

RSA[®]CONFERENCE2014

FEBRUARY 24 – 28 | MOSCONE CENTER | SAN FRANCISCO

Share.
Learn.
Secure.

Capitalizing on
Collective Intelligence

Securing the Big Data Ecosystem

SESSION ID: STU-T07A

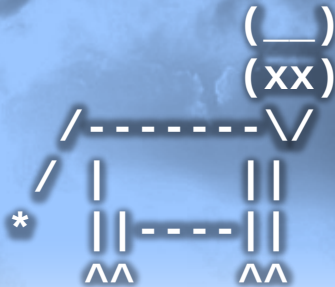
Davi Ottenheimer

Senior Director of Trust, EMC

@daviottenheimer



"COWS NOT PETS"



Systematic Treatment of Illness

Easily Identified

Routine Treatment

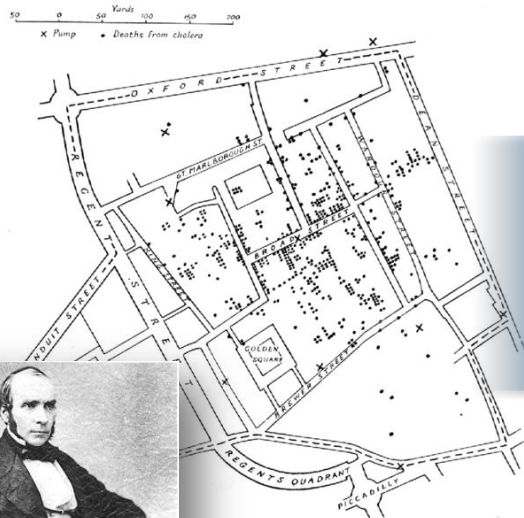
Minimum Judgment

1. Identify Sick Cattle ASAP
2. Keep Adequate Records
3. Evaluate Daily Sick Cattle
4. Adapt Until Noted Improvement



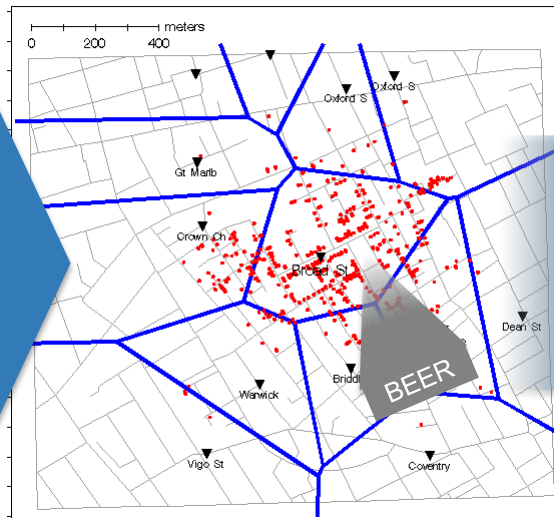
#RSAC 2012 PRESENTATION

1854: London Cholera Death Scale

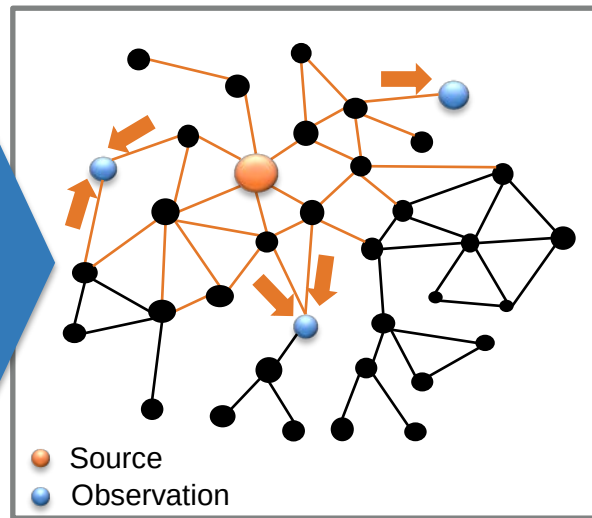


<http://www.flyingpenguin.com/?p=18259>

1854: London Cholera Death Polygons



2012: Data Breach Investigations



2010: Rinderpest
2013: AIDS

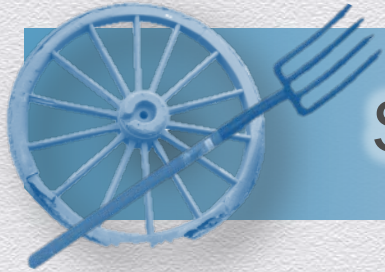


DATA

BIG DATA



OBSTACLES TO BIG DATA



Slow Ingest and Process Time

Isolated Analysis



Untapped Sources

PATHS TO BIG DATA



Speedy Ingest and Process Time

Analysis of “Data Lakes”

