



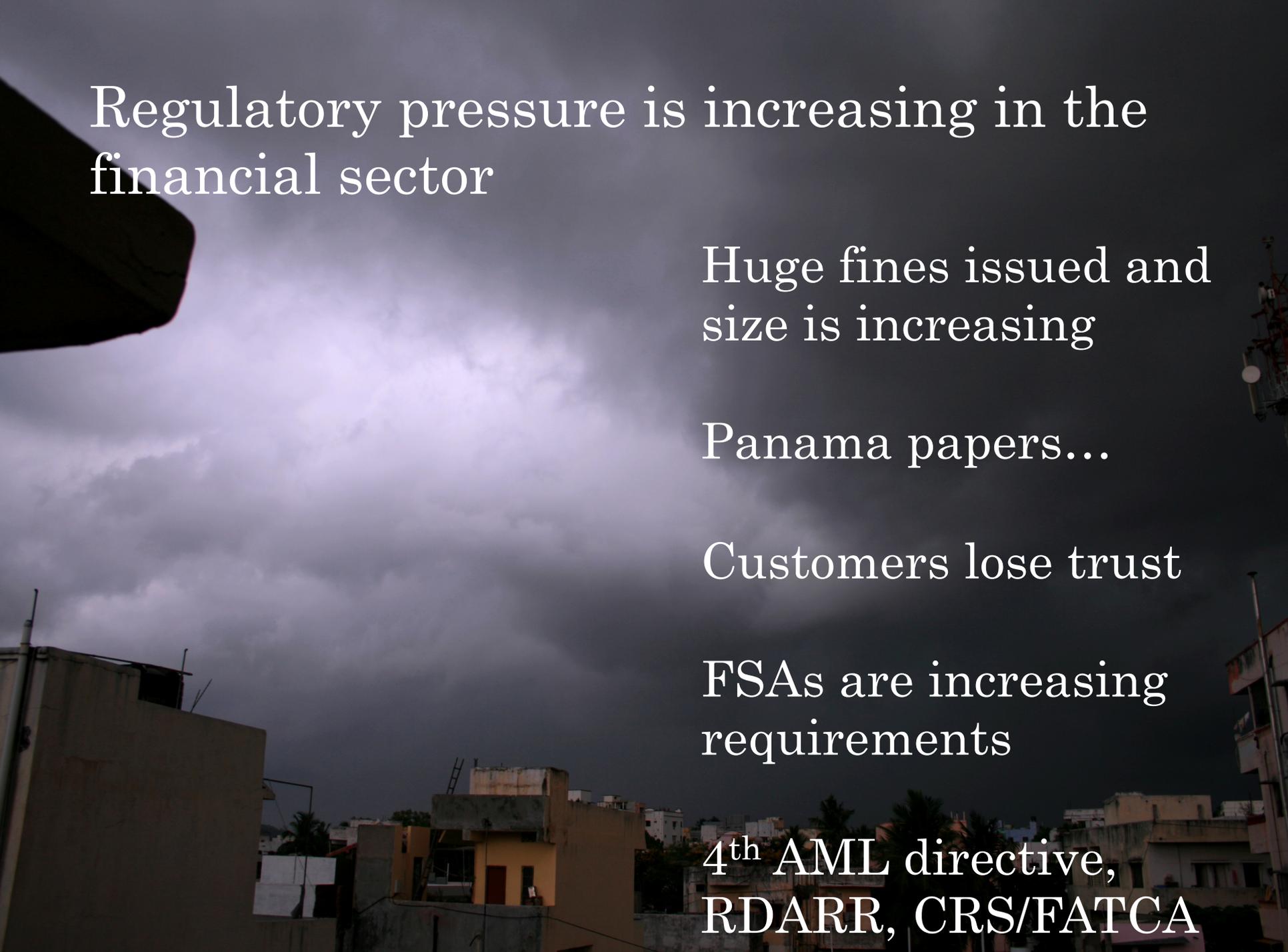
Big data in a regulatory context

How to architect large scale big data solutions in a heterogonous system environment under regulatory pressure avoiding failure



Nordea

- Largest bank in Scandinavia
- GSIB
- >\$1.000 billion in revenue
- Approximately 30.000 employees
- Corporate and institutional, retail and private banking
- Product of a fusion of 300 banks since the 70ies
- Subsidiaries in more than 10 countries
- More than 10 mill. customers



Regulatory pressure is increasing in the financial sector

Huge fines issued and size is increasing

Panama papers...

Customers lose trust

FSAs are increasing requirements

4th AML directive,
RDARR, CRS/FATCA

We needed to come up with a **scalable solution** that would be **compliant** with FSA requirements to be in control of **Know Your Customer** processes within a year

The project started in 2015. My role was **lead architect** for the Retail Anti Financial Crime program and architect for the project delivering the regulatory control solution

We needed to build a system that could proactively **identify suspicious patterns** in customer behavior. This system should notify the relevant bank employees and also supply documentation of the progress in remediation efforts

Regulatory challenges

Demonstrate data was secure to data owner.

Demonstrate that we could **control and track all access to customer data** by end users

Maintain **segregation of duties** between operation and development

Document **data lineage and audit** of what steps were taken in processing

Technical challenges

Multiple **sources** of data - Files, database, events

Diverse **format** of data that had to be sourced – cobol copybooks, csv, sql, jms

Integration to front-end system from hadoop – not an analytics solution only

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HR challenges

Big Data, Big Problem: Coping With Shortage of Talent in Data Analysis

February 19, 2016

Posted By Business.com Editorial Staff



How can you **recruit** big data talent in the number one hyped technology and **retain** it to make the solution maintainable?

