



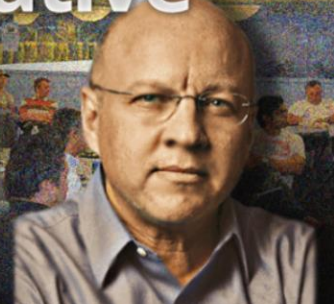
The IoT Inc Business Meetup Silicon Valley

Meeting 6

Join us on February 5 at 6PM (PST)

**The Transformative
Potential of the
Industrial Internet**

Dave Bartlett
GE Aviation



February 2015

Bruce Sinclair (Organizer): bruce@iot-inc.com

IoT Inc. Meetup

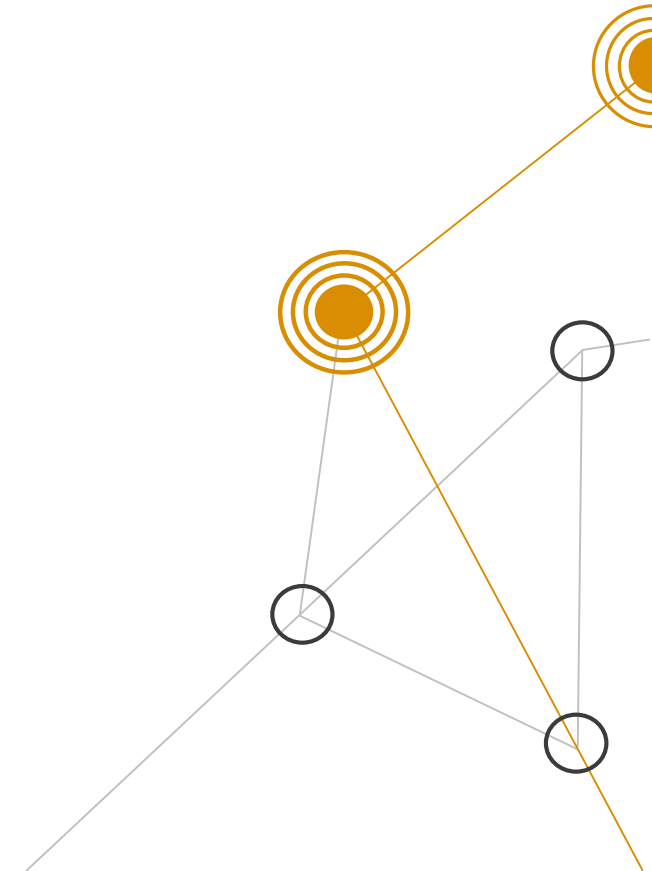


Target of Meetup

For business people selling products and services into IoT
but of course everyone else is welcome: techies, end-users, ...

