

Avoiding Goodhart's Law

- Use SLO's as Tools not Cudgels

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Prepared for: SRECON21_Americas

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#about_marco

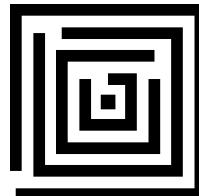


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THE NEW STACK

Forbes



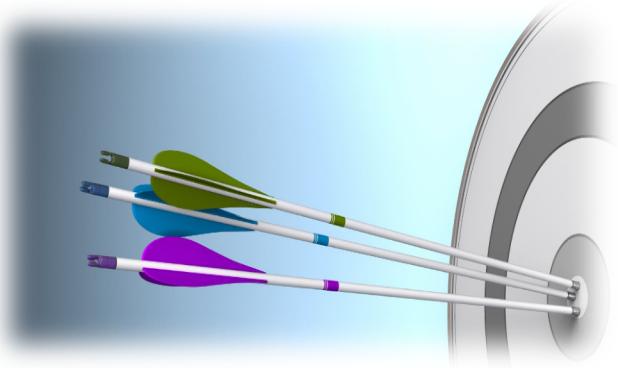
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Agenda

- Gaming the System
- Three Dimensions
- Negotiating Successfully

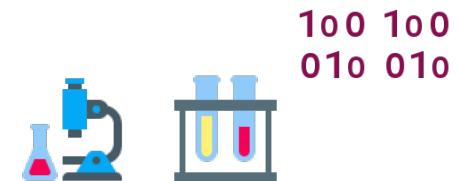


A blue-toned silhouette of a city skyline featuring several church towers with spires and domes. A single bird is captured in mid-flight in the center-left. In the foreground, there's a faint, glowing circular shape.

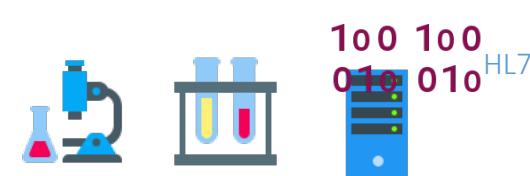
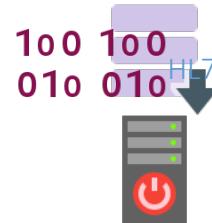
Gaming the System



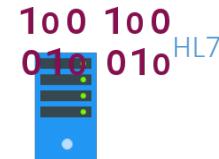
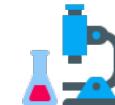
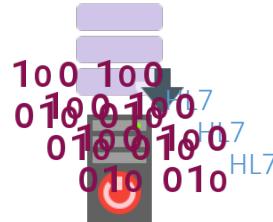
Labs Processing



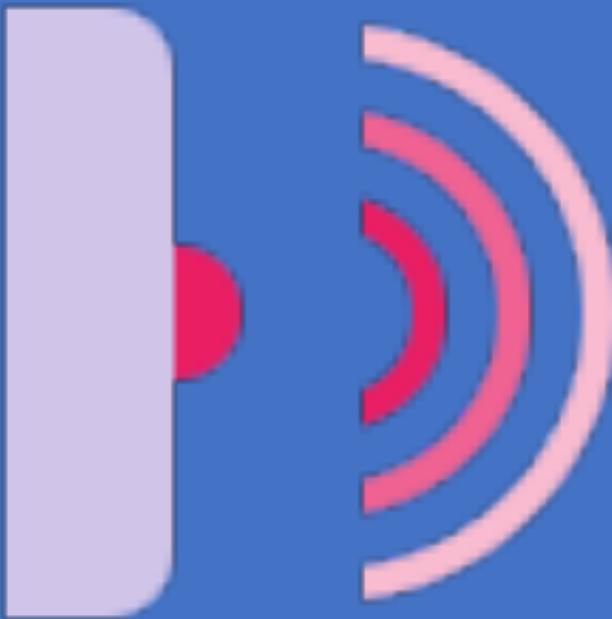
Labs Processing: MQ Flow



Labs Processing: Queue Failure



No more than 100



Labs Processing: TX Failure



“

Any observed statistical regularity will tend to collapse once pressure is placed upon it for control purposes.

Charles Goodhart 1975

Problems of Monetary Management



“

When a measure becomes a target, it ceases to be a good measure.





