

Clarus

Weather System Design

ICC Meeting

November 15-17, 2005

www.clarusinitiative.org

Definitions

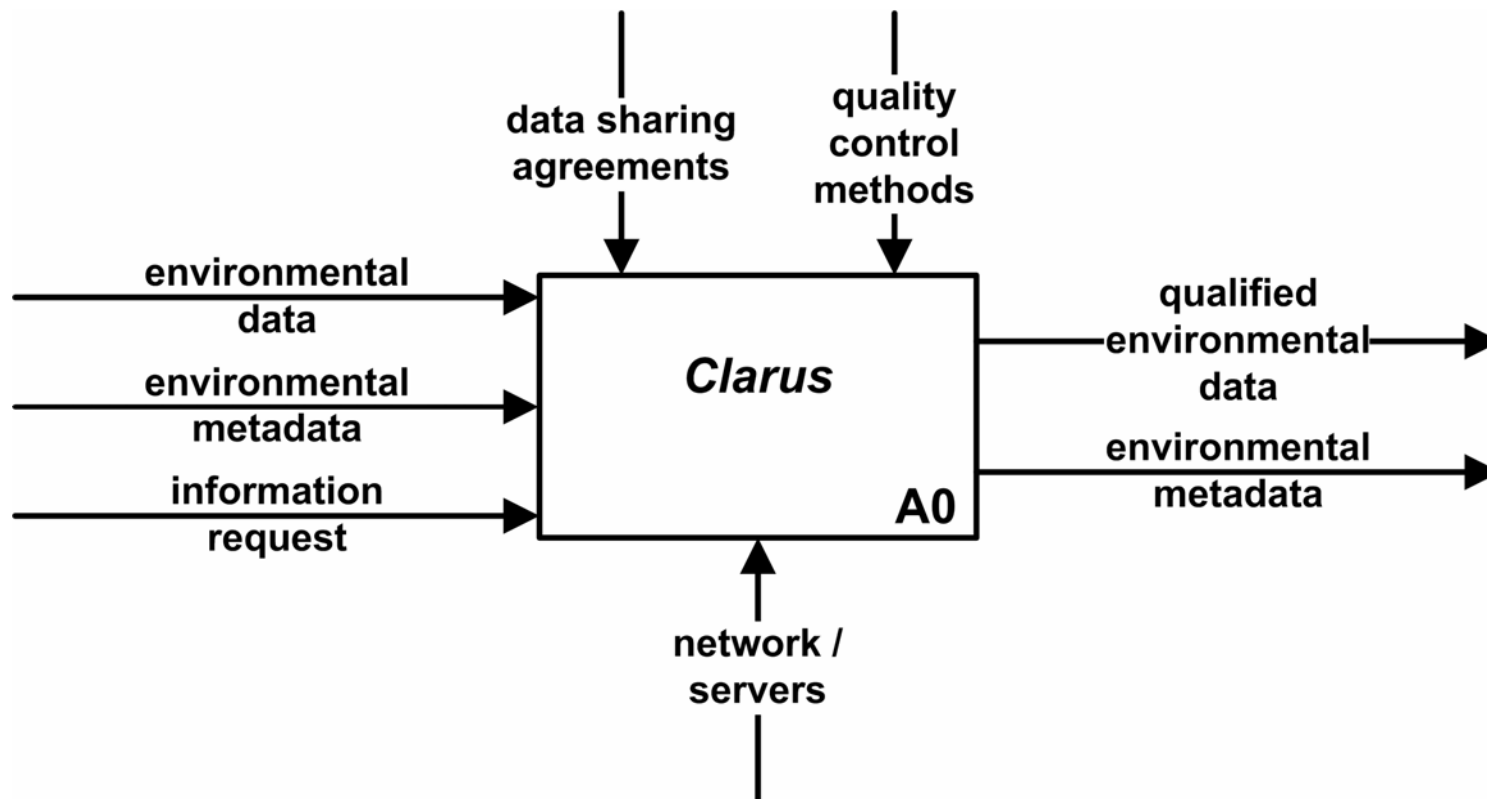
- Contributor – the organization sending in data
- Collector – server or CPU for environmental data collected from ESS, VII, vehicles . . .
- Requestor – the person/group requesting data
- Environmental Data – the observations received
- Environmental Metadata – information about the equipment providing environmental data