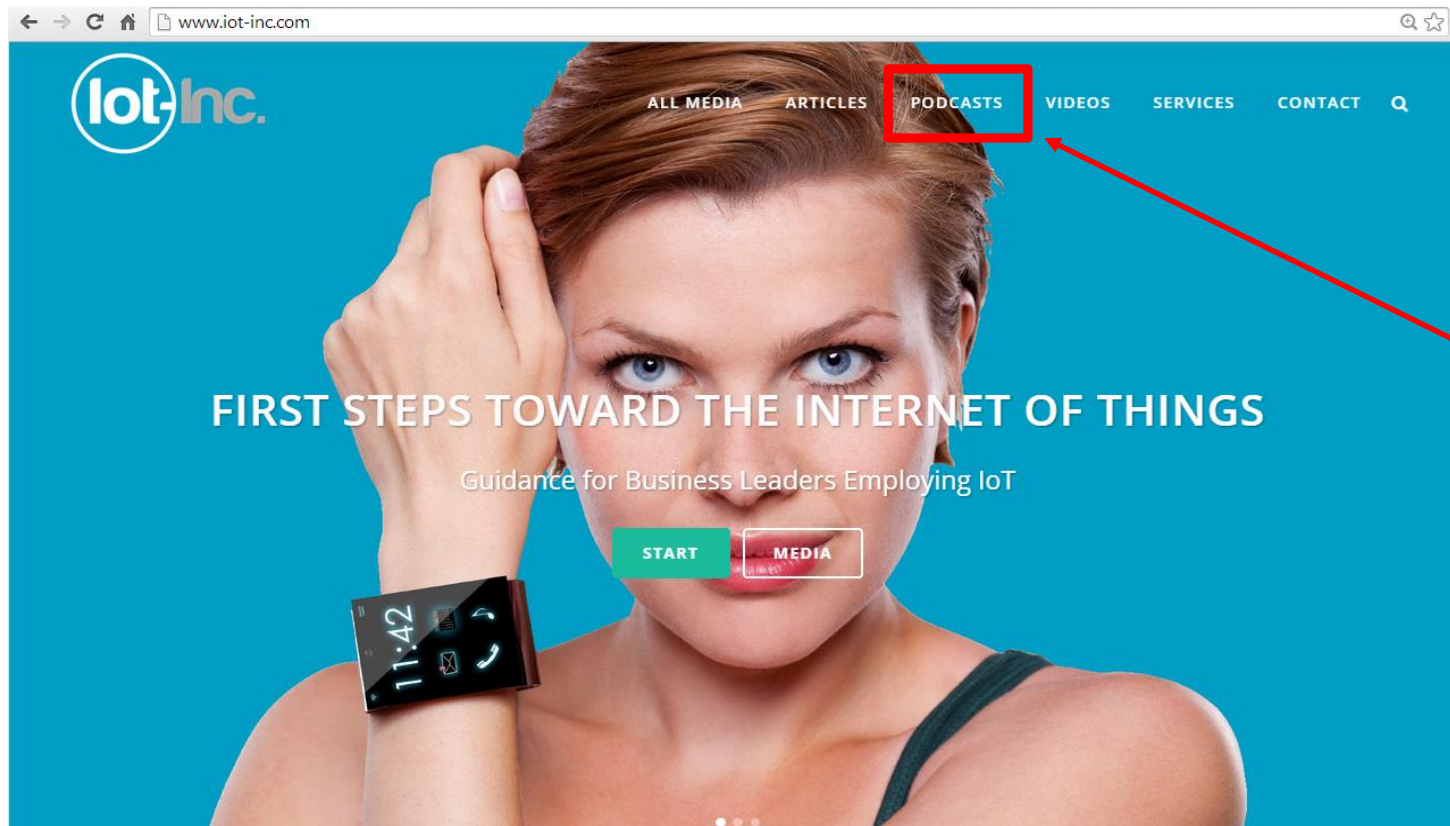
Focus of presentations and discussions:

Business Models
Support
Marketing
Sales
Distribution
Finance
Post Sales
Pre Sales





Podcast: The IoT Inc Business Show



<http://www.iot-inc.com>

And on iTunes:
<http://bit.ly/iot-iTunes>

Help



Home Members Sponsors Photos



This Meetup and entrepreneurs will present to generate local community person.

