"We Do That Differently* Now"

*Because "better, faster and cheaper"…can be **wrong**

Peter Coffee

VP & Head of Platform Research
salesforce.com inc.

Activity is not Accomplishment

> There is nothing so useless as doing efficiently that which should not be done at all.
>
> **Peter Drucker**

Orwell's Inversion:

Confusion of Input and Output

A giant program to Conquer Cancer is begun. At the end of five years, cancer has not been conquered, but one thousand research papers have been published. In addition, one million copies of a pamphlet entitled "You and the War Against Cancer" have been distributed. Those publications will absolutely be regarded as Output rather than Input.

- John Gall, *Systemantics*

For Example

"Measuring programming progress by lines of code is like measuring aircraft building progress by weight"

– Bill Gates

"Big Data does not mean a bigger database"

– Jeremy Howard, Kaggle

Virtualizing single-tenant workloads runs N copies of a multi-tasking operating system, each using its own CPU cycles to isolate – redundantly – its single task

Re-Thinking Robotics

- **Old 'normal'**: program robots to move from location A to location B

- Put cages around them to keep them from killing people

- **New 'normal'**: program movements based on force exerted, not position achieved

- Train to follow approximate path – with force feedback

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SOFTWARE

Re-Thinking Manufacturing

- **Old 'normal'**: spare parts kept in inventory; machines become infeasible to maintain when spares are no longer on hand

- **New 'normal'**: parts specifications are just data files. Make the part when you need it.

"Critically, this unprecedented design freedom enables the production of lightweight optimised components that are impossible to make with traditional techniques."

http://www.theengineer.co.uk/in-depth/the-big-story/the-rise-of-additive-manufacturing/1002560.article
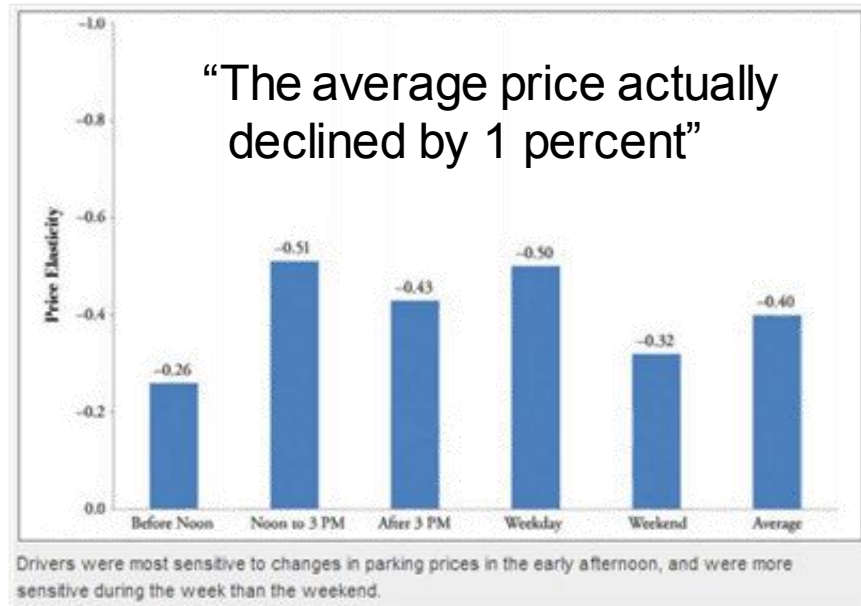

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Re-Conceiving Pricing

- **Old 'normal'**: Estimate a market-clearing price; tolerate "non-price rationing" for public goods or where policy considerations require affordable access

- **New 'normal'**: Dynamically price to level out demand, with price-sensitive but time-flexible users able to shift based on data-driven predictions and real-time notifications

Shoup: SFpark Yields Promising Results, Lessons for Demand-Based Pricing
by Aaron Bialick

"The average price actually declined by 1 percent"

Drivers were most sensitive to changes in parking prices in the early afternoon, and were more sensitive during the week than the weekend.

Donald Shoup may be known as a guru of smart parking policy, but even he has found a few surprises in the data collected so far from SFpark.

"The biggest surprise I got was that prices went up and down, but overall, they stayed the same. The average price actually declined by 1 percent," said Shoup, professor of urban planning at UCLA and author of The High Cost of Free Parking, the bible of modern parking policy. "That surprised everybody. People thought it was just a way to jack up prices, but the city specifically said, 'We are going to set prices according to this principle.'"

