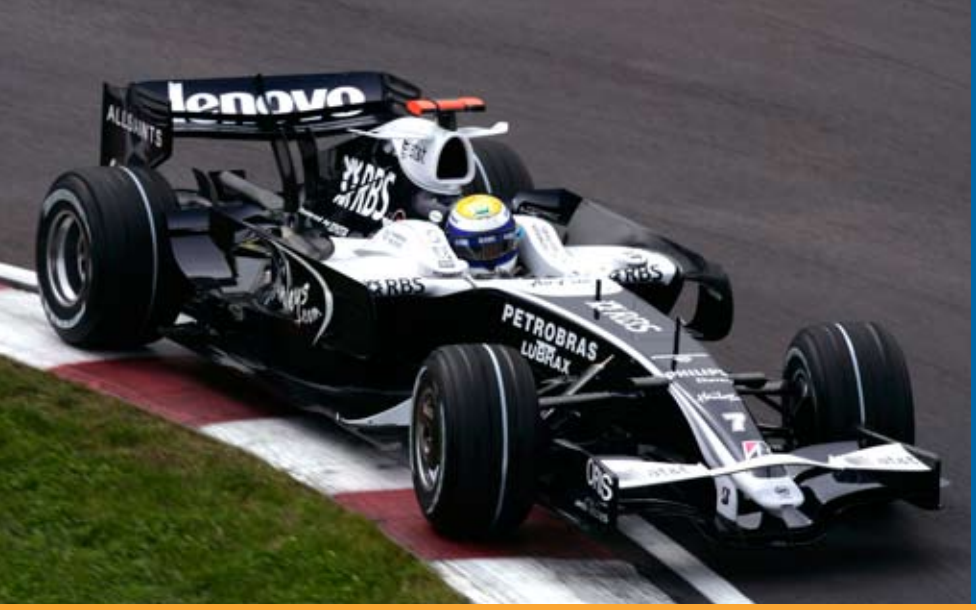

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LENOVO CUSTOMER CASE STUDY

Solution Overview
Industry: Formula One Racing

Customer Profile
Lenovo is an Official Partner of AT&T Williams, one of the world's leading Formula One teams with 16 FIA Formula One World Championship titles and 113 Grand Prix victories. The Williams F1 company employs around 520 personnel at a 40-hectare campus based in the United Kingdom's Motorsport Valley in Oxfordshire.

Business Situation
As the only organization that exists solely to race, the company's core competencies are in the design and manufacture of Formula One race cars, and in the deployment of the team's entries into the Grand Prix. Running a business of this size and keeping the team performing at its peak requires a technology infrastructure that can perform under the most gruelling conditions.

Solution
Lenovo employed an 'ignition to inventory' approach, supporting AT&T Williams across all race and business operations with Lenovo technology. Solutions deployed included:

- 71 ThinkPads
- 47 ThinkCentres
- 130 ThinkStations
- A custom-built Supercomputer

Benefits

- Lenovo PCs
  - Process telemetry data at 1GB/hour and track 4,000 car components.
- Lenovo Supercomputer
  – Speeds up the process of aerodynamic simulation by about 75 percent.

IGNITION TO INVENTORY AT&T WILLIAMS BOOSTED BY LENOVO

Formula One gets adrenaline pumping and pulses racing with high-paced action. And while many of us appreciate that it takes great feats of engineering to keep a team, its cars and drivers performing at their peak, few of us are privy to the complex technological infrastructure that supports the business of Formula One racing and a team like AT&T Williams.

> We are delighted to have a continued partnership with Lenovo …Their capability runs from supporting demanding engineering and high performance computing applications through to the essential business office and mobile user requirements…

Alex Burns
Chief Operating Officer
AT&T Williams

at&t WILLIAMS OFFICIAL PARTNER | lenovo

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> The Lenovo Supercomputer has given us a most welcome increase in our capabilities. We use it to run the most demanding computer simulations and it is an essential element of our drive to improve the competitive performance of our race cars…

