What We Can Learn from Everyday Metrics

Andrew Jaquith
Chief Technology Officer, Perimeter E-Security

February 27, 2012
Agenda

Two stories

Examples from everyday life

Discussion
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Examples from everyday life

Discussion
It’s all in the delivery

The person with the prettiest chart wins

Narratives matter

Methodology discussions means you’ve lost
Two-period comparison of gas usage by ARJ’s condominium association

Data

- Two data points: my building’s gas usage for first 11 months of 2011, and same period last year
- Factoid at right

Likes/dislikes

- Qualitative comments!
- Same period used for both
  - Low data/ink ratio

*Therms: Standard unit of measuring heat energy
Peer comparison using two sample groups (cohorts).

Data

• Three data points: my building’s gas usage, all neighbors, and my “efficient neighbors”

• Headline at the right

Likes/dislikes

+ “Efficient neighbors” shorthand for top quintile

+ Clear explanations

+ What It Means
Data

• Three data series: my building’s gas usage, all neighbors, and my “efficient neighbors”

• Headlines at the top

Likes/dislikes

+ Peer comparison
+ What It Means… headline has costs!
+ Time-series
A little chart-junky, but good use of narrative, key indicators; documentation of exogenous factors (weather).

Thank you for performing an online home audit!

The estimated energy use and cost differences for a home like yours is shown below:

### Difference from Last Month

**Usage Summary:**
The January 2012 usage was about 36 kWh higher than the December 2011 period.

**Cost Summary:**
The January 2012 costs were about $7 higher than the December 2011 period.

**Weather Summary:**
The average temperature for January 2012 was 5.7 degrees colder than December 2011.

### Difference from Last Year

**Usage Summary:**
The January 2012 usage was about 18 kWh lower than the January 2011 period.

**Cost Summary:**
The January 2012 costs were about $4 lower than the January 2011 period.

**Weather Summary:**
The average temperature for January 2012 was 6.2 degrees warmer than January 2011.

### Weather Impact:
- 5.7°F lower cost about $7 and 36 kWh
- 6.2°F higher saved about $4 and 18 kWh

Bar chart showing cost breakdown:
- Cooling
- Heating
- Everything Else
- Base Charge

<table>
<thead>
<tr>
<th>Jan 2011</th>
<th>Dec 2011</th>
<th>Jan 2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>Avg. Temp</td>
<td>27.8 F</td>
<td>39.8 F</td>
</tr>
<tr>
<td>Cost</td>
<td>$131</td>
<td>$120</td>
</tr>
<tr>
<td>kWh</td>
<td>621</td>
<td>567</td>
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<tr>
<td>Days of Service</td>
<td>31</td>
<td>31</td>
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<tr>
<td>Avg. Daily kWh</td>
<td>20</td>
<td>18</td>
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Applying some utilities lessons to security

This is a mockup of a scorecard we are working on for a customer. The data are all fake.

PDF scorecards show quarterly trends. Online scorecards will show weeks, quarter, and custom ranges.

Automatically generated comments describe trends of interest, for example by calculating a percentage rise or fall of a data series.

Economic value can be determined by multiplying total count of something by a cost factor. For example, spam messages received $x$ the foregone cost to process and archive that message.

If a peer group trend line was plotted, generated comments describe the trend relative to the peer group, and also the relative costs.

Annotations document significant “events” that help explain sudden spikes or drops.

Shamelessly aped graphic design from a leading economics newspaper.
Other metrics from real life: traffic safety

**US Department of Transportation has lots of data we can use.**

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Traffic data: U.S. DOT/FHWA, Highway Statistics, annual issues, Table VS-1.  
GDP: World Bank  
Analysis/life benefit modeling: ARJ
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European Commission: modeling effectiveness of auto safety technologies

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