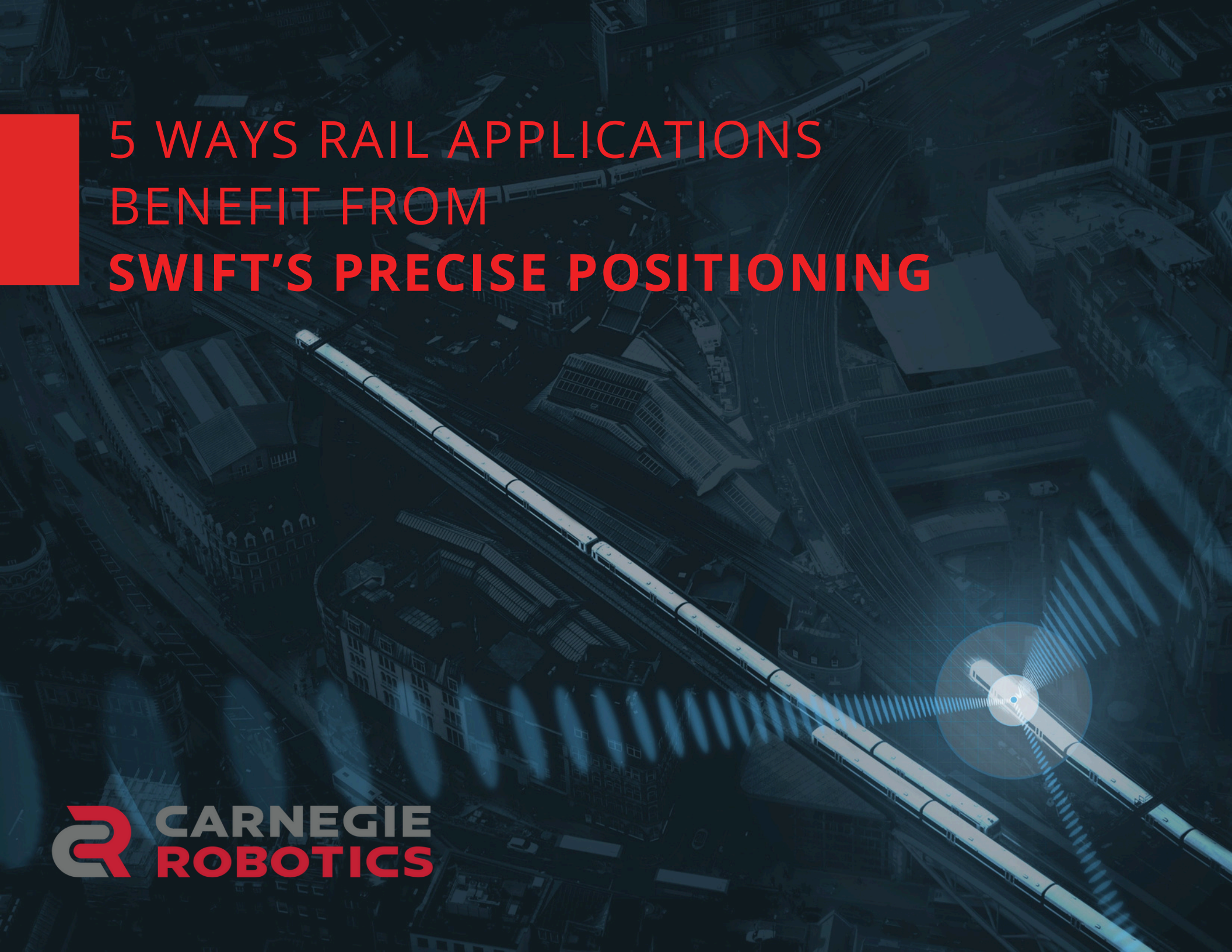
5 WAYS RAIL APPLICATIONS BENEFIT FROM **SWIFT'S PRECISE POSITIONING**



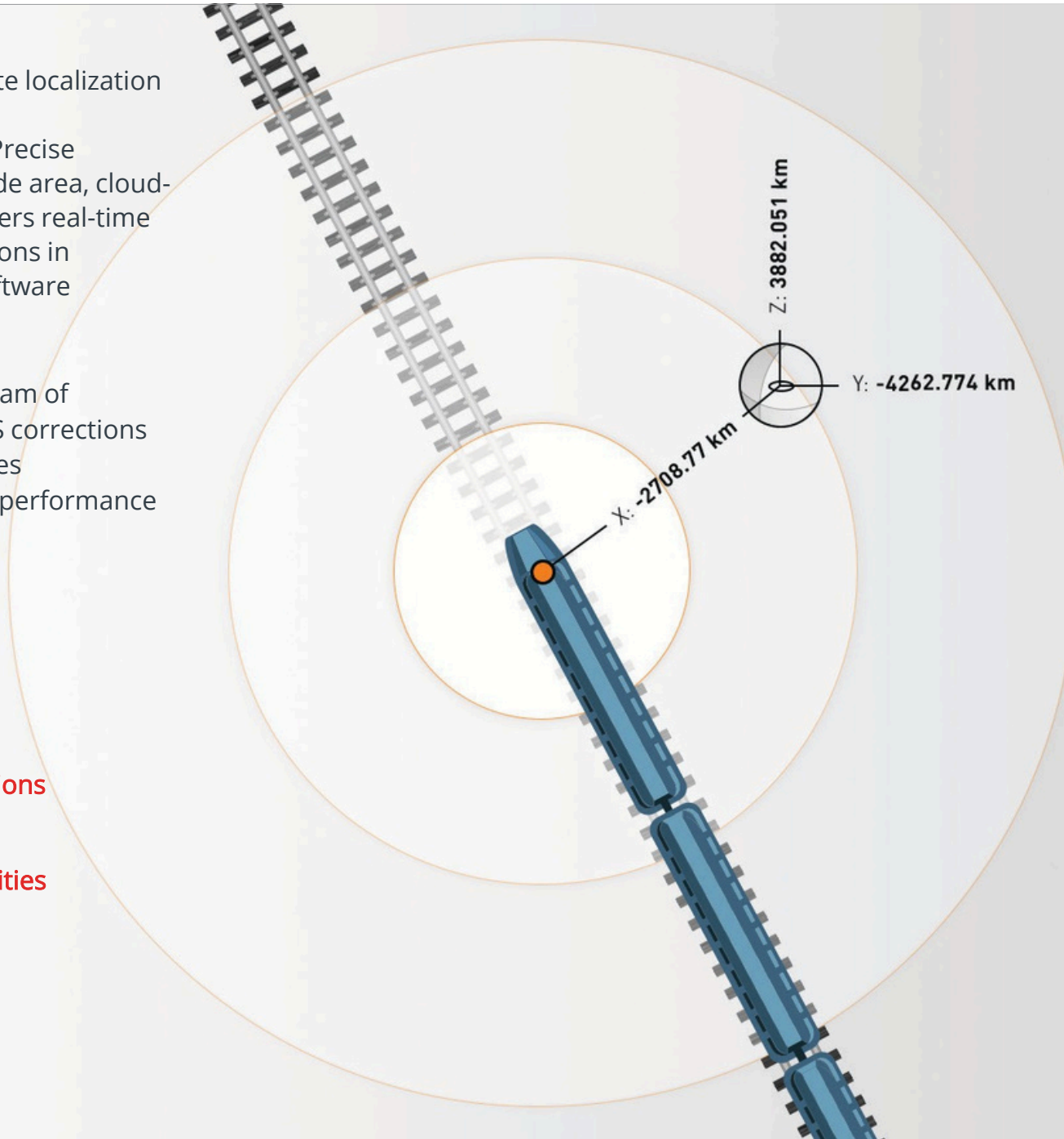
CARNEGIE ROBOTICS

Precise Positioning delivers highly-accurate localization that improves operational efficiency and implementation of safety requirements. Precise Positioning is achieved utilizing Duro's wide area, cloud-based GNSS corrections service that delivers real-time high-precision positioning to rail applications in conjunction with Swift's hardware and software solutions.

