



Secure Cloud Computing for SDG Data Challenges

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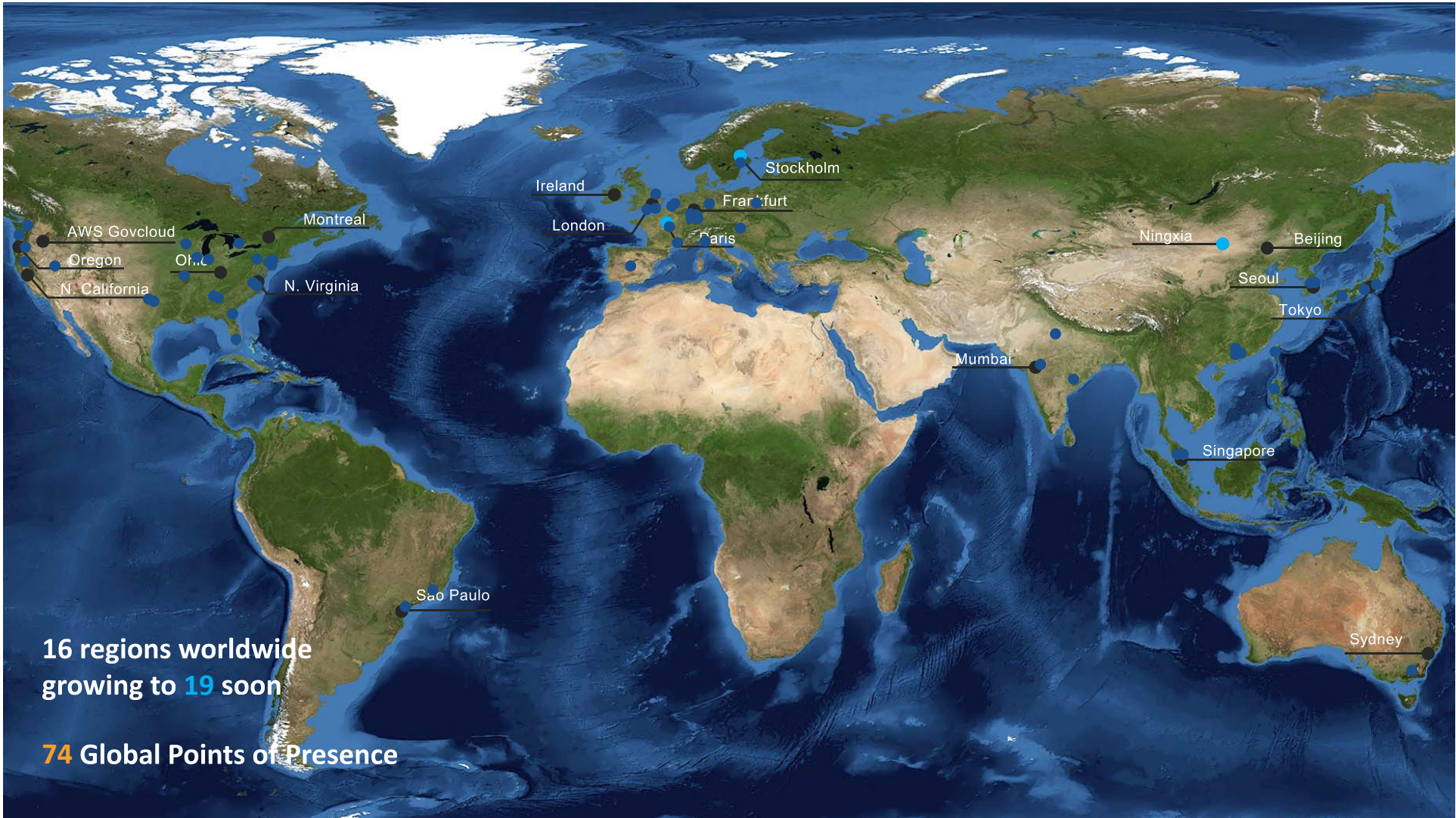


Amazon.com...

???