Definitions

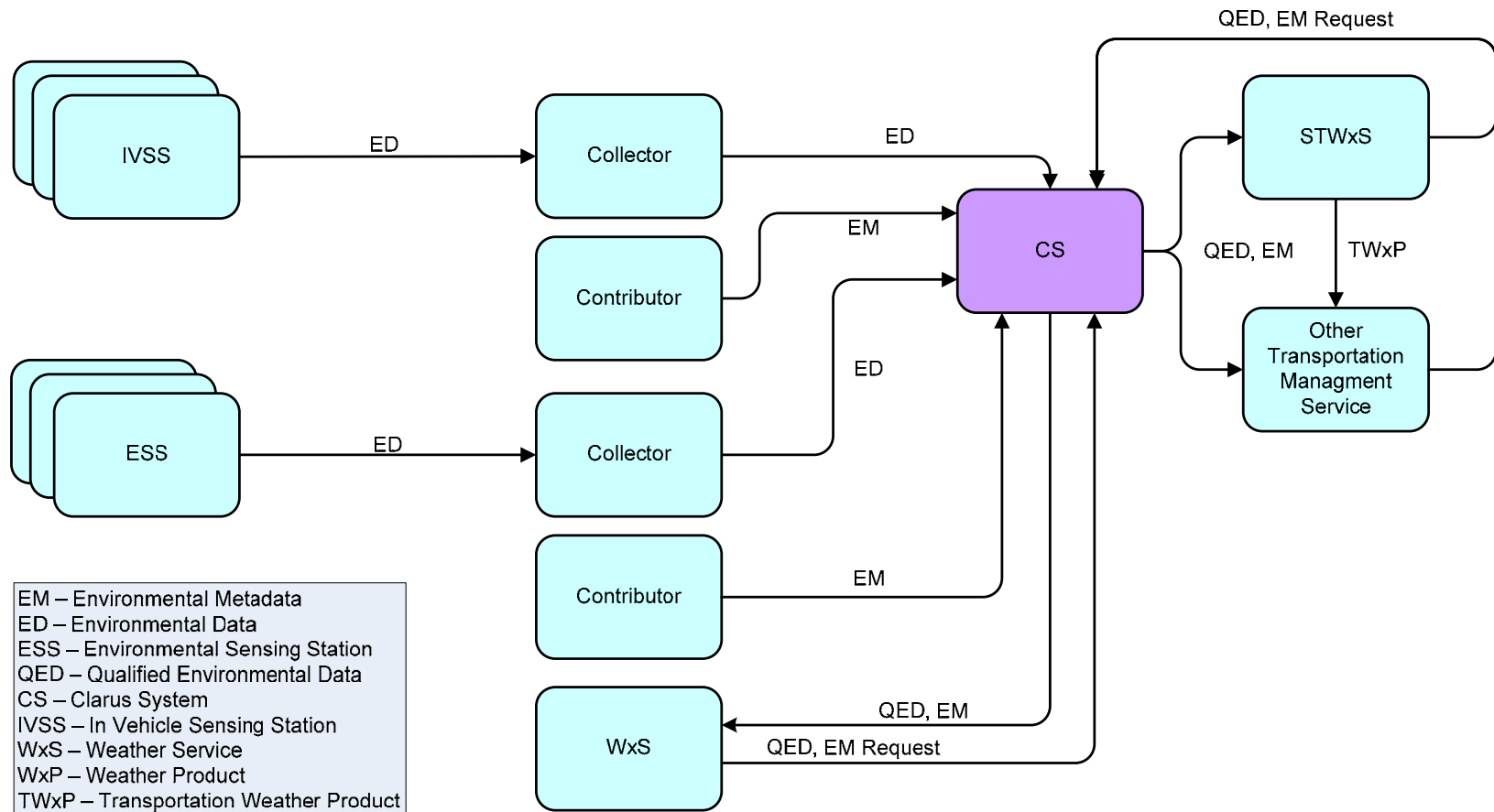
- Quality Checking – the process of checking the environmental data and applying quality flags
- External Data – weather data used to assist in quality checking such as ASOS and climate records