Duro's solutions deliver a continuous stream of multi-constellation, multi-frequency GNSS corrections for a high-availability service that combines decimeter-level accuracy and world-class performance at a continental scale.

Rail operators benefit from:

- Ruggedized GNSS receivers
- Receiver-agnostic software solutions
- Easy integration of GNSS capabilities into existing fleets



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#1 PRECISE POSITIONING FOR POSITIVE TRAIN CONTROL

To implement Positive Train Control (PTC) as a safety measure, rail companies require positioning solutions that are not only precise but also robust. A GNSS signal that provides high accuracy only a fraction of the time does not meet PTC requirements.

Duro's precise positioning solution delivers a broader solution required by your rail fleet. Swift's highly-accurate and affordable RTK GNSS receivers are ideal for the implementation of PTC. With integrated IMU technologies, Swift's solution is more robust to anomalies and provides position solutions with higher availability and smoother trajectory—delivering the robustness your rail assets need.

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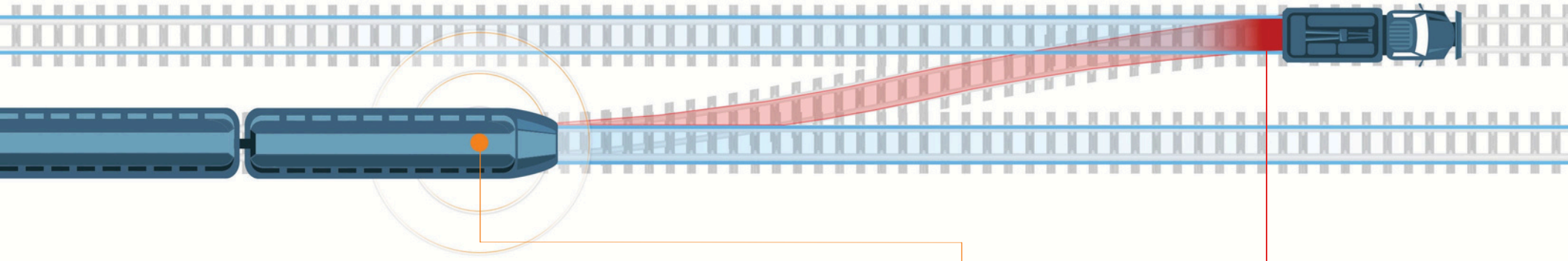
#2 PRECISE POSITIONING TO ACHIEVE TRACK DETERMINATION

Track determination is the ability for a train to know where it is on a track and if there is another railcar or another vehicle—like a high-rail—on the track, to ensure no collision occurs. The basic train-to-train communication of yesterday does not deliver the accuracy required to implement what future rail services will require.

Duro's precise positioning solution implements dual-frequency, highly-accurate RTK ruggedized receivers onto rail cars and connects to the cloud-based Skylark corrections service that delivers corrections in real-time.