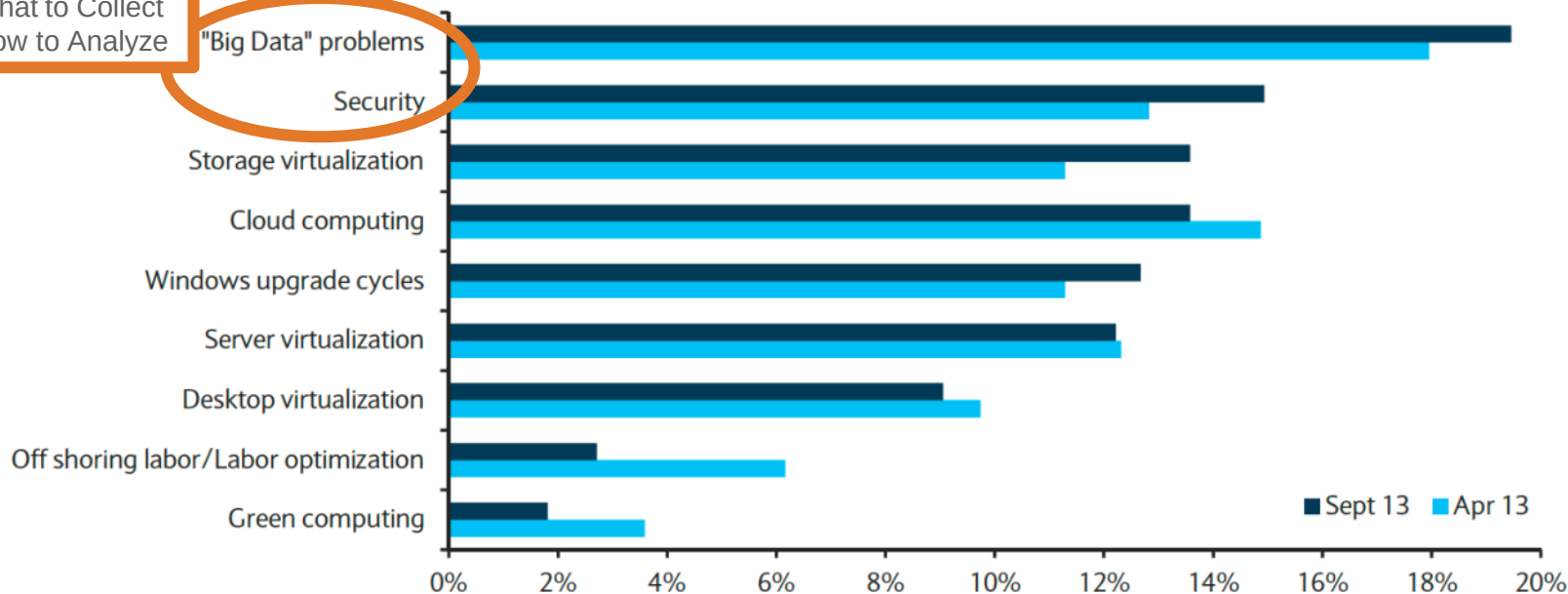


Access to Sources

CIO SURVEY: TOP CONCERNS

54% What to Collect
85% How to Analyze

"Big Data" problems



Sources: Barclays September 2013 CIO Survey, KPMG January 2014 CIO/CFO Survey

NEW ERA OF DATA INDUSTRIALIZATION

- ◆ 54% What to Collect
 - ◆ Data Streams to Data Lakes
 - ◆ “Save Everything” (Lake Conservation)
 - ◆ *Indirect* Communications - Internet of Things
(26 billion devices by 2020)
- ◆ 85% How to Analyze
 - ◆ No Two Anomalies Alike
 - ◆ Indicators of Leaks, Tampering or Loss



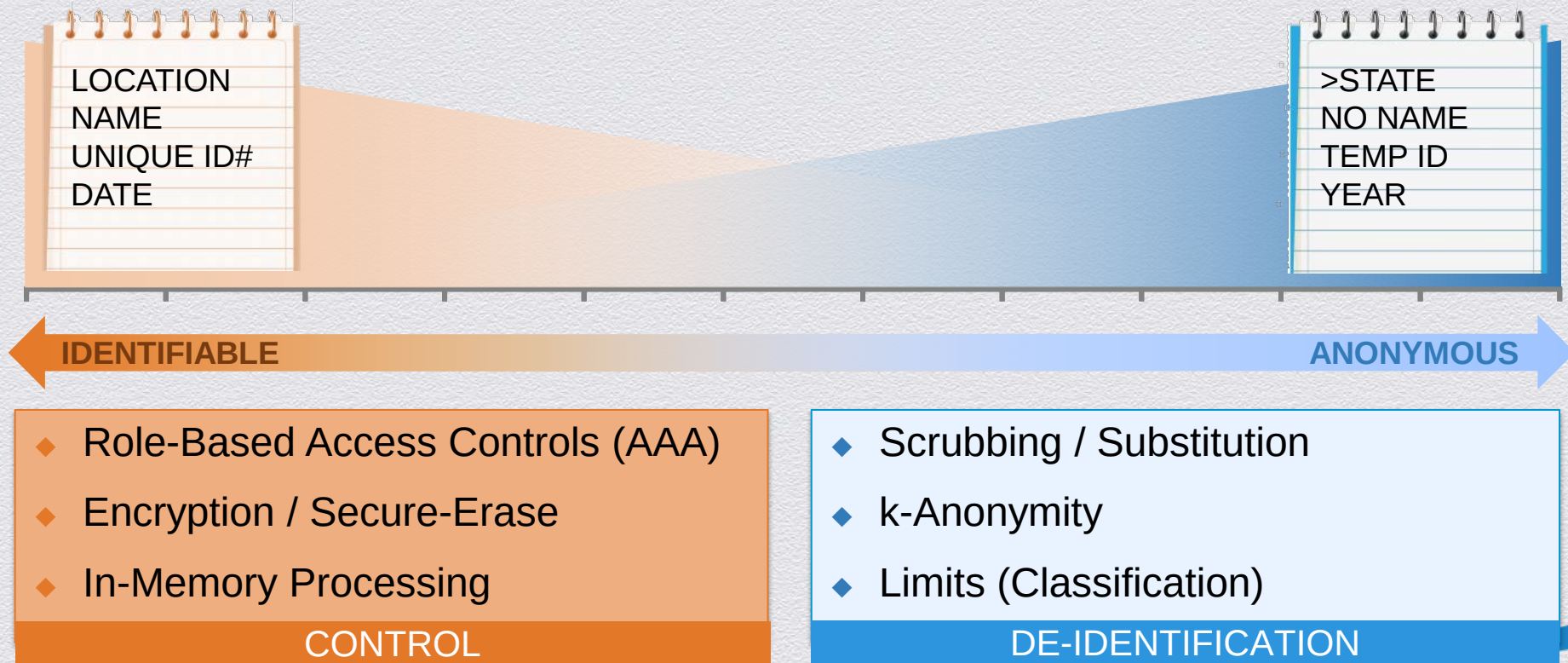
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**WHY TYPICAL
SOLUTIONS
DON'T FIT**

