UN Global Platform

AWS UK User Group

Mark Craddock

#UNGlobalPlatform
@mcraddock
@UNBigData

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Vision
A global collaboration to harness the power of data for better lives

UN GWG (Big) Data Membership

Australia; Bangladesh; Brazil; Cameroon; **Canada**; **China**; Colombia; **Denmark**; Egypt; Germany; Indonesia; Ireland; Italy; **Mexico**; Morocco; **Poland**; **Netherlands**; Oman; Pakistan; Philippines; Republic of Korea; **Rwanda;** Saudi Arabia; Switzerland; **United Arab Emirates**; **United Kingdom**; United Republic of Tanzania; United States of America

United Nations Statistics Division, United Nations Economic Commission for Africa , Nations Economic and Social Commission for Asia and the Pacific, United Nations Economic Commission for Europe, United Nations Statistical Institute for Asia and the Pacific, United Nations Global Pulse, International Telecommunication Union, Universal Postal Union, African Development Bank; CARICOM, GCCSTAT, Eurostat/European Commission, International Monetary Fund, OECD, World Bank

UNITED NATIONS SUSTAINABLE DEVELOPMENT SUMMIT 2015
25 - 27 SEPTEMBER

2030 AGENDA
FOR SUSTAINABLE DEVELOPMENT

SUSTAINABLE DEVELOPMENT GOALS

Agenda 2030
Transforming Our World: the 2030 Agenda for Sustainable Development

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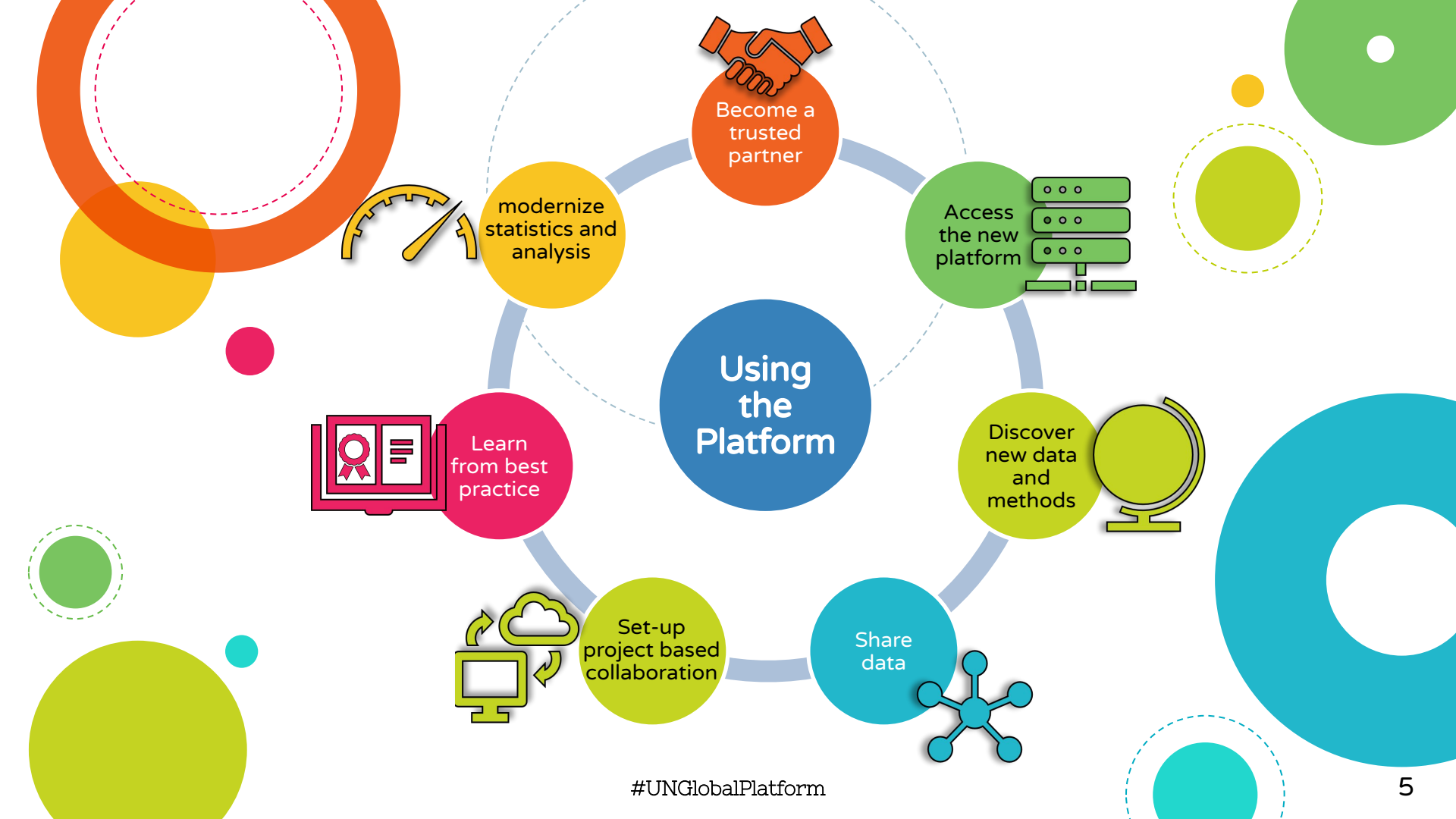
Using the Platform
Become a trusted partner
Access the new platform
Discover new data and methods
Share data
Set-up project based collaboration
Learn from best practice
modernize statistics and analysis