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Why Innovation Is Not Optional

- Incumbent leaders had three traditional protections:

  - Geography created natural local monopolies…

    …but distance is now no barrier to discovery

  - Capital barriers to entry discouraged new competitors…

    …but a business can now get started for nearly zero up front

  - Asymmetric communication capability set a high noise floor…

    …but viral marketing and social network amplification nearly neutralize the advantage of massive media budgets

- It's really hard to be "better." **It's easier to be "different."**

The Seven Revolutions

- Social revolution of customer and marketplace connection

- Mobile revolution of anywhere, anytime interaction

- Big Data revolution of discovery and proactive insight

- Community revolution of collaboration, inside and out

- Apps revolution of new points of entry to brands and products

- Trust revolution of new demands for transparency/confidence

- Cloud Computing revolution of services to enable the above

Multi-Device Users Demand Decoupling

Global Market Share of Personal Computing Platforms by Operating System Shipments, 1975 – 2012
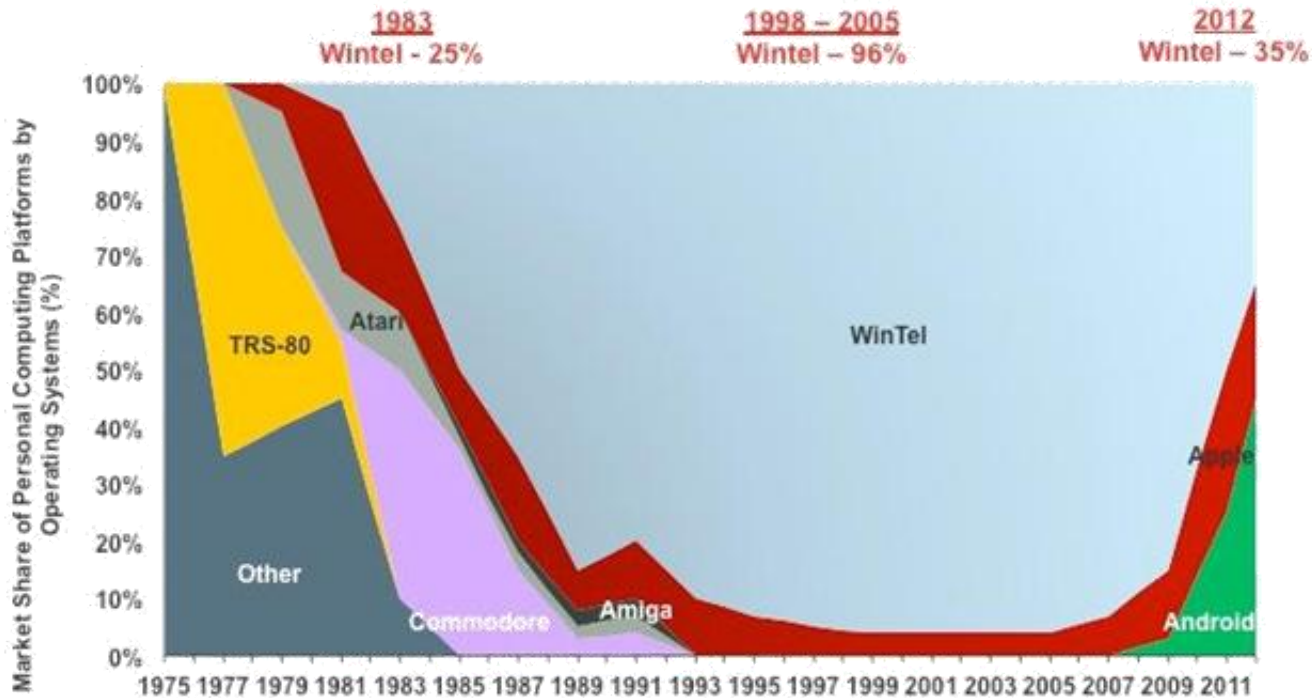
Discovery, Not Query
What the World is Doing, not What the Business Did