CONTROLS AND DE-IDENTIFICATION

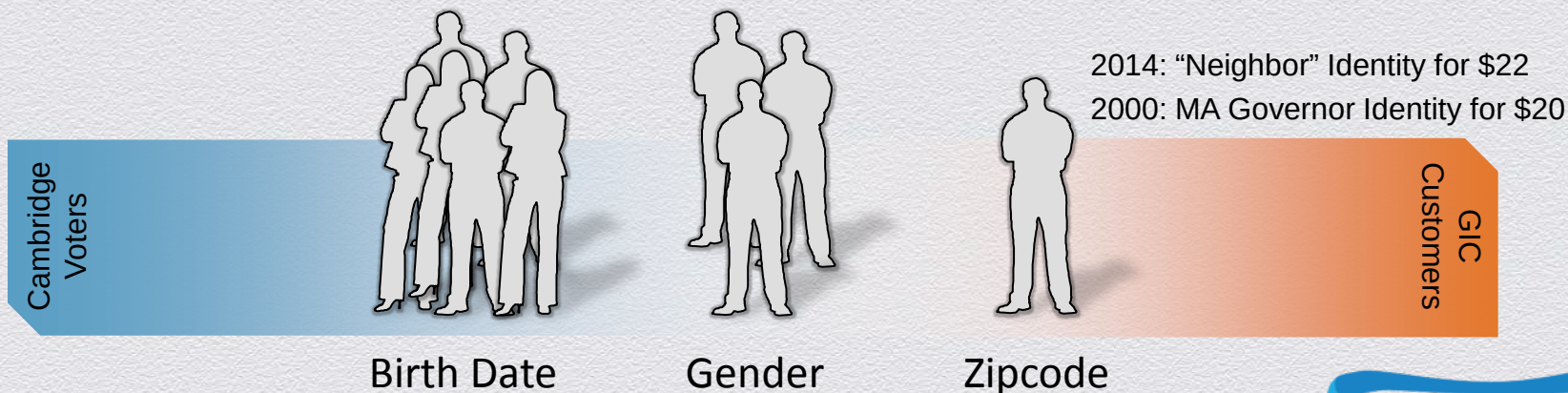


DE-IDENTIFICATION HURDLES

“FEW CHARACTERISTICS NEEDED” – Latanya Sweeney, 2000

- ◆ 87.1% of U.S. IDs Unique by Zip+Sex+DOB
- ◆ 53% of U.S. IDs Unique by City+Sex+DOB
- ◆ Voter Reg. Compared To Group Insurance Commission (GIC) Data

} State / Year
Advised Minimums



EXAMPLE: WASTEWATER ANALYSIS

Meta, Ripples, Tails, Exhausts, Shadows, etc.

1.5B gal/day
Chicago

- Environment
- Disease
- Drugs

?

- ◆ Know estimated numbers of people served by each waste water treatment plant
- ◆ Can back-calculate daily [drug] loads

- Dr Kasprzyk-Horder

<http://phys.org/news/2012-03-wastewater-clues-illicit-drug.html>

EXAMPLE: WASTEWATER ANALYSIS



Croatia



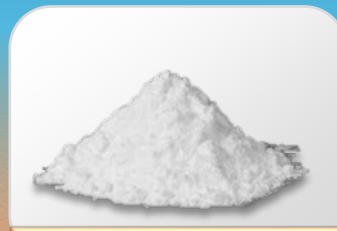
Italy



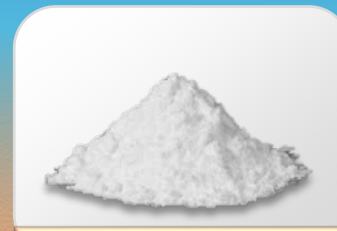
Finland



London



Oregon



Canada

<http://gizmodo.com/meth-in-london-heroin-in-zagreb-the-answer-is-found-i-1508209127>

ON THE OTHER HAND: CONTROLS

“ACCESSIBLE ONLY TO TRUSTED PERSONNEL”

