



Polar View

Polar Thematic Exploitation Platform ‘The Next Big Thing is Small’



polar

tep

Polar Data and Systems Architecture Workshop
Geneva, November 28, 2018

Virtual Research Platform Rationale

- The data available on the state of the planet is growing in **volume**, velocity, variety, precision, and value.
- ESA is coordinating the development of new concepts to meet these data challenges and opportunities. **The traditional model of bringing the data to the user is broken.**
- A virtual research platform is a collaborative environment in the cloud that brings together data, computing power, storage, and analysis tools.



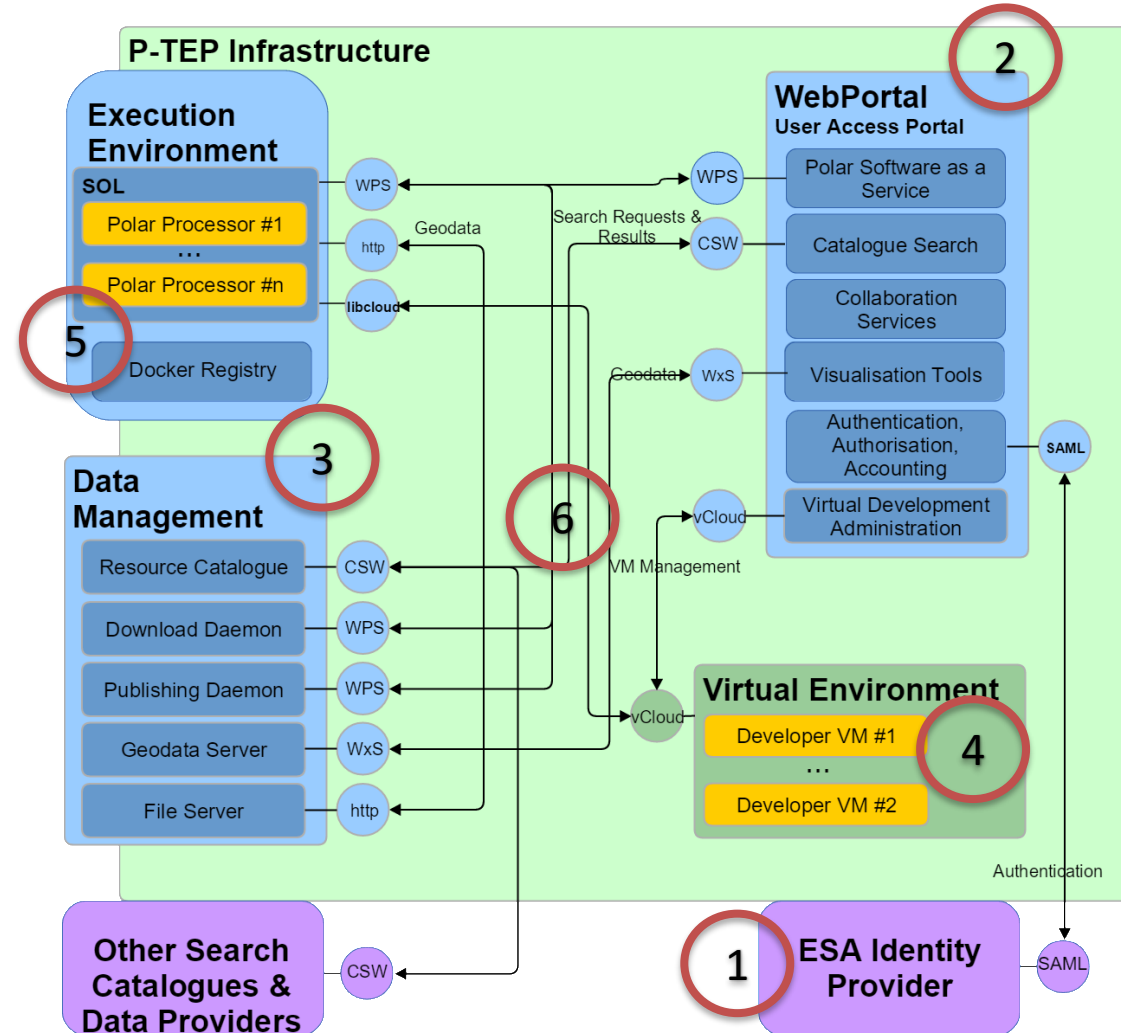
Polar TEP Overview

- A virtual research platform
- Provides polar-relevant data, tools, and processing in the cloud
- Brings users' algorithms to the data
- A central hub in the polar data ecosystem
- Now operational
- Interested in collaborating with potential users and data providers