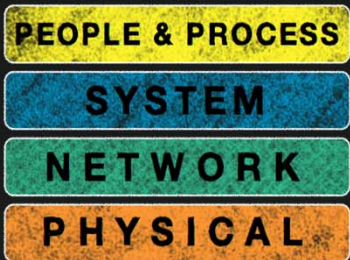
... AWS: the global leader in utility (aka cloud) computing



16 regions worldwide
growing to 19 soon

74 Global Points of Presence

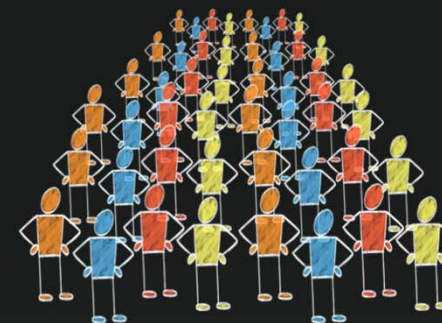
At AWS, Security is Job Zero



Familiar security model



Validated by security experts
Collaboration on Enhancements



Physical Security

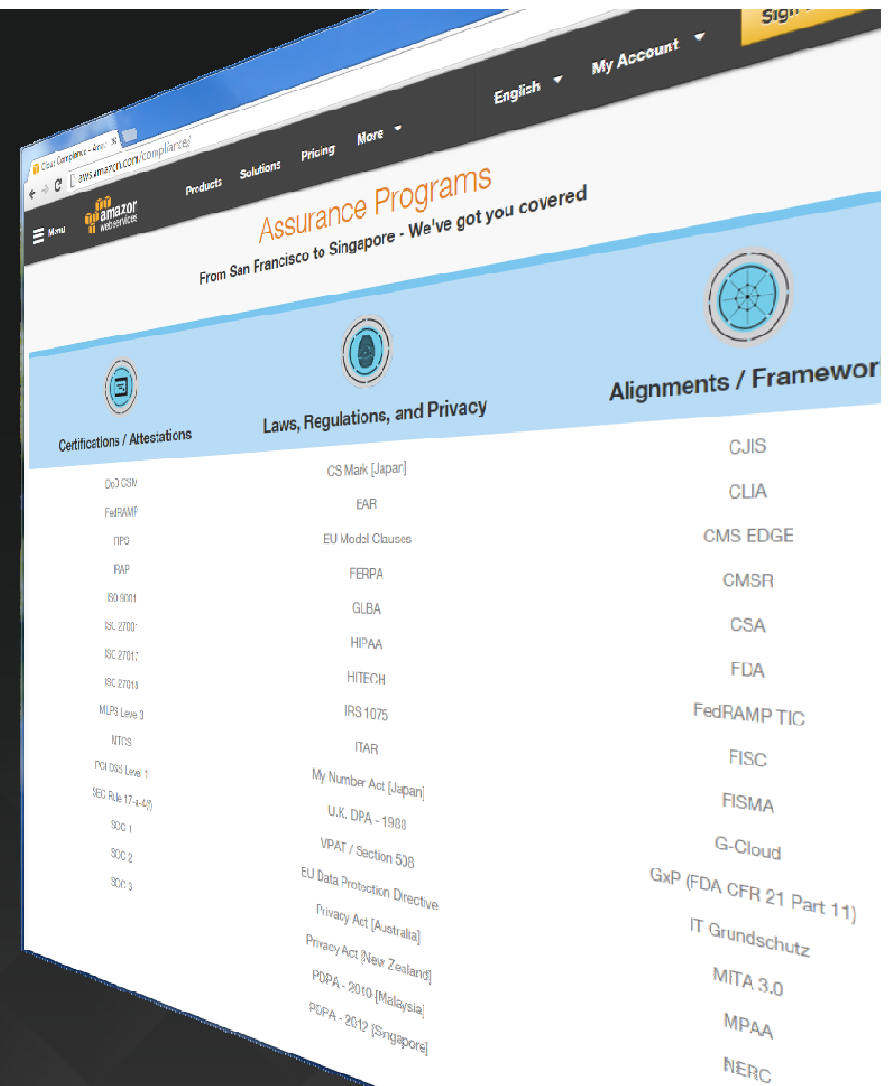
Network Security

Platform Security

People & Procedures

Role of **compliance** and **3rd party auditors**

- Vendor claims alone are not good enough!
- Testing, auditing and certification by multiple teams of 3rd-party pros provides needed proof
- Far more rigorous process than any gov't agency or corporation could reasonably sustain