Authentication

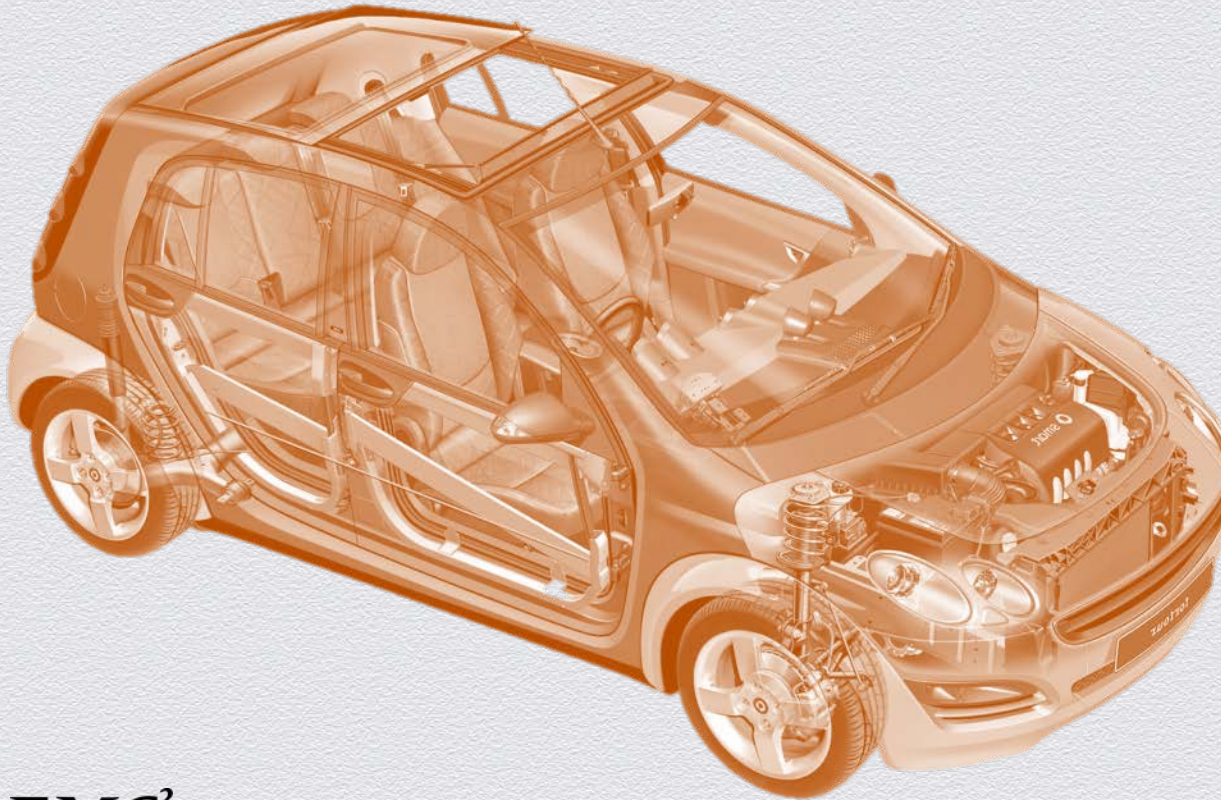
Authorization

Encryption

Caveats

- ◆ All or Nothing (Security Required to Communicate)
- ◆ Rolling Upgrades Impossible

DATA CONTROL DESIGN



- ◆ Brakes
- ◆ Suspension
- ◆ Horn
- ◆ Mirrors
- ◆ Seatbelts

BIG DATA CONTROL DESIGN

TRUST
REDEFINED

- ◆ ~~Brakes~~
- ◆ ~~Suspension~~
- ◆ ~~Horn~~
- ◆ ~~Mirrors~~
- ◆ Seatbelts
- ◆ Threat Avoidance
- ◆ Checklists
(Rapid Repairs)

10X More Data, Accessible 24x7x365

EMC²

“SIMPLE” CHECKLISTS



INTELLIGENT ANALYSIS



PCI DSS Requirement 2.1: *Always change*
vendor-supplied ***defaults*** before installing...

THREAT ANALYSIS MATURITY SCALE

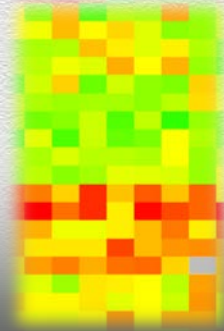
BINARY



RANKED



MEANING



ZERO
POINT



EXACT

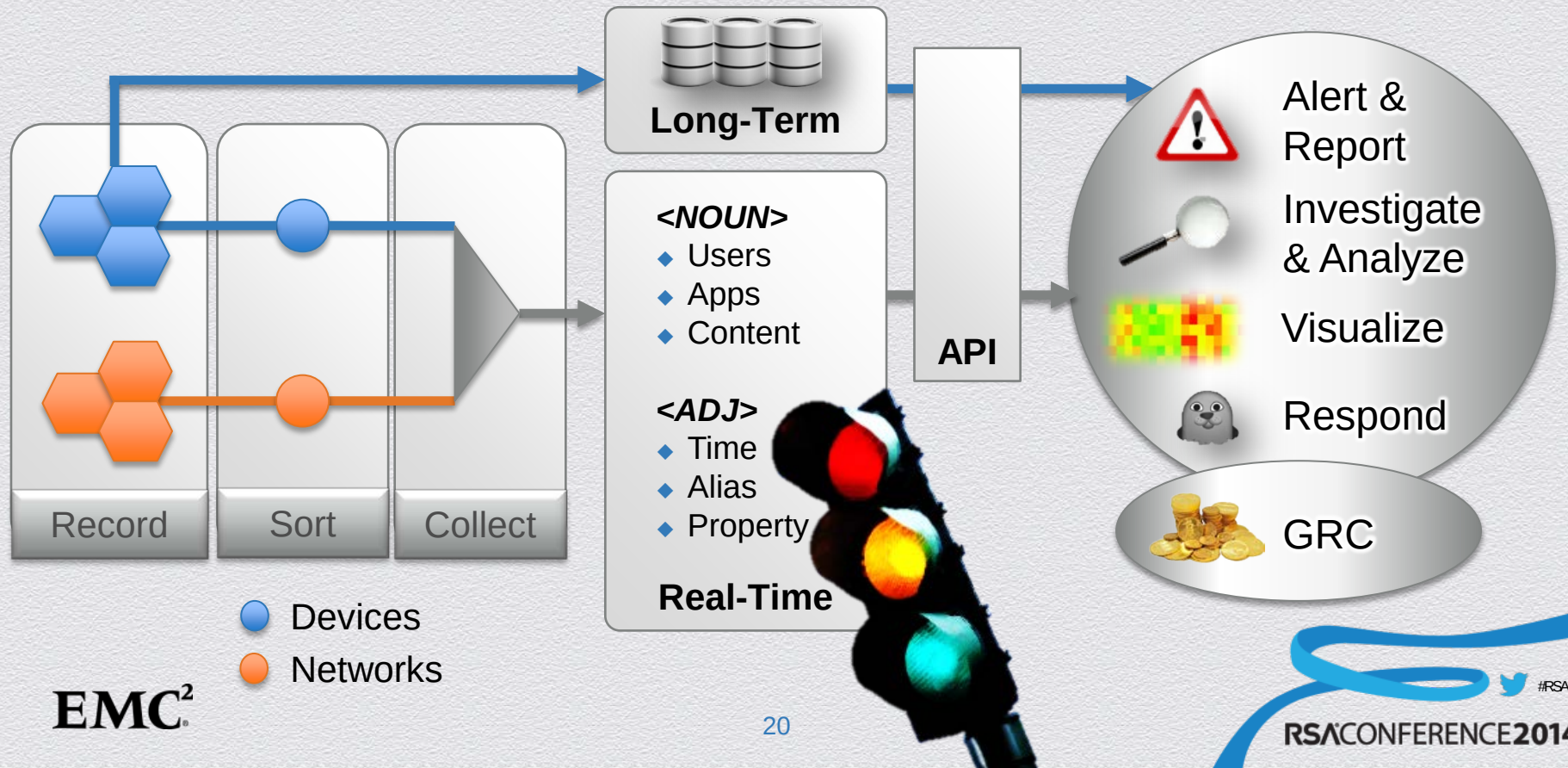


ERROR MARGIN

INTELLIGENCE

CAVEAT: "NO FISH IN TOO CLEAR WATER"