Three Dimensions



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The SLI, SLO, SLA Model

SLI – ‘n’ (also composite of nested SLI’s)

SLO – ‘ $n \leq xxx$ ’ or ‘ $xxx \leq n \leq yyy$ ’

SLA - what will happen when budget is used up

- Slowdown is the New Outage - <https://bit.ly/slowisnewoutage>
 - Include CX-domain availability - (successful requests)/(total requests)



Code



Dimensions

Code



Microsoft[®]
.NET



=GO



Swift



python[™]

Code Example

- SLI – “well-formed HL7 updates for Labs receive OK responses per APM tool”
 - Specify the transaction
 - Specify the reaction
 - Specify the source



Code Example

- SLI – “well-formed HL7 updates for Labs receive OK responses per APM tool”
 - Specify the transaction
 - Specify the reaction
 - Specify the source
- SLO – “99.9% of well-formed HL7 updates for Labs receive OK responses per APM tool”



Code Example

- SLI – “well-formed HL7 updates for Labs receive OK responses per APM tool”
 - Specify the transaction
 - Specify the reaction
 - Specify the source
- SLO – “99.9% of well-formed HL7 updates for Labs receive OK responses per APM tool”
- SLA – “99.1% of well-formed HL7 updates for Labs receive OK responses per APM tool over previous 28 days else *<action>* will occur”



Infrastructure



Dimensions

Code



Infrastructure



Server
Visibility



Database
Visibility



docker



kubernetes



Mainframe



Pivotal CF



Azure



amazon
web services



Infrastructure Example

- SLI – “HL7 Lab update transaction total transaction time per APM tool”



Infrastructure Example

- SLI – “HL7 Lab update transaction total transaction time per APM tool”
- SLO – using a performance curve
 - “90% of Lab updates will complete in less than 30s”
 - “99% of Lab updates will complete in less than 1m”
 - “99.9% of Lab updates will complete in less than 5m”



Infrastructure Example

- SLI – “HL7 Lab update transaction total transaction time per APM tool”
- SLO – using a performance curve
 - “90% of Lab updates will complete in less than 30s”
 - “99% of Lab updates will complete in less than 1m”
 - “99.9% of Lab updates will complete in less than 5m”
- SLA – “99.5% of Lab updates will be added to patient records within 5 mins over previous 24 hours else *<action>* will occur”



Business & Customer Experience (CX)



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Dimensions

Business



Browser Real-User



Mobile Real-User



Synthetic



Internet of Things (IoT)

Code



Infrastructure



Server
Visibility



Database
Visibility



docker



kubernetes



Mainframe



Pivotal CF



Business & CX Example

- SLI – “Patient lookups repeated beyond 10s and within 5m per Patient Record Application”



Business & CX Example

- SLI – “Patient lookups repeated beyond 10s and within 5m per Patient Record Application”
- SLO – “Less than 0.5% of Patient lookups repeated beyond 10s and within 5m per Patient Record Application”

Business & CX Example

- SLI – “Patient lookups repeated beyond 10s and within 5m per Patient Record Application”
- SLO – “Less than 0.5% of Patient lookups repeated beyond 10s and within 5m per Patient Record Application”
- SLA – “Less than 1% Patient lookups repeated beyond 10s and within 5m per Patient Record Application over previous 8 hours else *<action>* will occur”



The background features a silhouette of a European city skyline with prominent church towers and domes. A single bird is captured in mid-flight in the center-left of the frame.

Negotiating



Prepare to Engage

- Know thyself
 - How much risk can you realistically absorb in a given period?
 - Is this evenly spread?
 - Will this be different in 12 months? 24 months?
- Estimate your boundaries
- Draft your strategy model
- Identify your facilitator
- Schedule your negotiation



Negotiation Flow

- Warmup:
- Test Drive
- Assess
- Propose
- - - RECUR - -
- Agree



Avoiding Goodhart's Law

- Learn from my experience:
 - Manage to outcomes, not metrics
 - Reward vs Punishment
- Assess your SLI/SLO/SLA's against the three dimensions:
 - Code; Infrastructure; Business & Customer Experience
- Predictable variance wins
- Add negotiation to your skillset



Links & More



- https://en.wikipedia.org/wiki/Goodhart%27s_law - Goodhart's Law
- <https://bit.ly/slowisnewoutage> - Slowdown in the New Outage
- <https://landing.google.com/sre/sre-book/chapters/monitoring-distributed-systems/> - Golden Signals
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- <https://twitter.com/marcocoulter> My twitter





Thank you



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