"By combing through 7.2 million of our electronic medical records, we have created a disease network to help illustrate relationships between various conditions and how common those connections are. Take a look by condition or condition category and gender to uncover interesting associations."
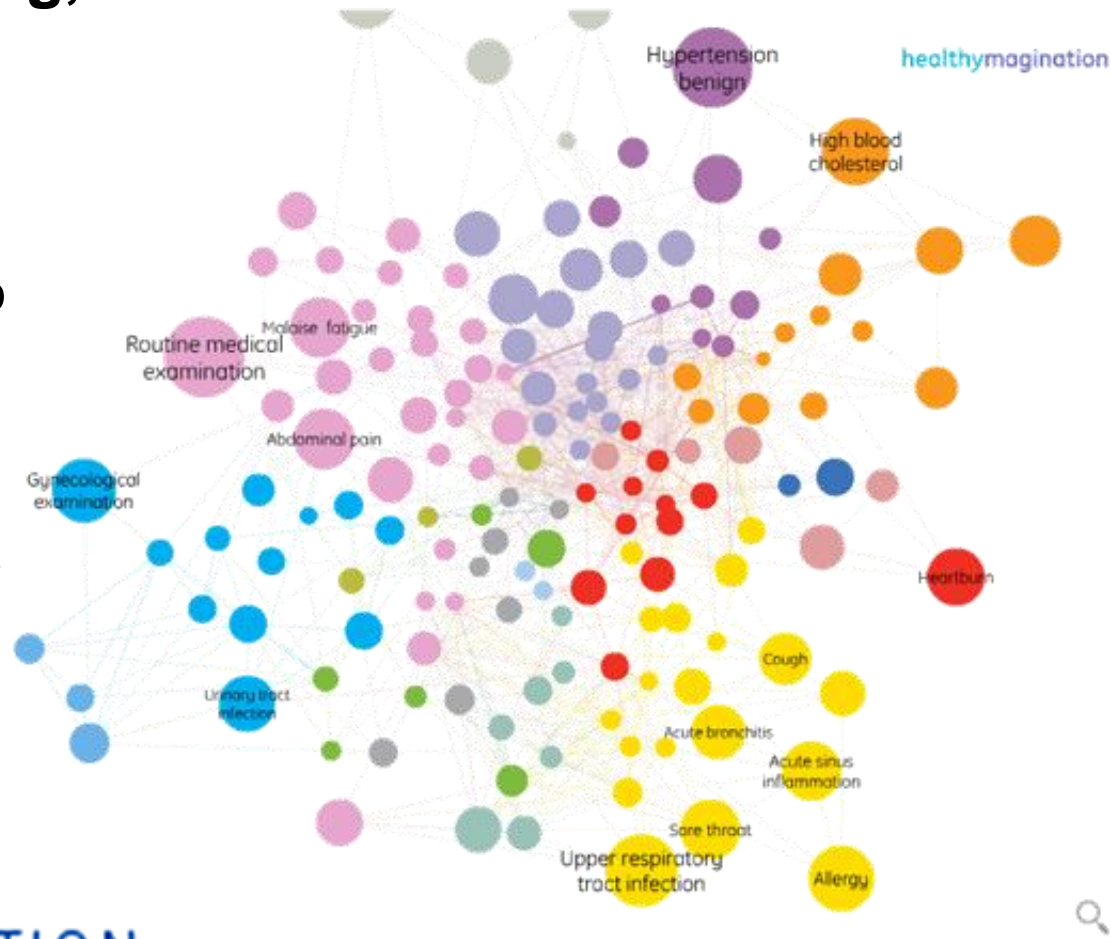
DATA VISUALIZATION

visualization.geblogs.com/visualization/network/

This is a 'Connected' Revolution

Illumina Launches BaseSpace Cloud Platform for MiSeq
October 12, 2011

"The addition of BaseSpace eliminates the need for expensive IT infrastructure, simplifying the process of adopting a personal sequencer for labs of any size and experience," commented Illumina CEO Jay Flatley.

GE WORKS.

AGENT OF GOOD. SEE HOW GE HEALTHCARE IS DESIGNING
SOFTWARE TO HELP HOSPITALS BUILD CONNECTED
OPERATIONS AND REDUCE PATIENT WAIT TIMES.

PLAY VIDEO →

GE WORKS / CURING / AGILETRAC

15k	Medical devices can be tracked by GE Healthcare's AgileTrac in a single hospital.
68%	Reduction in emergency department patient wait times at a hospital with GE software.
3k	Reduction in patient discharge hours at a hospital with GE software, over 9 months.

SEE MORE STORIES   BROWSE ALL STORIES →

MOVING   CURING   POWERING   BUILDING

Brilliant Machines Are Transforming the Patient Experience

GE has wired hardware with innovative software using data to track patients and equipment. Brilliant Machines are transforming the patient experience by reducing wait times and helping hospital staff increase efficiency.