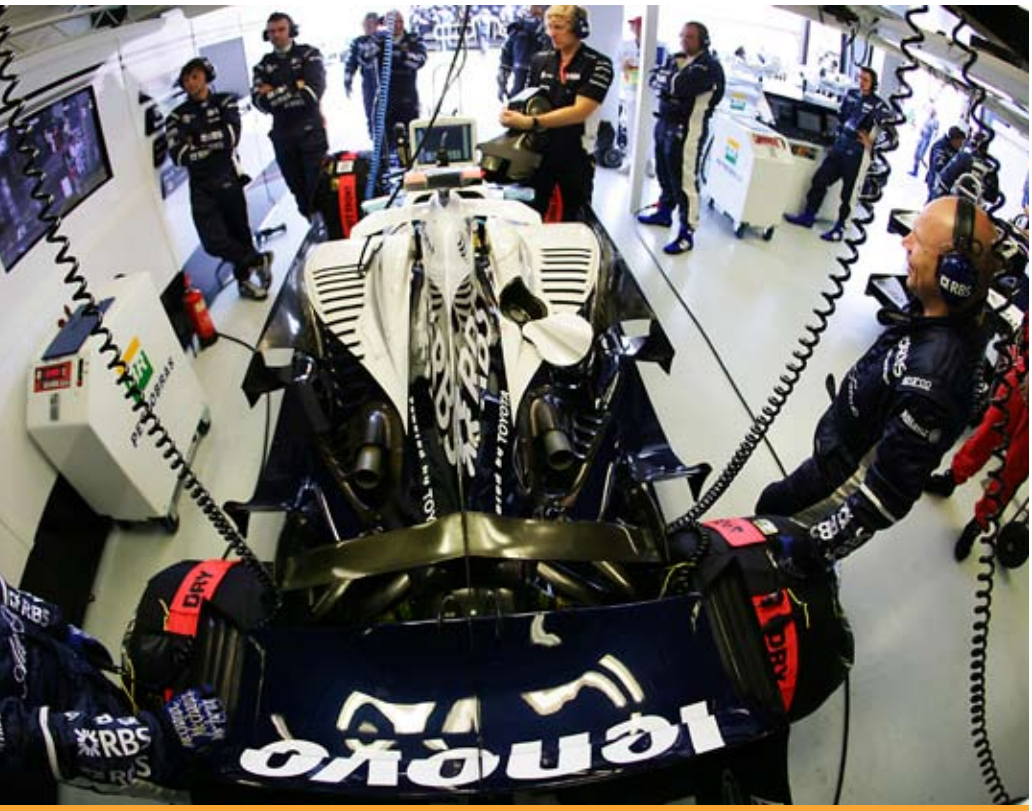
Alex Burns
Chief Operating Officer
AT&T Williams

Situation

More Than Just Sport - Powering the Williams F1 Business

Williams F1 is unique because it designs and manufactures its own cars, solely for the purpose of racing. Apart from this dedication to the sport, Williams F1 is also a business and it asks itself the same question any business does, when investing in technology – what's going to get us the highest returns in support of our core mission? In answering that question, the team turned to Lenovo's technology – a relationship which is now into its second season.

Lenovo's PC technology supports the Williams F1 business by creating PC solutions that manage themselves, and perform in data-intensive conditions and a highly competitive, visible and high-temperature environment. This allows AT&T Williams to focus on racing, while also reducing the PC technology overhead for the Williams F1 business.



About 800MB of data per car per race is downloaded to Lenovo computers at the end of each race.

Solution

Lenovo Deployment - Ignition to Inventory

AT&T Williams deploys Lenovo technology across the board, adopting an 'ignition to inventory' approach. A Lenovo notebook PC helps start the F1 car before each race, practice and test session. Lenovo PCs support engineers in car research, test, development, manufacturing; supports drivers in race operations and analysis; and supports the management team in marketing; logistical travel and race planning; networking; inventory; relationships with clients, sponsors and suppliers; human resources; finance; and strategy. In July 2007, Lenovo successfully installed a powerful supercomputer for AT&T Williams. It is being used in the team's wind tunnel simulation facilities. And from March 2008, 25 Lenovo S10 ThinkStations have been deployed in the Williams F1 design operations.

Ignition - AT&T Williams Starts with a Lenovo ThinkPad

As you can imagine, starting a Formula 1 car is not a simple key-in-ignition affair. Sensors on each car track engine and gearbox parameters such as pressure and the temperature of oil, water and air. Before the car is started, the engine is turned over with no electrical spark. Data from the engine and car is downloaded to the Lenovo notebook PC. If the engineer determines that all parameters are within limits, then a spark is applied and the engine starts. The Lenovo ThinkPad prevents damage to the car during the start-up process. If the engine is started without appropriate oil pressure, for example, the engine is ruined; the bearings will not survive. Lenovo's ThinkPads play a critical role in ensuring that the car revs up safely and is in optimum condition to power the team to peak performance in the race.