Approach

- Hacker, Hipster and Hustler
- Minimal Viable Team
- Minimal Viable Platform

Principles

- Configure / Show / Iterate
- Multi Cloud (Geopolitical/Security)
- Multi Account (Isolation)
- Consumption Based Pricing
- Commodity Infrastructure
- Agile Delivery
- Working with users
- Prototyping
- Iterative Development

Leave no one behind

Endeavour to reach the furthest behind first

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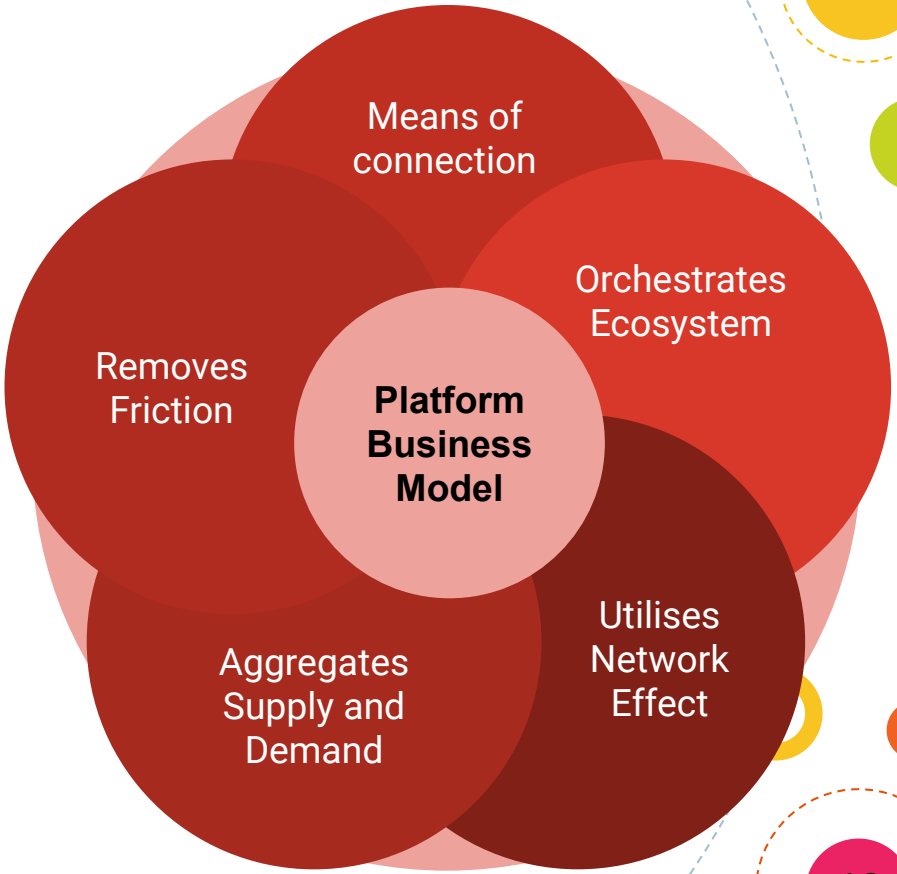
Platform Business Model

Platform Business Model

- A means of connection
- Orchestrates an ecosystem
- Utilises the network effect
- Aggregates supply and demand
- Remove frictions
- Can have more than one type of value exchange going on



Six distinct aspects of a platform and its ecosystem

- Attract/filter/match mechanisms
- Guaranteed transaction quality
- Building blocks
- Information quality/availability
- The platform design pattern
- Dynamic customer experiences

- Platform Design Toolkit

The platform is the only business model able to orchestrate the wide range of products and services in an ecosystem

Through the means of a platform organisation, ecosystems are capable of providing an improbable combination of attributes

Platform Business Models are also one of the best organisational structures for enabling rapid evolution

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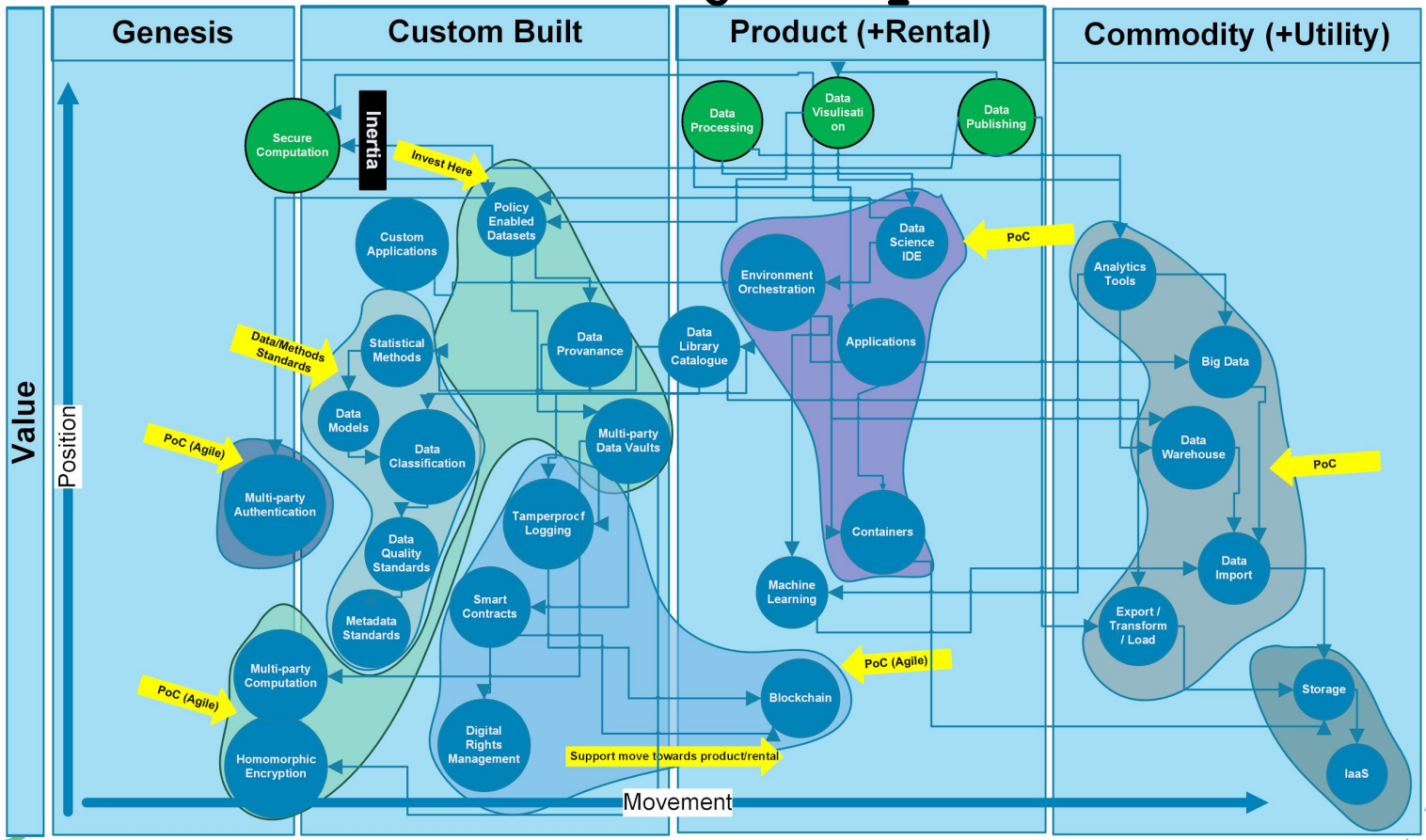
Technology Strategy

