



Objective

Deploy and maintain advanced analytics to optimize Formula E electric race car performance

Approach

Leverage HPE services to drive IT efficiency and support track site implementation, testing, and operations in major cities worldwide

IT Matters

- Capture race car performance data trackside for real-time analytics
- Support IT environments for the pit crew at race sites and at racing headquarters
- Provide a dedicated engineer to support trackside setup, operations, and breakdown

Business Matters

- Leverage real-time analytics to improve electric race car performance
- Manage portable trackside IT infrastructure
- Ensure continuous reliability for business-critical mobile IT infrastructure

DS Virgin Racing on track to win with HPE

Delivers business-critical services trackside at global races and at headquarters



DS Virgin Racing is competing in the world's first Formula E electric car championship, and capturing and analyzing real-time race information is key to optimal performance. In an Internet of Things (IoT) implementation, the DS Virgin Racing cars are outfitted with sensors that track performance, wear, and what needs to be tuned. This British racing team needed powerful analytics infrastructure deployed trackside for real-time analytics and at headquarters for post-win playback and analytics. By turning to HPE, DS Virgin Racing is able to successfully compete in the Formula E championship while continuously improving electric vehicle (EV) technology, and these improvements will ultimately trickle down for usage in future electric road cars.

Harnessing the pioneering spirit of Sir Richard Branson and the Virgin Group as well as the automotive expertise of DS Automobiles, the DS Virgin Racing Formula E Team exists to power innovation so it can positively impact people's lives. DS Virgin Racing is aggressively competing in the Fédération Internationale de automobile (FIA) Formula E electric-powered car races. Formula E is the world's first global electronic vehicle racing championship, and it enables the fast-tracking of the development of electric vehicle technology. It serves as a showcase for electric vehicles to a mass global audience, and it aligns with the Hewlett Packard Enterprise (HPE) values of partnership, innovation, and a winning spirit.

“Winning races is our goal, and everything we do is guided by efficiency. HPE has knowledge and experience with the demanding conditions of building and maintaining infrastructure to compete in major sporting events. HPE serves as an important part of our team and provides skills and expertise that support both our trackside and headquarters deployments.”

— Sylvain Filippi, CTO of DS Virgin Racing

All Formula E events begin with two practice sessions in the morning, an opening 45-minute session followed by a further 30-minute session. Drivers have two cars each at their disposal with 200 kW of power available. The cars are outfitted with sensors that capture IoT data to reveal how the car and engine perform for qualifying and 170 kW of electricity for the race.

FIA places strict race pit headcount restrictions that allow only 15 people for each team, and this number includes drivers, mechanics, support staff, and an HPE engineer. DS Virgin Racing needed IoT big data analytics at its UK headquarters to analyze and improve race car performance, as well as trackside support for collecting the data, transmitting it to headquarters, and providing feedback to the driver and racing team. It also needed to augment its resources with technical expertise to support DS Virgin Racing’s analytic infrastructure in the racing pit at each major race as well as at its headquarters in the UK.

DS Virgin Racing relies on HPE Foundation Care service and HPE Proactive Care service to augment internal staff, as well as global support and a dedicated HPE engineer in the pit of each race. “HPE has the knowledge and previous sports event IT expertise we needed,” says Sylvain Filippi, CTO of DS

Virgin Racing. “We did not have the internal resources necessary, and HPE provides the technical knowledge and expertise at each race location and at our headquarters to manage the systems that power our analytics.”

Developing, deploying, and supporting analytics infrastructure

HPE, the Official IT Partner of DS Virgin Racing, designed a complete solution of hardware, software, and services. HPE IDOL advanced enterprise search and data analytics allow DS Virgin Racing to understand the IoT sensor data in real time for information analytics, archiving, discovery, content management, data protection, and marketing optimization. HPE Vertica Advanced Analytics software allows DS Virgin Racing to take advantage of advanced SQL database analytics. DS Virgin Racing also relies on the HPE Moonshot energy-efficient, integrated server system, Aruba Wireless Networking solutions, and HPE 3Par StoreServ 7400 storage infrastructure. Implementing, managing, and operating this analytic infrastructure at races in major global cities and at headquarters is a daunting challenge, and DS Virgin Racing turned to HPE to support this business-critical infrastructure.

Ensuring the reliability of business-critical systems

Managing a complex IT environment in multiple locations was critical to the goals of the operation. Standard support programs would be insufficient because DS Virgin Racing needed business-critical, multi-location support. Since the race travels to major worldwide cities, DS Virgin Racing needed a business-critical support experience in each race location—including the ability to swiftly access spare parts as well as the ability to support the setup, operations, and breakdowns for each race.

With HPE Foundation Care, DS Virgin Racing has access to HPE experts via phone, web, or both. DS Virgin Racing receives problem diagnosis and support, replacement parts and materials, and access to firmware and software updates. HPE Foundation Care provides DS Virgin Racing with one place to call for support for both the headquarters facilities and the constantly changing racing locations, with four-hour spare parts response times at each race site and at headquarters.

