

Avoiding Goodhart's Law

- Use SLO's as Tools not Cudgels

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THE NEW STACK

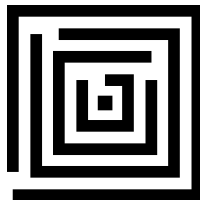
Forbes



Research

NOW A PART OF

S&P Global Market Intelligence



TECH-WHISPERER

- VIDEO



TECH-WHISPERER

Agenda

- Gaming the System
- Three Dimensions
- Negotiating Successfully



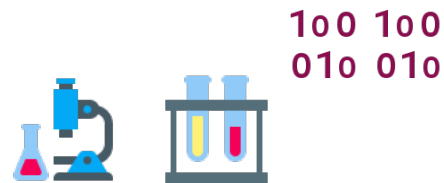


Gaming the System



Labs Processing

- VIDEO

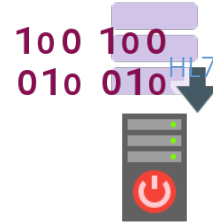


Labs Processing: MQ Flow

- VIDEO



100 100
010 010 HL7

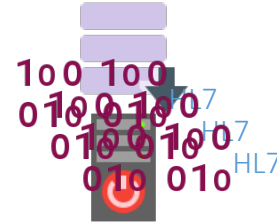


100 100
010 010 HL7



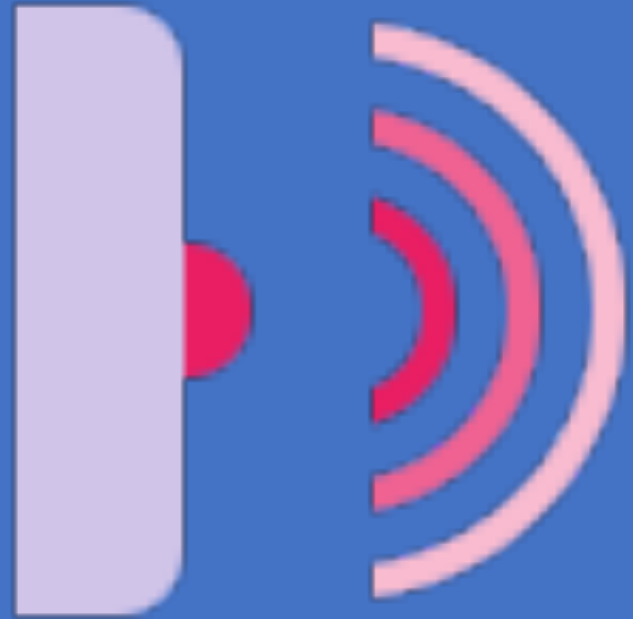
Labs Processing: Queue Failure

- VIDEO



No more than 100

- VIDEO



Labs Processing: TX Failure

- VIDEO



100 9000
010 0100



“

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



The SLI, SLO, SLA Model

• VIDEO

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

- **VIDEO**

[illegible]

Dimensions

- VIDEO

Code



Microsoft
.NET



Swift



Code Example

• VIDEO

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



Code Example

• VIDEO

- 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

• VIDEO

- 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

- VIDEO



Dimensions

- VIDEO

Code



Swift



Infrastructure



Server
Visibility



Database
Visibility



docker



kubernetes



Mainframe



Pivotal CF



Infrastructure Example

• VIDEO

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



Infrastructure Example

• VIDEO

- 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

• VIDEO

- 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”



- VIDEO

Business & Customer Experience (CX)



Dimensions

- VIDEO

Business



Browser Real-User



Mobile Real-User



Synthetic



Internet of Things (IoT)

Code



Java



Microsoft
.NET



php



C++



C#



GO



Swift



Swift



Swift



node



python

Infrastructure



Server
Visibility



Database
Visibility



docker



kubernetes



Mainframe



Pivotal CF



Azure



amazon
web services



RED HAT
OPENSIFT



Business & CX Example

• VIDEO

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



Business & CX Example

• VIDEO

- 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”



Negotiating



Prepare to Engage

• VIDEO

- 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

• VIDEO

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



Avoiding Goodhart's Law

• VIDEO

- 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



- VIDEO

- 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
- www.tech-whisperer.com My website
- <https://www.linkedin.com/in/marcocoulter> My LinkedIn
- <https://twitter.com/marcocoulter> My twitter





Thank you

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