Hello, we’re Salesforce.
We help make your customers love you.

Hello, we’re Salesforce.
We help make more customers need you.

Is “Big Data” a Thing? Oh, Yeah

Health Care
“We estimate that the value from data in the sector could be more than $300 billion every year…reducing US expenditures by about 8%.”

Profit Sector
“A retailer has the potential to increase its operating margin by more than 60%.”

Public Sector
“In the developed economies of Europe, we estimate that government could save more than $149 billion in operational efficiency improvements alone – not including reduction of fraud, error, and tax gaps.”

- McKinsey Global Institute, May 2011

Is “Big” the Most Important Word?

Walter Wriston on velocity:
“Increased velocity of money gives you a difference in kind – not just degree. It’s like a piece of lead: you put it on your desk, it’s a paperweight; put it in a gun, it’s a bullet. Same piece of lead. Big difference.”

450 pounds of lead is a barrier
12 pounds is a feat of strength
8 grams is a weapon...
...if well-aimed
Big Data Goes to Work
Liberating Latent Value in a Connected World

Peter Coffee
VP for Strategic Research
Salesforce

i. Environment
ii. Strategies
iii. Examples
v. Next?

It Took a While...But We Are Connecting the Planet

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It Took a While... But We Are Connecting the Planet

Connection Creates the New Context

- 1 billion daily active users (24 August '15)
- 844 million mobile daily active users (avg June '15)
- 83.1% of daily active users outside US & Canada
Why Do Connected Products Matter?

- People are slow and unreliable reporters of incomplete and inaccurate memories
- People are passengers, not test pilots: they're not thinking about indicators of trouble until the trouble is already there

Connection Creates the New Context

- In 2013, global mobile M2M traffic was 20,736 Tbytes/month
- It is projected to grow to 907,472 terabytes per month in 2018

Global Consumers’ Purchase Behavior Influencers

- Financial positions about item purchased
- Friend’s positions about retailers shopping
- Retailers’ emailed sales announcements
- Retailers’ social encouragement
- Retailers’ recommendations on own website
- Retailers’ recommendation on social media

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Why Do Connected Products Matter?

- People are slow and unreliable reporters of incomplete and inaccurate memories
- People are passengers, not test pilots: they're not thinking about indicators of trouble until the trouble is already there
- Statistical significance emerges much sooner with accurate, timely collection at global scale

“What we’re doing here is on 40,000 people: it is just unprecedented in scale, and this is only the first example we’re sharing about the type of work we’re doing.”

- Andrew Rosenthal

The (Richter) Magnitude of Change

Even Today’s Hottest Devices Are Tomorrow’s Legacies

Source: Strategy Analytics October 2014

Global Internet Device Installed Base Forecast
Wearables Already Entering 2nd Generation

“The demand for basic wearables, those that do not run third party apps, has been absolutely astounding. Vendors like Fitbit and Xiaomi have helped propel the market with sub-$100 bands.”

“We expect smart wearables, those capable of running third party apps, to take the lead in 2016. The transition from basic to smart wearables opens up a slew of opportunities for vendors, app developers, and accessory makers.”

www.idc.com/getdoc.jsp?containerId=prUS25696715

Reconceiving Your ‘Product’: Perhaps It’s a Data Collector?

Illumina Launches BaseSpace Cloud Platform for MiSeq

“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.

Hello, we’re Salesforce.

We’re ready to liberate value on devices that don’t (yet) exist.