Wardley Maps

@swardley

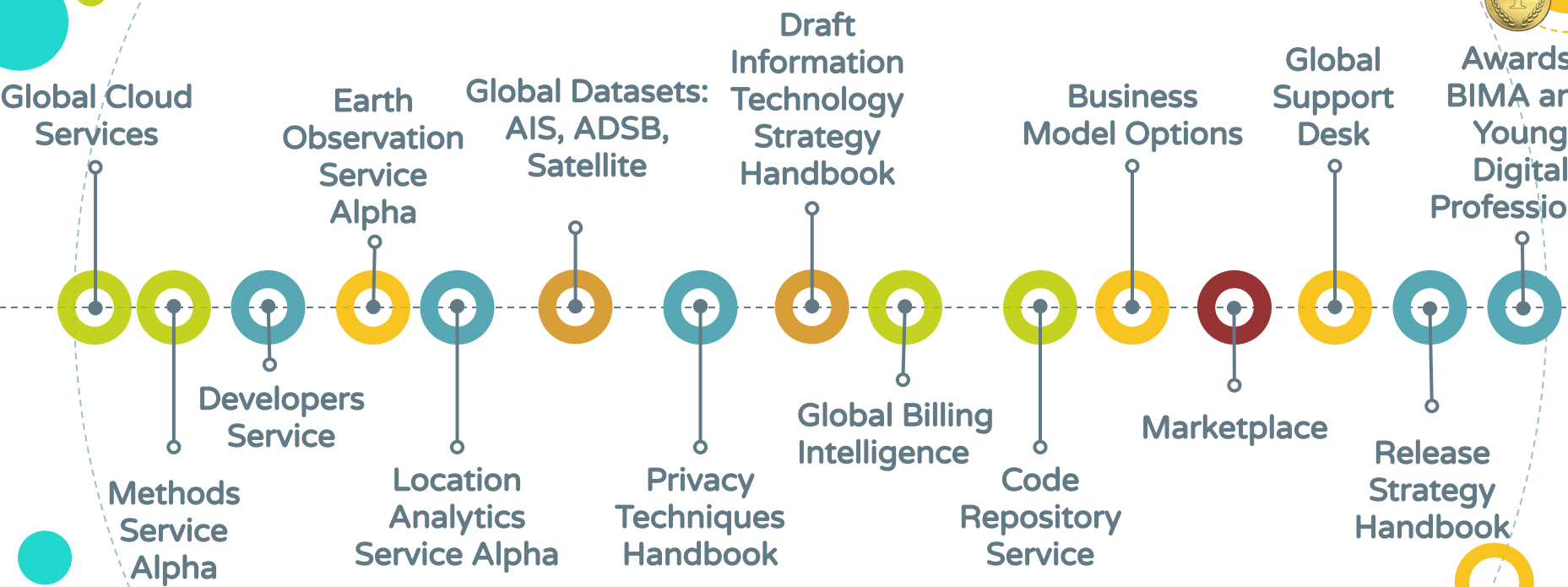
Wardley Maps



Technology Strategy Handbook

- Mapping the Technology Landscape
  - Cloud
  - Machine Learning
  - Big Data
  - Serverless
  - IoT / Smart Devices
  - Privacy Preserving Techniques
- Handbook