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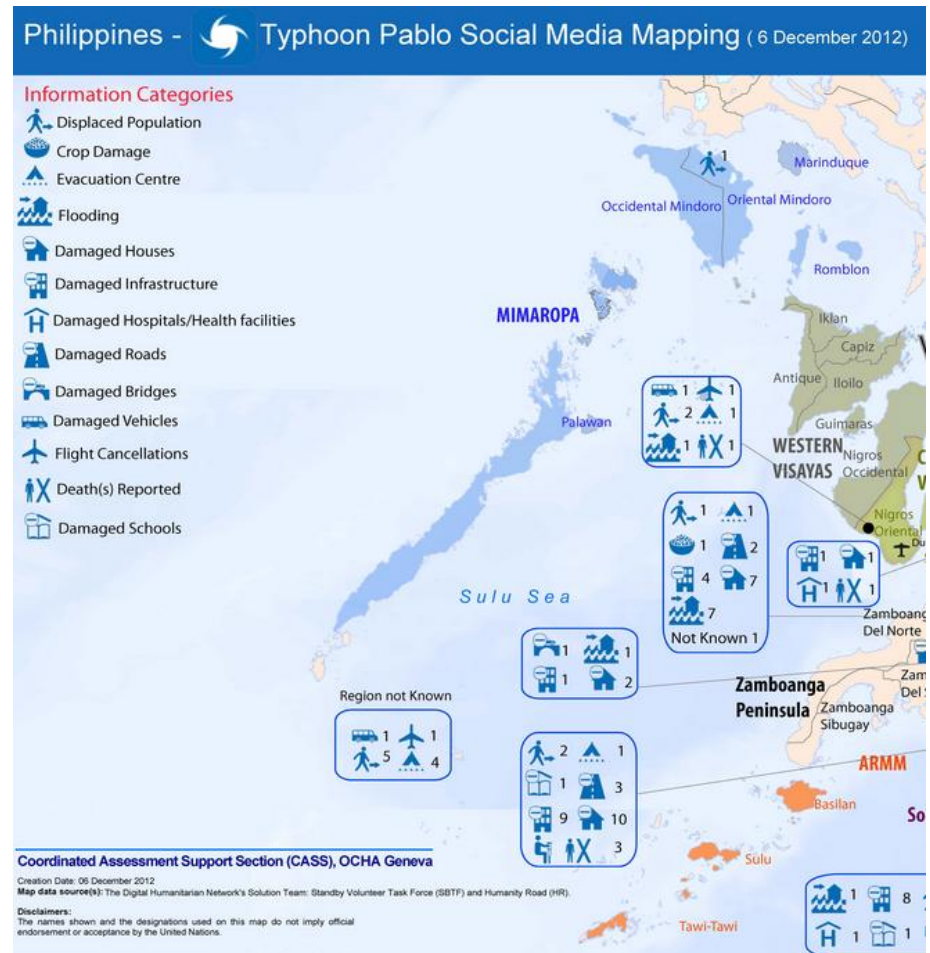SOFTWARE

In a World of Five Billion Smart Phones

- "People making calls or sending text messages originating at the Kericho tower were making 16 times more trips away from the area than the regional average. What's more, they were three times more likely to visit a region northeast of Lake Victoria that records from the health ministry identified as a malaria hot spot. The tower's signal radius thus covered a significant waypoint for transmission."

- "This is the future of epidemiology. If we are to eradicate malaria, this is how we will do it." – Caroline Buckee

Why Build When You Can Harvest?

What do you get from

- Patterns in big data
derived from

- Social networks
of people & devices
via

- Ubiquitous, 24×7
mobile connection?

Philippines - Typhoon Pablo Social Media Mapping (6 December 2012)

Information Categories
- Displaced Population
- Crop Damage
- Evacuation Centre
- Flooding
- Damaged Houses
- Damaged Infrastructure
- Damaged Hospitals/Health facilities
- Damaged Roads
- Damaged Bridges
- Damaged Vehicles
- Flight Cancellations
- Death(s) Reported
- Damaged Schools

Coordinated Assessment Support Section (CASS), OCHA Geneva
Creation Date: 06 December 2012
Map data source(s): The Digital Humanitarian Network's Solution Team: Standby Volunteer Task Force (SBTF) and Humanity Road (HR).
Disclaimers:
The names shown and the designations used on this map do not imply official endorsement or acceptance by the United Nations.

What Role for "The Crowd"?

- Sift more dirt, find more gold
  - With modern machines/methods, gold mines are viable at 1 g. Au / ton of ore
  - Costs of collecting/sifting the crowdstream continue to fall

- The oddly opposite models:
  - Delphi Method: people with wildly varying knowledge, exposed to each other's opinions, produce consensus surpassing the sum of the parts
  - Open-Source Method: Individual contributions, appropriately incented (if only with ego rewards), yield cost-effective combined results

- Can the crowd survive its success?
  - "Even mild social influence can undermine the wisdom of crowd effect."