RESEARCH

Lack of big data talent hampers corporate analytics

Businesses continue to struggle with hiring the talented data scientists they need to manipulate their corporate data for insights, according to new research from consultant A.T. Kearney.

How to Recruit Big Data Talent When You're Not Google or Facebook

by Joe Mullich | May 24, 2013 5:20 pm | 0 Comments



A close-up photograph of a person's arm and hand, wearing a white long-sleeved shirt and grey pants. The hand is raised, and the fingers are slightly spread. The background is a soft, out-of-focus grey. The text "What we did..." is overlaid in the center in a black, serif font.

What we did...



This is us!



Rule ID 400

Description DD status for all PEP or RCA customers

From date* 10.04.2016

To date* 12.04.2016

Aggregation End of period

Group on Region

Secondary group by No secondary grouping

Filter on segment All

Filter on risk level All

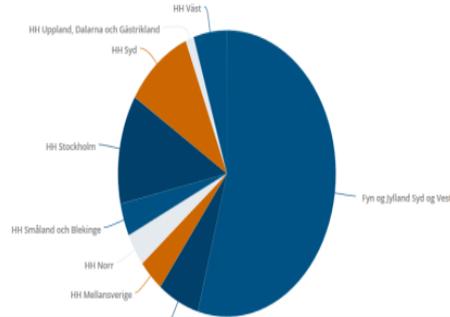
Filter on country All

Filter on customer in Nordea since All

Select regions and branches

Display data as Pie chart

Customers checked 370 (123) Result count 81 (27) First run 12.04.2016 Last run 12.04.2016



	Customers checked	Result count
Since last run	370	173
total	370	174
	370	23
with multiple completed CDDs	370	134
Since last run	370	162
total	370	162
	370	39
	369	336
rated DD - Since last run	370	40
rated DD - total	540	63
led DD - Since last run	370	30
led DD - total	540	74
Score in DD - Since last run	540	134
Score in DD - Total	370	94
o vs Risk Rating legacy	540	144
IP or RCA	370	81
ad to PEP	369	6,252
of status - Since last run	370	36
of status - total	370	35
s KYC Tool	370	88

Rule ID 999

Description Customers identified as retail customer

From date* 12.04.2016

To date* 12.04.2016

Aggregation Mean

Group on Region

Secondary group by Branch

Filter on segment All

Filter on risk level All

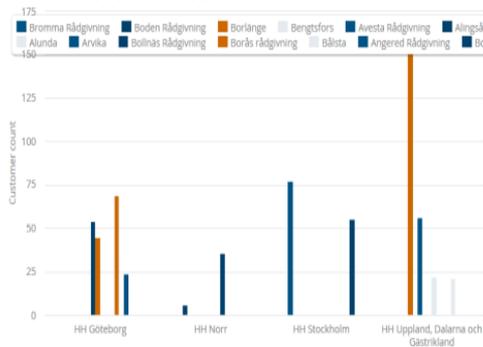
Filter on country Sweden

Filter on customer in Nordea since All

Select regions and branches (*)

Display data as Column chart

Customers checked 27910 (27910) Result count 651 (651) First run 12.04.2016 Last run 12.04.2016



Rule ID 101

Description Customers having completed a CDD since last run. Customers who have completed a CDD previously are discarded from the output.

From date* 12.04.2016

To date* 12.04.2016

Aggregation End of period

Group on Country

Secondary group by No secondary grouping

Filter on segment All

Filter on risk level All

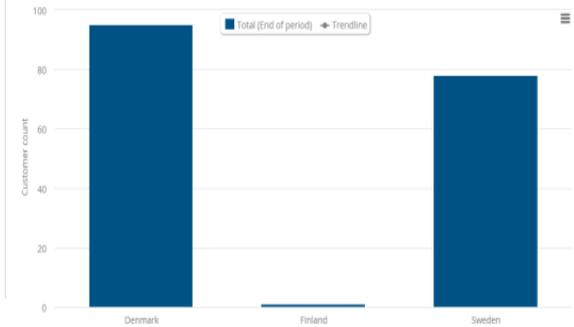
Filter on country All

Filter on customer in Nordea since All

Select regions and branches

Display data as Column chart

Customers checked 370 (370) Result count 174 (174) First run 12.04.2016 Last run 12.04.2016



Overcoming the big data talent gap

- We hired one big data expert
- Recruited internal skilled java developers
- Assigned them one or two big data components each to master (eg. Oozie, Spark, Hbase)
- Good team work and learning spirit

Press Release

Cloudera Announces 2016 Data Impact Award Winners

The winners of the 2016 Data Impact Awards are:

Business Risk Reduction – Nordea

The largest bank in the Nordic region has implemented a Cloudera data lake architecture that allows Nordea to produce, report, and monitor core data faster and with better data quality management than ever before. The solution loads data in real time, empowers agile delivery with daily release cycles and has reduced time to market to a fraction of previous change cycles -- all while reducing operating expenses significantly.

*Highlights:
Datacenter*

New York
fastest, ea
on Apach
the winne

that have implemented big data and analytics platforms based on CDH, the open source Hadoop-based distribution, with remarkable success. The winning

- Establish data access, data lineage and logging solutions
- Build a flexible data ingest pipeline
- Find a common way to structure the information from diverse sources
- Recruit one expert and train others as part of the project

Thank you



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