

Clarus Weather System Design

ICC Update

Web Conference

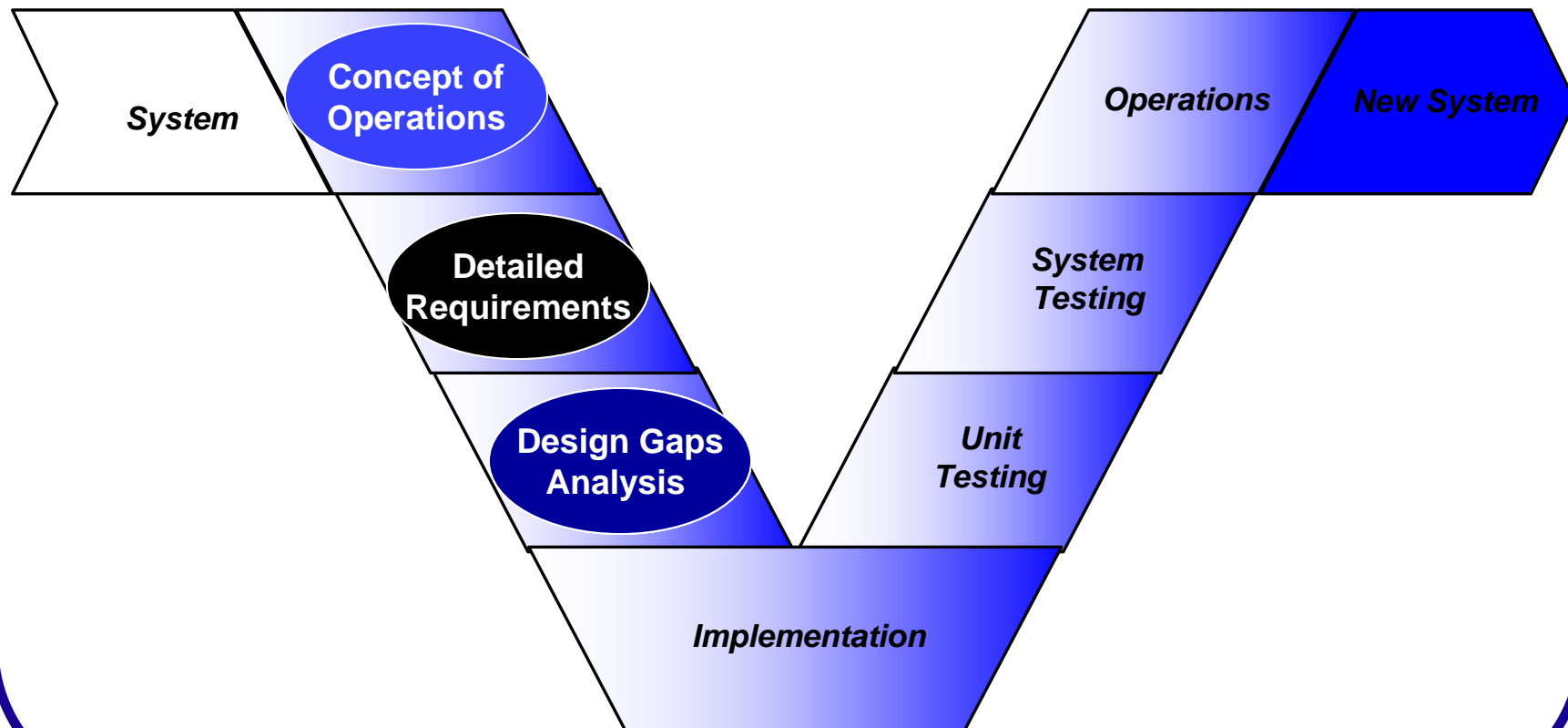
September 27, 2005

www.clarusinitiative.org

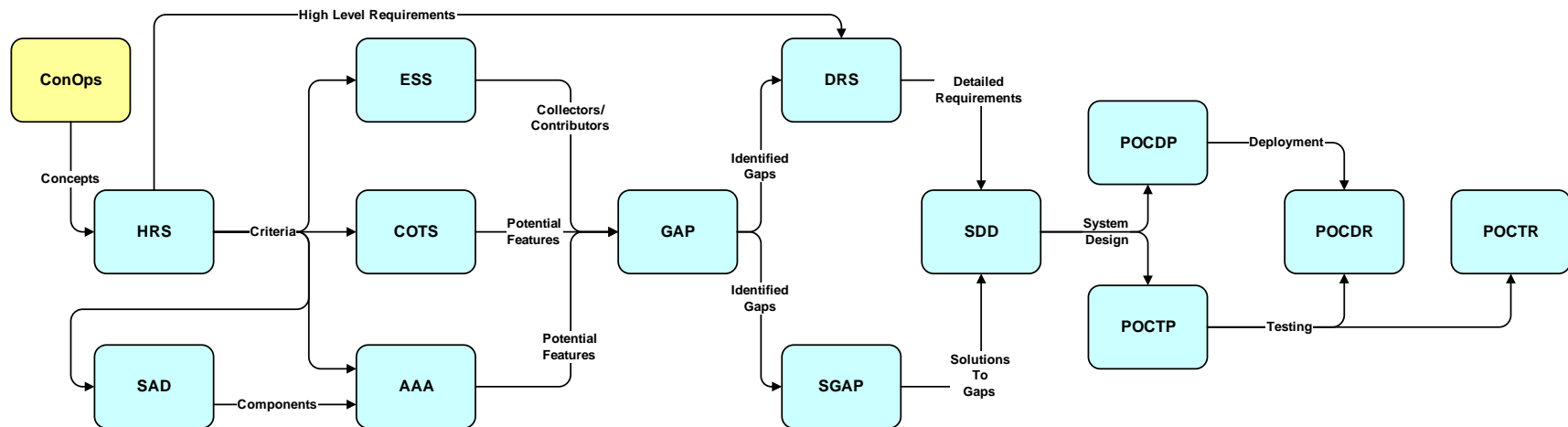
Web Conference Objectives

- Review status of *Clarus* Design project
- Provide summary of high-level system requirements
- Provide summary of ESS survey results
- Provide summary of system architecture, alternatives, and gaps
- Set the stage for detailed requirements specification and review

Clarus Design Deliverables



Clarus Deliverables



AAA – Analysis of Architectural Alternatives
 ConOps – Concept of Operations
 COTS – Analysis of COTS Systems
 DRS – Detailed Requirements Specification
 ESS – Survey of Environmental Sensor Stations
 GAP – Design Gaps Analysis
 HRS – High-Level Requirements Specification
 POCDP – Proof-of-Concept Deployment Plan
 POCDR – Proof-of-Concept Demonstration Report
 POCTP – Proof-of-Concept Test Plan
 POCTR – Proof-of-Concept Test Results
 SAD – System Architectural Description
 SDD – System Design Document
 SGAP – Solution to Fill Design Gaps

