

# The Regulatory Challenge

Lessons learned after 1 billion  
trades processed



# What is regulatory reporting?

From a technology point of view it is mostly plumbing.



# The major challenge

## **Uncertainty**

We do not currently know what questions we will be asked to answer 6-12 months from now.

The usual approaches to architecting data warehouse solutions, even the most sophisticated ones, simply don't work.

# The solution

Gather as much raw data as possible from as many sources as possible and store *everything*.

The general idea being that the raw data presumably required as input to answer any future questions will be already available in a central location (albeit in a very unstructured, opaque form).

# An example ...

## Simple and clear pricing

Standard  Enterprise

Cost storage  
**€ 20,05 / month**

Cost of operation  
**€ 100,24**



1 GB



9,8 TB



40 TB

Get started

# Making sense of a sea of data

Requires on demand massive processing power. Fits the cloud model well.

For time critical processes infrastructure can be scaled out on demand to thousands of CPUs running in parallel.

This resource elasticity enables an organization to answer ad hoc questions **efficiently** (most times) and unplanned processes can be introduced with relative ease.

As it turns out this is extremely useful to any data driven organization.

# The Challenge

Exception Management

**0.00001**

# The Solution

Ensure processes and components are very lenient when receiving data and very strict when producing data

Maximize data visibility and ability to perform ad hoc queries

Keep processes and components composable



# The Challenge

How do we ensure access to the client's data is limited to authorized personnel/entities? How do we ensure we maintain such controls?

How do we monitor and control ongoing development, product releases, configuration and infrastructure changes?

What is our business continuity plan?

Very hard to setup such processes.

# The Solution

## Code the infrastructure

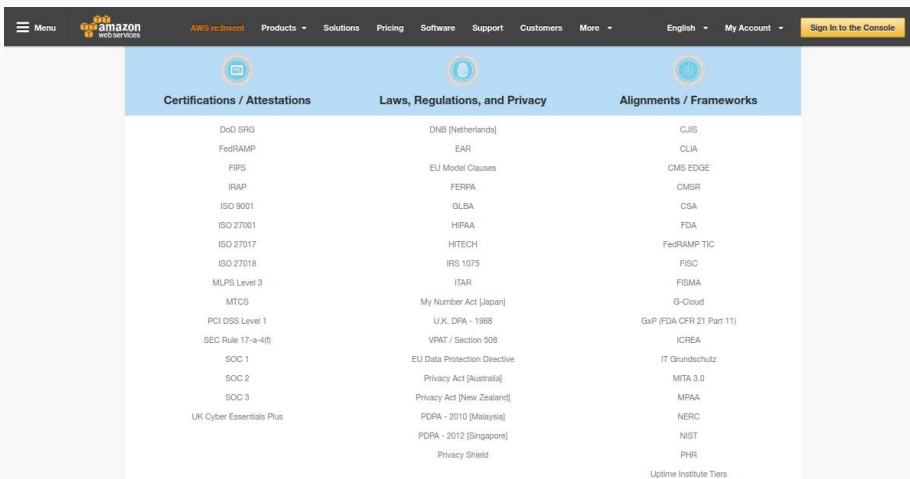
Requirements relating to physical components become irrelevant.

Implementing, documenting and managing complex manual processes is transformed into implementing, documenting and managing complex chunks of code. We know how to do that!

Allows for automatic deployment options and the transformation of infrastructure provisioning and disaster recovery processes into code. We know how to control and manage code and have very sophisticated

# The Challenge

## Compliance & Regulation !



The screenshot displays the AWS Compliance Center interface. At the top, there is a navigation bar with the Amazon logo, a menu icon, and various navigation links including 'Products', 'Solutions', 'Pricing', 'Software', 'Support', 'Customers', and 'More'. There are also language and account settings, and a 'Sign In to the Console' button.

Below the navigation bar, the main content area is divided into three columns, each with a header and a list of items:

Certifications / Attestations	Laws, Regulations, and Privacy	Alignments / Frameworks
D&D SRG	DNB [Netherlands]	CLIS
FedRAMP	EAR	CLIA
FIPS	EU Model Clauses	CMS EDGE
IRAP	FERPA	CMSR
ISO 9001	GLBA	CSA
ISO 27001	HIPAA	FDA
ISO 27017	HITECH	FedRAMP TIC
ISO 27018	IRS 1075	FISC
MLPS Level 3	ITAR	FISMA
MTCS	My Number Act [Japan]	G-Cloud
PCI DSS Level 1	U.K. DPA - 1988	GxP (FDA CFR 21 Part 11)
SEC Rule 17-a-4(f)	VPAT / Section 508	ICREA
SOC 1	EU Data Protection Directive	IT Grundschutz
SOC 2	Privacy Act [Australia]	MITA 3.0
SOC 3	Privacy Act [New Zealand]	MPAA
UK Cyber Essentials Plus	PDPA - 2010 [Malaysia]	NERC
	PDPA - 2012 [Singapore]	NIST
	Privacy Shield	PHR
		Uptime Institute Tiers



### Certifications / Attestations

DoD SRG  
 FedRAMP  
 FIPS  
 IRAP  
 ISO 9001  
 ISO 27001  
 ISO 27017  
 ISO 27018  
 MLPS Level 3  
 MTCS  
 PCI DSS Level 1  
 SEC Rule 17-a-4(f)  
 SOC 1  
 SOC 2  
 SOC 3  
 UK Cyber Essentials Plus



### Laws, Regulations, and Privacy

DNB [Netherlands]  
 EAR  
 EU Model Clauses  
 FERPA  
 GLBA  
 HIPAA  
 HITECH  
 IRS 1075  
 ITAR  
 My Number Act [Japan]  
 U.K. DPA - 1988  
 VPAT / Section 508  
 EU Data Protection Directive  
 Privacy Act [Australia]  
 Privacy Act [New Zealand]  
 PDPA - 2010 [Malaysia]  
 PDPA - 2012 [Singapore]  
 Privacy Shield




### Alignments / Frameworks

CJIS  
 CLIA  
 CMS EDGE  
 CMSR  
 CSA  
 FDA  
 FedRAMP TIC  
 FISC  
 FISMA  
 G-Cloud  
 GxP (FDA CFR 21 Part 11)  
 ICREA  
 IT Grundschutz  
 MITA 3.0  
 MPAA  
 NERC  
 NIST  
 PHR  
 Uptime Institute Tiers

# The Solution

Though a cloud provider's compliance programs are in general not transferable to its clients, in some cases they are. And more become available and transferable to us as cloud providers expand their offering up the stack, to higher level services and APIs.

Transforming rigid, physical  
processes into programmable  
systems and APIs  
is an  
**extraordinary**  
development.



The cloud is just the  
beginning.