

Standards for Clarus

The Nationwide Surface Transportation
Weather Observing & Forecasting System

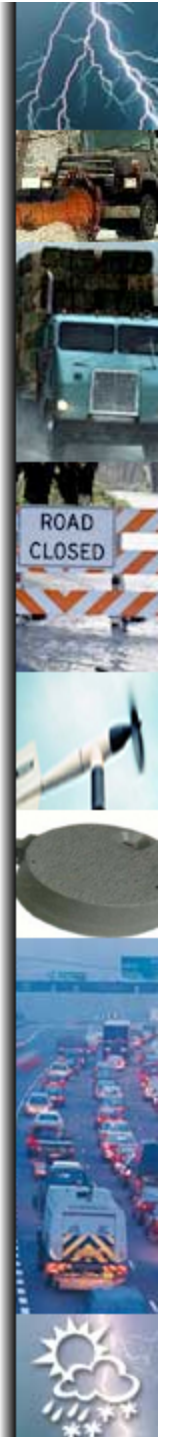
Lynette Goodwin
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Mitretek Systems, ITS Division

Clarus ICC Meeting #2
Flamingo Las Vegas Resort
March 2, 2005

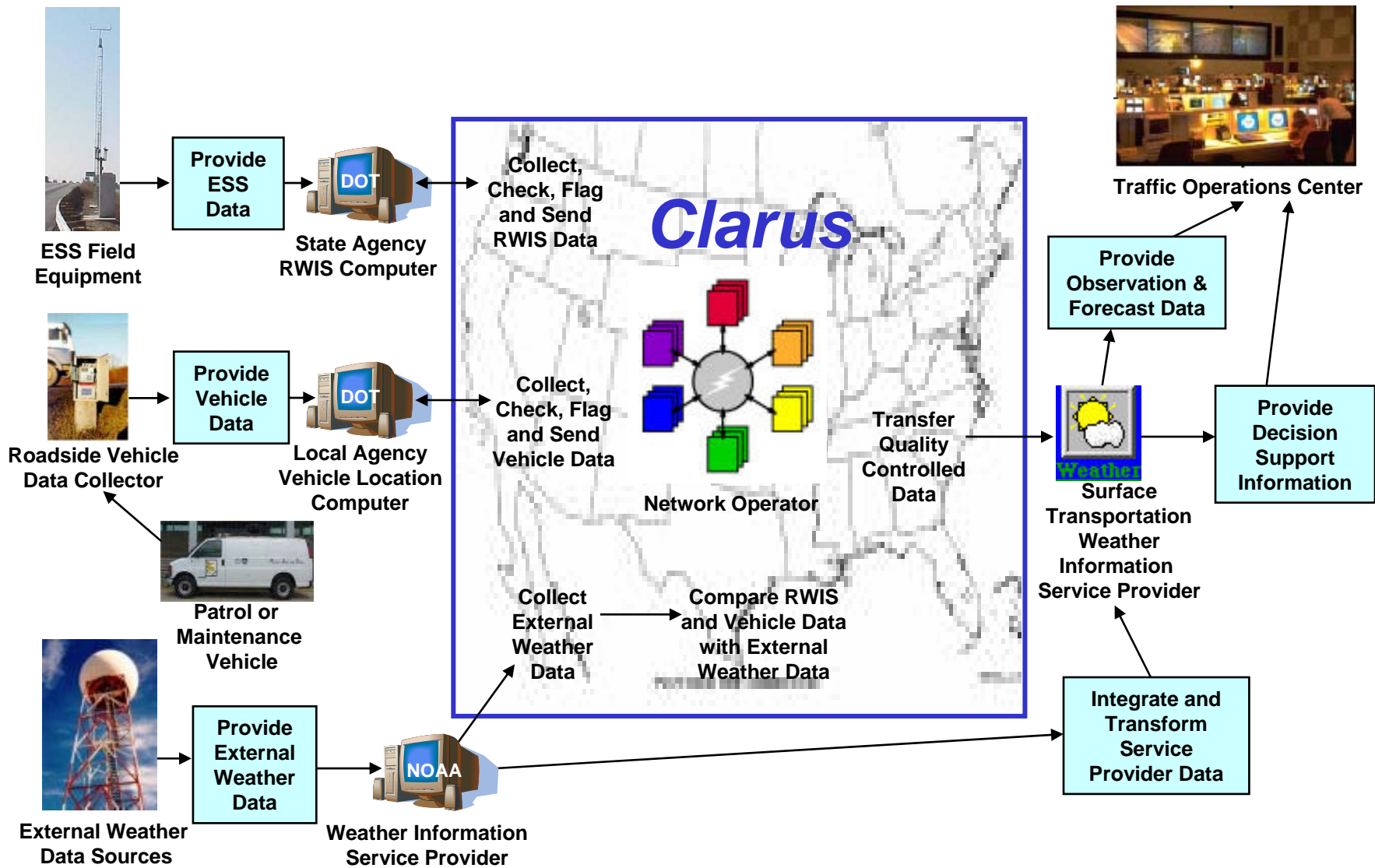


Overview

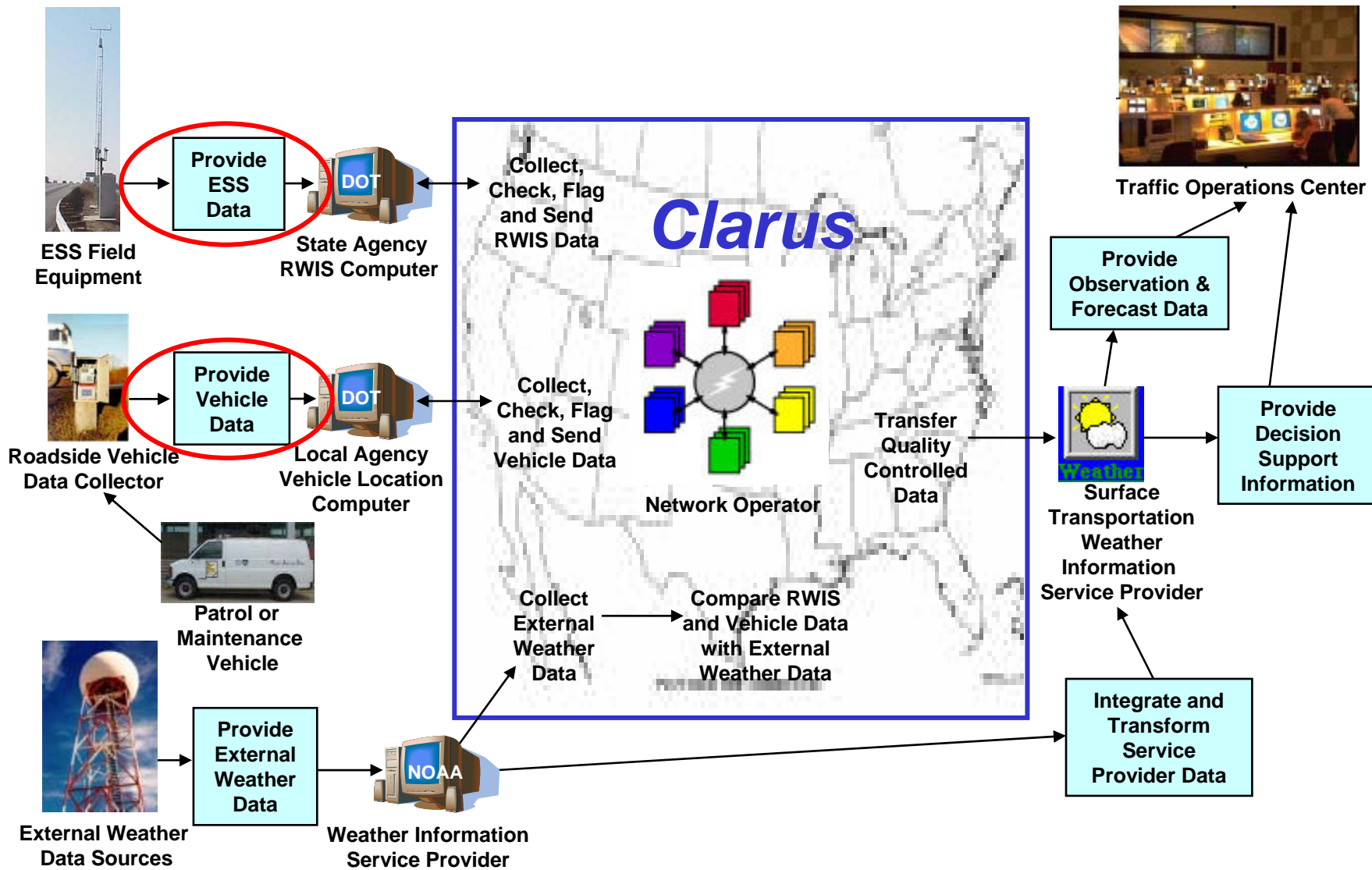
- Center-to-Field ITS Standard
- Center-to-Center ITS Standards
- XML-Based Standards