INTELLIGENCE REDEFINES CONTROLS



TRUST REDEFINES BIG DATA

Annual Savings

- ◆ 33 Years of Time
- ◆ US\$8,000,000
- ◆ 27 Fuel Tanker Trucks



<http://rhythmttraffic.com/insyncs-performance/>

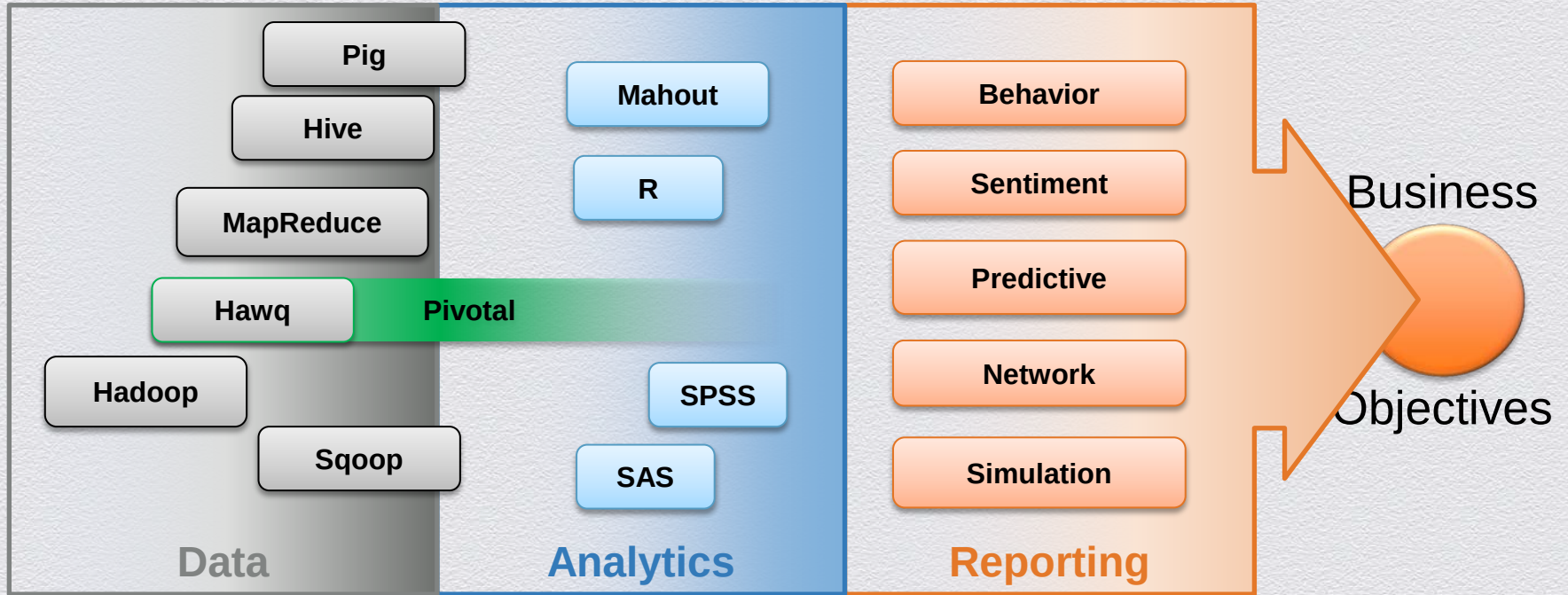
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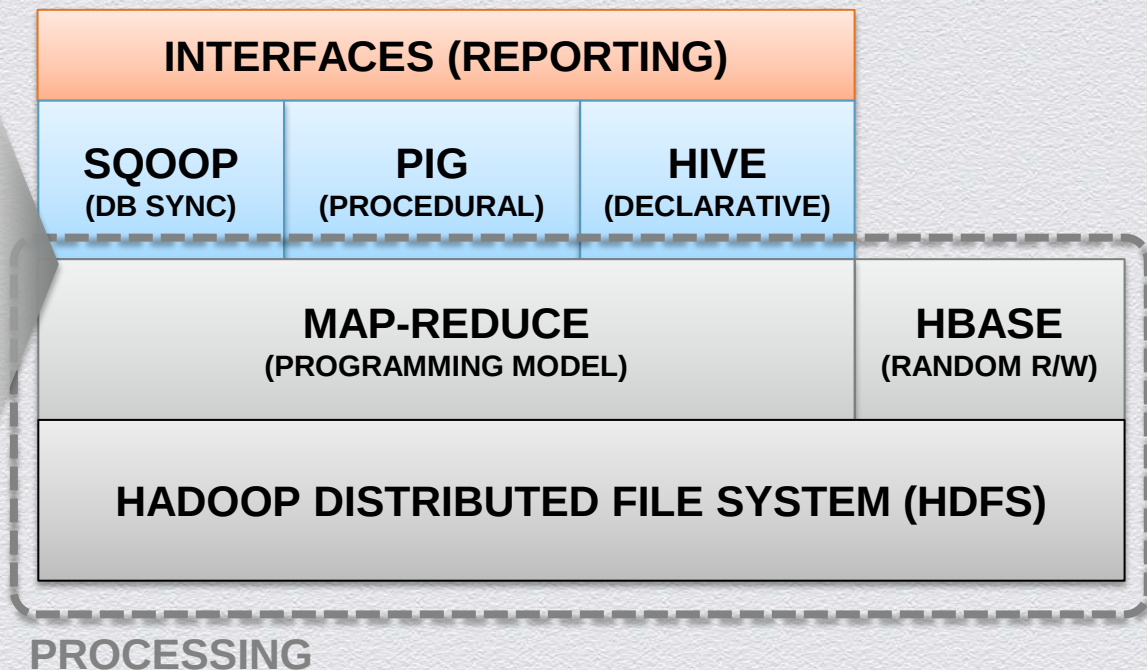
ARCHITECTURE AND USE CASES