    Proceedings of the National Academy of Sciences, 16 May 2011
    wired.com/wiredscience/2011/05/wisdom-of-crowds-decline

  - **Vital elements: diversity, independence, decentralization, aggregation**
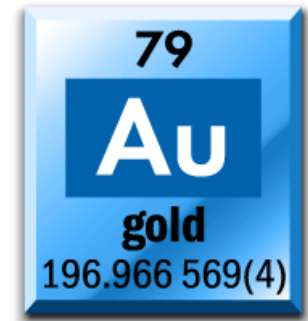
What Role for "The Crowd"?

Google Flu Trends has continued to perform remarkably well, and researchers in many countries have confirmed that its ILI estimates are accurate. But the latest US flu season seems to have confounded its algorithms. Its estimate for the Christmas national peak of flu is almost double the CDC's…

Several researchers suggest that the problems may be due to widespread media coverage of this year's severe US flu season, including the declaration of a public-health emergency by New York state last month. The press reports may have triggered many flu-related searches by people who were not ill…   - www.nature.com/news/when-google-got-flu-wrong-1.12413

What is an "application" anyway?

- Old "applications":
  - Data captured as by-product of business activity
  - Function driven by familiar business tasks
  - User experience an afterthought
  - Built by programmers; judged on cost and efficiency