Sunnyvale, CA

Founded Aug 25, 2014

Business Leaders 455

Group reviews 13

Upcoming Meetups 2

Past Meetups 5

Our calendar

We're 455



Welcome

Upcoming 2

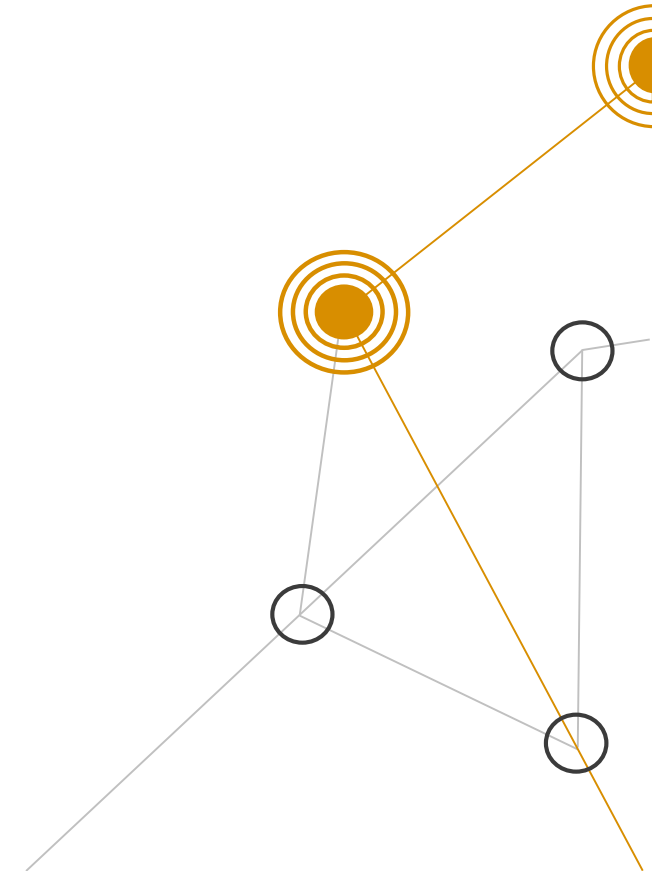
The Trans

Invite your colleagues to join us

Click here to leave a review



Looking to partner with companies big and small



Notes



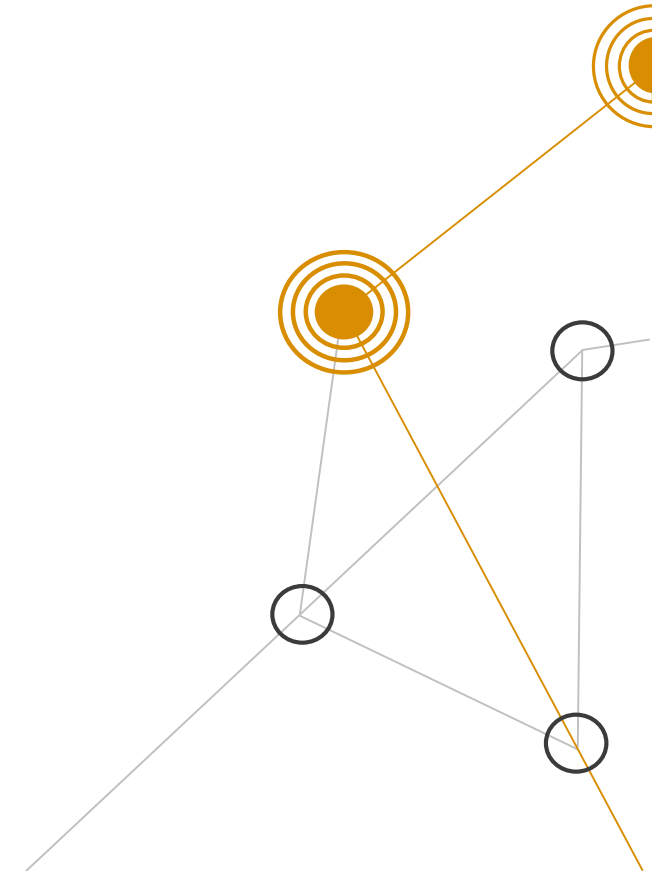
Next Meeting

Todd Greene, CEO at PubNub

The Cost of Doing IoT Wrong

Shout out for UK IoT conference: <http://iot.thebln.com/> use code 'Meetup20' for 20% off

Send me an email at bruce@iot-inc if you're interested in becoming a sponsor



Join us on February 5 at 6PM (PST)



The Transformative

Potential of the
Industrial Internet

Dave Bartlett

GE Aviation

lot-inc. Meetup

The Transformative Potential of the Industrial Internet



Dave Bartlett, CTO GE Aviation

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@davebart

November 12, 2014

Imagination at work.



GE Aviation - *a long history of innovation...*



GE 4Q 2014 PRODUCT HIGHLIGHTS



LEAP Engine

79% market share
to date

(55% on A320neo and 100%
for 737MAX)

(LEAP is a trademark of CFM
International, a 50-50 JV
between Snecma and GE.)



GE Reports @GE_Reports · Jan 23

.@GEAviation LEAP Engine has 79% market share to date pic.twitter.com/Rjtr6dDNzh

← ↻ 23 ★ 19 ...



Photo Credit: U.S. Army



GE Aviation @GEAviation · Jan 22

A @USArmy UH-60M Black Hawk powered by 2 #GEAviation T700-701D turboshafts #MilitaryAviation #AvGeek pic.twitter.com/p5Y7ovDDAj