Achievements – July '19



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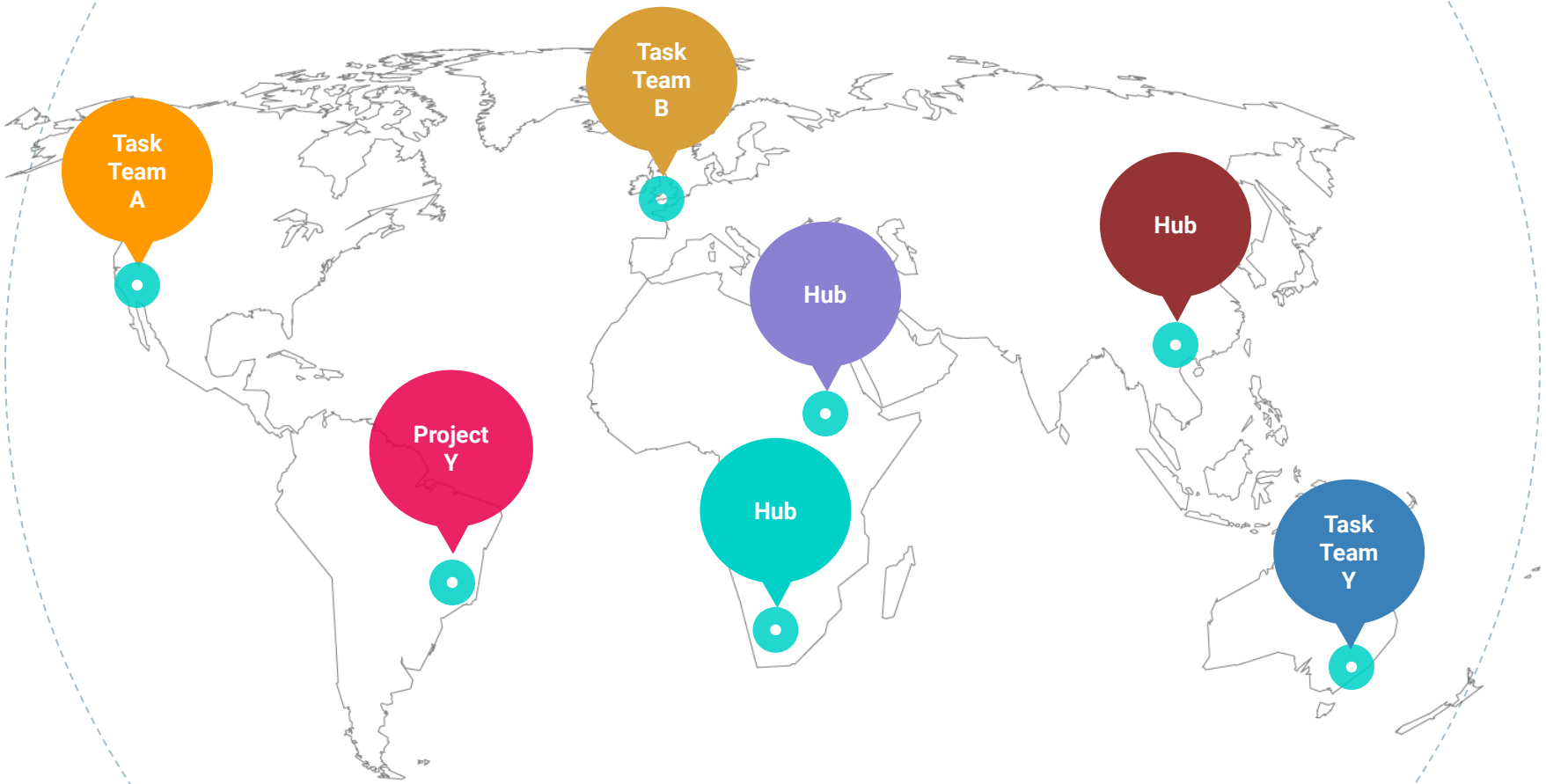
Global Billing Intelligence

Global Billing Intelligence



Global Billing Intelligence

- Billing Data Aggregation
- Intelligent Analytics
- Rules
  - USA cheaper than Germany
  - Turn stuff off!
- Manage Budgets
  - Per Task Team, Partner, Program

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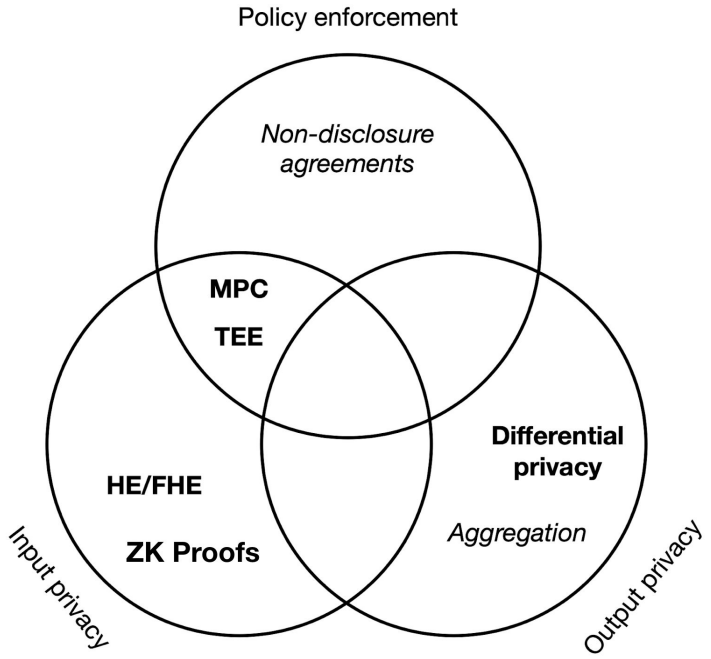
Privacy Preserving Techniques Handbook

Cryptographic Techniques

- Multi-party Computation
- Fully Homomorphic Encryption
- Zero Knowledge Proofs
- Trusted Execution Environments
- Differential Privacy



Cryptographic Techniques

- UN Privacy Preserving Techniques Handbook

- Proof of Concepts for 62nd ISI World Statistics Congress
  - Health Statistics
  - Trade Statistics
  - Synthetic Data

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Global Big Datasets

'It's not big unless it has a billion in it'