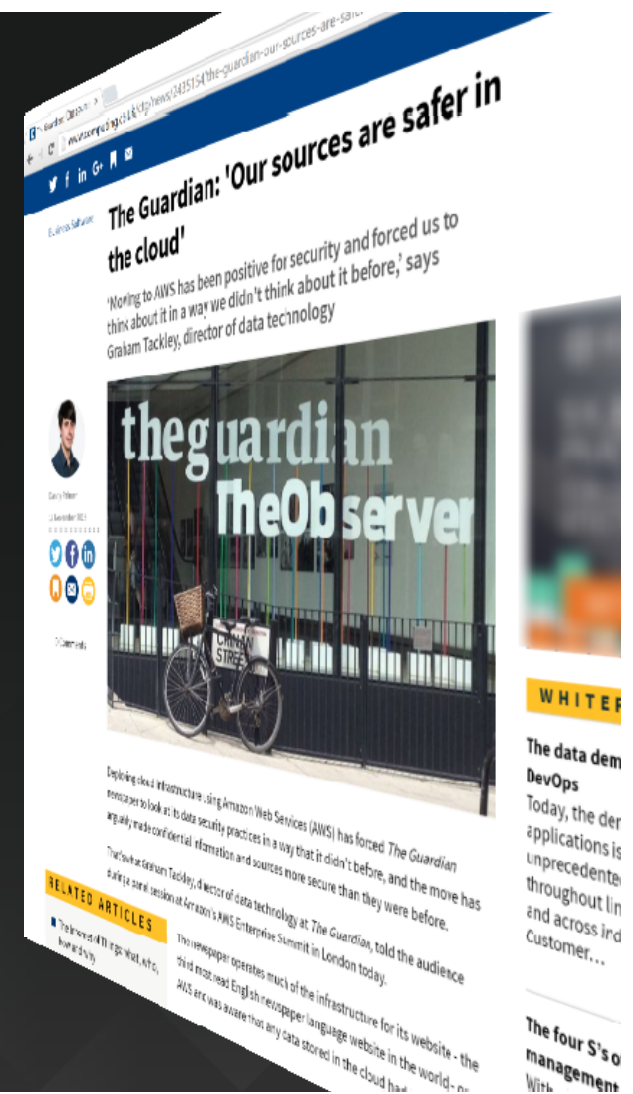


UK MoJ CTO David Rogers

“You should probably start engaging with the idea that the cloud can be considerably more secure than the private cloud or your own data centre, and start engaging with the risks that are building in the spaces where you haven't moved to the cloud yet.



The Guardian: <http://bit.ly/1HXS321>
(emphasis added)



Customer control of data in the cloud

- Extra-territoriality of data
 - Growing realization that physical location is meaningless for most levels of data classification
 - Strong and ubiquitous encryption plus transparency via logging/auditing provide first-class isolation and control
- Privacy and cross-border data flows
 - CSPs provide virtual infrastructure, they are not “data processors” with direct access to data
 - Customers control all data (including encryption thereof) and data flows

“...data must be organized, well-documented, consistently formatted, and error free. Cleaning the data is often the most taxing part of data science, and is frequently **80% of the work.**”

—*Data Driven* by DJ Patil and Hilary Mason

**Cloud democratizes
access to data, *and* the
computing power needed
to process it**

**Cloud eliminates the
“undifferentiated heavy
lifting” behind data science**

When (cleansed and curated) data is shared in the cloud, **anyone** can analyze **any volume of data** without needing to download or store it themselves.

Public Datasets on AWS

High-value datasets available for anyone to access at no cost on AWS. We use the AWS Public Datasets program to explore new ways to stage data for analysis in the cloud. Examples include:



3K Rice Genome



Landsat on AWS



NEXRAD on AWS

Info at <https://aws.amazon.com/public-datasets>



Thank you!



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