- New "apps":
  - Data captured through algorithms of discovery
  - Function driven by customer delight
  - User experience a top priority
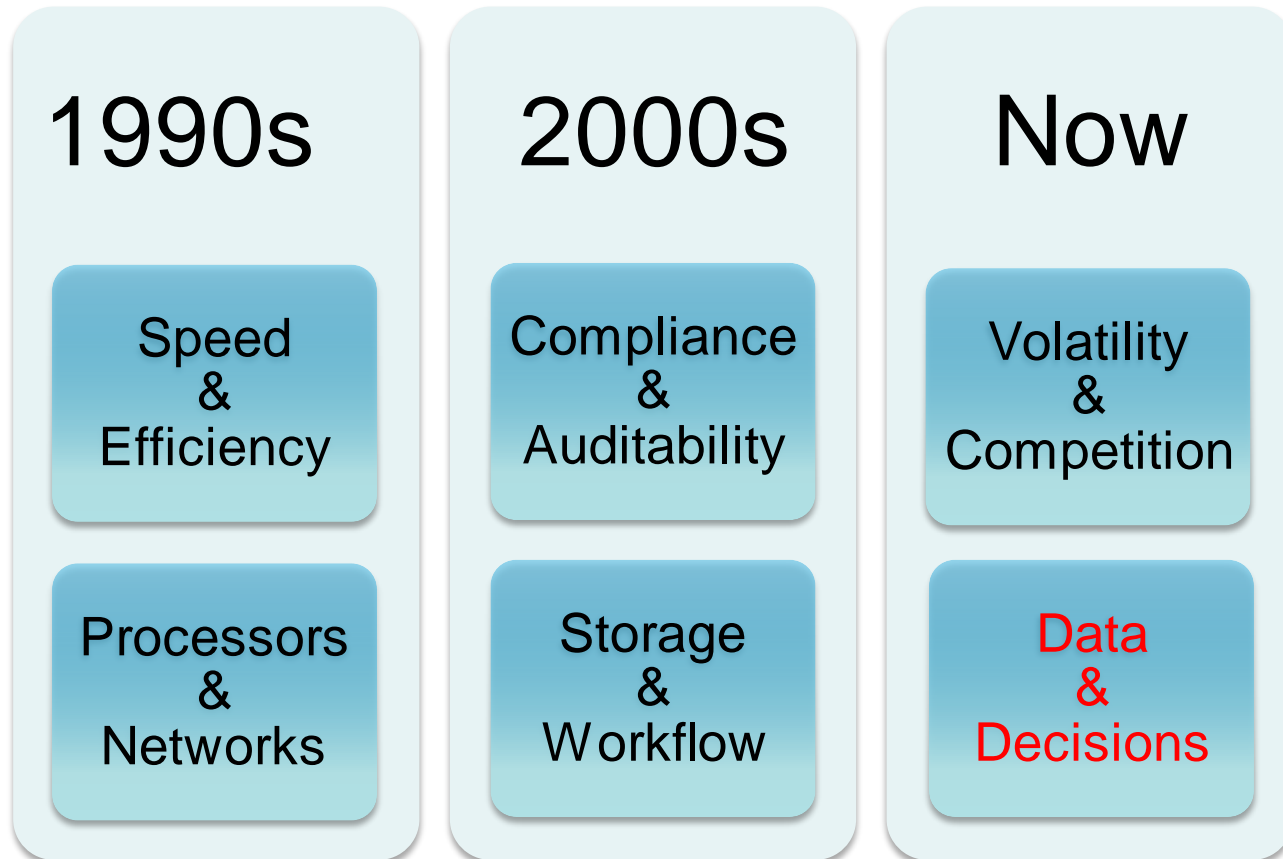 - Apps built by front-line business units; judged on ROI
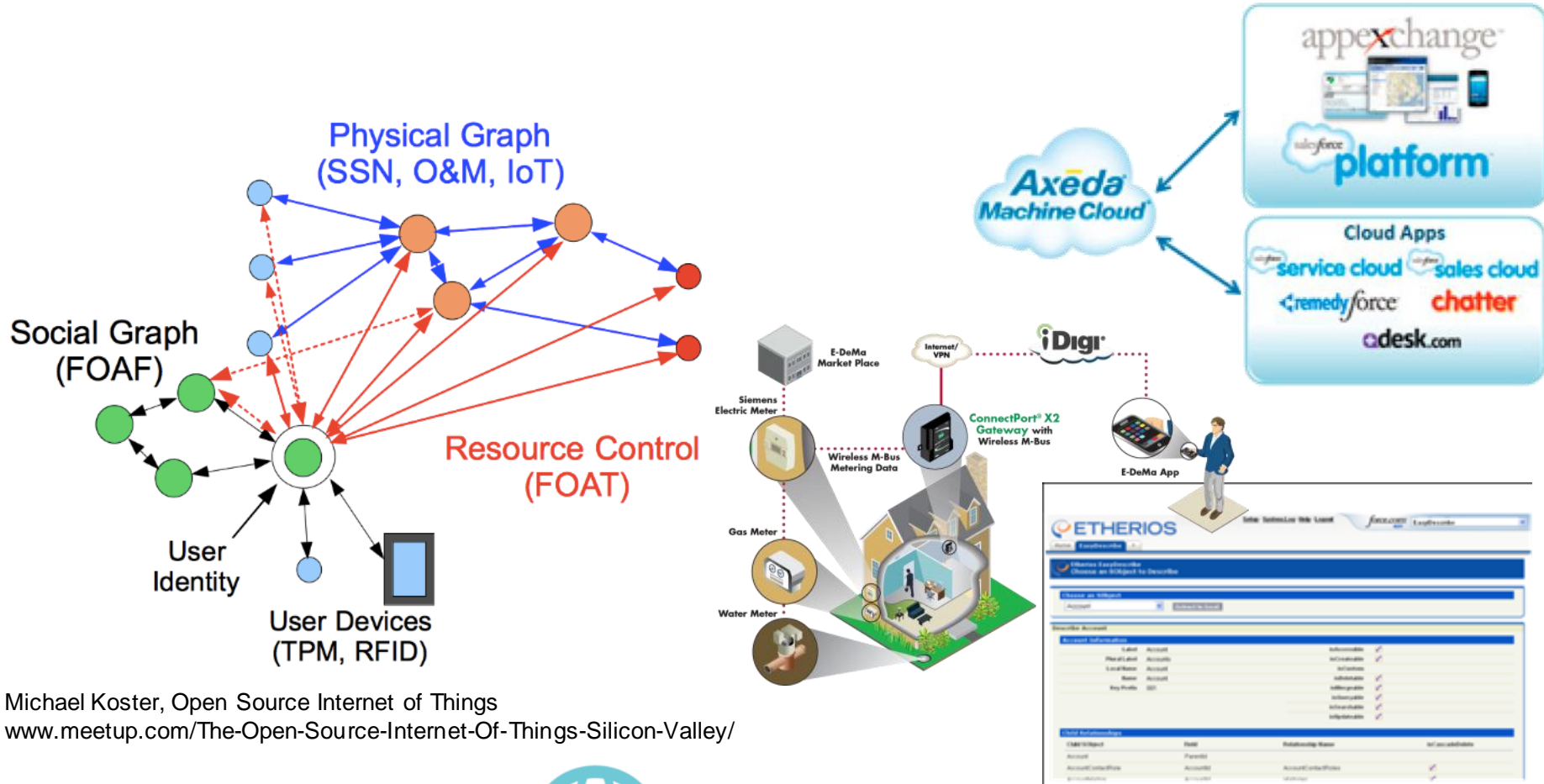
Why Own Stuff When You Only Want Outcome?

- We own things when we want **assurance of access**, without waiting for someone else to finish. Connected devices address this need.

- We own things when we want **authority to alter or improve**, without needing permission to change them as we prefer. Configurability increasingly an option.

- We own things when we want **dedication to our desires or demands**. Dynamic pricing, 3D printing address these needs without ownership burdens.

