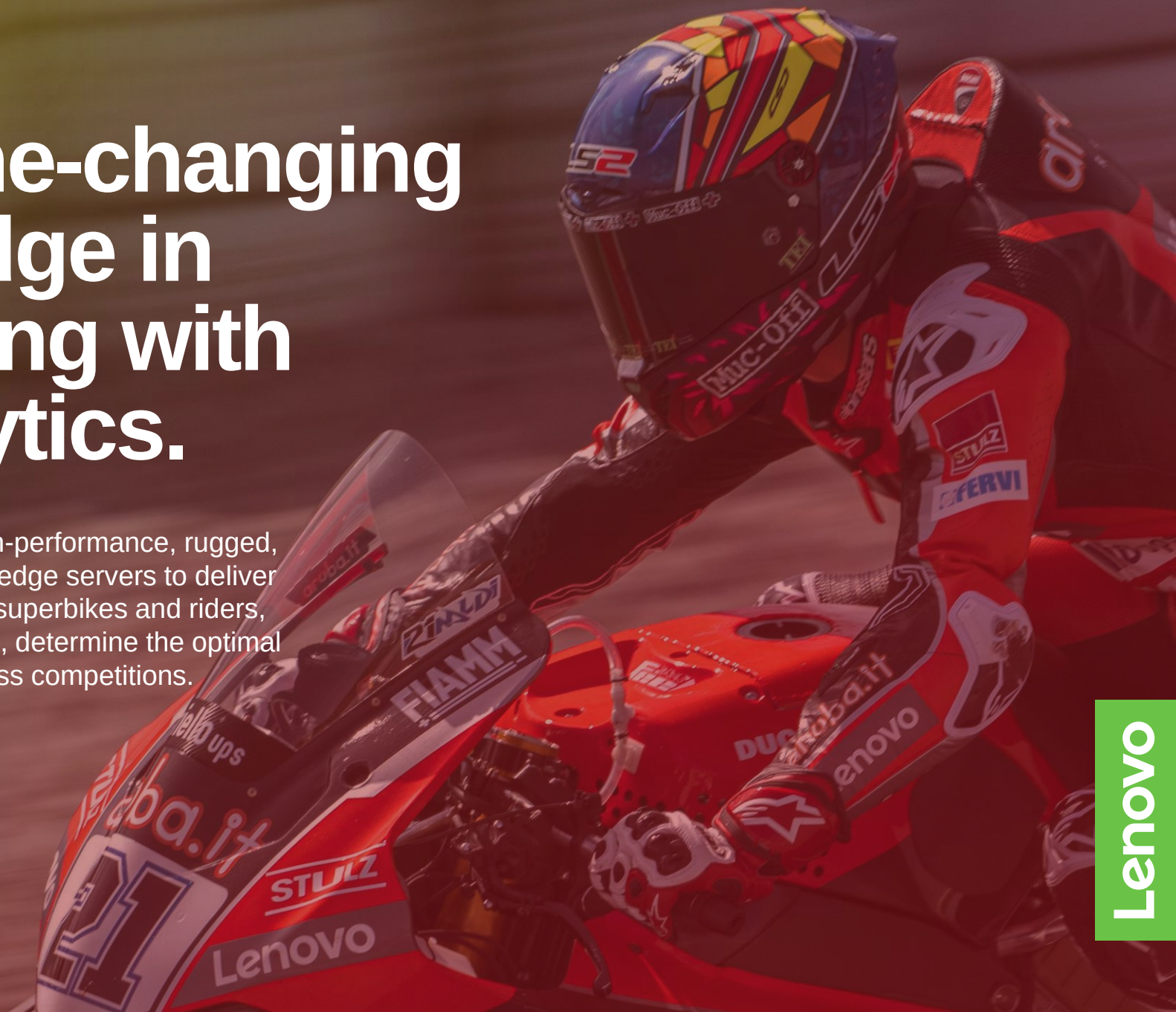
Gaining a game-changing competitive edge in superbike racing with ultra-fast analytics.

How **Aruba.it Racing – Ducati Team** used high-performance, rugged, and ultra-portable Lenovo ThinkSystem SE350 edge servers to deliver crucial data insights into the performance of its superbikes and riders, helping the team to optimize bike configurations, determine the optimal racing strategies, and gain an edge in world-class competitions.

Lenovo Infrastructure Solutions for The Data-Centered



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Background

Based in Borgo Panigale, Italy, Ducati Corse is the superbike racing division of Ducati Motor Holding S.p.A. Since 2015, Ducati Corse has partnered with Aruba.it—one of Italy's market-leading providers of data center services—to thrill fans around the world at events such as the Superbike World Championship (WSBK). Comprising multiple rounds in different countries, the WSBK is a road-racing competition with two championship trophies: one awarded to riders, and one to manufacturers.

