Avoiding Goodhart’s Law

- Use SLO’s as Tools not Cudgels

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Agenda

- Gaming the System
- Three Dimensions
- Negotiating Successfully
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
The SLI, SLO, SLA Model

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

SLO – ‘n <= xxx’ or ‘xxx <= n <= yyy’

SLA - what will happen when budget is used up

• Include CX-domain availability - (successful requests)/(total requests)
Code
Dimensions

Code

Java .NET php C Go Swift Node.js Python

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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

<table>
<thead>
<tr>
<th>Code</th>
<th>Infrastructure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Java</td>
<td>Server Visibility</td>
</tr>
<tr>
<td>.NET</td>
<td>Database Visibility</td>
</tr>
<tr>
<td>php</td>
<td>docker</td>
</tr>
<tr>
<td>C</td>
<td>kubernetes</td>
</tr>
<tr>
<td>Go</td>
<td>Mainframe</td>
</tr>
<tr>
<td>Swift</td>
<td>Pivotal CF</td>
</tr>
<tr>
<td>node</td>
<td>Azure</td>
</tr>
<tr>
<td>python</td>
<td>Amazon Web Services</td>
</tr>
<tr>
<td></td>
<td>Red Hat OpenShift</td>
</tr>
</tbody>
</table>
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)
## Dimensions

<table>
<thead>
<tr>
<th>Business</th>
<th>Code</th>
<th>Infrastructure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Browser Real-User</td>
<td>.NET</td>
<td>Server Visibility</td>
</tr>
<tr>
<td>Mobile Real-User</td>
<td>Swift</td>
<td>Database Visibility</td>
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<tr>
<td>Synthetic</td>
<td>Python</td>
<td>docker</td>
</tr>
<tr>
<td>Internet of Things (IoT)</td>
<td>node</td>
<td>kubernetes</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Mainframe</td>
</tr>
</tbody>
</table>
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”
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](https://en.wikipedia.org/wiki/Goodhart%27s_law) - Goodhart’s Law
- [www.tech-whisperer.com](http://www.tech-whisperer.com) My website
- [https://www.linkedin.com/in/marcocoulter](https://www.linkedin.com/in/marcocoulter) My LinkedIn
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