

Enabling Information Sharing thru Common Services

The NextGen 4-D Weather Data Cube & NextGen Network-Enabled Weather (NNEW) System

Presented To: ATIEC Conference

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Air Transportation Information Exchange Conference - (featuring AIXM, WXXM and FIXM)

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NOAA Science Center & Auditorium
Silver Spring, Maryland

Introduction

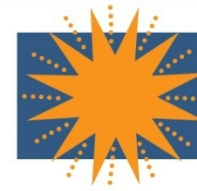


- A NextGen goal:
 - ***Making information available via net-centric mechanisms***
- NOAA & FAA are working together to make this a reality for weather data:
 - NOAA by implementing the NextGen 4-D Weather Data Cube
 - FAA by implementing the NNEW System



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Agenda



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- NNEW and NextGen 4-D Weather Data Cube (The Cube) Overview
- Schedule
- Weather Data Integration into Decision Support Tools (DSTs)
- Notional Architecture
- Key Elements of Both Systems
- Summary



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NNEW and The Cube

Overview



- These programs are IT infrastructure programs that will enable integration of weather information into ATM decisions
- Key Benefits:
 - Provide Network- enabled weather information services.
 - Define, develop, and provide capabilities for universal access to weather information from multiple Government and industry sources using a Service Oriented Architecture.
 - Provide the capability to automatically locate and retrieve data for FAA's Air Traffic Management DSTs using global and open standards.
 - Provide the capability to retrieve weather information along flight-trajectory-specific airspace volumes.



NNEW and The Cube Overview (cont.)



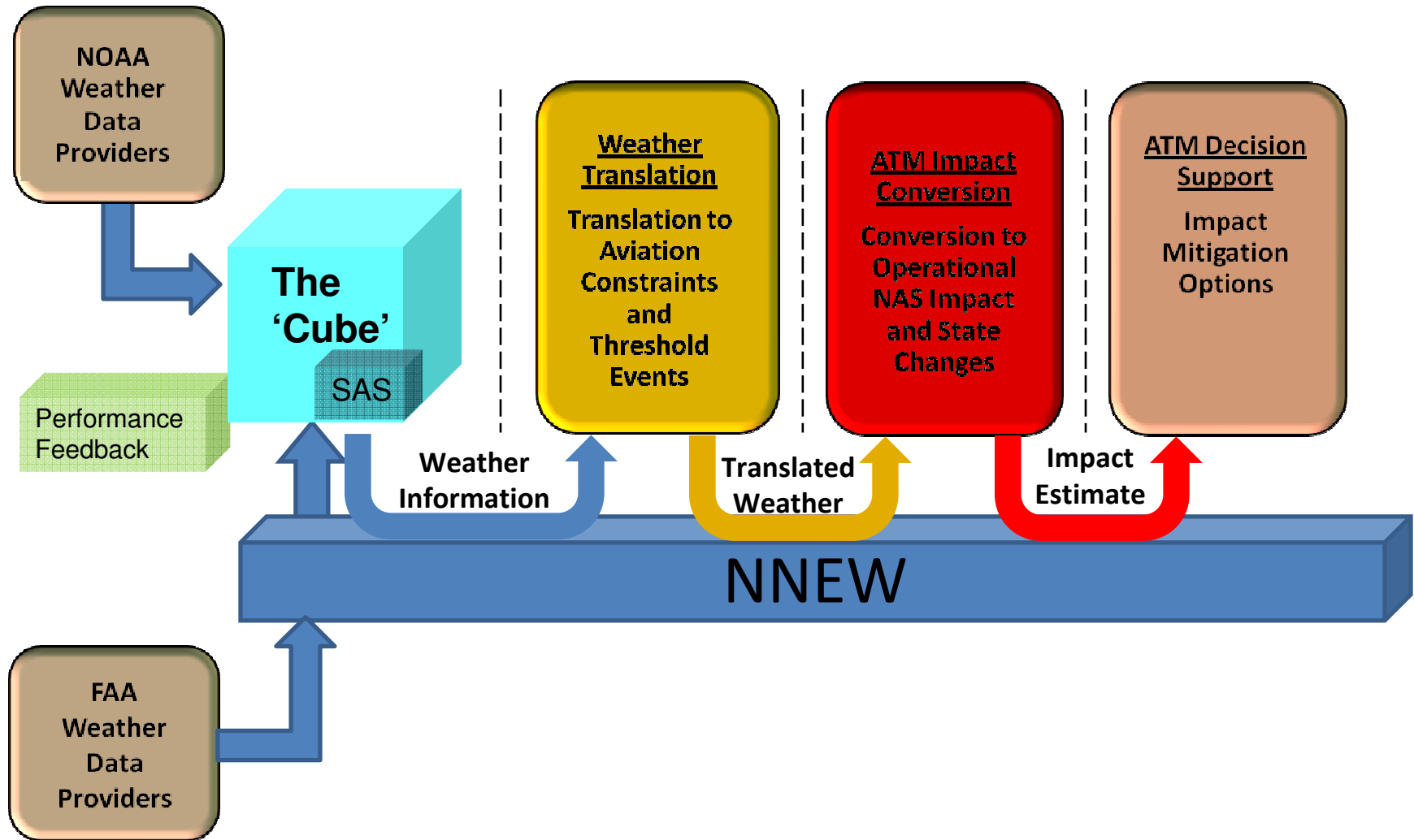
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- The Cube and NNEW will be using common standards for weather data discovery and data query
 - Software that provides capabilities for:
 - Locating data
 - Retrieving data
 - Subsetting of data
 - And a number of other functions
 - Service adaptors to support legacy systems
- NNEW is the FAA's platform for disseminating aviation weather and weather translation information
- NOAA's NextGen Cube provides weather forecast and observations from NOAA and internal FAA sources and provides it to the FAA through NNEW