With riders reaching speeds of up to 300 km/h (186 mph) during WSBK races, precise bike configuration and careful strategic planning are both crucial to outperform the competition and ensure maximum rider safety. To achieve these goals, Aruba.it Racing – Ducati Team collects data from sensors distributed throughout its bikes: offering insights into everything from brake and tire temperatures to throttle and engine performance.

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Challenge

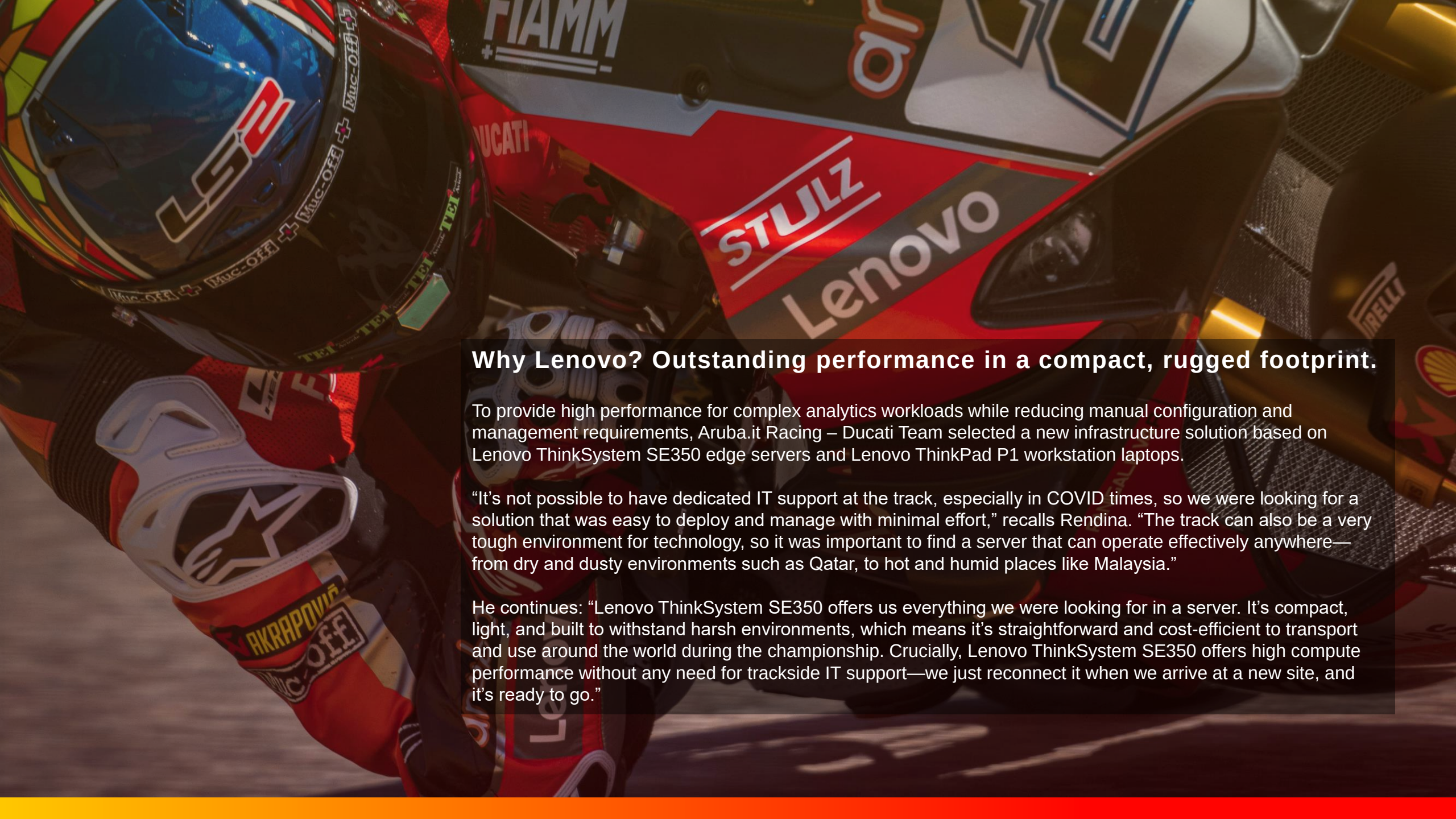
Competing at the highest levels of the WSBK requires exceptionally detailed planning. With riders, equipment, and support staff hopping around the globe between rounds, Aruba.it Racing – Ducati Team must ensure that it can rapidly transport and reassemble everything it needs to compete—including its data analytics infrastructure.

Stefano Rendina, IT Manager at Ducati Corse, explains: “Our analytics capabilities are crucial to riding a competitive race. The rules of the WSBK prohibit real-time analysis, so as soon as the bike leaves the track, we download the telemetry to a dedicated file server in our box. In between races, we harness this data to examine all the inputs made by the rider as well as the performance and behavior of the bike, and uncover opportunities to improve our performance. For example, by comparing data from previous races on the same track with similar weather conditions, we can determine whether a hard or medium tire is likely to produce a faster time.”