Benefits

Inventory - Lenovo Helps Williams F1 Keep Track

The team typically has five or six F1 cars in production each season. The cars are in varying stages of service, update and amendment at all times. This means the technology supporting the Williams F1 operations needs to be robust yet nimble enough to handle the intensive data processing demands that keep all aspects of the business on track. Lenovo's diverse technology offering is the solution for AT&T Williams.

Williams F1 employs about 520 people, 80 percent of whom are involved in design, manufacturing and race operations. Since the start of the relationship, Lenovo has provided AT&T Williams with ThinkPad T60, T60p and T61 notebooks, ThinkPad X60, X61, X300 and X60t notebooks and ThinkCentre M55 and M57 desktops. The team is also supported in their design and manufacturing processes by Lenovo S10 workstations, enabling the team to take advantage of the latest high performance processors and graphics technology which will in turn help to reduce development times. This means that when the team has its next great idea, they can make it happen even faster, in a business that's all about speed.

On an AT&T Williams race car, there are about 120 sensors monitoring data ranging from vehicle performance variables and driver behavior variables. This telemetry data - about 800 megabytes of data per car, per race - is transmitted to the engineering team at the track, and is downloaded to Lenovo computers at the conclusion of the race. The information is also networked using AT&T technology to the engineering team at the Williams F1 headquarters and factory in Grove, England. Lenovo computers typically process more than seven terabytes of data each season, or slightly more than one terabyte per car.

An F1 car contains about 4,000 components. Lenovo PCs track these 4,000 components throughout their life cycle. This means that the team is never left wanting when it is ready to hit the circuit.

Simulations Powered by Lenovo Supercomputer

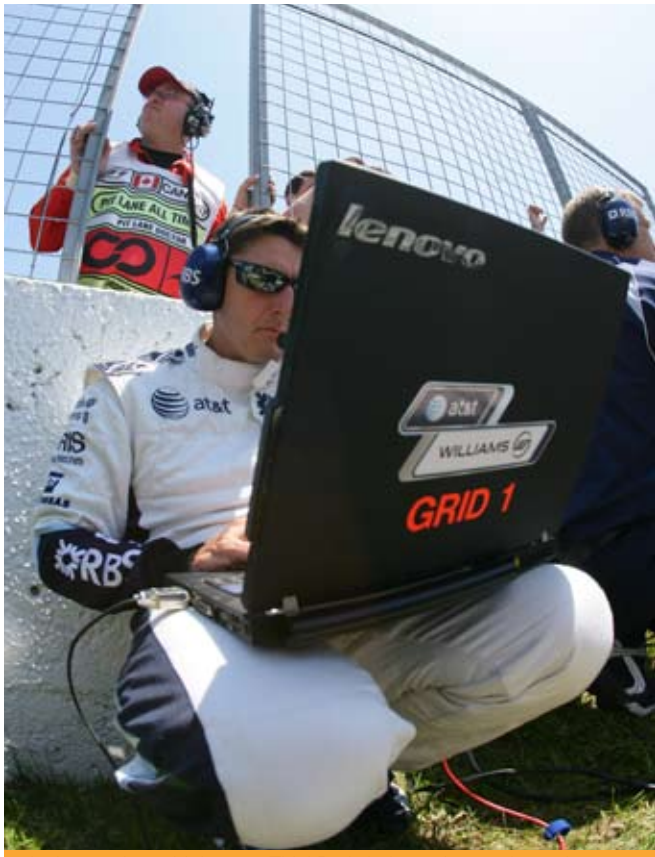
Naturally, the time to find out that something doesn't work is not on race day. So simulations play a critical role in accelerating the performance of Williams F1.

In July 2007, AT&T Williams and Lenovo collaborated on a customized supercomputing solution, designed to optimize the aerodynamics of the team's Formula One cars.

Variables, such as surface geometry, wheel turbulence and track surface are evaluated. For example, the team can analyze the effects of adjusting the curvature of the car's surface, with the goal of improving the generation of downforce and the reduction of drag.

The Lenovo Supercomputer has been in constant use since it was commissioned, multiplying by four times, the team's simulation capability. It is also four times more powerful than the team's previous solution and speeds up the process of aerodynamic simulation by approximately 75 percent.

