Schematic Architecture Overview

Security Services

- Display Applications

Control Services

- Algorithm Services
- Algorithm Services
- Algorithm Services
- Algorithm Services

Data Services

Control Services

- Workflow management
- Load management
- Logging and diagnostic capabilities
- Directory management

Display applications may use any number of services.

Some algorithm services may run in the background, i.e., without a display application.

Security services are required for each component that participates in the architecture.
<table>
<thead>
<tr>
<th>Feature</th>
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<tbody>
<tr>
<td>Logging and diagnostic capabilities</td>
</tr>
<tr>
<td>Directory management</td>
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</table>

**Note:** All components shown above reside in one or more application servers. Application servers may be located at NWS headquarters, any RFC or WFOs, and each application server may be configured with any combination of display applications, algorithm services and data services. Control services will have to be deployed uniformly across all application servers who participate in the OHD operational environment.
Security Services

Registering additional components
1. Adding a Data Service
   - Provide data service name to local directory agent
   - Optionally provide data service name to remote directory service
   - Provide data space identification to local directory agent
   - Provide strong name or registration certificate to authentication controller

2. Adding an Algorithm Service
   - Provide algorithm service name to local directory agent
   - Optionally provide algorithm service name to remote directory service
   - Define data spaces used by algorithm service (see above)
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Users must register new components and receive strong name or certificate for authorized system interaction

New components must be registered locally as well

Security Services
Each component or service is required to authenticate itself before communicating with another service or component. This communication occurs through a separate communication layer that is wrapped around each component and communicates synchronously with the central authentication controller.
Data Services interface:
- Processes requests for data
- Processes data to be stored

LDAA requests logical location → Local Data Access Agent (LDAA)

LDFA manages data access to specific format (XML, CSV, etc.)

LDLA requests physical location → Local Data Location Agent (LDLA)

Use local data via direct file access

Use local or remote data?

Data Services Interface:

Directory Agent or Service

Local Data Access Agent (LDAA)

Local Data Format Agent (LDFA)

Local Data Location Agent (LDLA)

CPU local data source configuration

Load config

Data Control Access Agent (DCAA)

Data Control Access Manager (DCAM)

Remote Operation

DCAM manages native data source access and transport (e.g., JDBC)

DCAM and DCAA provide the same function. DCAM operates in a remote environment, DCAA operates locally.

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Legend

Web Service traffic (synchronous)
Messaging traffic (asynchronous)
Native data traffic (synchronous)

RDBMS-based Database

Component Name

Text-based file (config, data)

Security wrapper

System Component

Terms
- “Agent”: component that executes on a local CPU
- “Service”: component that executes within one or more application servers
- “Local”: within one system, or on local LAN
- “Remote”: on a LAN not physically connected to a local CPU
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Central Authentication Controller (CAC) is the security service that manages authentication for registered services and components. Each component or service is required to authenticate itself before communicating with another service or component. This communication occurs through a separate communication layer that is wrapped around each component and communicates synchronously with the central authentication controller.

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**Data Services**

- **Data Services Interface**
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- **Directory Agent or Service**
  - LDAA requests logical location
  - LDFA manages: data access to specific format (XML, CSV, etc)

- **Local Data Access Agent (LDAA)**
  - Requests logical location

- **Local Data Format Agent (LDFA)**
  - Requests physical location

- **Local Data**
  - Use remote data via web services

- **FSS Files (remote)**
  - Other ASCII formats (remote)
  - XML, NetCDF, etc (remote)

- **Data Control Access Manager (DCAM)**
  - DCAM manages native data source access and transport (e.g., JDBC)

- **Data Service (DS)**
  - DCAM and DCAA provide the same function. DCAM operates in a remote environment, DCAA operates locally

Security Services

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