"What Matters Most"…is a Moving Target

1990s	2000s	Now
Speed & Efficiency	Compliance & Auditability	Volatility & Competition
Processors & Networks	Storage & Workflow	Data & Decisions

Connecting at Scale: Victory via Abstraction

Michael Koster, Open Source Internet of Things
www.meetup.com/The-Open-Source-Internet-Of-Things-Silicon-Valley/

**APIs evolve;
ecosystems emerge**

Trust: Without Which Nothing Else Matters

NSA to cut system administrators by 90 percent to limit data access

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Putin will not 'cave' to Obama pressure: Snowden's father
Wed, Aug 7 2013

Obama cancels meeting with Russia's Putin over Snowden decision
Wed, Aug 7 2013

Manning's WikiLeaks breach triggered costly U.S. Army scramble: witness

By Jonathan Allen
Thu Aug 8, 2013 8:58pm EDT

(Reuters) - The National Security Agency, hit by disclosures of classified data by former contractor Edward Snowden, said Thursday it intends to eliminate about 90 percent of its system administrators to reduce the number of people with access to secret information.

If you think people are touchy about their money, wait 'til you know where they were parked and who else was in the car with what kind of music playing on the radio.

It's essential to reduce complexity and to narrow the scope of privileges – rather than compounding complexity and enabling more superusers.

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All Assets Secured, All the Time

"I've been looking for it, but I can't find any real evidence that the cloud is more risky than hosting everything completely internal," said Wade Baker, managing principal of Verizon's RISK group, which investigates breaches. Verizon owns cloud provider Terremark. "I've studied a lot of breaches; we get a lot of information from a lot of different organizations, and it doesn't seem to be there."

Most hacking attacks against corporations are still aimed at internal computer systems, he said. Eighty percent of the breaches Verizon investigated in 2012 involved internally hosted data. The remainder involved externally hosted data -- but those breaches began inside companies' networks and spread to the third-party hosting services, not the other way around, Baker said.

- www.bloomberg.com/news/2013-03-26/security-fears-give-way-to-economics-as-cloud-computing-grows.html

Sometimes, It's Not About How Hard You Try

Flame started here

What happened *here*? *

Deg. F

Minutes
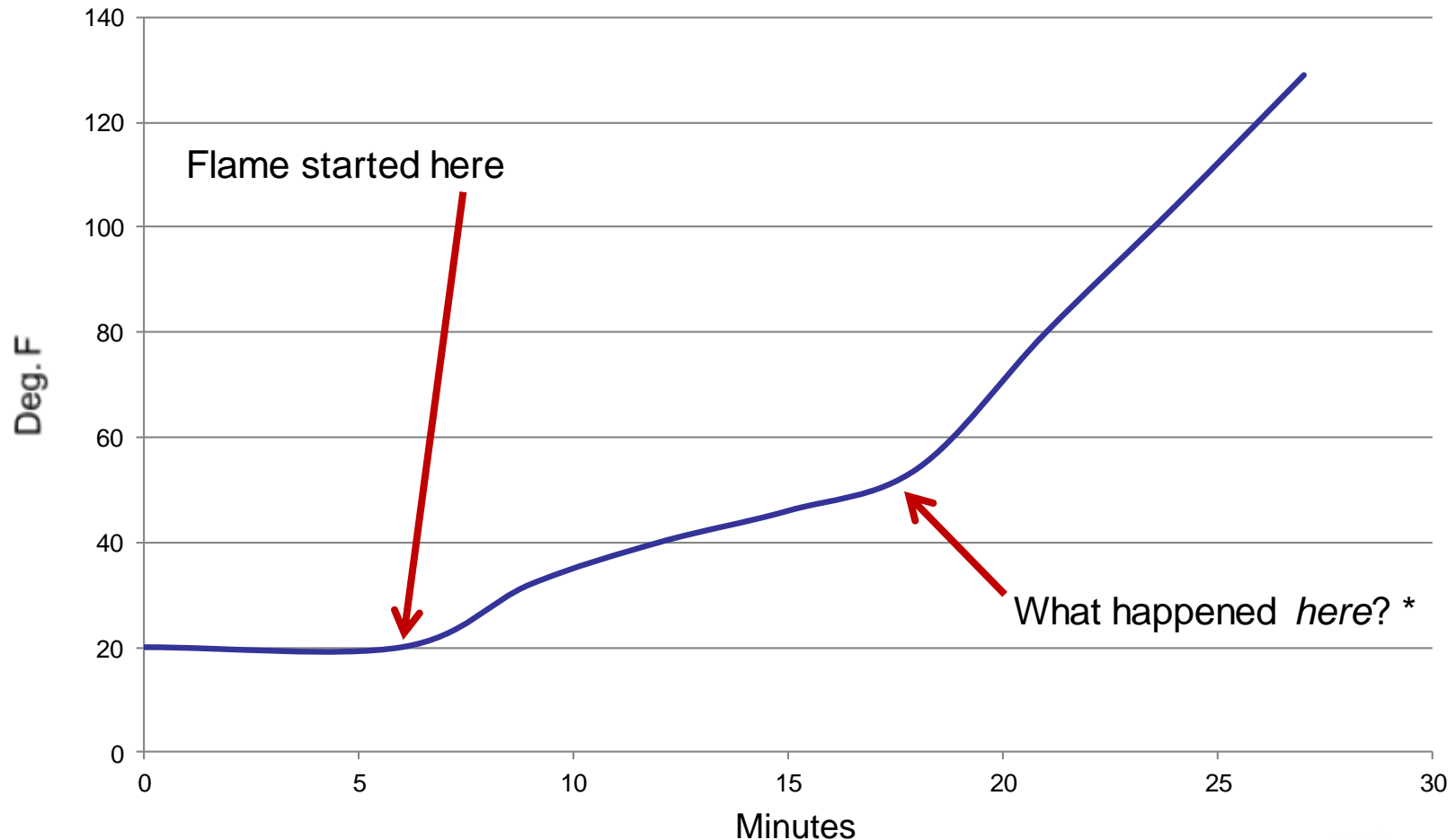
* In a pot of water mixed with ice, this is where the last ice melted

