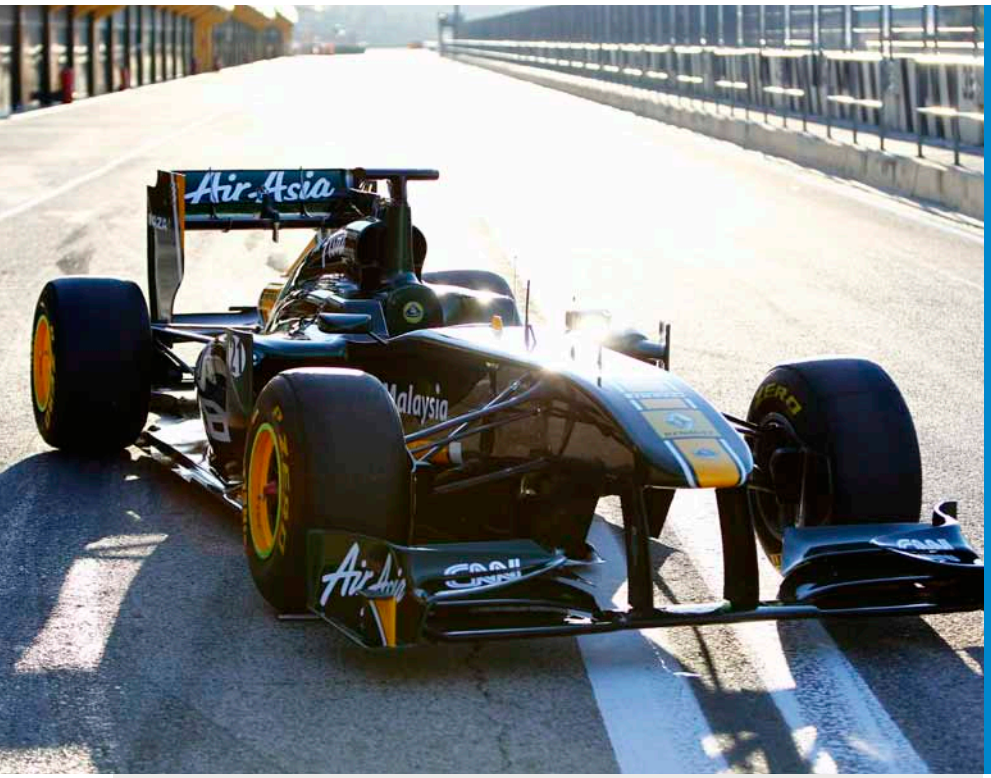
Team Lotus designs and deploys an enterprise-class environment, including a HPC cluster in less than 22 weeks

- Backup, recovery and archiving
- HPC
- Mobility
- Virtualization



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Bill Peters,
Head of IT, Team Lotus

Customer profile

Company:	Team Lotus
Industry:	Sport
Country:	UK & Malaysia
Employees:	250
Website:	www.teamlotus.co.uk

Business need

Team Lotus aimed to become the fastest new team in Formula 1™ (F1™). It wanted to build a powerful enterprise and trackside infrastructure and lay a foundation for success in future seasons.

Solution

The team worked with Dell consultants to design an enterprise environment, including an Intel® Cluster Ready high performance computing (HPC) cluster, utilising Platform Software's Cluster Manager Dell Edition and LSF industry leading tools, high density power protection and highly efficient in row cooling provided by APC, network, and trackside environments with Dell servers, storage, laptops and support.

TECHNOLOGY PARTNER

Benefits

- Intel Cluster Ready HPC saves time, money in optimal environment for utilisation and productivity
- EqualLogic storage with solid-state drives performs in harsh trackside environments
- APC high density architecture delivers on-demand scalability, reliability and management for optimal efficiency
- Dell ProSupport Enterprise-Wide Contract ensures a four-hour response anywhere in the world
- Enterprise IT environment designed and deployed in less than six months
- Team Lotus is fastest of the new teams in F1

Every business in the world hones its systems for maximum performance and competitive advantage, but few can say that the difference between success and failure can come down to millimetres or a hundredth of a second, as is the case with Formula 1™ (F1™) racing teams. To get an F1™ car to peak performance and keep it there takes hundreds of people, multiple IT infrastructures and constant monitoring – plus an environment that can move seamlessly to a different country each week.

"We needed the maximum amount of processing power in the minimum of space – and we needed it quickly. The Intel Cluster Ready HPC that Dell recommended is ideal for us because it offered the right performance at the right price."

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This is a huge challenge for the teams competing in the F1™ season, but especially for the newly formed Team Lotus, which is making its debut. In a sport where time is precious, Bill Peters, Head of IT at Team Lotus, was given a matter of months to build the IT Infrastructure needed to run a competitive racing team. Peters says: "We found out quite late on that we'd been accepted into the 2010 F1™ season, and had less than 22 weeks to build everything from scratch – including a high performance computing (HPC) cluster, network and trackside infrastructures, a design environment and storage. I knew we needed a tier-one IT partner to work with us at every stage."