The screenshot displays the Polar TEP web application interface. At the top, there are logos for 'polar tep', 'esa', and 'Polar View'. The main interface includes a map of the Arctic region with a date range from 2010-01-01 to 2017-05-26. A sidebar on the right shows search results for '24764 Total Results Found' and a list of data packages. Below the search results, there is a section for 'Processors' with a list of available tools, including 'Iceberg Areal Density (IDEN) v1.4', 'Iceberg Association (IBA) v1.3', and 'Iceberg Detection (IDET) v1.3'. The 'Iceberg Areal Density (IDEN) v1.4' processor is selected, and its parameters are shown in the 'Processor Parameters' section. The interface is powered by ESA and Polar View.

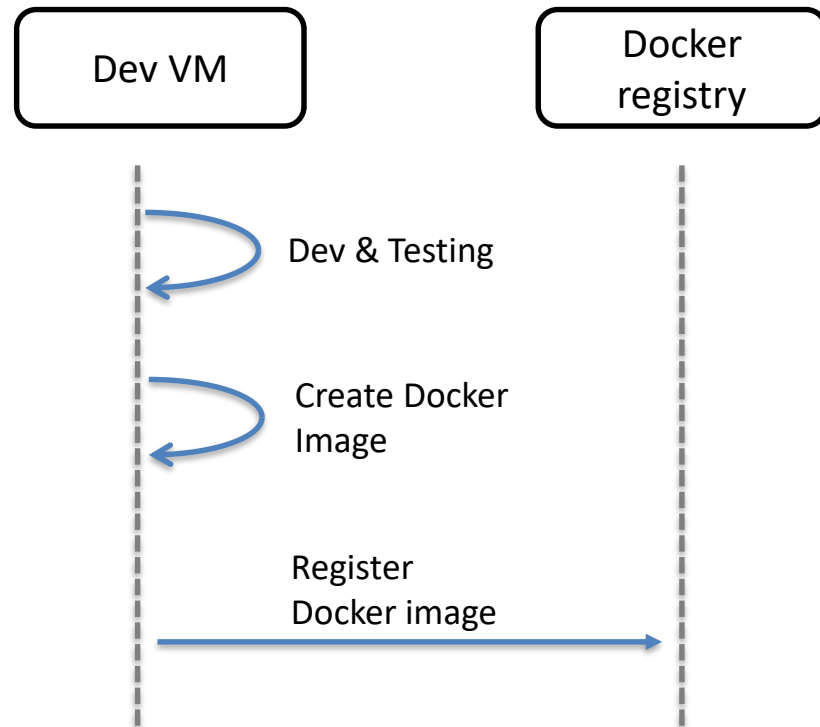
Polar TEP Architecture

1. Access for authorized users
2. Access all services and processors through a web portal
3. A platform catalogue providing details of accessible data and generated products
4. Virtual development environment providing user VMs
5. Execution environment
6. Interfaces based on open standards