Overview



Center-to-Field ITS Standard

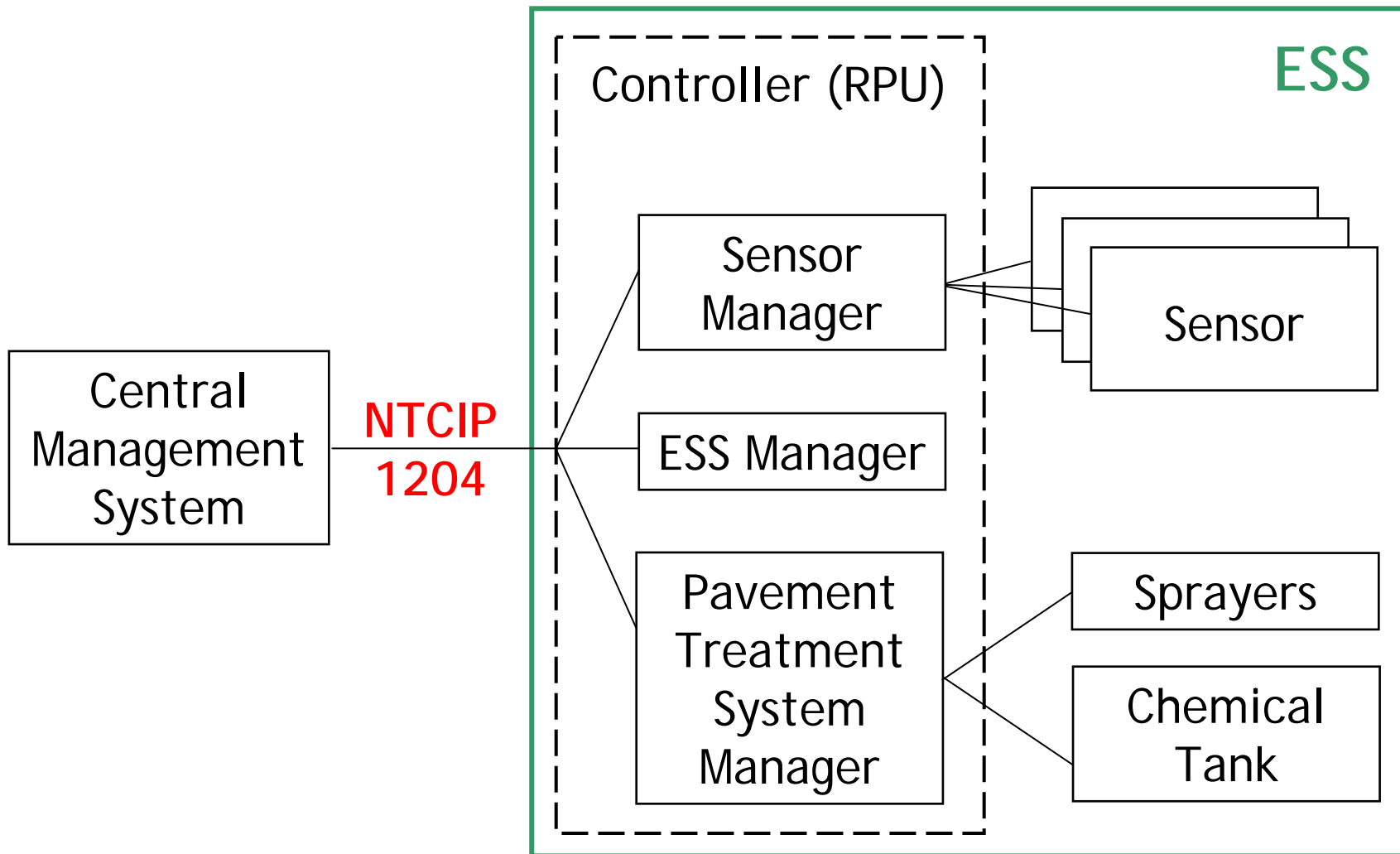


NTCIP 1204 - Environmental Sensor Station (ESS) Interface Standard

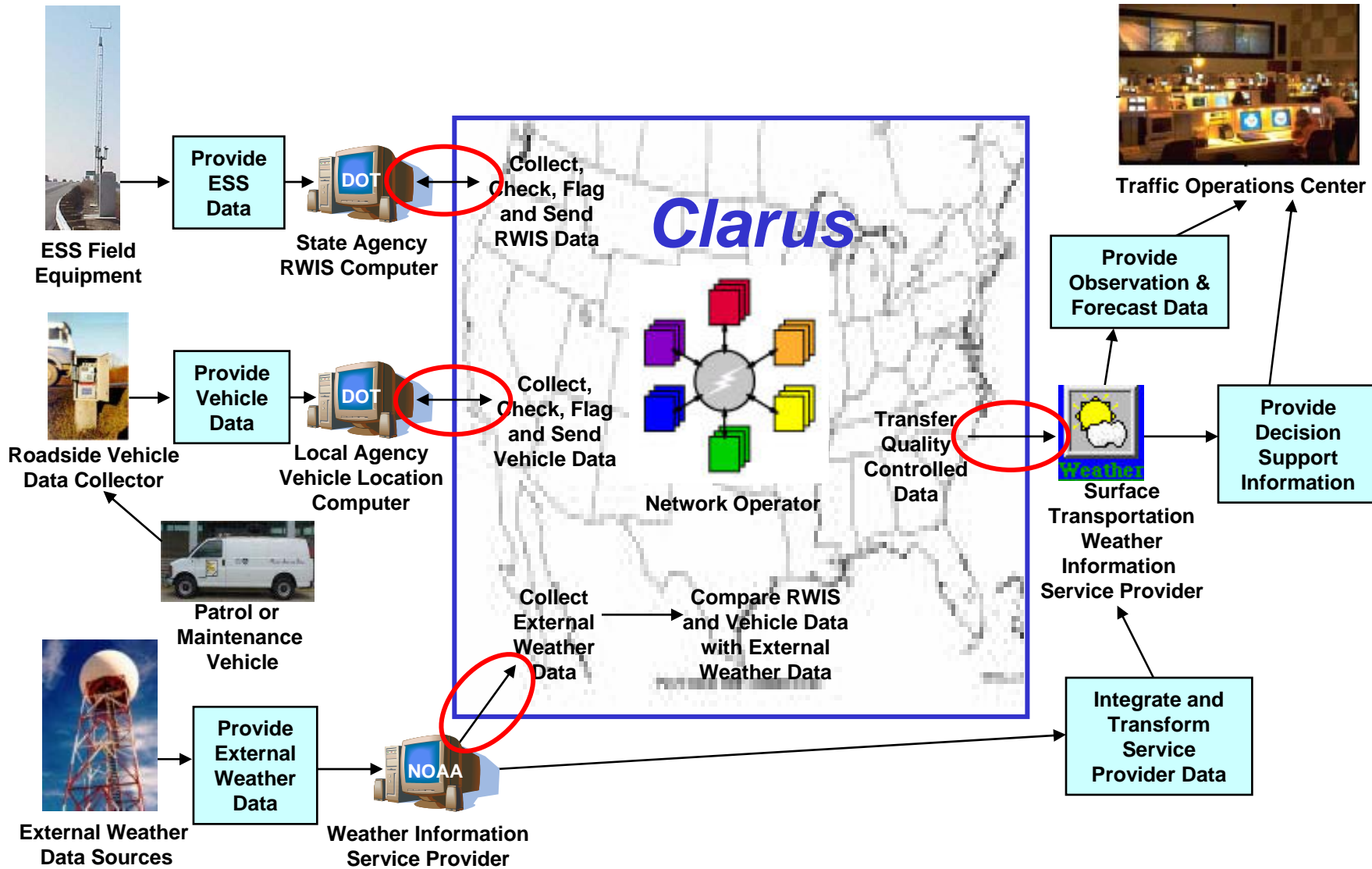
- NTCIP 1204v1
 - Approved by Joint Committee (JC) in 1998
 - Amended in 2001
 - Deployed by State DOTs
- NTCIP 1204v2
 - Approved by ESS Working Group in 11/04
 - Recommended Standard sent to JC in 2/05
 - Formal approval by JC expected 3/05
 - To be tested during Clarus demo in FY06



