



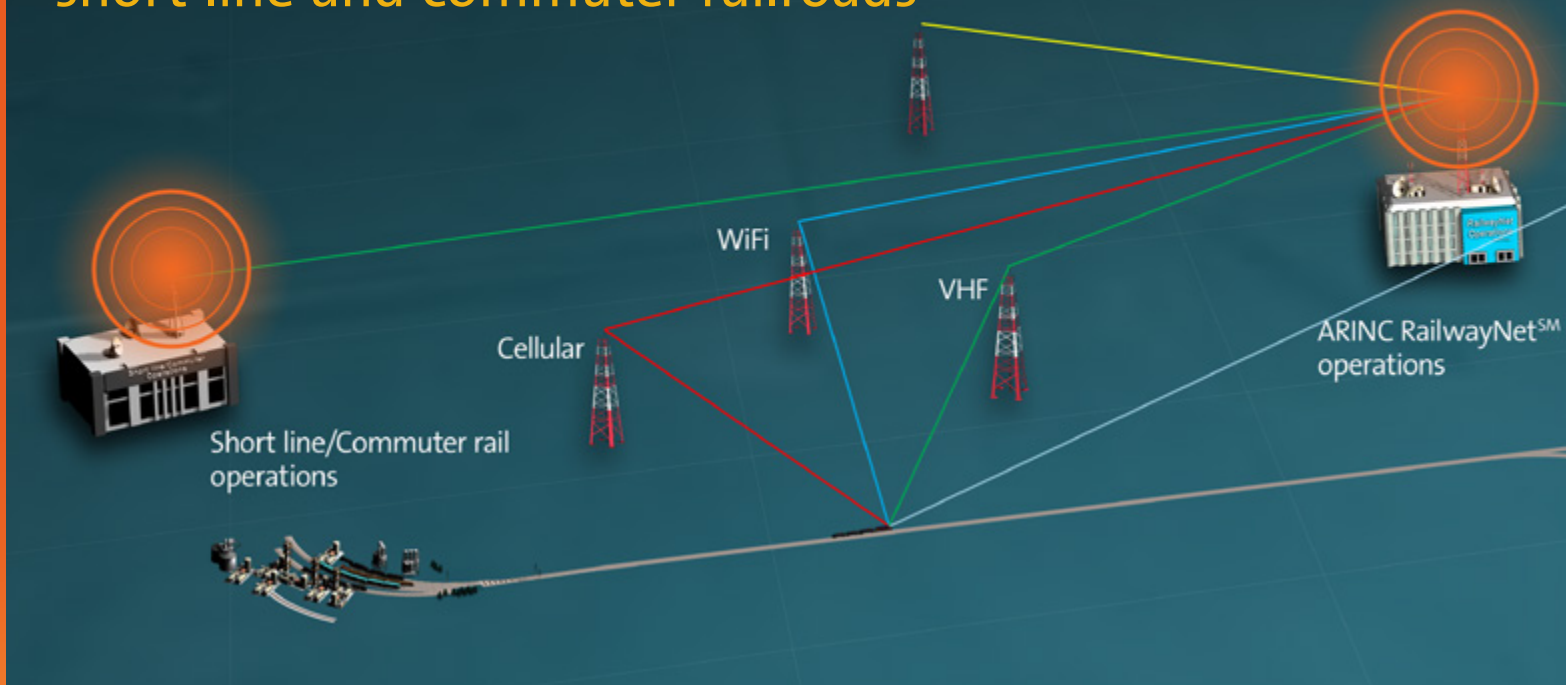
ARINC RailwayNetSM

POSITIVE TRAIN CONTROL (PTC)
COMMUNICATION SOLUTIONS

**Rockwell
Collins**

Building trust every day

Fully-managed PTC solutions for short line and commuter railroads



Rockwell Collins has developed a node on the Class I Interoperable Train Control Federated Network to allow seamless communications from the back office to the locomotive and between operations. Utilizing VHF, cellular, WiFi and MPLS, ARINC RailwayNet™ delivers initialization messages, crew and consist information, and health and status monitoring.