Big Data

- Mostly created and owned by someone else. We don't own the data
- Challenges of ***access*** to big data (data gravity)
- Assumption: Big Data will be hosted in the cloud
- Data mesh architecture

“Cloud is now the default platform for managing data. On-premises is the past, and *only* legacy compatibility or *special* requirements should keep you there”

Gartner

3

Global Big Datasets

100,000,000,000+

ADS-B Records

40,000,000+

AIS Records / Day

Automatic Identification System (AIS)

- 40 Million Records / Day
- Ship Position / Movement
- Analysis via
  - Methods Service
  - Location Analytics Service
  - Jupyter Notebooks
  - APIs

Automatic Dependent Surveillance (ADS-B)

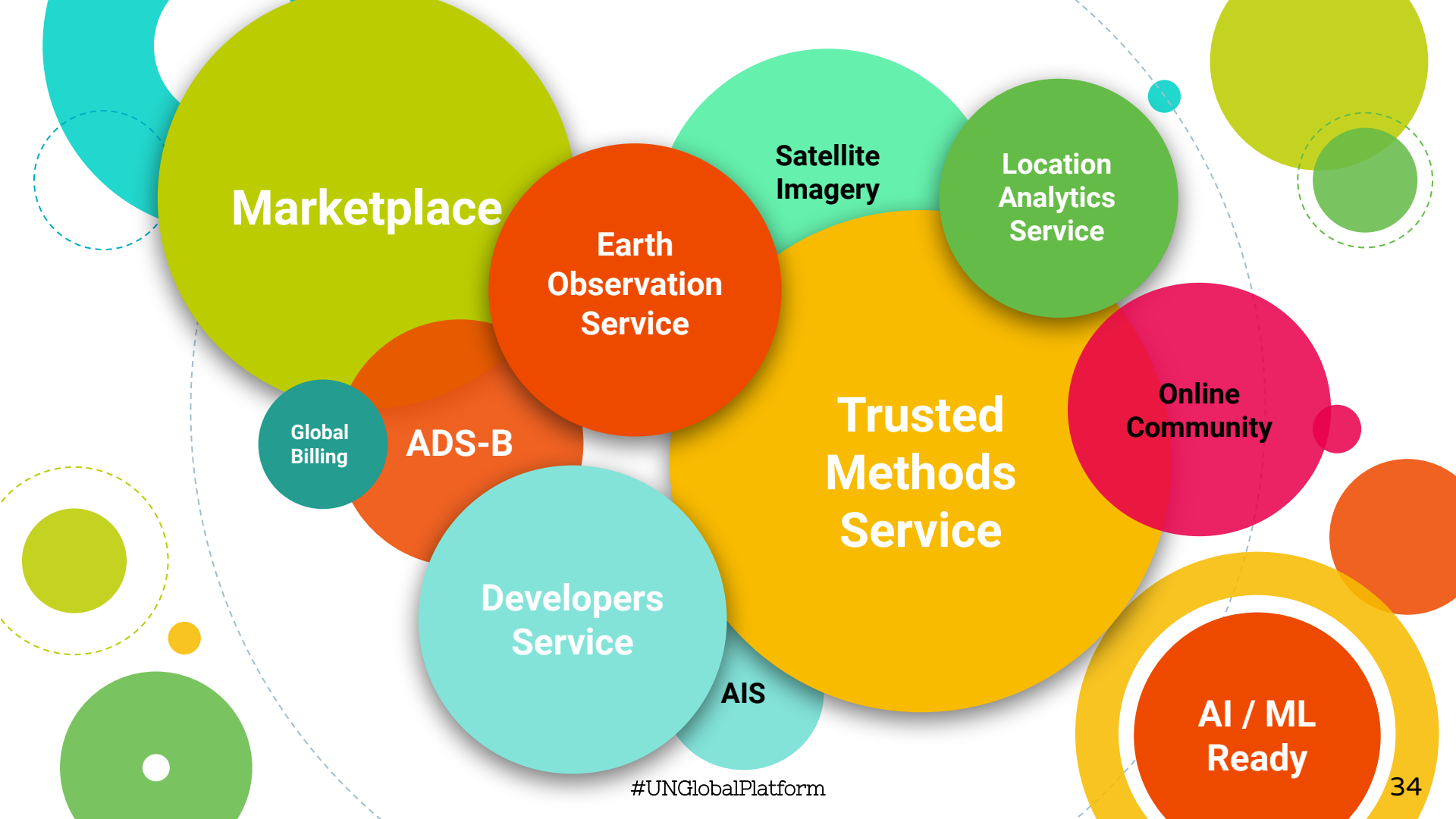
- 600,000,000+ Records / Day
- Aircraft Position / Movement
- 100 Billion Records
- Analysis via
  - Methods Service
  - Location Analytics Service
  - Jupyter Notebooks
  - APIs

Satellite Imagery

- Open Data
  - Landsat
  - Sentinel
- Commercial
  - Planet
    - 3.0m Resolution
    - 0.7m Resolution

Satellite Imagery

- Cloud Native Geoprocessing
- Look at Geo Intelligence Market
  - #geoint
  - National Geospatial-Intelligence Agency - Open Source
- Open Standards
  - COGs - Chris Holmes
  - STAC - Spatial Temporal Asset Catalogue


Marketplace
Earth Observation Service
Satellite Imagery
Location Analytics Service
Global Billing
ADS-B
Trusted Methods Service
Online Community
Developers Service
AIS
AI / ML Ready