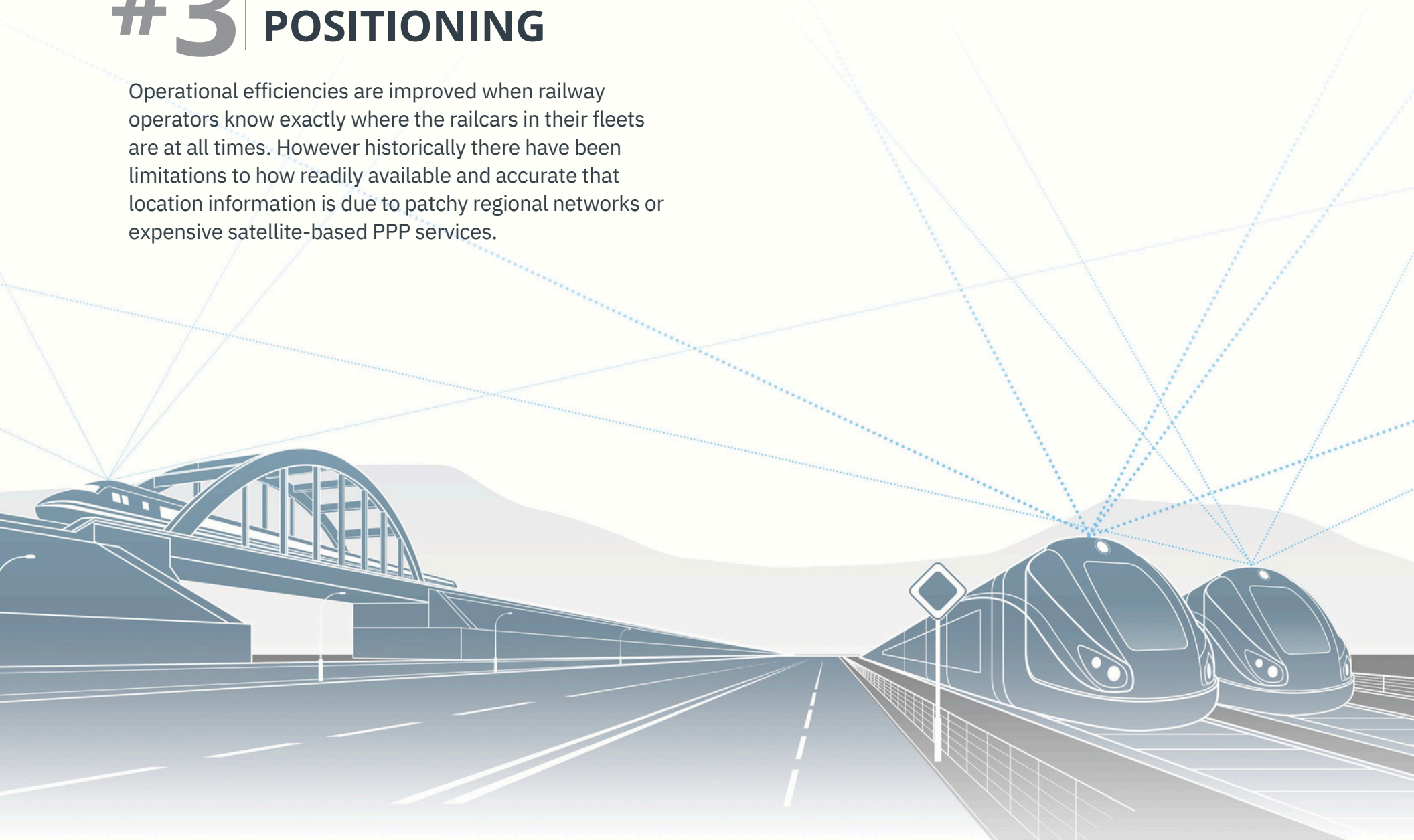
RAIL AND RAIL YARD SAFETY

- Maintain vehicle separation, avoid collisions
- Protection for rail workers and crews

