



SIEMENS

ACES II

Rail Automation

Temporary Speed Restrictions by Radio Safety Critical, Radio Based Train Control

Siemens Inc., a specialist in the area of Cab Signal design, is proud to introduce the next phase of Civil Speed Enforcement and Positive Train Stop capability. Introducing the Advanced Civil Speed Enforcement System II (ACES II) as designed by Amtrak for the North East Corridor (NEC).

Using an extensive ground network of MCP data radios base stations, wayside cluster controllers, data service units, Ethernet networks, and safety servers; dispatchers can enter daily temporary speed restrictions and know that the ACSES II equipped trains will enforce them.

MCP data radios on board vehicles communicate with BCP data radio base stations located at interlockings along the ACSES II coverage area utilizing an ATCS Spec. 200 protocol.

As a train approaches an interlocking, it requests an update from the TSR servers. That update is sent to the train where it is received and checked for integrity before being enforced. The train receives TSR information for the next three interlockings ahead of it. This insures continuous TSR enforcement even during localized failures of the field equipment.

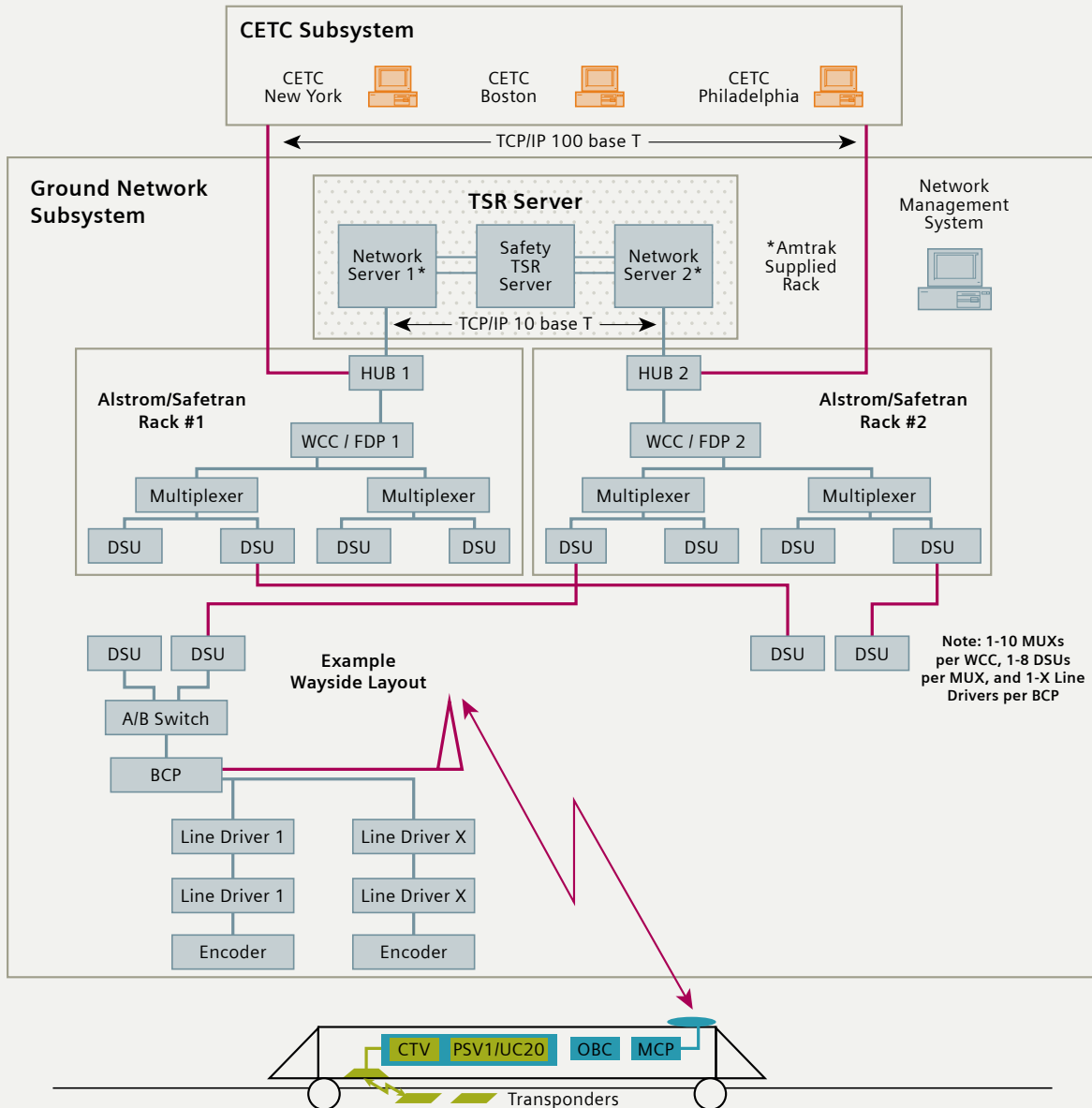
In addition to TSR enforcement, ACSES II provides vehicle and track maintenance information in real time. Information such as loss of radio communications or missing wayside transponders is recorded by the vehicle and sent to the dispatcher via radio maintenance messages. This allows for the timely dispatching of maintenance crews to correct problems and maintain system availability.

Radio communications is also established with interlocking encoders connected to the BCP base stations, which provide Positive Stop Release, Signal Status and Limit of Movement Authority (LoMA) information to the vehicle in real time.

ACES II builds upon the ACSES functions currently in operation on Amtrak trains running on the North East Corridor (NEC), such as, Positive Train Stop (PTS) at home signals and permanent civil speed enforcement from wayside transponders.

ACES II provides the next desired level of functionality, enforcement of Temporary Speed Restrictions (TSR). ACSES II is the next big step in providing a more comprehensive approach to civil speed enforcement.

ACES II System Diagram



Transponder Transmission Subsystem and Carbone Subsystem



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