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Location Analytics Service

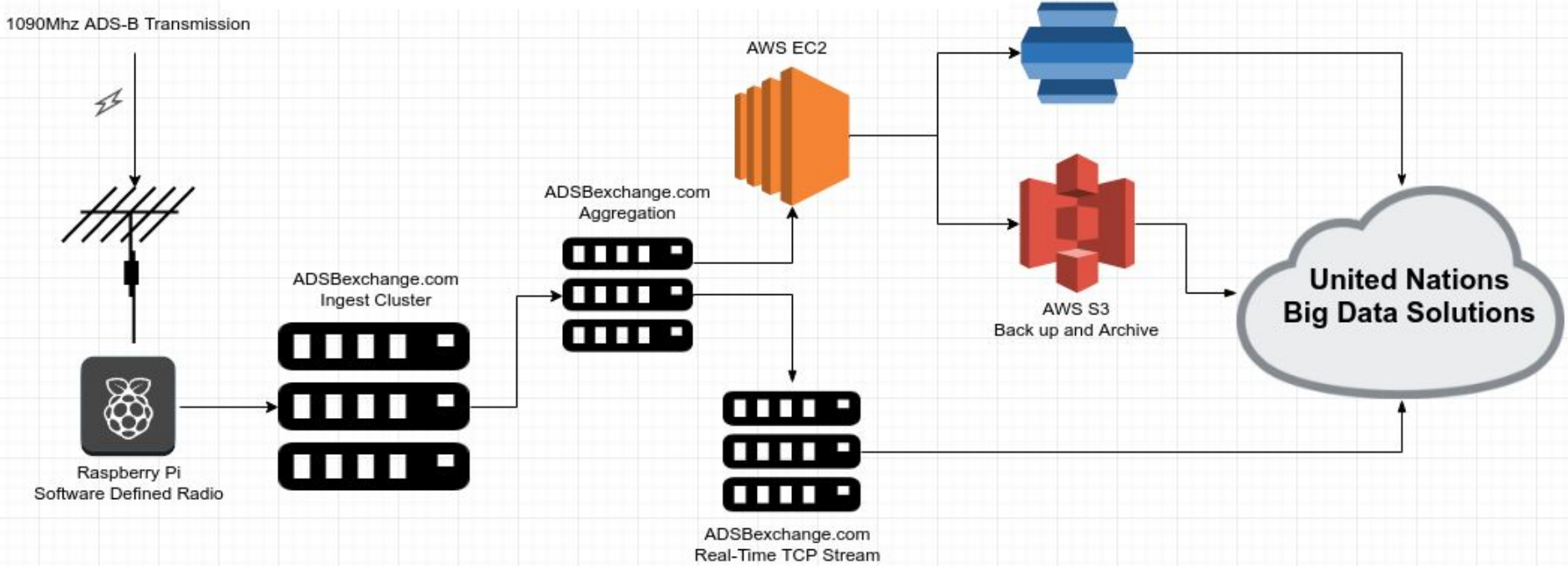
Location Analytics Service

- Stack
  - GeoMesa
  - Apache NiFi
  - Apache Kafka
  - Apache HBase
  - Apache Spark
  - Jupyter
  - GeoServer