HPE Proactive Care provides a personalized and proactive hands-on approach for maintaining an agile, healthy, and reliable infrastructure. It allows DS Virgin Racing to connect its HPE hardware platforms to HPE to benefit from proactive analysis and faster troubleshooting, and if DS Virgin Racing calls in for a support issue a technical solution specialist takes ownership of the issue and manages the call until the issue is resolved. HPE provides DS Virgin Racing with tailored proactive reporting with consultations and advice that helps DS Virgin Racing manage firmware revisions and any configuration changes while ensuring system stability and reliability.

HPE tailored its support to meet the unique needs of DS Virgin Racing by providing a dedicated engineer in the pit for each race who is an expert on servers, storage, and networking. HPE also provides global call management and one place to call to address any hardware or software issues that may arise. An HPE remote delivery manager is responsible for planning the implementation for each race weekend. The remote delivery manager interacts with HPE resources in each city prior to the team's arrival, and reviews lessons learned from previous races to ensure a best practices approach to continuous improvement. HPE also provides global support so DS Virgin Racing can call if needed for local parts and additional local support resources.

According to Filippi, "Our support relationship with HPE gives us onsite support at our headquarters and race locations, allowing us to trust HPE to keep our business-critical infrastructure operational so our team can concentrate on winning races."

Implementing global support for race-day operations

The infrastructure at DS Virgin Racing headquarters is constantly being optimized to support high-speed analytics. HPE Proactive Care help DS Virgin Racing prevent problems and stays up-to-date. Products connected to HPE leverage 24x7 monitoring, pre-failure alerts, rapid diagnosis, and automatic call logging with parts dispatch for hardware support. HPE proactively scans the connected devices, provides a healthcheck on them, and delivers tailored recommendations to optimize performance.

Customer at a glance

Services

- HPE Foundation Care
- HPE Proactive Care

Hardware

- HPE Moonshot System
- HPE 3PAR StoreServ 7400
- Aruba Wireless Networking Switches

Software

- HPE Vertica Advanced Analytics
- HPE IDOL

Financial Services

- HPE Technology Refresh
- HPE Asset Recovery

Since each race is in a different global city, trackside support is essential. “We need powerful and reliable hardware and software, but we also need strong professional services support so we can benefit from advanced analytics,” states Filippi. “That’s why we selected HPE as our partner of choice to meet our unique support requirements.” Each race takes place on a Saturday, and the DS Virgin Racing team—including the dedicated HPE engineer—arrives by the previous Thursday. “The race qualifications, testing, and the actual race all occur in a single day, so we can’t afford any delays due to IT issues,” Filippi explains.

The dedicated HPE engineer installs and tests all of the trackside hardware, and connects it to HPE for a healthcheck. He also connects to the FIA network and runs the HPE analytics software. The servers, applications, and network are fully operational by Friday, which can be a challenge in locations with limited wireless access capabilities. On race day, telemetry information is captured from DS Virgin Racing’s cars, and online feeds provide headquarters personnel with information to review race performance.

“Our HPE onsite support engineer is under immense pressure to make sure everything works, and to address any problems within seconds,” says Filippi. “Everyone on our race team is extremely busy on race day, and efficiency is crucial. We briefly considered using one of our own engineers at each race, but quickly concluded that we needed a focused engineer with the expertise to resolve any issue quickly. If we lose a half hour during a race due to an IT issue, we’ll finish in the middle or the back of the pack.”

The onsite engineer carries some spare parts, and also coordinates with the local HPE office to access any additional pre-race support needed and arrange for swift delivery of any required HPE components. “Our HPE onsite engineer knows our systems and has previous relevant experience,” says Filippi. “I didn’t have the resources to have my team perform the upgrades, configure the equipment, and maintain it at each race.”

DS Virgin Racing will be participating in 11 races by the end of the season, and in up to 14 next year. “We learn a great deal from each race, and we’ve already built the foundation for our analytics,” Filippi says. “Our long-term relationship with HPE allows us to scale our analytics to continuously learn more about optimizing race cars and the abilities needed to enable the next generation of electric cars. We’ll be soon ingesting and analyzing video from onboard cameras and race feeds.”

The extracted data will be stored in HPE Vertica for search and analysis. “We’ll be able to manage petabytes of data at massive scale using blazingly fast analytics,” Filippi states. “This will give us the ability to manage large volumes of data in seconds, not weeks.”

He adds, “HPE helps us improve our race efficiency and run sophisticated simulation programs so we can analyze and improve our results. Everything we do is guided by efficiency, whether that’s managing our analytics infrastructure, winning the race, or designing next year’s cars. HPE technical services manages our analytics infrastructure so we can focus on winning races and continuously improving our cars.”

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