Alex Burns, Chief Operating Officer of Williams F1, explains: "The Lenovo Supercomputer has given us a most welcome increase in our capabilities. We use it to run the most demanding computer simulations and



At the starting grid: Lenovo ThinkPads help engineers determine when to start the F1 car ignition.

..We have had outstanding service from Lenovo at every stage of the project, from early discussions to support after installation, and the supercomputer has been completely reliable.

Alex Burns
Chief Operating Officer
AT&T Williams

Lenovo ThinkStations being used at Williams F1 design operations.

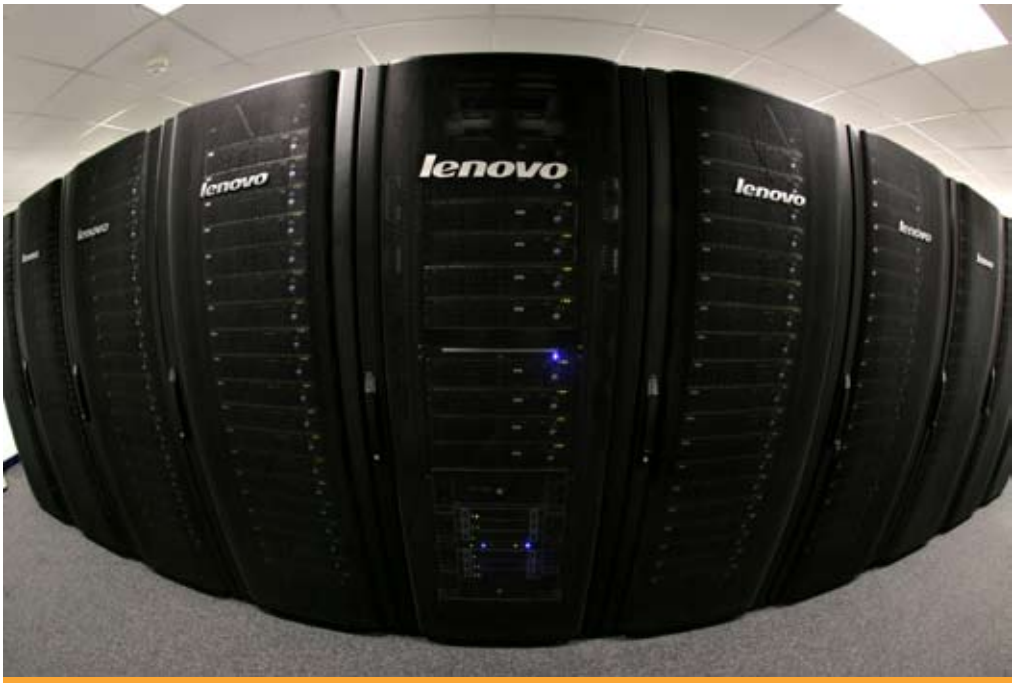
it is an essential element of our drive to improve the competitive performance of our race cars. We have had outstanding service from Lenovo at every stage of the project, from early discussions to support after installation, and the supercomputer has been completely reliable."

AT&T Williams and Lenovo To The Finish Line

Lenovo enjoys the partnership with AT&T Williams - which challenges Lenovo to innovate and apply its technology in new ways across the business and sport of Formula 1 racing.

Together, Lenovo and AT&T Williams are working towards crossing the finishing line ahead of the competition:

"We are delighted to have a continued partnership with Lenovo because they are able to add value across the breadth and depth of our business," commends Alex Burns, "Their capability runs from supporting demanding engineering and high performance computing applications through to the essential business office and mobile user requirements. This scope has been supported with a wealth of knowledge around efficient IT hardware deployment and data security while keeping us up to date with the latest technology."



Lenovo Supercomputer speeds up process of aerodynamic simulation by about 75 percent.

About Lenovo

Lenovo (HKSE: 992) (ADR: LNVGY) is dedicated to building exceptionally engineered personal computers. Lenovo's business model is built on innovation, operational efficiency and customer satisfaction as well as a focus on investment in emerging markets. Formed by Lenovo Group's acquisition of the former IBM Personal Computing Division, the company develops, manufactures and markets reliable, high-quality, secure and easy-to-use technology products and services worldwide. Lenovo has major research centers in Yamato, Japan; Beijing, Shanghai and Shenzhen, China; and Raleigh, North Carolina. For more information see www.lenovo.com.

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