NAS Enterprise Architecture

NextGen 2025
System Interface Description
SV-1p

System Context

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Purpose of View

The SV-1p has two purposes –

• Present the scope of the NextGen systems (functions) in relation to external systems (functions) that they interact with.

• Identify the “need lines” (interfaces) that exist among the systems (functions).
Classical SV-1 vs. SV-1p

• NAS EA Guidance calls for two types of diagrams:
  – SV-1n – shows system nodes and their required interfaces.
  – SV-1s – shows systems and their required interfaces.

• NextGen 2025 systems and system nodes are TBD:
  – SV-1p uses system functions as placeholders.
  – Includes an overall context diagram and supplemental diagrams that identify functional interfaces.
Applications vs. SOA Services

• **Applications** (white boxes) are NAS-specific functions required to provide aviation-related services.
  – Derived from operational needs and concepts.
  – Also include stakeholder operations.

• **SOA Services** (yellow boxes) are those services required to create a net-centric environment.
  – Represent an implementation strategy managing the exchange of operational data.
  – Identified in more detail in the SV-4.

• **Colored boxes** enclosing the functions and services represent different categories of entities.
Airborne Elements & Remote Facilities
Other External Entities

- Ground-based Consumers
- Non-Federal Partners
- Federal Partners
- Commercial Partners
NextGen Facilities
Enterprise Wide vs. Service Delivery

- Enterprise Wide Operations include those system functions that are national in scope.
- Service Delivery includes those functions that are local in scope.
- Neither is intended to designate a facility type or location of the functions performed.
- Some functions are performed at both the national and local level.
National vs. Local

- Flight & State Data Management
- Surveillance Information Management
- System & Services Management
- Trajectory Management
- Weather Information Management
Partner Functions

- **Airborne Consumers**: Weather Data Collection
- **Military**: Separation Management & Trajectory Management
- **NWS**: Weather Operations
- **Contractor**: Flight Planning Service
- **Vendor**: Weather Operations
- **Authorized Clients, Consumers, & Support Systems**
  - System & Services Analysis
  - Long Term Capacity Management
  - Prototyping
Supplemental Interface Diagrams

• **Intended to show required information exchanges.**
  – Focus on those interactions projected to be necessary and sufficient for proper operations.
  – SOA environment allows all elements to exchange information with all other elements, subject to authorization.
    • Identifying all possible interactions would obscure vital interactions.
    • SOA provides flexibility to expand the list of interactions as processes and concepts evolve.
Supplemental Interface Diagrams Format

• **Non-standard**
  – Does not use the format specified by current NAS EA guidance (nodes or systems, and interfaces).

• **Each diagram is focused on an individual function.**
  – Includes identification of functions that are sources and consumers of data related to the function.
  – Includes an informal functional decomposition of the function.
  – Includes references to applicable SOA services.
Contact Information

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# National Vs. Local (Continued)

<table>
<thead>
<tr>
<th>Function</th>
<th>National</th>
<th>Local</th>
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<tbody>
<tr>
<td>Flight &amp; State Data Management</td>
<td>National flight plan filing and flight data distribution, including interaction with International ATC. Is the national repository for flight plans, 4-D trajectories, and flight status data.</td>
<td>Local flight plan filing.</td>
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<tr>
<td>Surveillance Information Management</td>
<td>Integrates the local surveillance data into a national product. Provides support to enterprise-wide functions, including Trajectory Management.</td>
<td>Develops the local portion of the surveillance products. Provides time-sensitive data to critical local functions.</td>
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<tr>
<td>System &amp; Services Management</td>
<td>Receives all system status information and manages system maintenance and configuration.</td>
<td>Monitors remote system functions and performs maintenance commands.</td>
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<tr>
<td>Trajectory Management</td>
<td>Manages the aggregate of 4-D trajectories in support of plans developed by Short Term Capacity Management and Flow Contingency Management.</td>
<td>Manages 4-D trajectories at the local level in support of plans developed by Short Term Capacity Management and Flow Contingency Management, including adjusting trajectories to sequence traffic.</td>
</tr>
<tr>
<td>Weather Information Management</td>
<td>Integrates the local weather data into a national product. Provides support to enterprise-wide functions, including climatology analysis.</td>
<td>Develops the local portion of the weather products. Provides time-sensitive data to critical local functions.</td>
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Sample SV-1s from NAS EA Guidance
Sample SV-1n from NAS EA Guidance