Saving Lives by Connecting Lines

Positive Train Control (PTC), an initiative by the Federal Railroad Association of USA, is a life-saving innovation that ensures complete safety for passengers.

Tech Mahindra

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Connected World.
Connected Solutions.

To many of us, an approaching train invokes pleasant memories of panoramic views across majestic landscapes and the reassuring chug of a cozy ride back home. But the National Transportation Safety Bureau's study on rail safety throws up shocking revelations.

• Every 90 minutes there is a train collision or derailment
• A train carrying hazardous cargo derails approximately every two weeks in the United States
• Further, United States train and railroad accident statistics estimate that almost every two weeks a train derailment leads to a chemical spill. Some of these spills are so serious that they require the evacuation of local residents

Positive Train Control (PTC)

PTC is a communication based safety network, which tracks and coordinates between the onboard computer on the train, the wayside signaling devices and the control center server. It is a predictive collision avoidance technology capable of preventing train-to-train collisions, over-speed derailments and unauthorized incursion into work zones.

PTC has the ability to:
• Control and stop the train in the event of human error
• Prevent movements through a switch left in the wrong position, and
• Provide interoperability between PTC systems of different railroads

How it works is that PTC sends up-to-date visual and audible information to train crew members that directs them to the precise locations where the train needs to be slowed or stopped. PTC communicates with the train's onboard computer, allowing it to audibly warn the engineer and display the train's safe braking distance based on the train's speed, length, width, weight and the grade and curvature of the track. In case the engineer fails to respond to the ample audible warning and screen display, the onboard computer will activate the brakes and safely stop the train.

The Four Pillars Of PTC

PTC Back Office Server	Onboard System
A database of the speed restrictions, track geometry and wayside-signaling configuration	A combination of software & hardware that monitors and controls train movement
Wayside Interface Units	Communication Network
Allows the Signal System to communicate with the Back Office Server and Onboard systems	A dependable network connecting the locomotive, Back Office Server and Wayside Interface Unit.

Benefits of PTC implementation at a glance:

• Real-time incident life-cycle management and reduced legal costs
• Framework to manage proprietary protocols and live capture of data
• High availability and high performance
• Preventing over-speed derailment
• Enhance rail and consumer safety
• Zero message loss
• Increased crew efficiency

Tech Mahindra and PTC

PTC is a solution that requires knowledge and experience in advanced ITC Systems Management. Tech Mahindra, which has been supporting mission critical applications since 1999, was selected by a major railroad technology company after an elaborately run bid in 2010 to build and deliver SMS for PTC. Tech Mahindra's PTC Testing program with North America's largest railroad operator is widely acknowledged as one of the industries' finest. This partnership enables us bring railroad specific product offerings and SI knowledge to railroads across the world. Tech Mahindra's expertise provides end-to-end PTC solutions for railroad organizations including:

• Program Management
• PTC testing- Verification & Validation
• Type Approval & Certification
• End-to-end System Integration
• System Engineering
• PTC Readiness Assessment
• Installation & Commissioning
• Training, Simulation & Maintenance

The Tech Mahindra Advantage

• Experience of over 14 years in supporting mission critical applications, business processes, development of test tools, PTC testing & project management
• Experience in all 4 segments of PTC implementation: Onboard, Wayside, Back Office & Communication
• 250 + PTC professionals with up to 20+ years of experience
• Successfully delivered over 9,500 test cases covering over 4000 requirements
• Strategic engagement with the largest equipment provider for the railroad industry
• Partnered with North America's largest railroad operator for railroad specific product offerings and SI knowledge
• Two dedicated development centers in North America for transportation
• Conferred 'most preferred' SI by Interoperable Train Committee

Connect with us to know more:
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