Monitoring is easy; why do we suck at it?
Who is this guy?

• Author of “Scalable Internet Architectures”

Contributor to “Web Operations”
  O’Reilly, ISBN: 978-1-4493-7744-1

• Founder of OmniTI, Message Systems, Fontdeck, & Circonus
  I like to tackle problems that are “always on” and “always growing.”

• I am an Engineer
  A practitioner of academic computing.
  IEEE member and Senior ACM member.
  On the Editorial Board of ACM’s Queue magazine.

@postwait
Tuesday, November 8, 2011
Monitoring: let’s start with a definition.

- analytics
- trending
- fault-detection / alerting
- capacity planning

- it is the collection and use of telemetry data
What monitoring is not

- controls

- via a monitoring you *observe*, you do not *influence*
So why do we suck at it?

tl;dr

because we think about

• networks,
• systems, and
• applications

Your purpose

- Your purpose is to make your company’s web business operate.

(hence: “web operations”)
Your purpose

- Your purpose is to make your company’s web business operate.

  (hence: “web operations”)

Tuesday, November 8, 2011
Your purpose

- ensure **business** success
Understanding your purpose

- who defines *business* success?
  - shareholders, ultimately
  - the board of directors, in their stead
  - the CEO on an operational, day-to-day basis
Understanding your purpose

- Assuming your CEO is doing a good job
  - the executive team understands these metrics

- Assuming the executive team is competent
  - their reports understand these metrics
    (at least the pertinent ones)
• You enable all aspects of the business
• All these metrics are pertinent
But why?

- You *could* simply track stuff that is in your purview.
- Why not?
• As a technology operations group, you have the technology.

We can rebuild him.
We have the technology.
We can make him better than he was.
Better...stronger...faster.

- Oscar Goldman
Why is our technology better?

- Simply put: MTTD
Now, what about your purview?

- Obviously monitoring the business is useful.
- However, you cannot directly affect business.
- You indirectly affect it by operating the web portion.
What can you change?

- You can control:
  - releases,
  - performance,
  - stability,
  - computing resources,
  - networking,
  - and availability.
• All this information must be presented visually.
• Text is incredibly useful.
• Consider: deployment.
Code Deployment

r82394
Code Deployment

r82394  15:03:14  2011/06/15

11 deploys today
r82394 (by corey) 1h 7m 9s ago
Code Deployment

r82394 (by corey)  1h 7m 9s ago
previous deploy  1h 42m 18s ago
Code Deployment

r82394 (by corey) 1h 7m 9s ago
previous deploy 1h 42m 18s ago
11 deploys today
• Numbers are trickier.
• So many representations from which to choose.
Beware
Beware
Gauges require **understanding**

- Gauges imply a deep understanding of
  - bounds, and
  - tolerances
Gauges require **understanding**

- General advice
  - If the range will ever change, don’t use gauges
Gauges require understanding

- Great for:
  - percentages,
  - temperature,
  - power per rack,
  - bandwidth per uplink
Gauges require **understanding**

- Bad for:
  - IOPS,
  - current visitor counts,
  - requests per second,
  - bandwidth overall
Graphs are often better
Even little ones
Think relatively
Think relatively
Users live all around the world

- Users live just about everywhere
- “Where?” is a useful question
Geolocation is interesting

- to marketing
- to legal
- (okay to everyone)

- but, not so useful to operations
Geolocation is interesting

- perhaps more interesting
Geolocation is interesting
● Internet location != geo-political location
-bash-4.0$ /usr/sbin/bgpctl show rib 66.78.236.243
flags: * = Valid, > = Selected, I = via IBGP, A = Announced
origin: i = IGP, e = EGP, ? = Incomplete

flags destination         gateway          lpref   med aspath origin
66.78.236.0/22      64.202.119.7       100     0 23352 4436 2914 3356 32778 i

### ASN 327778 is “Smart City Networks, L.P.”
## Load time by network

<table>
<thead>
<tr>
<th>NETWORK</th>
<th>PAGEVIEWS</th>
<th>LOAD TIME</th>
<th>STANDARD DEV</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Uninet S.A. de C.V.</td>
<td>2611</td>
<td>12652.127537342014</td>
<td>16286.522939134258</td>
</tr>
<tr>
<td>2 CANTV Servicios, Venezuela</td>
<td>1524</td>
<td>15892.433070866142</td>
<td>19623.758117531906</td>
</tr>
<tr>
<td>3 Internet Access Network of TDE</td>
<td>525</td>
<td>15289.28380952381</td>
<td>18312.51170151581</td>
</tr>
<tr>
<td>4 JSC UKRTELECOM,</td>
<td>340</td>
<td>10769.788235294118</td>
<td>17097.41387789263</td>
</tr>
<tr>
<td>5 Mega Cable, S.A. de C.V.</td>
<td>329</td>
<td>8516.580547112462</td>
<td>9876.912018371168</td>
</tr>
<tr>
<td>6 AS39832</td>
<td>329</td>
<td>9903.139817629179</td>
<td>13657.99556584834</td>
</tr>
<tr>
<td>7 Telecom Asia Corporation Co., Ltd.</td>
<td>235</td>
<td>14474.051063829787</td>
<td>22345.338549950666</td>
</tr>
<tr>
<td>8 UPC Distribution Services</td>
<td>220</td>
<td>8795.29545455454</td>
<td>15669.6235954572076</td>
</tr>
<tr>
<td>9 &quot;TELEKOM SRBIJA&quot; a.d.</td>
<td>217</td>
<td>11940.119815668202</td>
<td>23412.063719104935</td>
</tr>
<tr>
<td>10 AS45758</td>
<td>201</td>
<td>12924.786069651742</td>
<td>10484.856751477579</td>
</tr>
<tr>
<td>11 Cableurope - ONO</td>
<td>188</td>
<td>11965.60382978724</td>
<td>12149.192637701504</td>
</tr>
<tr>
<td>12 MAURITIUS TELECOM</td>
<td>175</td>
<td>18793.074287514287</td>
<td>29544.0882196968</td>
</tr>
<tr>
<td>13 Telephone Organization of Thailand</td>
<td>168</td>
<td>13866.238095238095</td>
<td>9639.337252193953</td>
</tr>
<tr>
<td>14 Tele Norte Leste Participa¿es S.A.</td>
<td>165</td>
<td>14589.74545454545</td>
<td>23525.49762259655</td>
</tr>
<tr>
<td>15 TeliaNet Global Network</td>
<td>152</td>
<td>7289.361842105263</td>
<td>2663.0170848177113</td>
</tr>
<tr>
<td>16 African Network Information Center</td>
<td>148</td>
<td>21305.587837837837</td>
<td>22035.082992556</td>
</tr>
<tr>
<td>17 Internet Cable Plus C. A.</td>
<td>147</td>
<td>12911.707482993197</td>
<td>22926.105379368353</td>
</tr>
<tr>
<td>18 AT&amp;T Internet Services</td>
<td>146</td>
<td>4681.595890410959</td>
<td>9437.75230588795</td>
</tr>
</tbody>
</table>
What about the business?

**May 18 2011 22:23**

- Total Mobile Sign-ups with Facebook: 389,888,888,888
- Total Mobile Sign-ups without Facebook: 3,928,711,111,111
- New Visitor to App and Lander: 0.0273886024951935
- Visitors to App and Lander: 0.033998254686594
What about the business?

Authorizations : Hard Failed : Soft Failed : Releases
Is that all?

- Hells no.
It’s all about real-time

- Everything so far is old hat (maybe)
- Every business unit has visualizations like this

- You need to combine the data
- You need to make it real-time
Thanks

- web demo ensues....