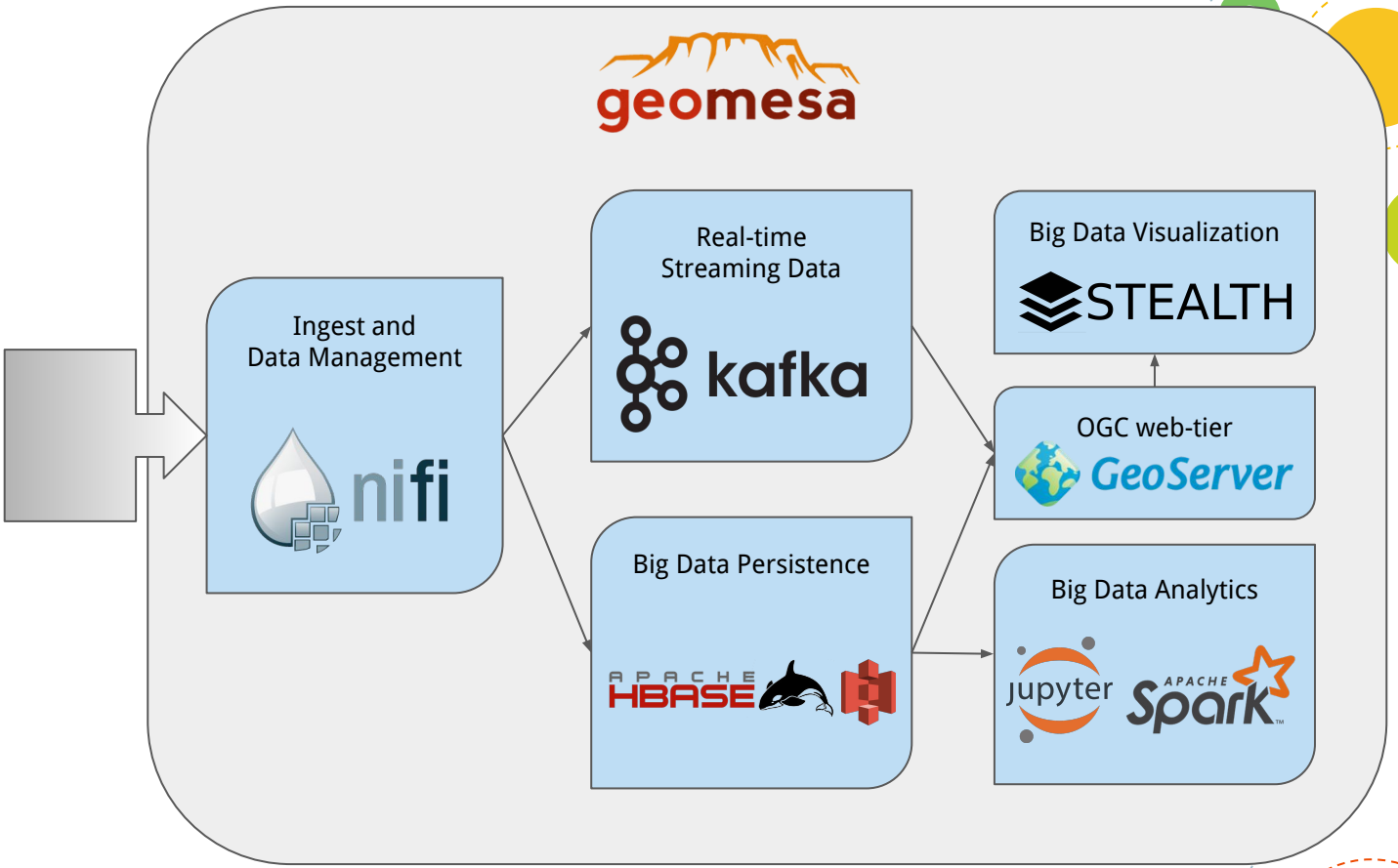
Location Analytics Service

- DSTL Report - Benchmarking of Big Data technologies for ingesting and querying geospatial datasets

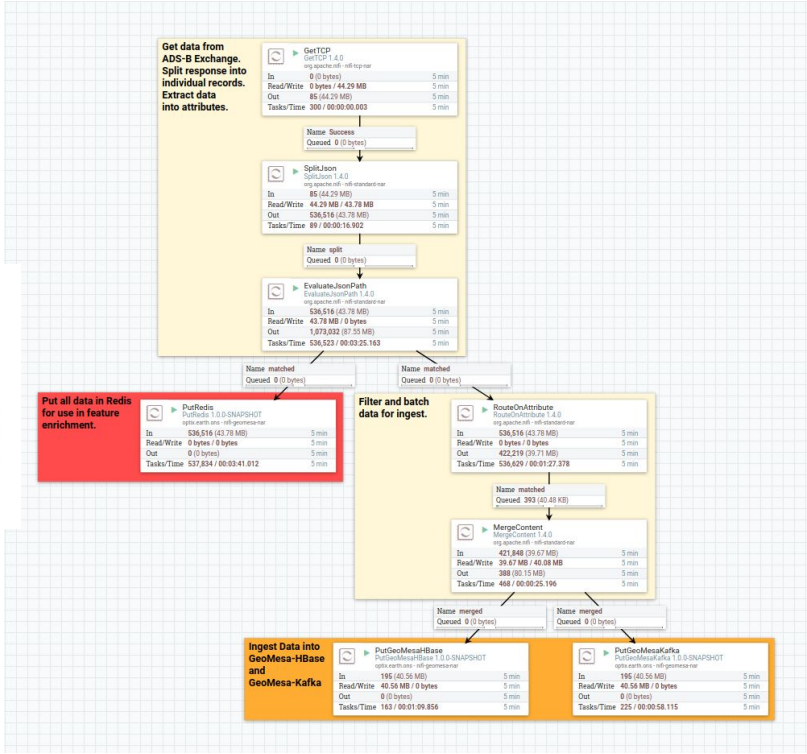
10,000+ Aircraft Tracked in Real-Time (Every Second) Daily
600,000,000+ Aggregated Data Points Every 24 Hours
30 Petabytes of Data Transfer Monthly
3,000 Ground Based Receivers Deployed Globally