NTCIP 1204 - Environmental Sensor Station (ESS) Interface Standard



Center-to-Center ITS Standards



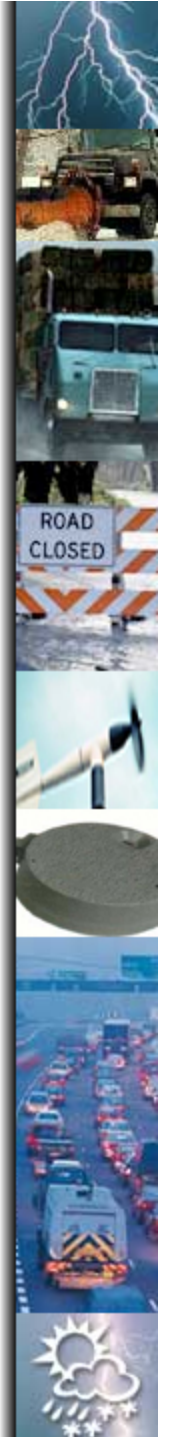
Center-to-Center ITS Standards

- NTCIP 1301 - Weather Report Message Set for ESS
- ITE Standards for Traffic Management Center-to-Center Communications
- NTCIP 1602 - Generic Reference Model for Traffic Management
- NTCIP 2304 - Application Profile for DATEX-ASN
- SAE J2354 - Message Sets for Advanced Traveler Information Systems

