



NOAA Big Data Partnership

**Ground System Architecture Workshop,
Los Angeles CA
2015 Mar 04**

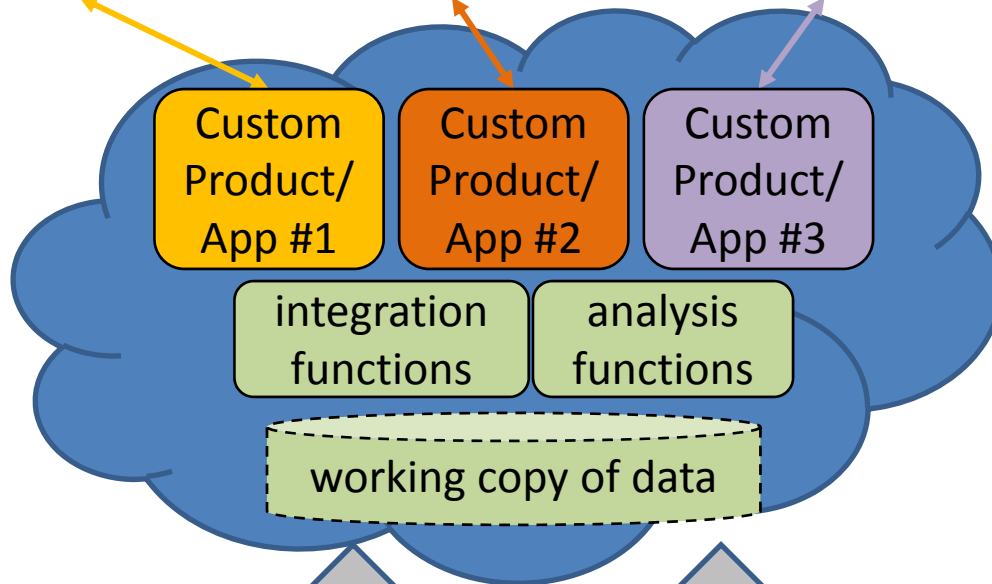
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end users



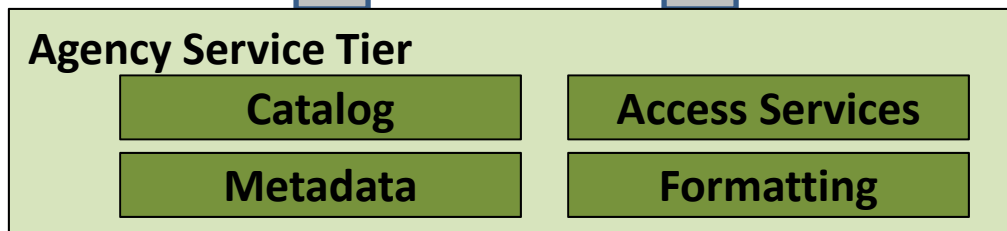
application & product providers



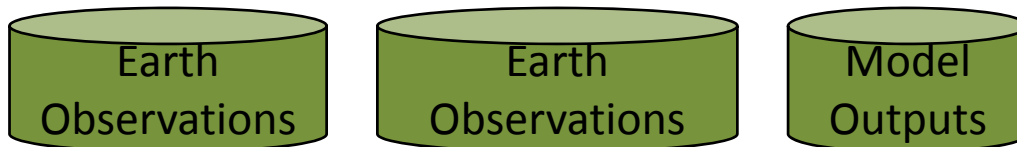
cloud provider(s)

agency security boundary

agency-provided services



master copy of data



Architectural Concept



maximum diversity

maximum standardization



Goals and Approach



Goals

- Unleash full potential of NOAA data through innovative approaches
- Enable private sector to develop new information products and lines of business
- Improve compliance with Open Data policy

Approach

- Position NOAA's data alongside computing and analysis capabilities
- Create sustainable private/public partnership where industry:
 - Moves NOAA data to cloud at no net cost to government
 - Provides free public access to original NOAA data
 - Creates new profitable value-added services



Rationale



- **Levels the playing field for data access and use**
 - Reduces burden of private infrastructure needed to interact with data
 - Shifts concentration of efforts from data movement to analytics
- **Enables private sector to pace scale of access based on demand**
 - Market forces drive increase or decrease in investment
 - Removes bottleneck of government budgets as pacing function
- **Introduces concept of shared private investment for benefit of all**
 - Some components of this solution are not profitable but necessary
 - Sharing costs of these components makes problem tractable