Data Sources



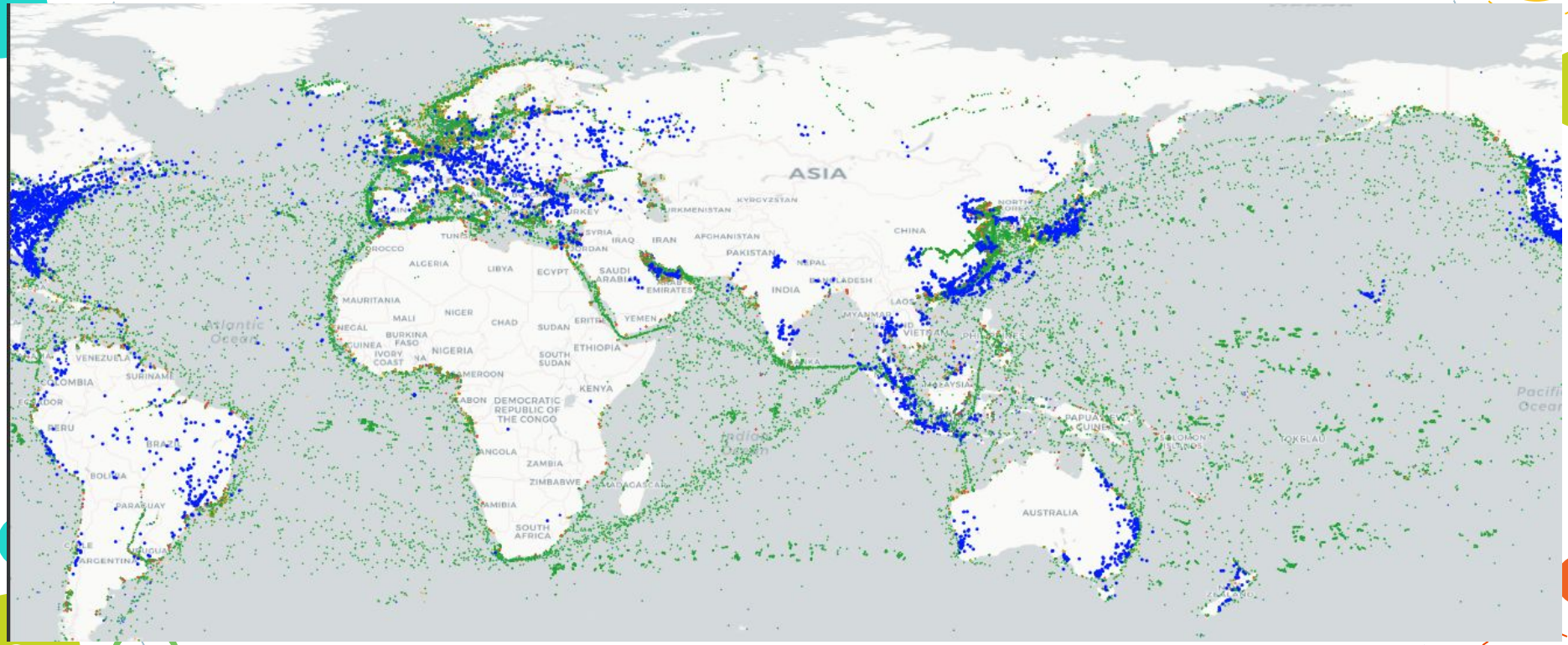
NiFi Dataflow



Location Analytics Service

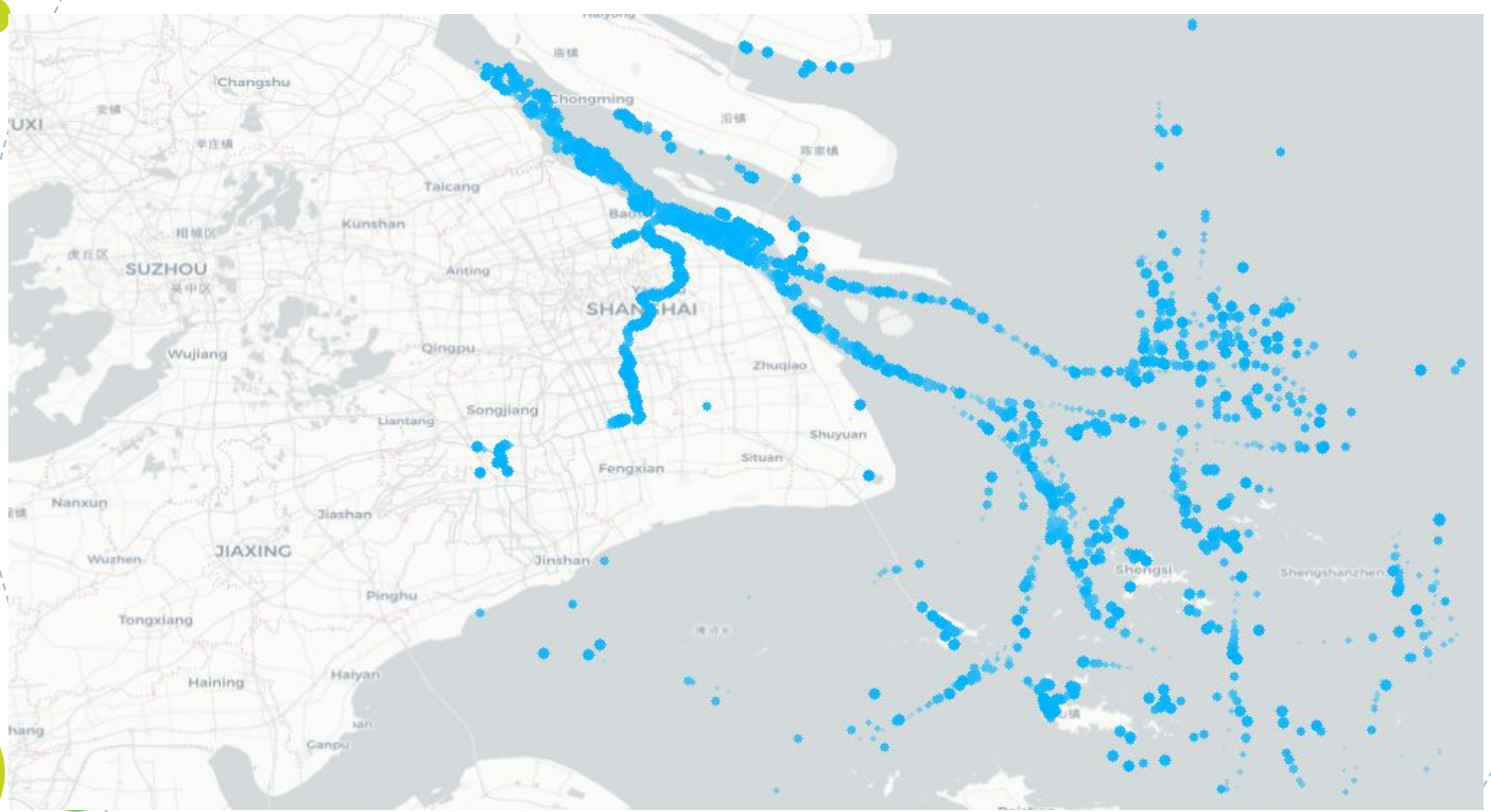
- Visualise and Analyse Location Data
  - AIS
  - ADS-B
  - Mobile Phone
  - IOT / Smart Devices
  - “Anything that moves”
- Real time data feeds
- Visualise and Analyse Anything That Moves

Location Analytics Service



Shanghai – Flights

Shanghai – Cargo Ships



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How Can You Get Involved?

UN Global Platform

Faster. Quality. Statistics

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Thanks!

Any questions?

You can find me at @mcraddock &
contactus@officialstatistics.org