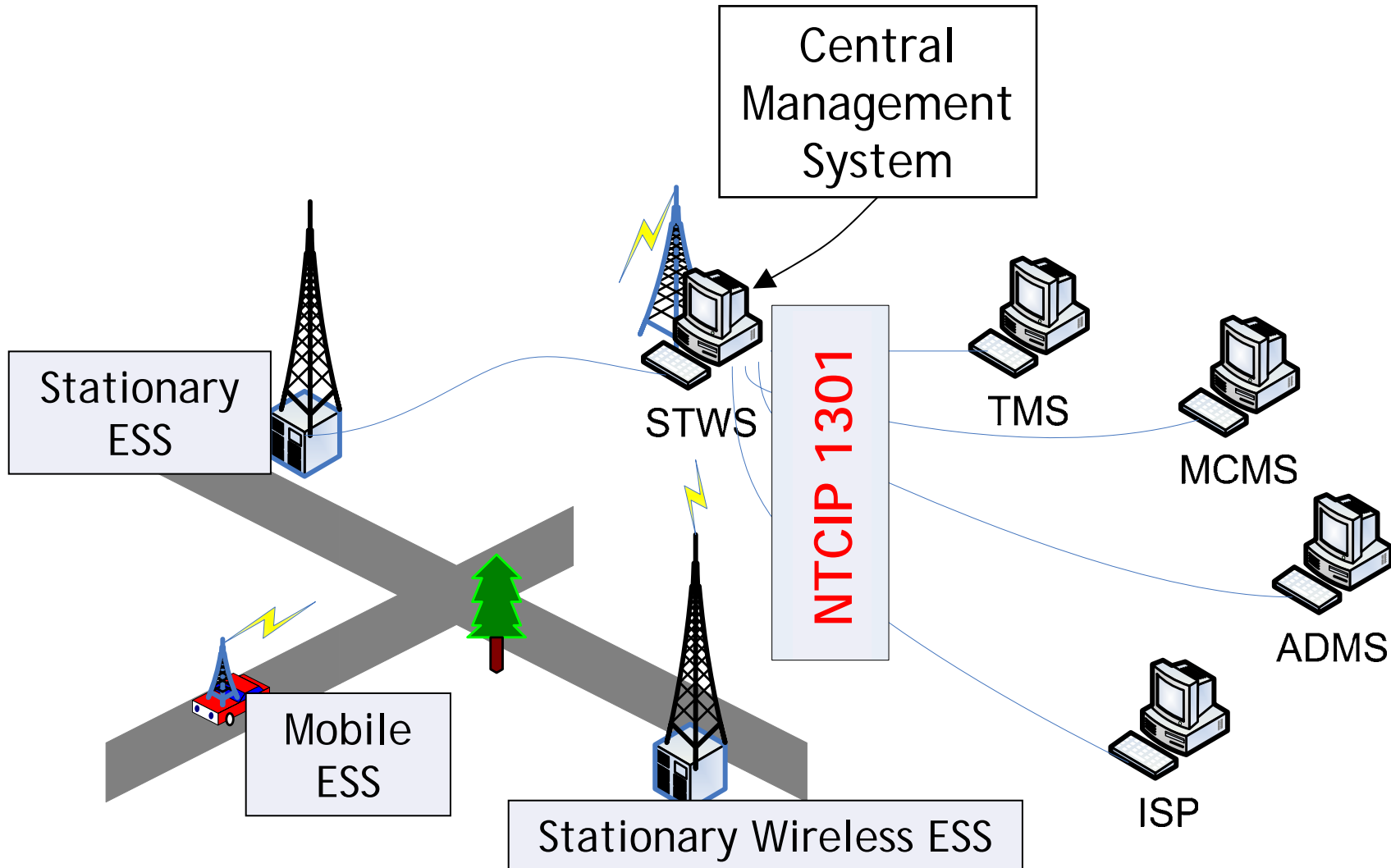


NTCIP 1301 - Weather Report Message Set for Environmental Sensor Stations (ESS)

- NTCIP 1301
 - Approved as a Work Item by the JC
 - Concept of Operations developed in 4/04
 - ESS Working Group has suspended further development



NTCIP 1301 - Weather Report Message Set for Environmental Sensor Stations (ESS)



ITE Standards for Traffic Management Center-to-Center Communications

- Traffic Management Data Dictionary (TMDD)
 - Traffic network (links and nodes)
 - Events disrupting the network (e.g., weather)
 - Traffic control devices
 - Information gathering or dissemination devices (ESS, CCTV, DMS, HAR)
- Message Sets for External TMC Communication (MS/ETMCC)
 - Observation and near-term prediction information
 - Messages encoded in Abstract Syntax Notation (ASN.1) and Extensible Markup Language (XML)