Leader in connecting next-gen tech to business value

• iPhone (’07); Watch (’15)
• Salesforce Wear Developer Pack: iOS, Android, Samsung Gear, Pebble, Jawbone…
• Mobile Admin app
• SalesforceIQ: breakthrough relationship intelligence
• MIT Tech Review honors: “crucial to incorporating data from Internet of things.”
Many Kinds of Data; Many Kinds of “Net”

There are at least four kinds of ‘thing’ data
- Status
- Location
- Automation
- Actionable data

They present different tradeoffs of
- Update interval
- Accuracy
- Downside risk
- Post-collection complexity

David Friedman, CEO, Ayla Networks
readwrite.com/2015/08/13/five-types-data-internet-of-things

Introducing: Salesforce IoT Cloud

Listen to the world @ IoT Scale
Connect billions of events from every device & app
Digest into 360 Customer & Device profiles

Trigger Actions with real time rules
Use data and insights to take smarter personalized actions

Engage Proactively and 1:1
Use Salesforce to reach every customer and employee

“IoT Cloud helps us react to events before they become problems”

Milan Kocic, Director Innovation, Hexagon Metrology

Hexagon Metrology Enables Real-Time Factory Monitoring With IoT

Global manufacturing company headquartered in London builds precision measurement equipment

Monitoring real-time data feeds from quality laboratory and production metrology machines in Salesforce IoT Cloud for catastrophic events (vibration, drastic temperature change, crash)

Combine IoT data with real time on-duty manager information and notify manager when event occurs; shows real-time machine status in Platform built Dashboard running on Salesforce App Cloud
One hundred years ago, Frederick Taylor measured workers’ behavior – and found that effective use of data improved both their performance and their health. He noticed that workers used the same shovel for all materials. He determined that the most effective load was 21½ lb, and found or designed shovels that for each material would scoop up that amount.

McLaren Applied Technologies works on evidence-based systems to maximize human efficiency. Internally the company has been exploring how to get its Formula One teams to recover from jet lag most effectively.

“Our teams are travelling around the world a lot. Some of them have to change wheels in the pit stop and be alert and fit, while others have to look at reams of data and need to be cognitively alert,” explains Duncan Bradley, Head of High-Performance Design.

By plotting data relating to travel schedules with heart rate variability monitors and tests to monitor cognitive alertness, the company was able to reorganize journey times and teams to suit the way different individuals coped with jet lag and stress.

“A lot of the web services allow unauthenticated or unencrypted communication between the devices, so we’re able to alter the info that gets fed into the medical record ... so you would get misdiagnosis or get prescriptions wrong.”

“The physician is taught to rely on medical records ... [but] we could alter the data that was feeding from these systems, due to the vulnerabilities we found.”
“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

“Don’t be silly, it won’t rain until almost morning.”

Trust is our #1 Value

- Industry leader in transparency: trust.salesforce.com
- Precise privilege controls
- Unrivaled audit capability
- Leader in key certifications
- Continual test & improvement
- Salesforce Shield: monitor, audit, encrypt at rest

Hello, we’re Salesforce.

We keep your data safer than most governments wish they kept theirs.
Acceleration is a Vector

“Faster” in the wrong direction may not actually be a “positive” change

We often speak of “the pace of change” as if it were a speed: a scalar quantity, “more” being unambiguously...more

Improvement metrics are conventionally stated as % age improvement per unit time

“Better, faster, cheaper” at the wrong thing...

...is the wrong thing

Disciplines of Discovery – Not Query

“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.”

– visualization.geblogs.com/visualization/network/

You’ll Solve the Problem That You Are Trained to See

“Whereas Britain still used linguists to break codes, the Poles had understood that it was necessary to use mathematics to look for patterns.

*They had then taken a further step by building electro-mechanical machines to search for solutions.