← ↻ 16 ★ 15 ⋮

Industrial Internet – the Next Big Wave

Wave 1 – Industrial Revolution

Factory enabled scale

Wave 2 – Internet Revolution

IT enabled

Wave 3 – Industrial Internet

Machine based(OT) intelligence, Physics
& data based analytics, Big Data



OT platform for the Industrial Internet

Innovative industry solutions



3rd Gen Platform



Cloud



Big Data/
Analytics



Intelligent
Machines



Infrastructur
e Security



Mobility

2nd Gen Platform



LAN/Internet



Client/Server

1st Gen Platform



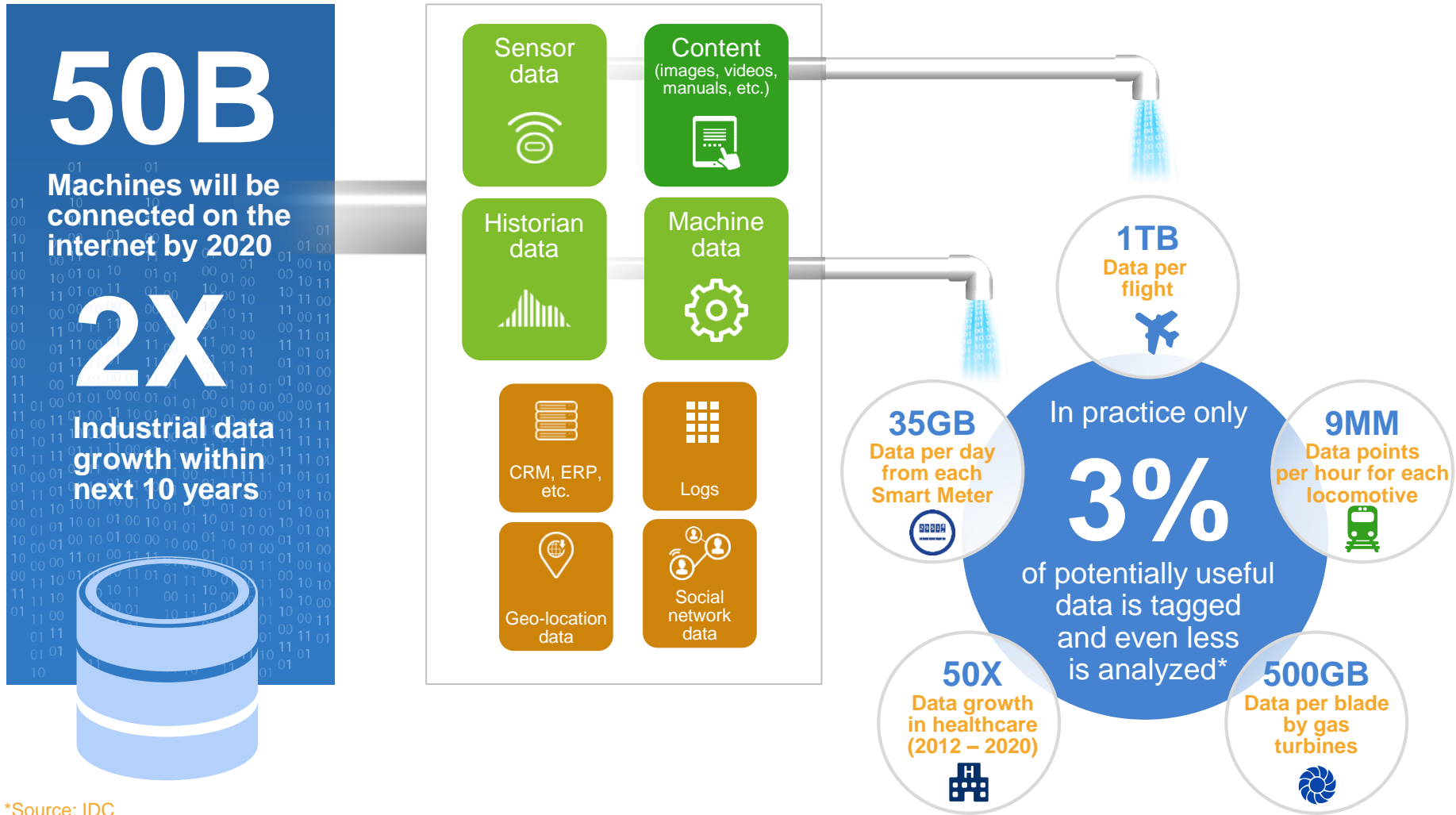
Mainframe



Terminal



Industrial big data – fast and vast



*Source: IDC



The industrial data lake

How long will it last without failures or maintenance?

Is my asset performing optimally?

How to configure for best operational results?

Is my asset ready when there is market opportunity?