NEW WAVES OF BIG DATA TECHNOLOGY

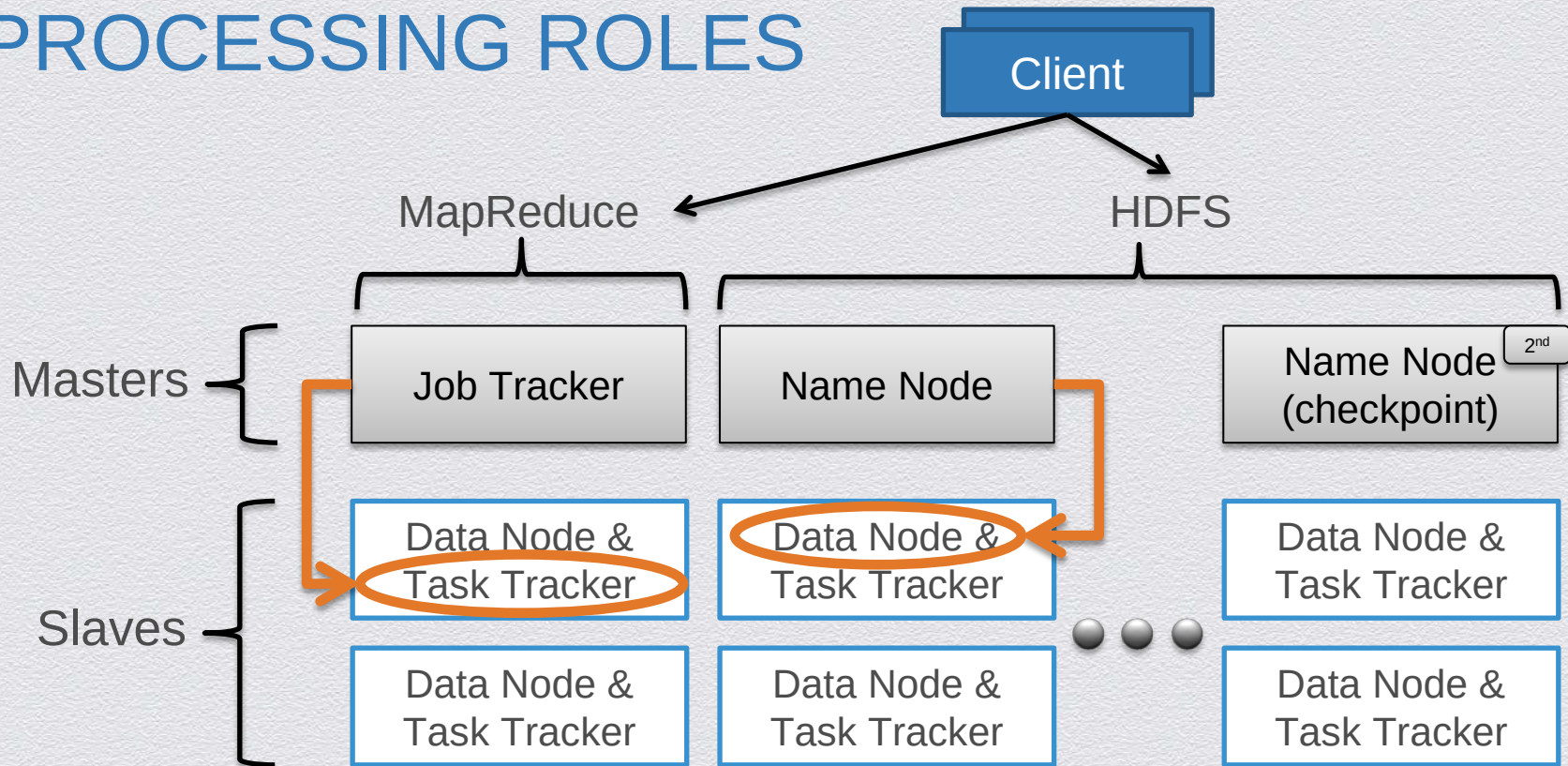


TYPICAL ARCHITECTURE AND CONTROL

- ◆ Data Shared
- ◆ Nodes Distributed
- ◆ Clients Unauthenticated
- ◆ Access Controls Open
- ◆ Web Services Open
- ◆ Networks Open