Concept of Operations

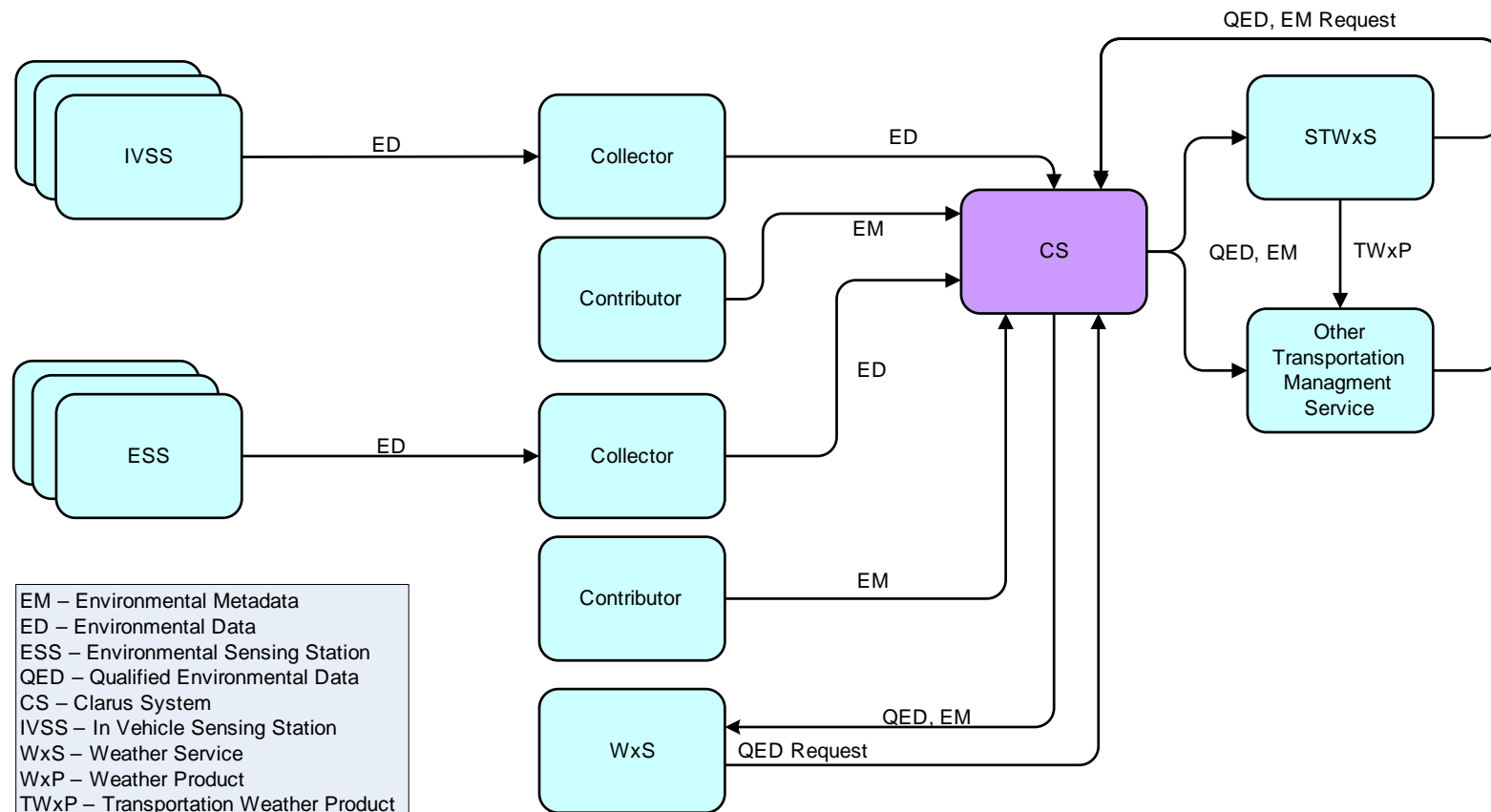
- Provides programmatic context and technical overview
- Identifies stakeholders
- Describes operating scenarios
- Describes framework of *Clarus* system operations
- Document is on the *Clarus* website