System Architectural Description

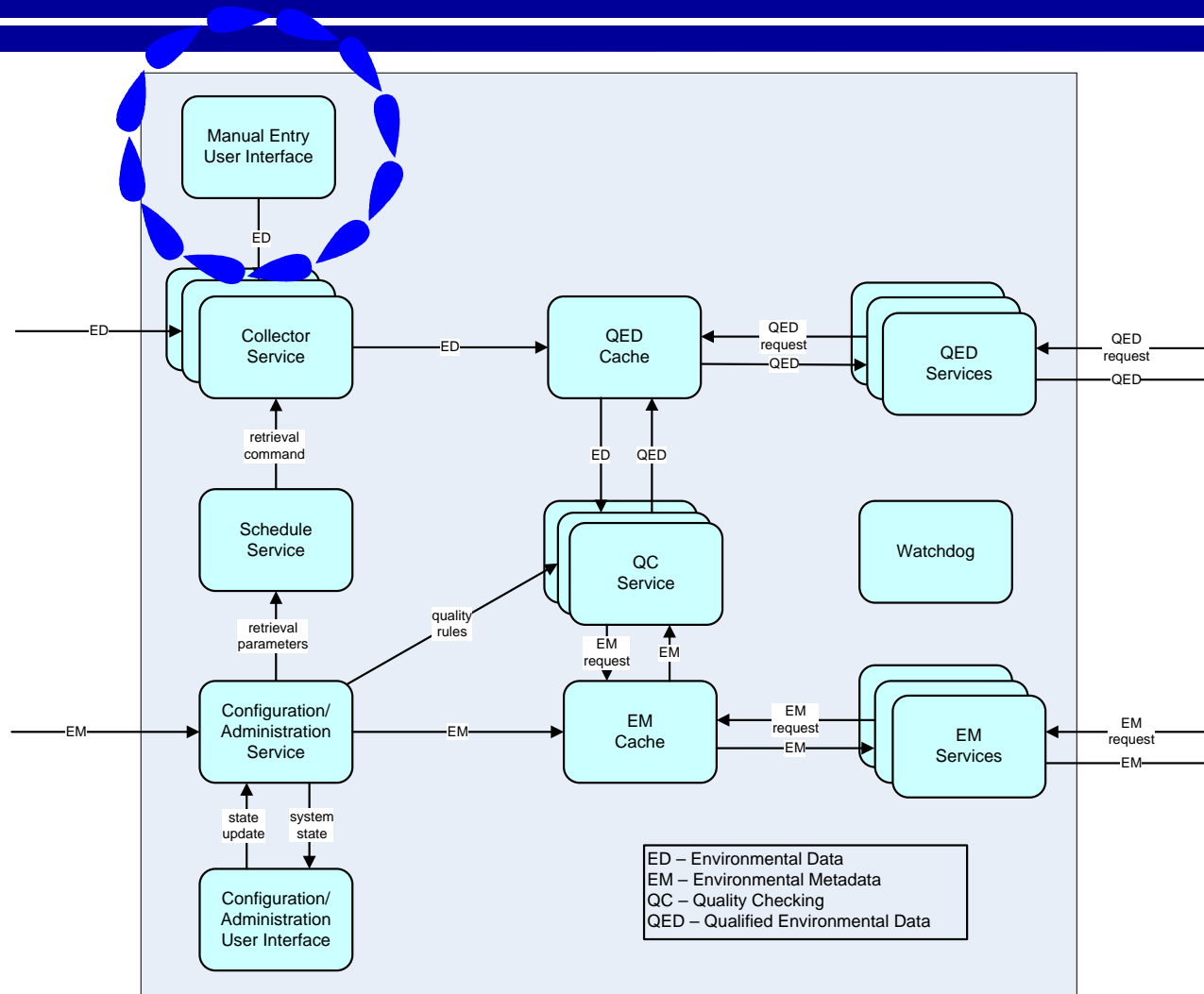
- Operational Concept



Clarus Program



Original Architecture



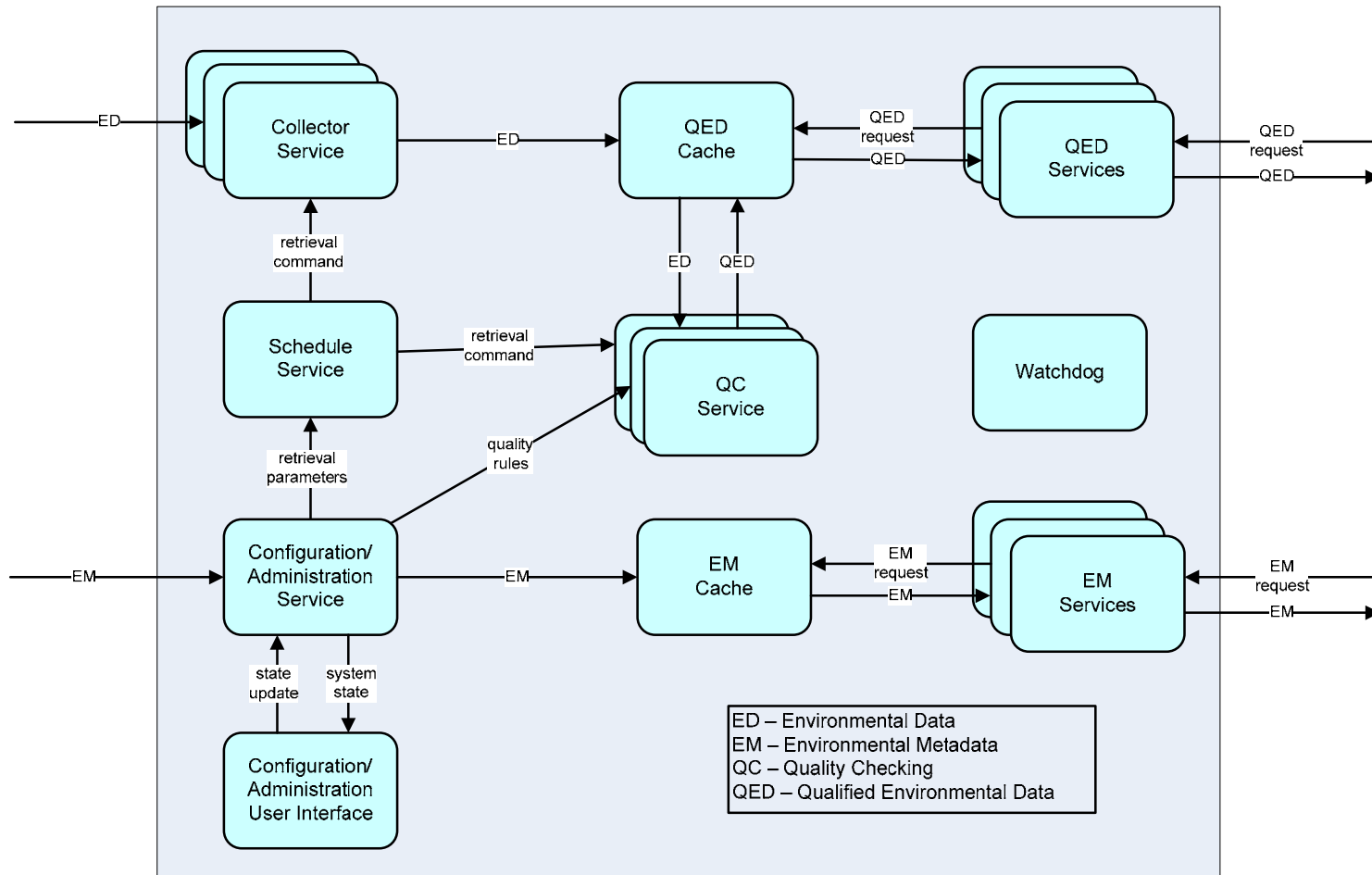
Deletion of Manual Entry Interface

- Manual Entry Interface would allow users to submit field observations
- Too complex for proof-of-concept
 - No requirements for end user platform
 - Each platform would require a specific implementation
 - Common collection interface is too awkward for users
- Graphical interface needed is too expensive to implement for proof-of-concept
- Deferred for future implementation

Deletion of Manual Entry Interface

- Does NOT eliminate
 - Data automatically generated on-board vehicles
 - i.e. snow plow AVL
- Eliminates redundancy to capabilities provided by other tools such as CARS, HCRS, etc.

Clarus System



Configuration/Administration Interface

- Presents the current state of the *Clarus* system parameters
- Allows updates to the *Clarus* system parameters

Configuration/Administration Service

- Supports the *Clarus* system and program
- Manages information about data provider redistribution restrictions
- Controls access for modifying the system state and quality rules
- Applies manual quality flags
- Establishes environmental data retrieval schedules
- Manages environmental metadata

Schedule Service

- Schedules input for environmental data from collectors and contributors
- Schedules Quality Checking Services (QCS)
- Schedules dissemination of qualified environmental data and metadata based on subscriptions

Collector Services

- Extracts environmental data from collectors based on requests from the schedule service
- Receives environmental data from collectors through push and pull methods