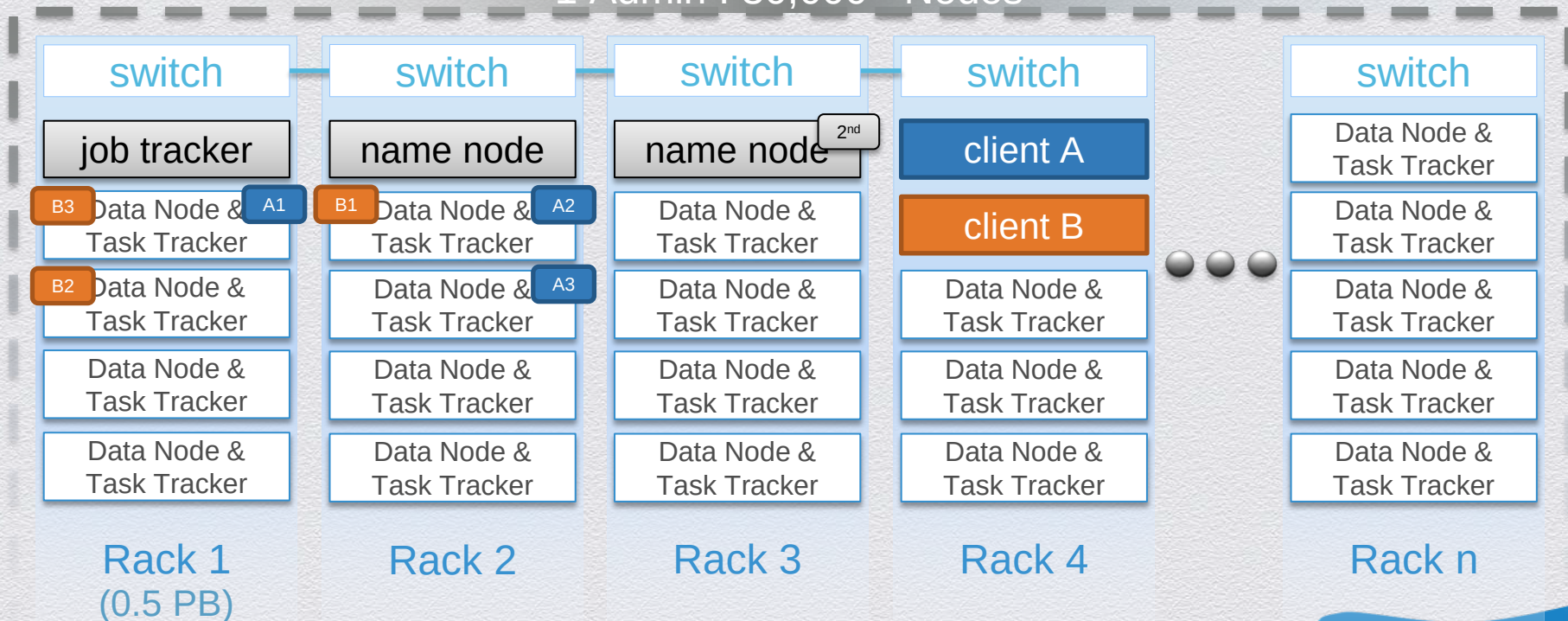


PROCESSING ROLES

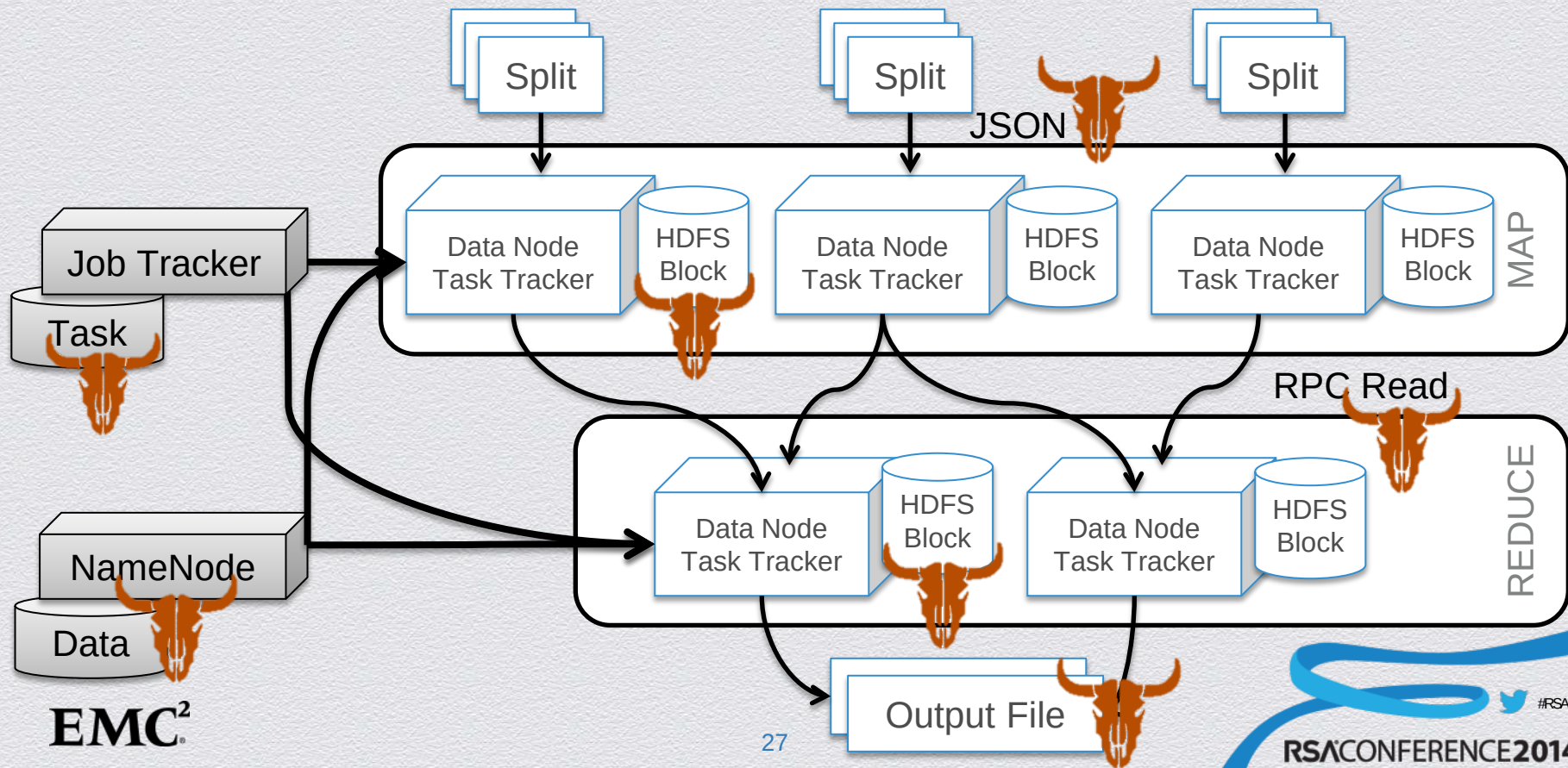


PROCESSING AUTOMATION CLUSTER

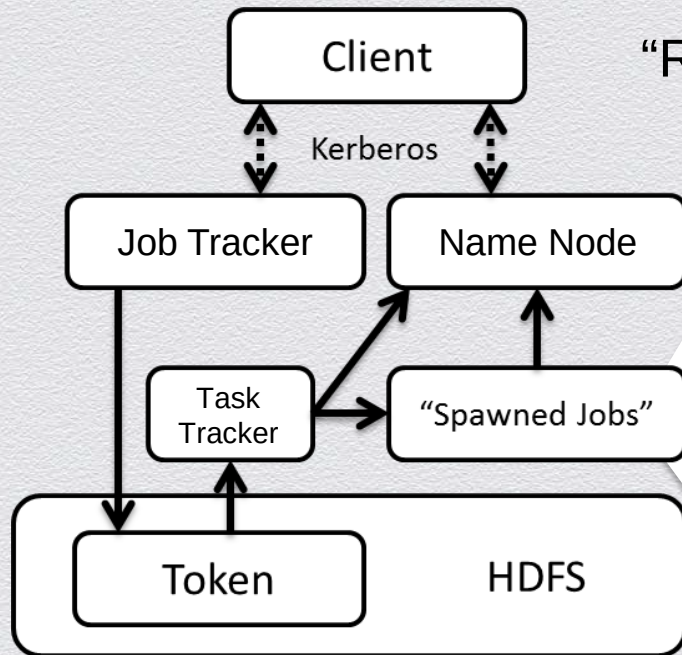
1 Admin : 30,000+ Nodes



PROCESSING PATHS



TRUST DELEGATION VS. BEHAVIOR



“Runaway Job! Kill -9”