*This understanding allowed Alan Turing to develop his ‘bombe’ capable of breaking the more complex wartime Enigma codes. One new technique was the use of ‘cribs’ - assumed or known parts of the message - as a starting point.” – BBC, July 2014

Math to find the vulnerability; engineering to scale the process; domain knowledge of user behavior to multiply the effectiveness of the solution

Data Science Revolution

It’s not enough to answer questions faster: Data and algorithms must suggest them

Predictive Analytics

Machine Learning

Artificial Intelligence

90% of world's data created in last 12 months
Mandate for Forward Motion: Become Truly Data-Driven

Three Levels of Analytical Maturity

<table>
<thead>
<tr>
<th>34%</th>
<th>9%</th>
<th>12%</th>
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<tbody>
<tr>
<td>Analytically Challenged</td>
<td>Analytical Practitioners</td>
<td>Analytical Innovators</td>
</tr>
<tr>
<td>Fully realize the value of analytics</td>
<td>Mostly use analytics for decision making</td>
<td>Fully utilize analytics for creating real value</td>
</tr>
<tr>
<td>Suffer from data quality and access issues</td>
<td>Leverage data assets in a meaningful way</td>
<td>Have a high degree of data sophistication</td>
</tr>
<tr>
<td>Lack a holistic data management and analytics skills</td>
<td>Formulate and execute a data-driven strategy</td>
<td>Have a high degree of data management and analytics skills</td>
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Analytics for the Rest of Us

Wave Platform powers the Salesforce Analytics Cloud

Intuitive Mobile Collaborative Open

So You Want to Be a Data Scientist

This Is Not an Utterly New Field of Expertise

“How do you become a data scientist? By behaving like a scientist while studying data.”

Scientists Need to Have Good Lab Technique

Hiring typically seeks 5+ years of Java, Scala, Python, R, MapReduce etc.

Other traits? “Compulsive, with propulsive laziness, irritable determination and insensitivity to pain”

Don’t Do This If You Need to Feel Popular

“I found a substitution effect in DoD research spending, instead of a multiplier effect: it was not what they wanted to hear” – Annie Flippo, edmunds.com

So You Want to Be a Data Scientist? There’s Certainly Demand

“There will be a shortage of talent necessary for organizations to take advantage of big data. By 2018, the United States alone could face a shortage of 140,000 to 190,000 people with deep analytical skills as well as 1.5 million managers and analysts with the know-how to use the analysis of big data to make effective decisions.” – McKinsey Global Institute
What Does This Mean To You?

Media and Entertainment
Community-created content; on-demand views; multi-screen experiences: What's still urgent?

Manufacturing and Logistics
Big Data matches demand with free capacity; 3D printing redefines inventory – What's worth owning?

Health Care and Elder Care
Gatekeepers lose power; payment for results; elderly = growth market – What differentiates?

Financial Services
The asset-light don’t borrow to buy big; the data-rich don’t pay just to play – What has value?

Pacing the “Twelve-Quarter Year”

At Salesforce, we tell newly hired employees that “we run on a twelve-quarter year”

What this means is that we look at numbers, compare them to goals, and initiate corrective action at least three times more frequently than most companies.

Why is this necessary, today, in every field? Because the “half-life of facts” (the time required for half of what you “know” to become untrue) is shrinking.

This Example Actually Is Rocket Science

A problem used to require two weeks of trial & error to get “good enough” solution
Changing anything meant starting over
Now it takes two hours to get a provably best possible answer; iterations are faster
You need a few hundred GBytes of memory to do it; you would have been crazy to suggest it when the work began

Abstract
“We introduce a new approach for global multiobjective optimization of trajectories in continuous nonlinear dynamical systems…
Our method is the first that can reliably handle nonconvex nonlinear dynamical systems with substantial instabilities, such as the notoriously ill-behaved multi-body gravitational systems governing interplanetary space trajectories.”

We’re a long way from “indistinguishable”

Solar powered
Radio-synchronized
200 meter depth tolerant
15 g acceleration resistant

"Any technology distinguishable from magic..."

"...is insufficiently advanced"

Gehm’s Corollary to Clarke’s Third Law
Innovating Like It’s 1989?

“The typical large organization, twenty years hence, will be composed largely of specialists who direct and discipline their own performance through organized feedback from colleagues and customers.”

“It will be a knowledge-based organization.”

Peter Drucker, in *The New Realities...in 1989*

In 2015, this should not sound innovative.