- Converts environmental data into a standard format
- Sends environmental data to Qualified Environmental Data Cache (QEDC)

EM Cache

- Receives environmental metadata from the Configuration/Administration Service (CAS)
- Stores environmental metadata
- Receives requests from the Environmental Metadata Services (EMS)
- Sends environmental metadata in response to Environmental Metadata Services' request

EM Services

- Receives request
- Gets environmental metadata from cache
- Formats environmental metadata to fulfill requests and subscriptions
- Sends formatted metadata back to requester

QED Cache

- Receives environmental data from the Collector Services (CS)
- Stores qualified environmental data
- Sends environmental data to Quality Checking Services (QCS)
- Receives quality checked environmental data from Quality Checking Services
- Receives requests from the Qualified Environmental Data Services (QEDS)
- Sends qualified environmental data in response to Qualified Environmental Data Services' request

QED Services

- Receives request
- Gets quality checked environmental data from cache
- Formats quality checked environmental data to fulfill requests and subscriptions
- Sends formatted environmental data back to requester

QC Services

- Receives environmental data from qualified environmental data cache
- Executes multiple methods to quality check the environmental data
- Applies quality flags
- Sends quality checked environmental data to Qualified Environmental Data Cache (QEDC) with their associated quality flags

Watchdog

- Monitors the overall *Clarus* system state
- Restarts unresponsive services
- Maintains a log of system state failures and disposition

Project Information

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