High-Level Requirements

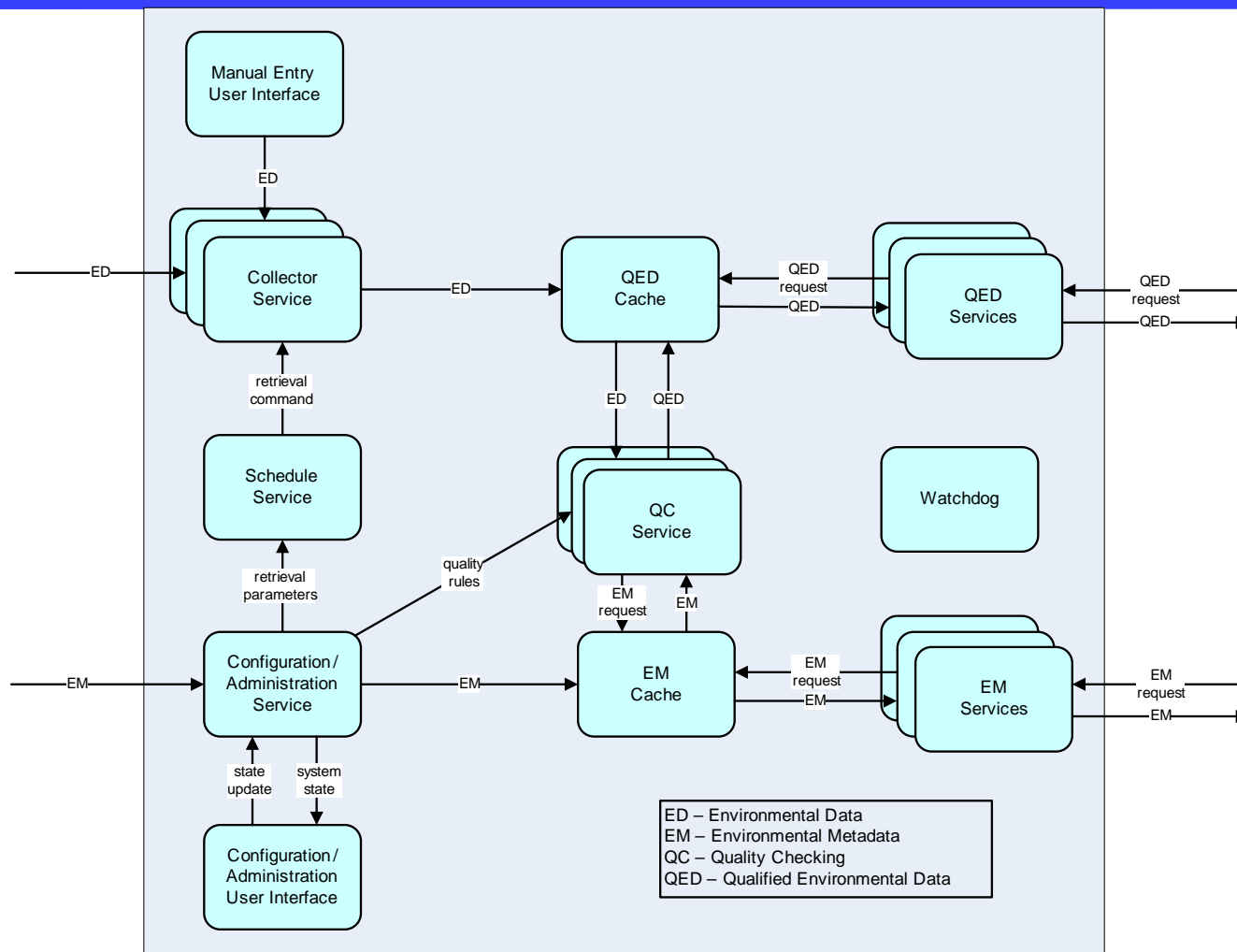
- Capture user requirements from Concept of Operations
- Capture mesonet operations experience
- Summarize key systems management best practices
- Provide high-level performance goals
- Document is on the *Clarus* website

System Architecture

- Provides high-level view of system context



System Architecture – Clarus System (CS)



DOT ESS Survey

- Provides detailed review of state DOT ESS
- DOT ESS coverage and metadata varies significantly among states; quality is consistent within states
- <15 minutes is “real-time” for DOTs
- Text data files are generally available
- ESS-to-server communications cover all options
- Plans to upgrade are limited by capital and maintenance funds

COTS Analysis

- Provides review of *Clarus*-related software and hardware components
 - Environmental data collection networks
 - Commercial “collector” software
 - Supporting software, computing hardware
- *Clarus*-like capabilities exist in some systems and networks
- No existing network meets all *Clarus* requirements

Architectural Alternatives

- Service topology: centralized or distributed
- Data acquisition: push, pull, or both
- Contributor assignment: accredited or self-nominated
- Geo-referencing
- Station identification
- Data cache and repository
- Message formats (TMDD/CMML)
- Quality checking methodologies

Design Gaps

- Data collection
 - Inconsistent DOT coverage at all scales
 - Inconsistent observation parameter lists
 - Lack of standard implementation
- Data processing
 - No standards for quality control of data

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Design Gaps

- Data dissemination
 - Lack of standard implementation
 - Accommodating stakeholder diversity in spatial and temporal data needs
 - Immediate micro/meso: DOT Ops
 - Near-term meso/synoptic: public-facing WSPs
 - Long-term at all scales: climate/researchers
 - Metadata and data needs

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Design Gaps

- Administration and control
 - Data sharing agreements
 - Metadata reliability
 - Configuration management
- System infrastructure and support
 - Network access to “real-time” data
 - Inconsistent ESS/RWIS maintenance/standards

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Next Steps

Final Design Gaps Analysis	Oct. 17
Draft Detailed Requirements	Oct. 17
Detailed Req. Briefing	Nov. 1-2
Final Detailed Requirements	Nov. 7
ICC Meeting #3 (Salt Lake)	Nov. 16-17
Draft System Design Docs	Dec. 12
Critical Design Review	Dec. 19-21

Project Information

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