From design and testing to implementation and maintenance, it's developed to be headache-free, so you can focus on your operations while we deliver a mandate-compliant, secure, tailored PTC messaging solution that reduces the need to hire and train new personnel.

Seamless interoperability

To meet the complex challenges of mandated PTC requirements, it's critical for short line and commuter railroads to choose a highly reliable, secure and cost-effective solution that supports seamless messaging interoperability. ARINC RailwayNet from Rockwell Collins is built on our mission-critical communications infrastructure trusted by the global aviation industry and historically proven to achieve 99.999 percent availability.

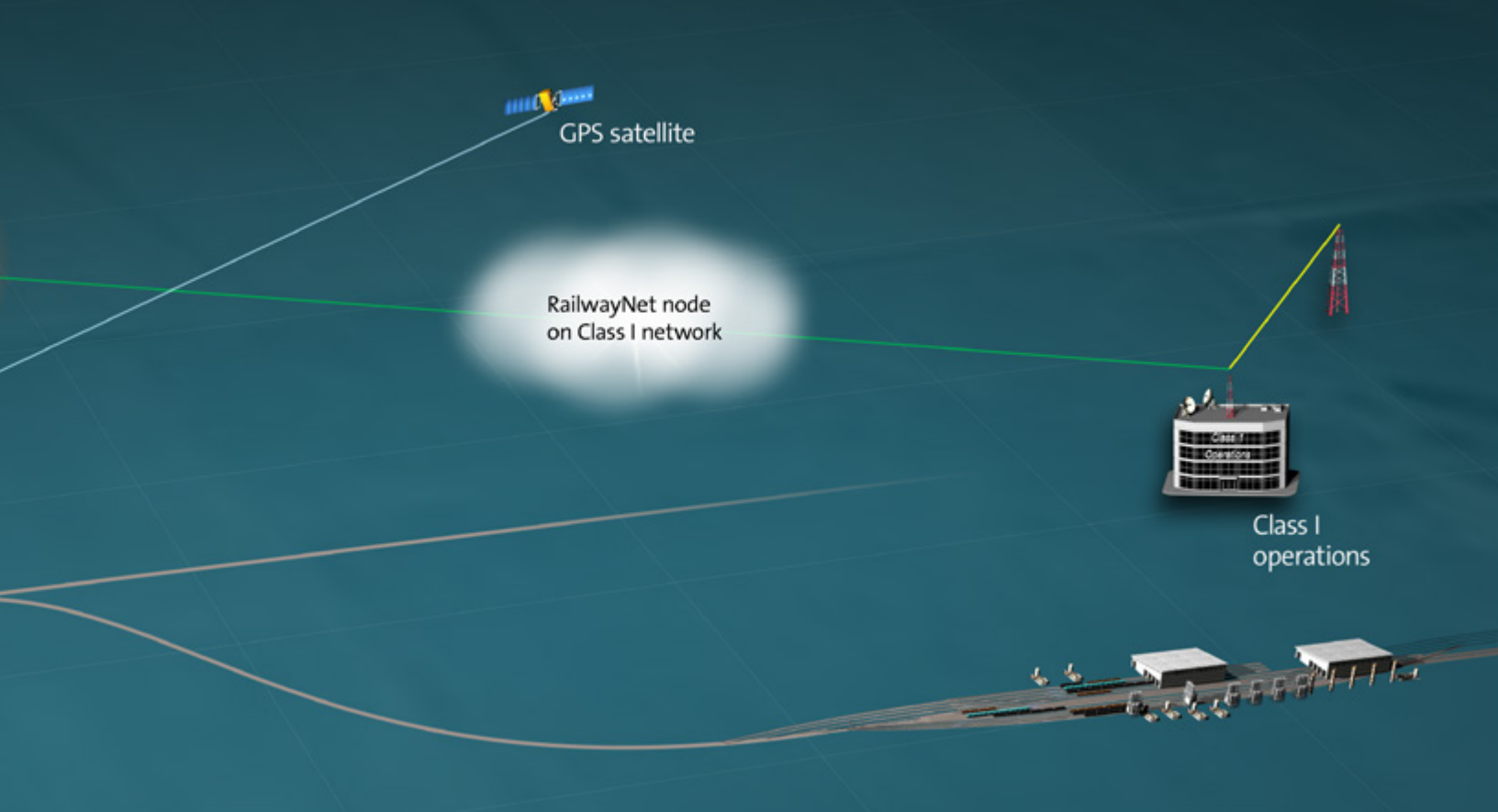
And with decades of expertise delivering train control solutions and our 24/7/365 network operation centers, we'll help you reduce the need to hire and train new personnel. We also leverage our rail dispatch and back-office software experience to implement custom applications to meet your specific operational needs.