1

One place

Access to all data in one place to quickly respond to the speed of business change



Data scientist



Field operations



Business analyst

FLEXIBLE DATA MODELS



2

Any data

Handling of all data types including documents, images machine data, sensor data

3

All data

Access to real-time data and historical data and not limited to snapshot of data

INDUSTRIAL DATA LAKE

Sensor data



Content (images, videos, manuals, etc.)



Machine data



Historian data



CRM, ERP, etc.



Logs, click streams



Social network data



Geo-location data



Rapid access to all data for analytics



Co-Innovating with Proven Players

Leveraging proven know-how and technologies



... others (GE, non-GE)



GE Aviation & Predix™



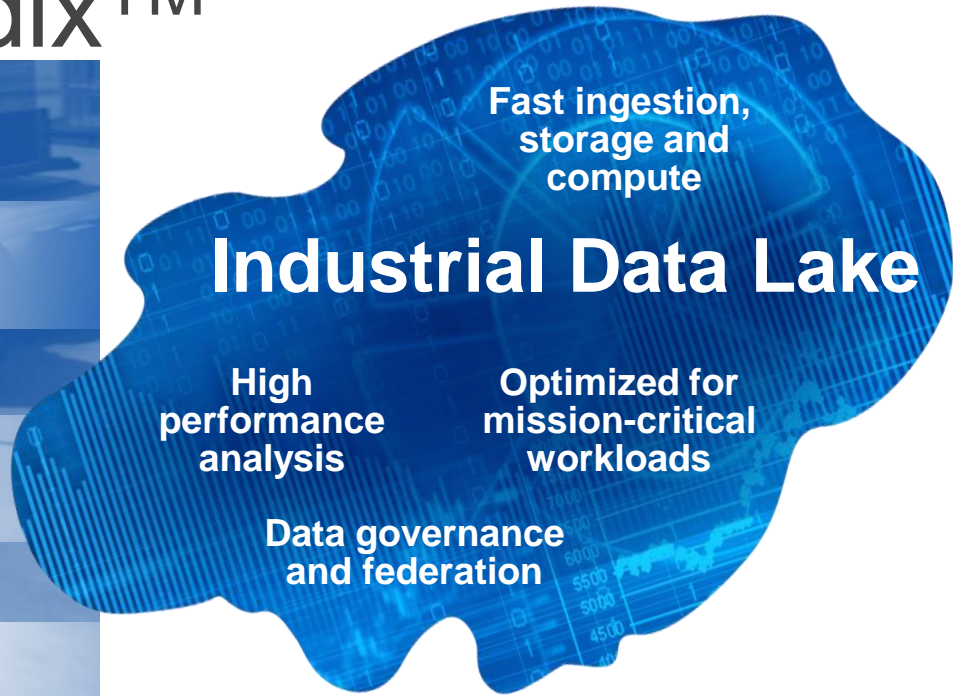
Performance improvement



Cost reduction



Time-to-market for new analytic app



- **Asset Productivity**
- **Improved forecasting**
- **Minimize disruptions**



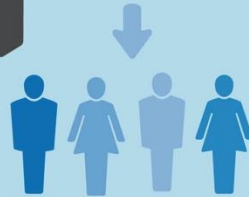


Predictivity + aviation

Impact of Unplanned Downtime



Air turnbacks are costly



Decrease in workforce productivity



Added maintenance costs

Airline industry maintenance cost for delays & cancellations

  **\$45MM per day**

Loss per cancellation or diversion

  **\$25K - \$100K**

Loss per delay

  **\$6K - \$8K**

Benefits of Predictive Maintenance



Effective workforce & reduced maintenance costs



On-time performance



Customer satisfaction



Improving the business of flight

GE Efficiency Services

Improving airline efficiency



Risk Management



Fuel Management



Fleet Synchronization



Navigation Services

Sensors, data + analytics reveal unexpected opportunities



Potential Savings:
77 gallons of fuel and 1628 lbs of Co2 per approach





AT

WE PUT OUR
GE IDEAS TO WORK

TAKING THEM OFF THE PAPER
OUT OF THE LAB AND INTO
THE WORLD

ENGINEERS SCIENTISTS TEACHERS LEADERS AND DOERS

ALL SHARING A
BELIEF THAT THINGS CAN BE MADE
TO WORK

BECAUSE WE GET UP IN THE MORNING
BETTER EVERY

DAY WE COME TO WORK
TO BUILD CURE
AND MOVE THE WORLD

WE ARE AT WORK
MAKING THE WORLD
WORK BETTER