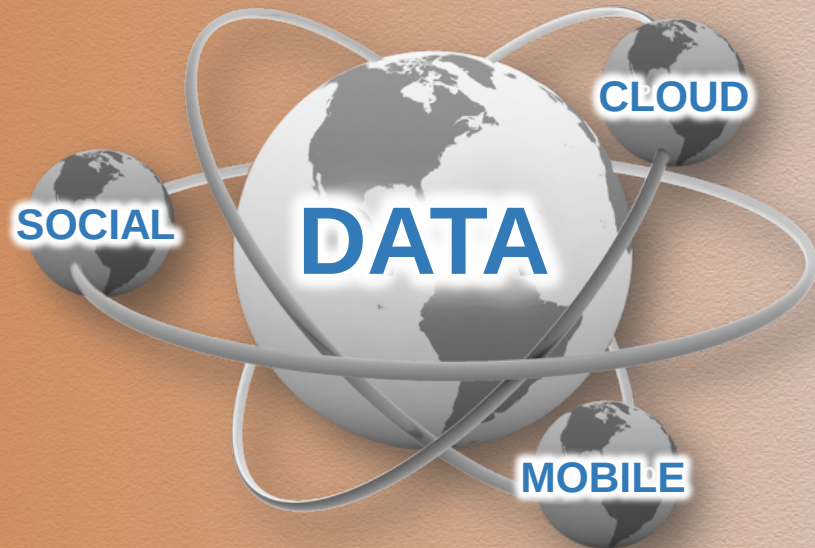
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**NEW AND
DIFFERENT WAYS
TO MANAGE RISK**

DATA

IS THE NEW CENTER OF GRAVITY



TRUST **RE**DEFINED: SPACE-TIME BENDS BECAUSE GRAVITY

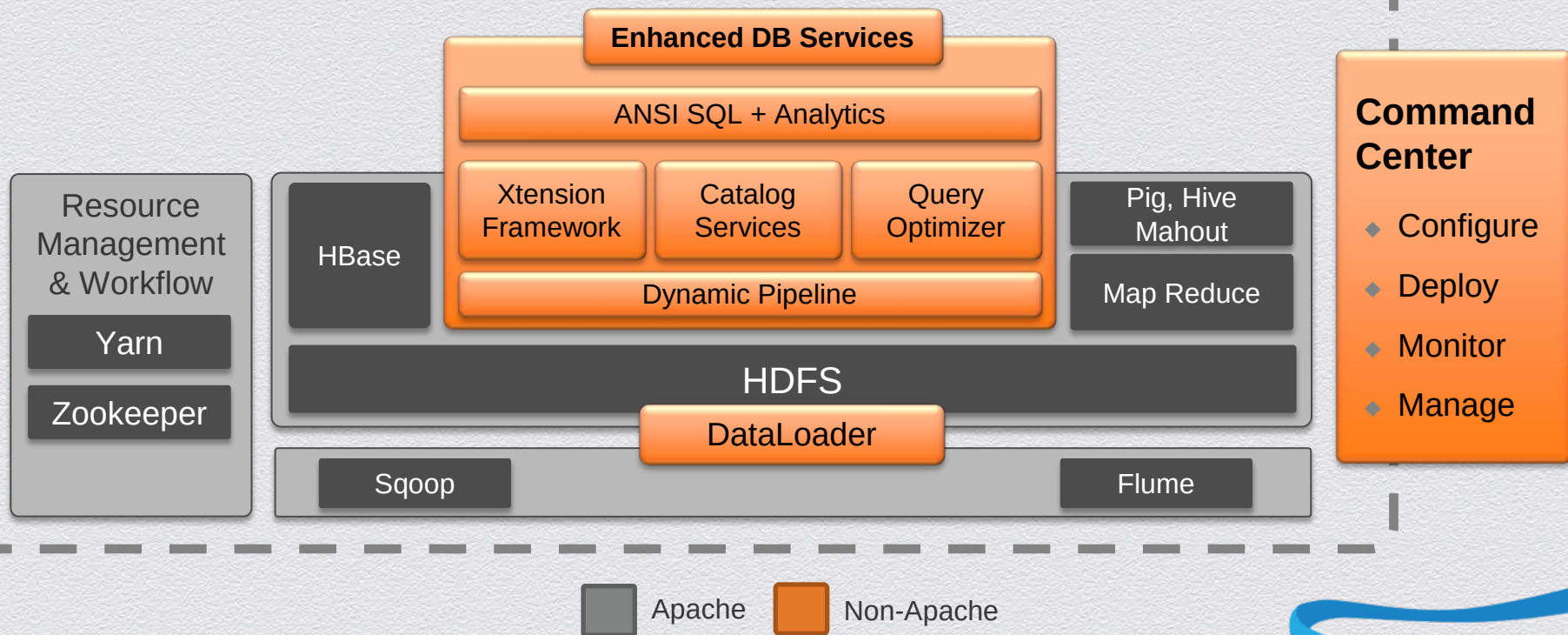
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TRUSTED ARCHITECTURE





INTELLIGENCE-DRIVEN SECURITY

EASY, ROUTINE & MINIMUM JUDGMENT

EMC²

<http://images.fineartamerica.com/images-medium-large/the-cow-jumped-over-the-moon-wingsdomain-art-and-photography.jpg>

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Davi Ottenheimer

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2/25/14 (Tuesday) 1:20 PM - West|3012

THANK
YOU!

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