The Last Bits of Ice in the Cloud

They'd Rather Ride a Unicorn

– You'll be told that CIOs "prefer a private cloud"

– If it's not really a choice, **a 'preference' is a fantasy**

- The cloud is connection, not isolation
- The cloud is agility, not stagnation
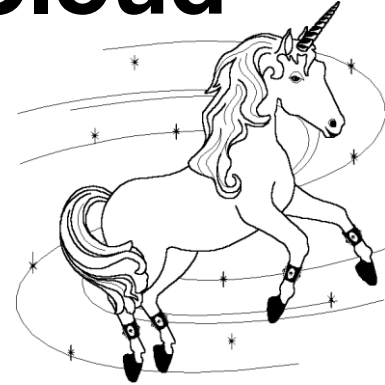
They're Used to Feeding Their Minotaur

– Social, mobile and open IT are competitive mandates

– The skills required to do it are scarce

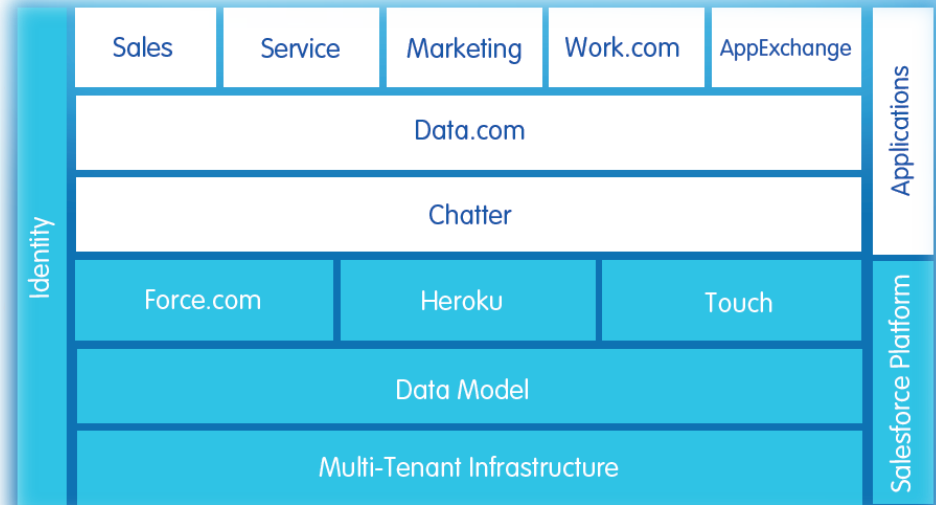– **Talent mustn't be wasted** supporting non-differentiating IT

They Don't Realize They're Antisocial

– Social tools aren't merely recreational

– **Events** should call for attention

– **Content** should accompany conversations

– Workplace tools shouldn't constrain contributions

SOFTWARE.
HARDWARE.
INSATIABLE.

DON'T FEED
THE MINOTAUR

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SOFTWARE

Thank You

	Sales	Service	Marketing	Work.com	AppExchange	
Identity	Data.com					**Applications**
	Chatter					
	Force.com		Heroku		Touch	**Salesforce Platform**
	Data Model					
	Multi-Tenant Infrastructure					

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