Preliminary Work

- Assembled Big Data Partnership team comprising experts from across NOAA
- Issued market research Request for Information (RFI) on 2014-02-21
 - <https://www.fbo.gov/index?id=d9844cb78b4527fb11a6ac6d2b80a742>
 - Announced by Commerce Secretary Pritzker in Silicon Valley
- Developed concept of operations & business model
- Formulated requirements in the form of a Statement of Objectives (SOO)
- Issued 2nd RFI 2014-09-26 to improve technical requirements, and explore partnership approach
 - <https://www.fbo.gov/index?id=d85395e880589db0f35edef39e71314b>
- Conducted Industry Day 2014-10-17 to answer questions, review draft Statement of Objectives, and encourage networking among potential partners



Response to 1st RFI

Feasibility

- Strong encouragement that proposed partnership was a viable idea to explore further

Partnerships

- A majority of respondents provided examples of teaming/consortium arrangements involving multiple companies with various capabilities

Implementation

- Strong signal from industry to start soon - don't delay
- Start with critical mass of customers to make cost recovery feasible
- Incremental implementation - start with high value datasets



Data Requested in RFI Responses

(subset of available data)



- NOAA land-based (surface) observations
- Current observational data, including:
 - Surface weather from networks including Automated Surface Observing System (ASOS)
 - Upper air observations (soundings)
 - Gridded surface and upper air analyses
- Current satellite imagery and 12-hour satellite loops
- 10-day NWS forecasts and digitized products from National Digital Forecast Database (NDFD)
- Model data out to the number of days available for at least the following:
 - Global Forecast System (GFS)
 - North American Mesoscale Forecast System (NAM)
 - Rapid Refresh (RAP)
 - Short Range Ensemble Forecast (SREF)
 - Geospatial mapping
 - Aquatic wildlife patterns
 - Oceanic storm patterns
 - Wind flow patterns



Industry Data after 2nd RFI



- Industry Day held 2014 Oct 17 at NOAA
 - 388 registrants
 - 194 unique organizations represented
 - Over 100 questions gathered during day
 - Responses posted on FedBizOpps announcement along with presentations for Industry Day



