of the conditions

Stress testing

where does the design fail? (go beyond specified limits)

Load testing

keep the system in heavy load condition observe how it keeps performing measure variations

(Accelerated) Lifetime testing

age the system observe how it keeps performing