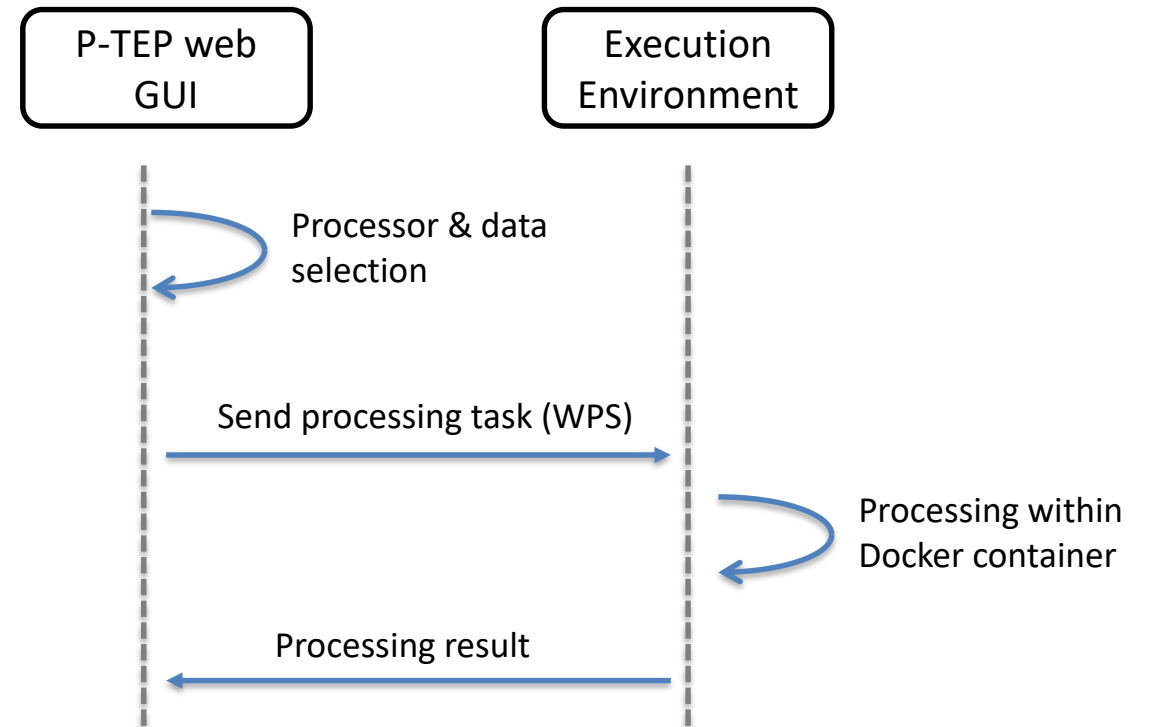


Processor life cycle

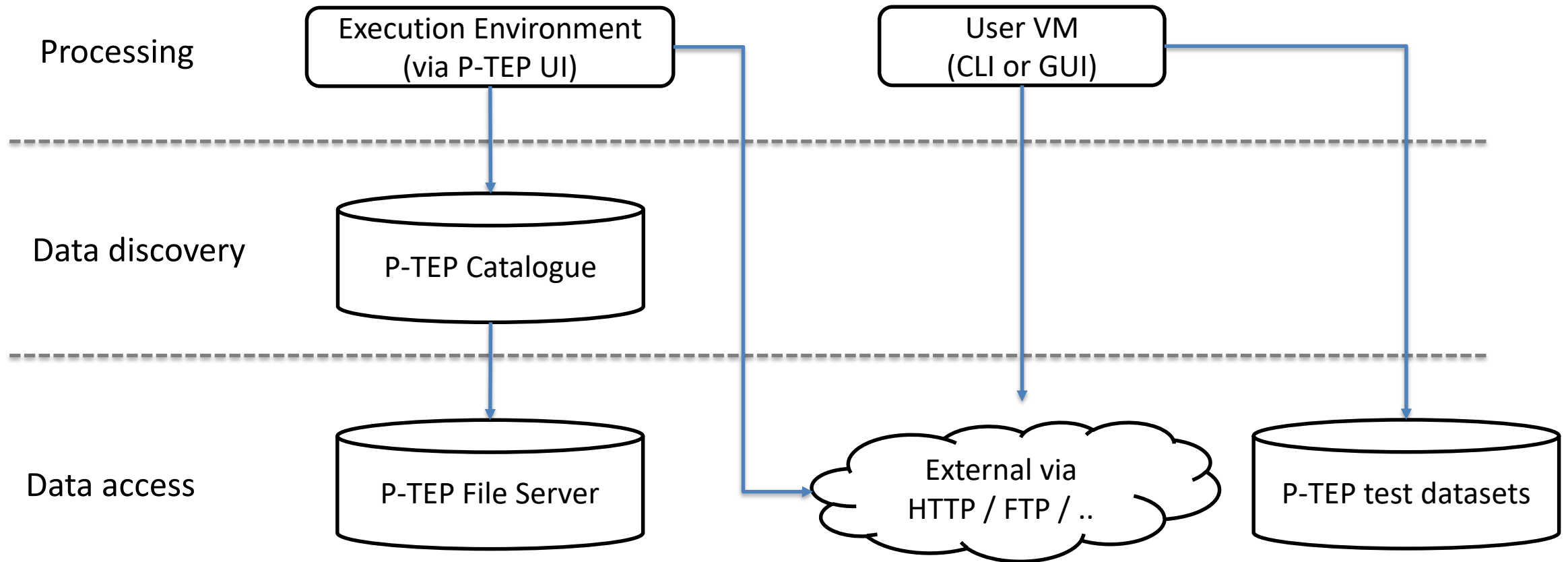
Processor development & deployment



Processor execution



Data Access for Processing



Polar TEP Status

- Previous accomplishments:
 - Functioning virtual research platform with initial capabilities
- Current efforts:
 - Addition of data to catalogue
 - Addition of trigger and batch processing capabilities
 - Integration with other data platforms (e.g. EC DIAS)
- **Future vision:**
 - **Tools for story telling**