An end-to-end solution

As an industry leader in integrated rail control centers, information management, and network solutions, railroads throughout North America rely on our capabilities every day. Utilizing this unique perspective and capability set to deliver a true end-to-end solution, ARINC RailwayNet enables full back-office and inter-office messaging, security, data, and configuration management, as well as monitoring, diagnostics, and notifications.

The service features dedicated redundant connections between our customer facility and our network operations center for host railroads and secure Internet access to hosted database applications for tenant railroads. Our IT infrastructure is located in our operations center, with backup facilities around the country, and monitored by highly experienced personnel.





Fully managed by PTC experts

ARINC RailwayNet is a fully managed service staffed with engineers experienced in PTC component development and system level testing. We understand the criticality of proven configuration and software management processes and will support you from design and testing to implementation, training, and maintenance. Cost-effective shared facilities and support

We work with your partner railroads to minimize your effort to implement back-office messaging and applications, including initializations and electronic delivery of mandatory directives. Our shared solution model reduces costs through economies of scale by leveraging the network and network operation centers that already deliver millions of mission-critical data link messages every day.



As a shared network solution, ARINC RailwayNet provides connectivity for short line and commuter railroads with Class I railroads through a node developed specifically for PTC on the Interoperable Train Control (ITC) Federated Network. We use VHF, cellular, WiFi and MPLS technology to deliver messages from the back office to the locomotive and between operations.

ARINC RailwayNet is built on our proven, high-reliability network that supports hundreds of transportation customers and delivers billions of mission-critical messages a year.

FUNCTIONALITY

Messaging functions

| | |
|------------------------|---|
| Back-office messaging | Connections with hosted or corporate IT systems for train initialization data and delivery of mandatory directives; optional WSRS data routing for host railroads |
| Inter-office messaging | Interconnect with foreign railroads via the Federated Network |
| Locomotive messaging | Cellular service from two carriers (Verizon or Sprint) to support file and ITCM message exchange |
| Systems management | Routing and logging of selected alarm and event data from network and onboard devices; asset management |
| Key exchange | Automated key distribution with foreign railroads and within the hosted back office |

Back-office functions

| | |
|---|---|
| Train initialization | Web service based applications for entering and storing crew, consist and clearance information |
| Electronic delivery of mandatory directives | Processing and delivery of bulletins and authorities |
| PTC file storage and distribution | Software version downloads, track file delivery |
| Asset management | Registry of railroad PTC assets. Secure internet access for maintaining asset data |

FEATURES

- Redundant systems with decades of proven high availability
- 24/7/365 help desk
- Cybersecurity operations center
- Fully managed, end-to-end service
- Access to PTC test lab
- Troubleshooting of networking issues
- Troubleshooting and coordination with key suppliers for application issues

Building trust every day.

Rockwell Collins delivers innovative aviation and high-integrity solutions that transform commercial and government customers' futures worldwide. Backed by a global network of service and support, we are deeply committed to putting our solutions to work for you, whenever and wherever you need us. In this way, working together, we build trust. Every day.

For more information, contact:

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