CARNEGIE ROBOTICS

#3 PRECISE POSITIONING FOR FLEET POSITIONING

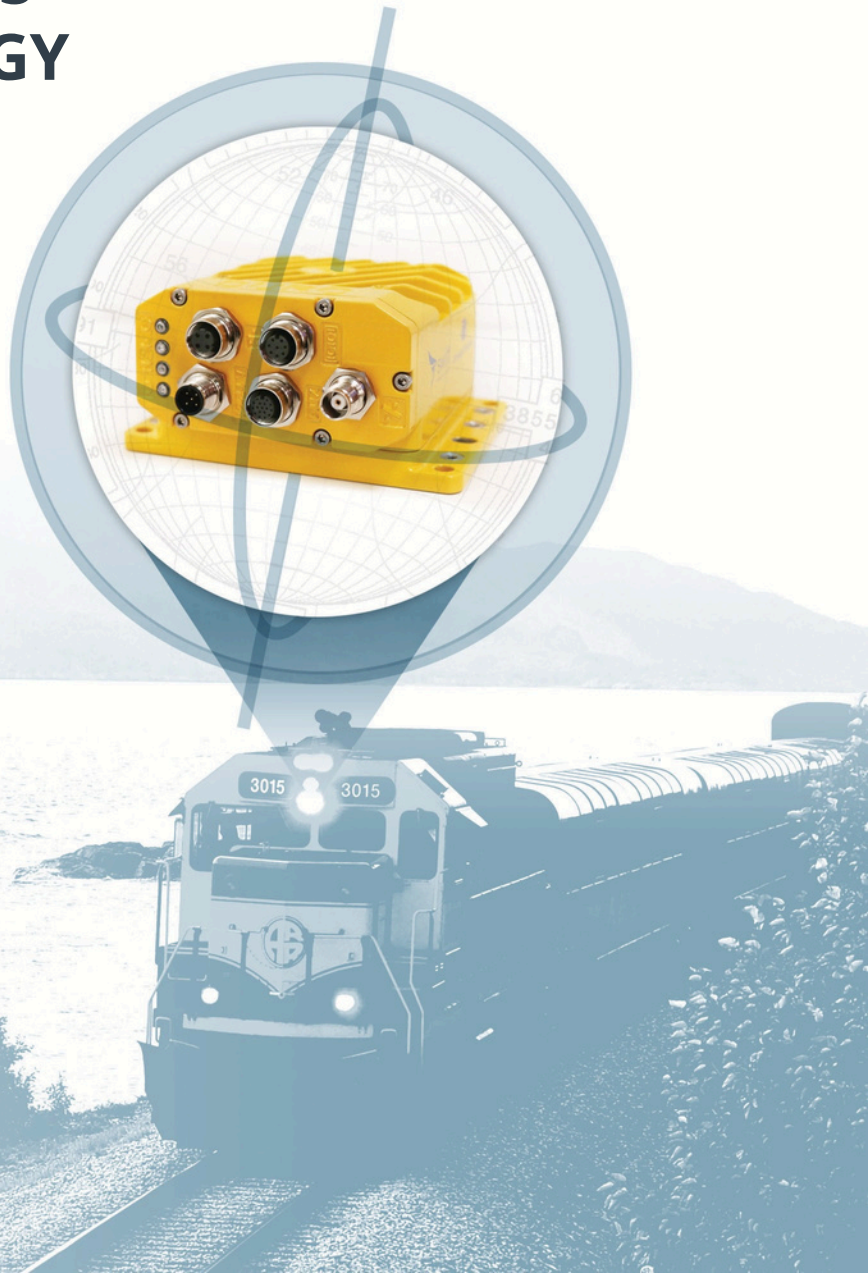
Operational efficiencies are improved when railway operators know exactly where the railcars in their fleets are at all times. However historically there have been limitations to how readily available and accurate that location information is due to patchy regional networks or expensive satellite-based PPP services.



#4 PRECISE POSITIONING PAIRS WITH INERTIAL TECHNOLOGY FOR ROBUSTNESS

Rail routes include instances where there is little to no GNSS visibility. Traditional receiver options would leave cars without positioning during those instances and have re-convergence times in minutes versus the seconds your operations require.

Duro's solution includes the ruggedized Duro® Inertial, an enclosed dual-frequency GNSS receiver with an integrated inertial measurement unit that allows for precise positioning in the harshest of environments. Designed and built to survive long-term, outdoor deployments, Duro Inertial delivers a continuous and precise positioning solution, even where there is little to no GNSS visibility, and withstands hot, cold and wet climates, dust, vibration and water immersion.