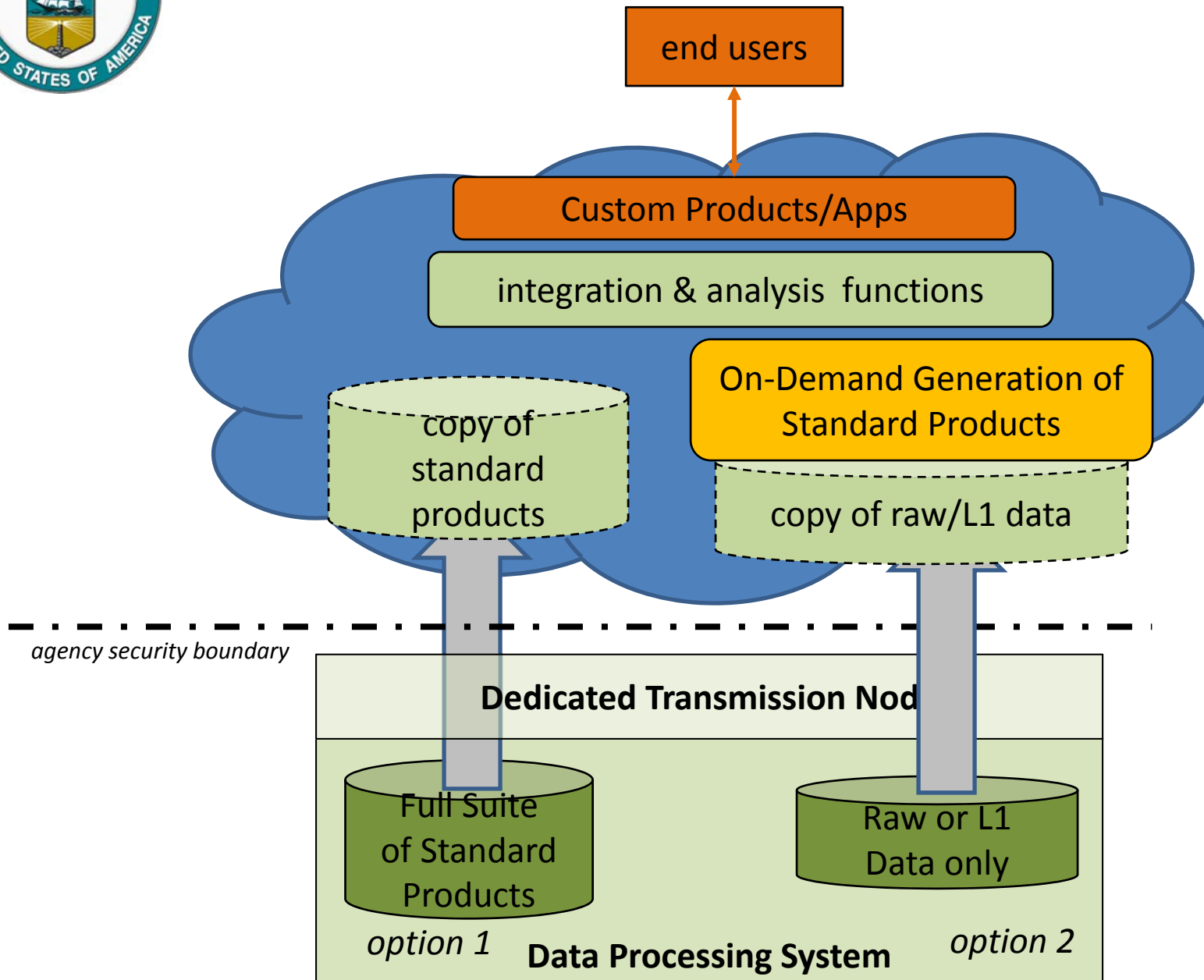
Partnership Principles



- No adverse impact on government mission
- No privileged private access to public data
- No net additional cost to government
- Government employs best practices in data management
- Transparent operation of Partnerships



Relation to Ground Systems





Next Steps

- Policy and technical questions remain
- Plan to initiate a research and prototyping phase soon
 - Anchor partners will work with NOAA to form "Data Alliances" that include broad communities of interested companies.
 - Data Alliances will serve as models for the larger market ecosystem and will demonstrate the value proposition and self-sustainability of the project.
- NOAA is currently working to solidify the details of this approach and will release more information as it becomes available.



Backup Slides



Big Data Partnership

Team Members



Office of Chief Information Officer

- David Michaud (Dep. Dir. HPCC)
- Ron Bewtra (NOAA CTO)
- David McClure

Office of Oceanic and Atmospheric Research

- Jeff Flick
- Frank Indiviglio

Satellite and Information Service

- Michael Tanner
- Terrance Tielking

National Marine Fisheries Service

- Mark Brady

National Ocean Service

- Tony LaVoi (NOAA GIO)

National Weather Service

- Edward Johnson

Environmental Data Management Committee

- Jeff de La Beaujardière (NOAA DMA)

Acquisition and Grants Office

- Tania Gates, Contracting Officer
- Patrick Curry, Contracting Specialist

Office of General Counsel

- Shraddha Upadhyaya
- Mark Langstein

Presidential Innovation Fellows

- Maia Hansen
- Alan Steremberg



Statement of Objectives

Overview



- **Approach**
 - Keep requirements as simple as possible
 - Enable multiple partners
 - Ensure equal access on equal terms
- **Requirements**
 - 2.1 Positioning data in the cloud
 - 2.2 Equal access on equal terms
 - 2.3 Compliance
 - 2.4 Impact to mission services
 - 2.5 Service Level
 - 2.6 Data Curation
 - 2.7 Reporting
 - 2.8 Quality Assurance
 - 2.9 Planning
 - 2.10 IT Security Requirements
- **Period of Performance**



Statement of Objectives



2.1 Positioning data in the cloud

- Offerors responsible for cost of data extraction to cloud and making available to the public
- NOAA data moved to cloud shall remain free to public in original form
- Government and Offerors will work jointly to determine subsets of NOAA's data to make available
- Government retains final determination of what data to provide
- Solutions should be extensible to data sources outside of NOAA
- Partnership arrangements shall be made public



Statement of Objectives



2.2 Equal access on equal terms

- No privileged private access to public data assets
- Any data “made available” to a partner shall be made available to the public, including other partners and value-added service providers
- Offerors (partners) may also be value-added service providers
- Offerors shall not utilize data until it is made available to the public and value-added service providers



Statement of Objectives



2.3 Compliance

- Solutions shall support NOAA's compliance with government open data policy initiatives
 - Including Executive Order 13642 and OMB M-13-13

2.4 Impact on mission services

- NOAA shall ensure that existing mission services will not be adversely impacted



Statement of Objectives



2.5 Service Level

- Government will provide datasets on a best-effort basis and will not provide a service level agreement
- Datasets will be provided “as-is”
 - Offerors may work with NOAA to suggest improvement in dataset metadata
- Government shall not incur any liability as a result of the proposed solution or partnership
- Government reserves the right to cease generating data without notification



Statement of Objectives



2.6 Data Curation

- Government is responsible to maintain the “master copy” and stewardship of the data within its control
- Offerors are responsible for updating data to the most recent version provided by NOAA
- Offerors shall comply with NOAA’s terms of use for its data including appropriate attribution
- Offerors shall utilize established government data catalogs