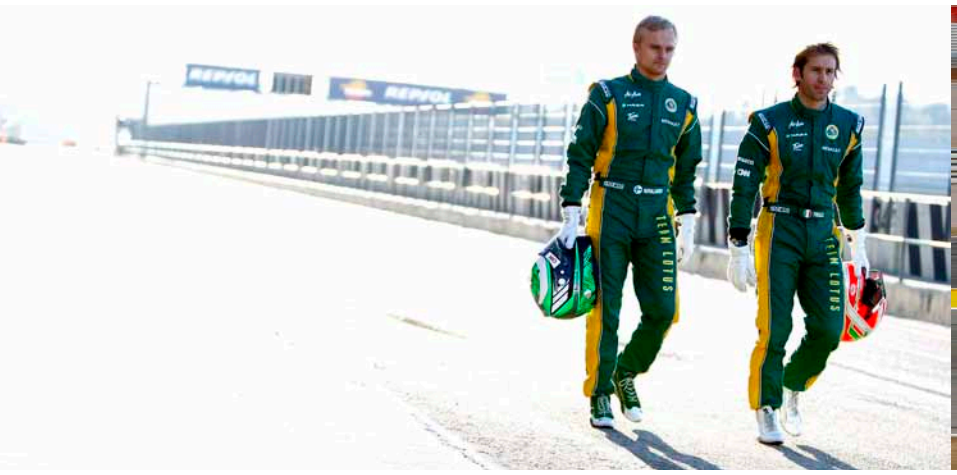
Building an enterprise infrastructure in a few months is no simple task, but Peters has 15 years' experience in the F1™ industry and had three key requirements from a potential IT partner. First, a single provider for hardware and service across all projects. Second, a partner that as responsive and able to work to tight deadlines with a global support network. Third, an excellent price–performance ratio. Peters says: "We spoke to a number of suppliers, but only Dell proved it could deliver in every category. Against other firms, Dell was more responsive. The Dell Consulting team came in and listened to our requirements, quickly turning them into a statement of work."

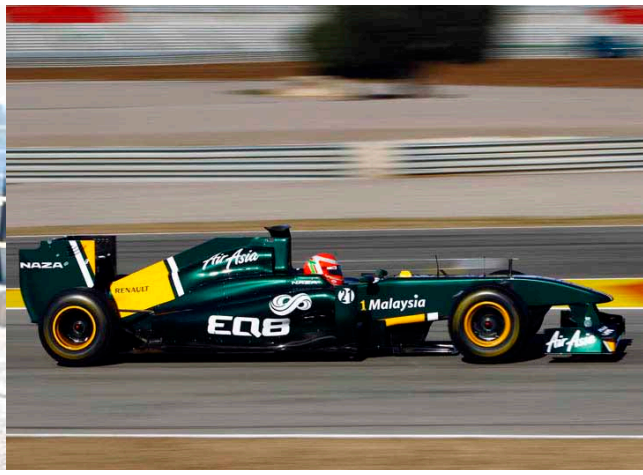
Dell consultants design an enterprise-class environment

"As a new business, we're heavily reliant on Dell services. Dell did a fantastic job of bringing everything together. It understood how an F1™ company works and the importance

Technology at work

Services
Dell Consulting Services
Dell ProSupport Enterprise-Wide Contract
Platform Computing Professional Services
Hardware
Intel® Cluster Ready HPC
Dell PowerVault MD 3200/ MD1200 storage arrays
Dell Equallogic PS6000S, PS6000x, PS6000e storage area network
Dell PowerEdge™ R210 servers with Intel Xeon® processor X5570
Dell PowerEdge™ M610/R710 servers with Intel Xeon® processor X5570
Dell PowerEdge M1000e modular blade enclosures
Dell Latitude™ E6500/E4300 laptops with Intel Core™ 2 Duo processors
Dell PowerConnect networking switches 6xxx, 7xxx and 8xxx series
Dell TL2000 backup appliance
APC Data Centre NetShelter SX racks, Networking NetShelter SX racks
APC managed power distribution units
APC 3000VA and 120000VA UPS
APC in row cooling and containment for high density Clusters.





Software
Symantec™ Backup Exec™
VMware® vSphere™ 4
Platform Cluster Manager Dell Edition
Platform LSF
APC PowerChute (R) power management

of our timeframes," says Peters. Dell consultants held a series of workshops covering the design and implementation of servers, storage, networks and infrastructure applications. This process mapped the team's short and long-term business goals to its IT strategy. Dell brought in its partner, Platform Computing for its experience in the F1 industry. Dell and Platform Computing worked with the in-house IT team to design the optimal HPC environment for Team Lotus.

The team had requirements specific to the F1™ industry, so Dell's experience with other F1™ teams was invaluable, as Peters explains: "We soon realised that Dell understood our industry – everything from the technology needed to design an F1™ car, to our requirement for trackside laptops and storage that could withstand extreme temperatures and vibrations."