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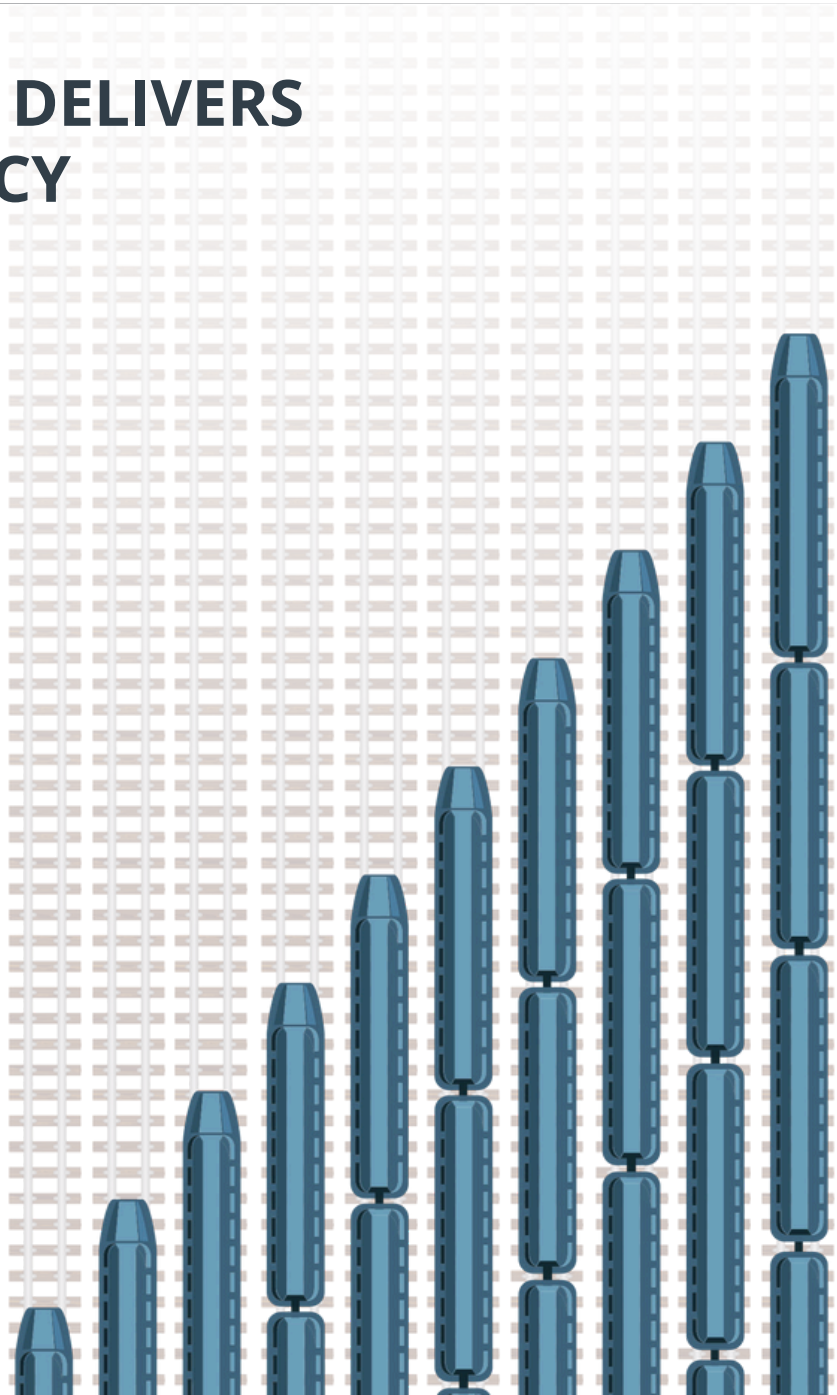
#5 PRECISE POSITIONING DELIVERS AFFORDABLE ACCURACY

Historically, high-precision GNSS came at a high cost that was not affordable for one train, let alone a fleet of railcars. Swift precise positioning production solution is built on Swift's founding principle of affordable accuracy.

Duro's rail solutions have volume pricing in mind. SkylarkTM is available at affordable, enterprise pricing while the Duro Inertial RTK GNSS receiver delivers accuracy at a fraction of the cost of comparable receivers.



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THE CRL TEAM IS HERE TO HELP YOU GET YOUR FLEETS OUTFITTED WITH GNSS!