The Industrial Revolutions of Polar Data

The Previous Revolution

- Data Cottage Industry
- Data
- Craftmanship

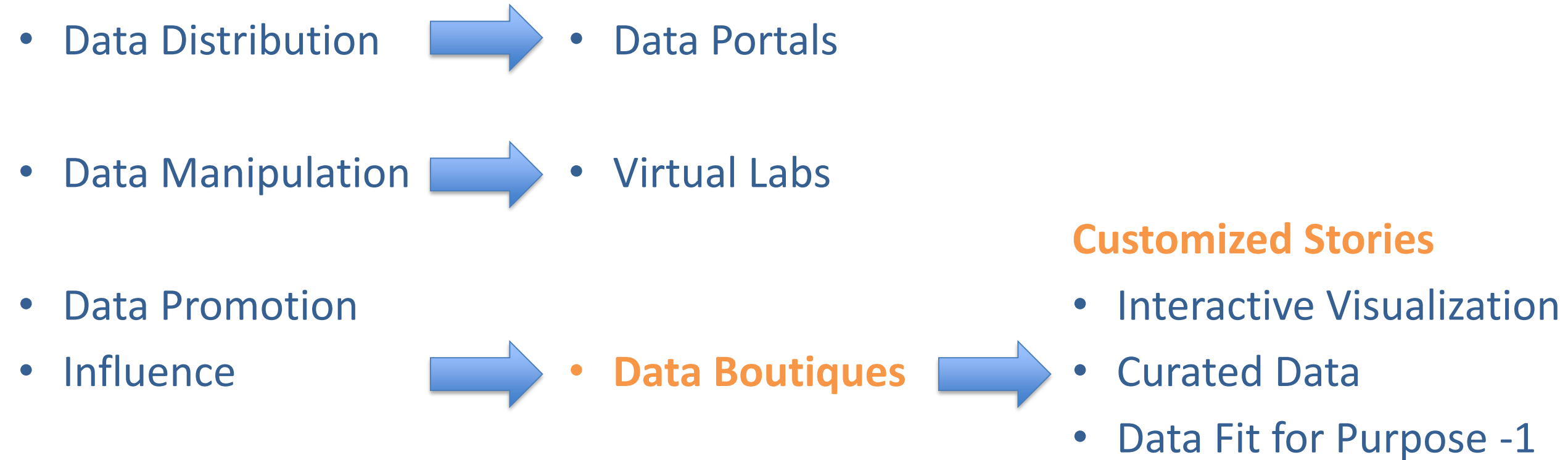
This Revolution

- Data Mass Production
- Big Data
- Automation

The Next Revolution

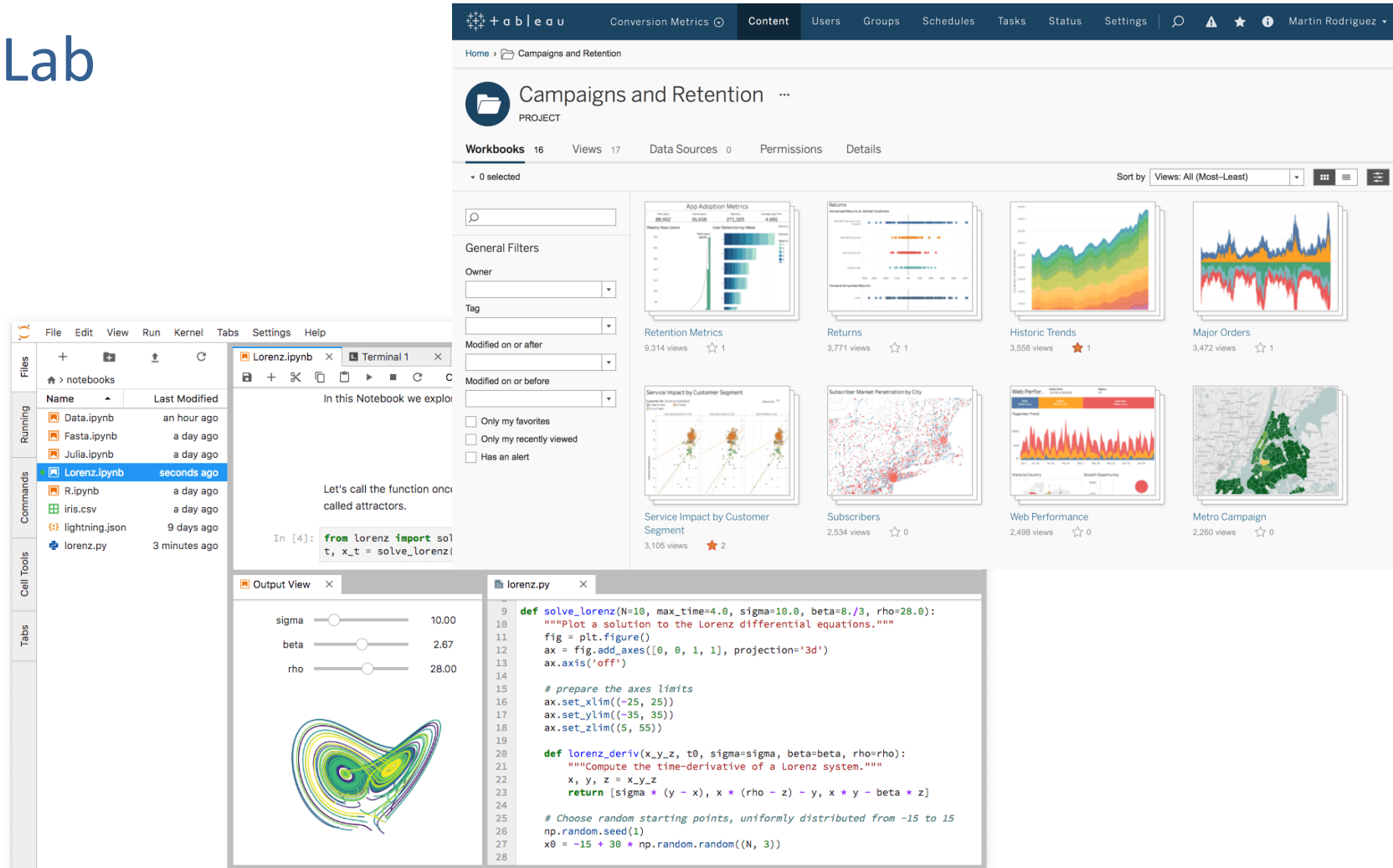
- Data Customization
- Designer Data
- Story Telling

The Evolution of Data Management



Tools for Story Telling

- Jupyter Notebooks/Lab
- Tableau
- D3
- Cesium
- Other suggestions?



Contributing Projects

- ESA Polar TEP Phase II:
 - Interactive content in a public portal linked to processors.
 - Curation of content.
- CCADI/CFI
 - Interactive visualization and analysis web portals customized for a variety of use cases.
- Cryosphere Virtual Laboratory:
 - “Highly interactive visualisation of collocated EO, EO-based high-level data products, in-situ, airborne data sets.”

For More Information

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