Building a powerful HPC environment for Computational Fluid Dynamics

Team Lotus needed the HPC solution for Computational Fluid Dynamics – a way of accurately simulating wind tunnels in a virtual space. With their knowledge of the F1™ industry, Dell's consultants worked alongside the in house IT team to design Team Lotus's HPC solution. The initial designs were completed on a cloud-based HPC environment provided by Cambridge University. When ready, the project was migrated to Team Lotus's own HPC platform.

The team selected an Intel® Cluster Ready HPC – a production-ready system that comes in a configuration with pre-tested Dell hardware, middleware from Platform Computing and ISV applications for wind tunnel simulation – so Team Lotus can be confident it will work as expected from the start. This consists of 186 Dell™ PowerEdge™ M610 blade servers with Intel Xeon® processors X5570 series. These are housed in energy-efficient Dell PowerEdge M1000e modular blade enclosures and connected to Dell PowerVault MD 3200 and MD1200 storage arrays. APC also delivered a right-sized data center solution to ensure energy efficient critical power and cooling with scalability to maximize use of space and allow for future growth.

Peters says: "We needed the maximum amount of processing power in the minimum of space – and we needed it quickly. The Intel Cluster Ready HPC that Dell recommended is ideal for us because it offered the right performance at the right price. This cluster is critical to the success of the team. It works around the clock simulating aerodynamics and helps us design the cars. It gives us our competitive edge."

Creating a resilient trackside IT environment to travel the world

The team's HPC environment helps prepare the cars for each competition, but on race day the team needs a completely different infrastructure. This trackside environment must deliver all the functionality and performance expected of an enterprise-class IT infrastructure, but it must also be highly resilient, and – most importantly – mobile, because the team travels across the world. With the latest blade servers and laptops from Dell, the team's overall IT footprint is half that of most competitors. This means it saves space when travelling long haul – space that can be used for spare car parts and other necessities. Peters explains: "On race day, we're entirely reliant on our trackside IT environment. Quite simply, if our IT fails, we can't race. We need excellent communications within the team, plus a lot of storage capacity and powerful systems to handle our data."

> "When a F1 engine starts, the ground shakes, so we have solid-state drives in our EqualLogic storage, plus Dell demonstrated that the PowerEdge servers and storage had been tested in extreme heat – even more than 40 degrees Celsius."
>
> *Bill Peters,*
> *Head of IT, Team Lotus*

Once again, Dell consultants' expertise and experience within the F1™ industry ensured that Team Lotus deployed the right environment within a short space of time. With little time to test, Dell designed an environment comprised of four Dell PowerEdge R710 servers connected to a Dell EqualLogic PS6000S SAN with solid-state drives and two APC high density UPS. The servers are virtualized with VMware® vSphere™ 4, and the team's data is protected with Symantec™ Backup Exec™. Peters says: "I had a high-level idea of what we needed, but Dell designed and deployed everything to meet our challenges. When an F1™ engine starts, the ground shakes, so we have solid-state drives in our EqualLogic storage, plus Dell demonstrated that the PowerEdge servers and storage had been tested in extreme heat – more than 40 degrees Celsius, as we experience in Abu Dhabi."

On-track performance supported by a powerful network and Dell Laptops

A key element of the trackside environment is the network, as Peters explains: "At the track, a strong network is essential. We pull huge amounts of data out of the cars because they're racing every lap, so high performance and stability is paramount. The team uses Dell Latitude™ E6500 and E4300 laptops with Intel Core™ 2 Duo processors. These are good for Team Lotus because they're extremely powerful, but also tough – built with magnesium-alloy chassis and display backs that meet rigorous standards for durability. Peters says: "We tested the trackside environment, PowerEdge servers, EqualLogic storage, the network and our Latitude laptops in a live environment only a couple of days before our first race."

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Anytime, anywhere service with Dell ProSupport Enterprise-Wide Contract

The F1™ season currently consists of circuits across 20 countries, so to ensure maximum reliability and performance, Team Lotus has Dell ProSupport Enterprise-Wide Contract. This support, which has proved invaluable already, gives the team a four-hour response in any country. Peters explains: "I've used ProSupport Enterprise-Wide Contract for simple replacements or when we've had questions. Regardless of where we are in the world, we see the same high-level response within a few hours, even in the middle of the night when we're preparing the car."

Fast issue escalation with a Dell Service Delivery Manager

As part of the Enterprise-Wide Contract, Team Lotus has a dedicated Service Delivery Manager at Dell – a direct, single point of contact to report and track incidents. Peters says: "Our Service Delivery Manager helps us resolve issues quickly, and gives us fast escalation when there's a serious issue. It's another reason we're confident that we can deliver maximum uptime for the team."

Heading for pole position

Peters is adamant that the world championship is within grasp in the next few years. "We want to win a world championship and we think it's achievable. We've got the right team to do it, and, thanks to Dell, the IT infrastructure too," he says.

For more information go to: dell.com/casestudies/emea and dell.co.uk

TECHNOLOGY PARTNER

The Efficient Enterprise runs on Dell: efficiententerprise.com

Availability and terms of Dell Services vary by region. For more information, visit: dell.com/servicedescriptions
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