HOW TO BEAT THE CLOCK AT FORMULA ONE WITH VBLOCK SYSTEMS

LOTUS F1 TEAM SPEEDS BIG DATA ANALYTICS FOR IMPROVED RACE CAR ENGINEERING AND COMPETITIVE ADVANTAGE ON THE TRACK

Imagine the pressure on a team involved in the Formula One Championship — a global sport with a following of over half a billion fans who tune in to each race to witness the intense competition between rival teams — all vying for their share of championship points in a battle where tenths of a second can be crucial.

For Lotus F1 Team, a world-renowned British competitor, extreme pressure and speed are the norm with competition rules, safety, and performance specifications changing annually.

In a highly technologically advanced sport, F1 Teams rely heavily on information and analytics to optimize performance throughout the season and improve on-track success. Subsequently, an immense amount of real-time data is generated to assist in critical decision-making, helping to formulate racing strategies and race-by-race adjustments to the car.

Recognizing this challenge represented a tremendous opportunity to leap ahead of the competition. In response, Lotus F1 Team marshaled resources across the entire organization, including IT. With limited staff and budgets, Lotus F1 Team needed a solution that would transform how IT is delivered.
The answer: a refreshed and re-engineered IT infrastructure with [VCE Vblock® Systems](https://www.vce.com) as the foundation of a high-performing private cloud. The result of the converged infrastructure has been dramatically higher performance, capacity, scalability, availability, manageability and, of course, speed.

**The Challenge**

**Big Data** is the name of the game for Lotus F1 Team. Car engineers can make 30,000 updates and work on 15,000 drawings for a custom F1 car in a single season. Aerodynamic and Computational Fluid Dynamics testing generate 150 gigabytes of data an hour while a typical race churns out 50 gigabytes of data.

With data already hitting one petabyte and projected to reach five petabytes in a few years, the prior infrastructure’s ability to scale and support the team’s ambitions started to lag. A mix of physical and virtual servers and extensive reliance on manual IT processes also meant that the lean IT staff was getting bogged down with administration and constant troubleshooting.

Even more concerning was that the trackside computers were not analyzing the telemetry data generated by 360 real-time sensors on each car fast enough. This meant that decisions to adjust racing tactics were often a lap behind.

**The Solution**

At the factory, Lotus F1 Team’s [converged infrastructure](https://www.vce.com) runs on two Vblock Systems 320 replicated across two data centers for disaster recovery. The team also uses two portable Vblock Systems for trackside operations, giving race engineers full data access and high-volume, real-time analytics.

Production-ready within 10 days of delivery, all of the team’s critical applications run on the Vblock Systems, including Microsoft Dynamics ERP and CRM solutions.

In addition, the infrastructure includes EMC VPLEX, EMC Data Domain backup and recovery, EMC Atmos cloud storage, EMC Cloud Tiering Appliance, and VMware vCloud and VMware vCOPS.

**The Results**

Converged infrastructure dramatically transformed IT operations for Lotus F1 Team and delivered:

- Three times improvement of trackside performance, enabling execution of real-time analytics in under one minute.
- Eight times faster deployment with lightweight Vblock Systems for use at trackside.
- Nine times faster delivery of new services and service provisioning accomplished in minutes versus weeks.
- Reduced downtime 90 percent by shifting resources across two sites and performing updates and maintenance without an impact on users or services.
- Consolidation of 15 legacy FAS systems onto two Vblock Systems, reducing footprint from 16 to three racks while doubling storage capacity to 400 terabytes.
- Thirty percent reduction of annual costs due to automated IT administration, lessened footprint, decreased shipping expense of lighter-weight portable Vblock Systems, and scalability of new servers and storage without additional hardware.
- Deployment of Vblock Systems and migration of applications completed in only 18 days after delivery.

Instead of being held back by the new rules, Lotus F1 Team seized the opportunity to innovate and delivered more performance and competitive advantage to the race cars on the track.

Thomas Mayer, COO, Lotus F1 Team, reflects, “IT underpins everything we do in the organization. With the Vblock Systems converged infrastructure, we are now able to provide the engineering groups with real-time, always-on access to the data. The more knowledge and intelligence we build from analyzing data, the more performance we can add to cars. It’s a very simple equation.”

“The teams that deal with change in the most innovative way, and come up with solutions the fastest will come out on top. Thanks to VCE, we now have the technology to be faster, smarter and more agile than the competition as we pursue becoming one of the top contenders this season.”

— Matthew Carter, CEO, Lotus F1 Team