In the past, Aruba.it Racing – Ducati Team relied on desktop machines and a file server to help it store and analyze telemetry, which required a significant number of on-site IT personnel to deploy and manage. When the COVID-19 crisis struck, the team realized that minimizing the number of employees travelling between races would be crucial. At the same time, Aruba.it Racing – Ducati Team saw an opportunity to hone its competitive edge by making analytics insights available faster.

“One of the most critical moments in the WSBK is the time between the Superpole race and Race 2, during which we have only a few hours to comb through our data and make decisions about the configuration of the bike. As a result, we were keen to enhance our trackside compute resources.”

Giacomo Guffanti
Data Analyst Engineer, Ducati Corse



Why Lenovo? Outstanding performance in a compact, rugged footprint.

To provide high performance for complex analytics workloads while reducing manual configuration and management requirements, Aruba.it Racing – Ducati Team selected a new infrastructure solution based on Lenovo ThinkSystem SE350 edge servers and Lenovo ThinkPad P1 workstation laptops.

“It’s not possible to have dedicated IT support at the track, especially in COVID times, so we were looking for a solution that was easy to deploy and manage with minimal effort,” recalls Rendina. “The track can also be a very tough environment for technology, so it was important to find a server that can operate effectively anywhere—from dry and dusty environments such as Qatar, to hot and humid places like Malaysia.”

He continues: “Lenovo ThinkSystem SE350 offers us everything we were looking for in a server. It’s compact, light, and built to withstand harsh environments, which means it’s straightforward and cost-efficient to transport and use around the world during the championship. Crucially, Lenovo ThinkSystem SE350 offers high compute performance without any need for trackside IT support—we just reconnect it when we arrive at a new site, and it’s ready to go.”

“Data insights can make or break a race, so it’s imperative that our intellectual property is secure at rest as well as in flight. Using built-in data protection tools from Lenovo, we can automatically encrypt our drives if someone opens the server, helping to cut the risk of data leakage.”

Stefano Rendina
IT Manager, Ducati Corse

Building a highly portable platform.

Working with an expert team from Lenovo Professional Services, Aruba.it Racing – Ducati Team configured two Lenovo ThinkSystem SE350 edge servers as its new trackside data analytics infrastructure. The entire environment is managed remotely using Lenovo XClarity Administrator, eliminating the need for technical personnel to travel with the servers.

The first server is dedicated to storage of all data from all Ducati bikes in the WSBK, which is continuously synchronized with servers located at the organization's headquarters in Borgo Panigale. The second server hosts virtual machines for data processing, which automatically apply analytics models to post-race data to help uncover game-changing insights. Using Lenovo ThinkPad P1 workstation laptops, the team can rapidly create intuitive data visualizations to help engineers and riders make fast, well-informed decisions about upcoming races.

"Our Lenovo ThinkPad P1 workstation laptops deliver excellent performance for data visualization, which helps us to explore our data effectively and carry out fast-paced work in the garage between sessions," comments Guffanti.

"In a single weekend, we can collect up to 20 GB of data from our bikes, and we need high compute performance to crunch through that telemetry in a short window of time. Lenovo ThinkSystem servers help us to do the heavy lifting on our racing data, which allows us to make smart decisions and shave down our times."

Stefano Rendina
IT Manager, Ducati Corse

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Results

Aruba.it Racing – Ducati Team now has all the infrastructure it needs to drive ultra-fast analysis of racing data during the WSBK in a single, portable rack: including a firewall, remote-working server, file server, uninterruptable power supply, and printer.

“Our Lenovo solution helps us get insights into rider performance just 30 minutes after the end of a race,” comments Guffanti. “With as little as two hours between races, this rapid analysis can make all the difference, as it gives us more time to make the optimal technical and strategic decisions before our rider gets out on the track again.”

Rendina adds: “By managing our Lenovo solutions remotely using Lenovo XClarity Administrator, we can deliver powerful trackside analytics performance without the need for a full contingent of technical personnel—an absolute must to meet the new challenges of COVID-19 travel restrictions.”

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Main Sponsor

aruba.it RACING Ducati Superbike Team

- **Delivers high performance in a robust and compact server footprint**
- **Cuts the need for on-site support with remote management capabilities**
- **Slashes time-to-insight, contributing to improved race performance**

“Thanks to rapid analytics enabled by Lenovo ThinkSystem and ThinkPad solutions, we can empower our riders to perform at their best: from the very first lap to the end of the race.”

Giacomo Guffanti
Data Analyst Engineer, Ducati Corse

What will you do with Lenovo edge computing solutions?

Harness the value of data with Lenovo edge computing solutions. Gain powerful, real-time insights from data at any edge location with secure, connected, and reliable solutions.

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