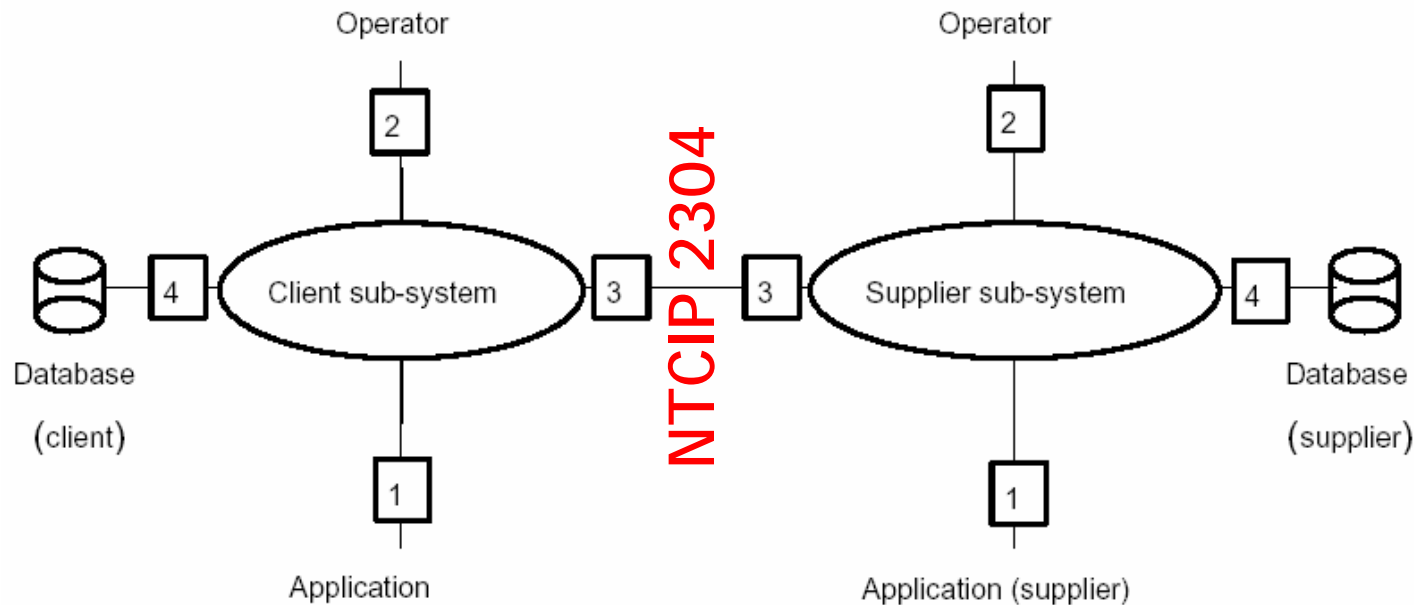
NTCIP 1602 - Generic Reference Model for Traffic Management

- Protocol-independent model
 - Relationships between data concepts using the Unified Modeling Language
- Based on the MS/ETMCC
- Same domain areas as the TMDD
- Messages encoded using different formats, e.g., DATEX-ASN or XML



NTCIP 2304 - Application Profile for DATEX-ASN

- NTCIP 2304
 - Recommended Standard in 9/00
 - Communication between transportation management systems
 - Messages encoded in ASN.1 or XML



SAE J2354 - Message Sets for Advanced Traveler Information Systems (ATIS)

- SAE J2354
 - Published in 1999
 - Revised in 2004
- Traveler information messages encoded in ASN.1 and XML
 - Dissemination to the public
 - Weather information
 - Road condition messages
 - Overlapping content with MS/ETMCC



XML-Based Standards

- NTCIP 2306 - Application Profile for XML in ITS Center to Center Communications
- Weather Information Dissemination Guidelines: Surface Transportation Weather Service Interface Specification
- NOAA's Digital Weather Markup Language
- Canadian Meteorological Markup Language
- Japanese Road Web Markup Language



NTCIP 2306 - Application Profile for XML in ITS Center to Center Communications

- Encoded in XML using the Web Services Description Language/Simple Object Access Protocol (WSDL/SOAP) profile
- Messages defined in other standards such as MS/ETMCC, NTCIP 1602 and SAE J2354



Weather Information Dissemination Guidelines: Surface Transportation Weather Service Interface Specification

- Development funded by Aurora and Enterprise
- Documents user needs and functional requirements for an XML interface for weather information
- Guidelines for obtaining surface transportation weather information from an STWS



NOAA's Digital Weather Markup Language (DWML)

- XML language for the NOAA National Digital Forecast Database (NDFD)
- NDFD contains a seamless mosaic of digital, gridded forecasts of weather elements (e.g., maximum temperature, wind speed)



Canadian Meteorological Markup Language (CMML)

- Meteorological data exchange between provincial stations and Environment Canada
- Used for Canada's Road Weather Information Network (RWIN)
- Based on NOAA's DWML
- Could support an integrated North American observing network



Japanese Road Web Markup Language (RWML)

- RWMLv1.0 released in 2003
- Uses XML for road-related information provided by time and location
 - weather information
 - regional tourist information
- Scan team proposed an assessment of applicability in the U.S.
 - road weather data object dictionary



Additional Information

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