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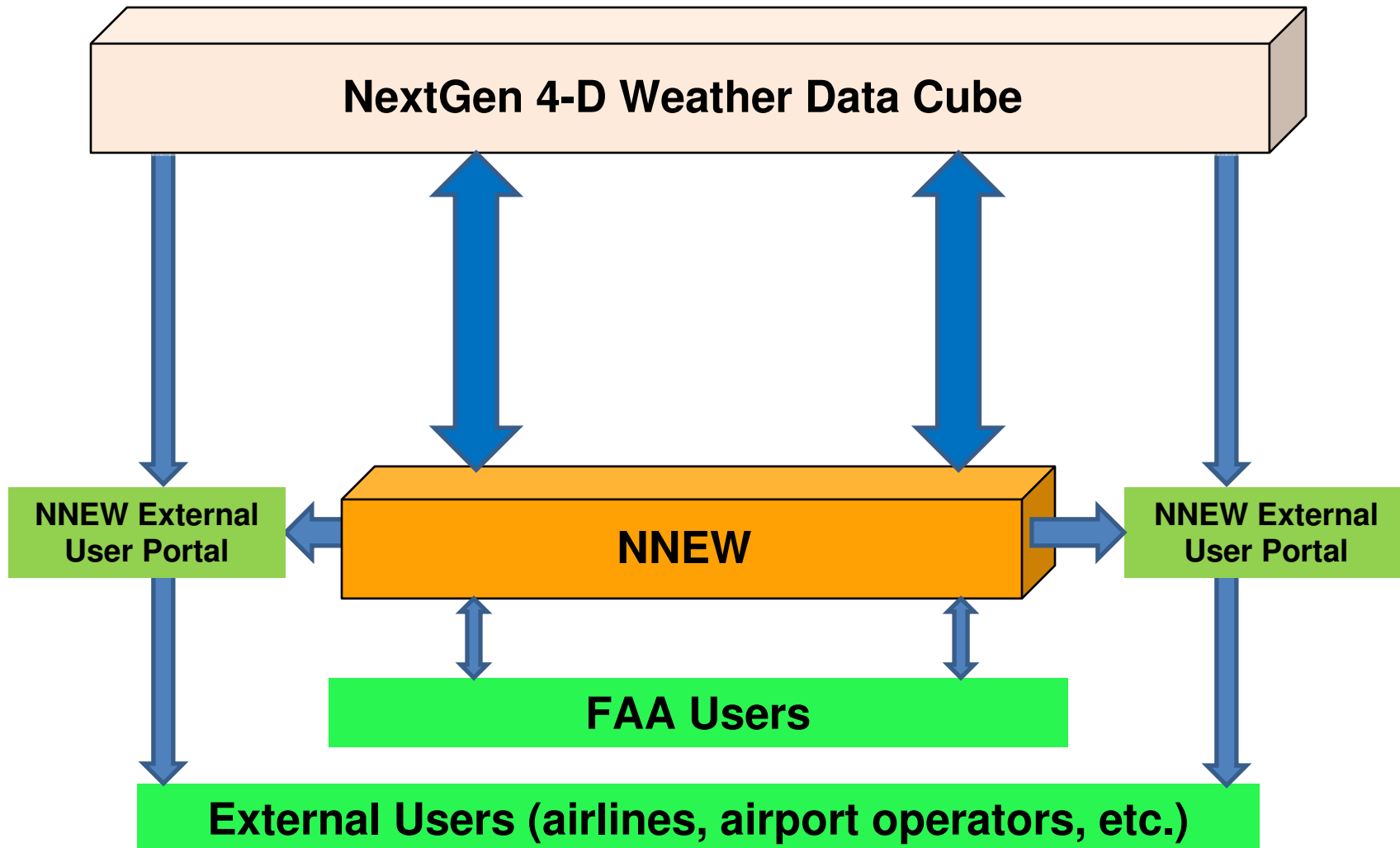
Weather Data Integration



Notional Architecture



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Weather Information Exchange Model (WXXM)



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- FAA and NOAA programs are adopting WXXM
- Currently working with EUROCONTROL to further develop WXXM



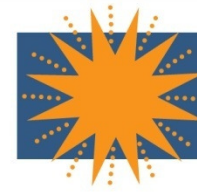
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Key Elements of Both Systems

- Open Geospatial Consortium (OGC) standards, principally:
 - WCS - Web Coverage Service – Serves weather data on grids.
 - WFS - Web Feature Service – Serves weather data at points.
 - WMS - Web Map Service – Serves images.
- Data Format Standards
 - WXXM and NetCDF-4
 - Metadata Standards
- Registry/Repository
 - Enables data discovery
 - Shows how to query weather data

Key Elements of Both Systems (cont.)



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- Software
 - Registry/Repository
 - ebXML-compliant registry/repository obtained from a commercial source
 - Reference Implementations of WCS and WFS
 - Software that implements the WCS and WFS standards
 - Provides the mechanism to connect consumers with providers and return the data that are requested
 - Ontology
 - Enables searching for datasets registered in the Registry/Repository in a vocabulary-independent manner
 - Service adaptors
 - Enables legacy systems to provide data to, or use data without rewriting the legacy system software

Summary / Conclusion



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- NNEW and the NextGen 4-D Wx Data Cube implementing common standards for weather data discovery and data query
- FAA and NOAA jointly working towards greater accessibility of weather information for use in FAA DSTs – enabled by WXXM



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Questions & Answers / Feedback



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