



AT&T AND WILLIAMS F1

AT&T WILLIAMS - DRIVING BUSINESS 2008

In January 2007 AT&T commenced their title sponsorship of the AT&T Williams team and simultaneously undertook an ambitious project with the company behind the team, Williams F1, to revolutionise their infrastructure and provide cutting-edge services to help give a technological advantage.

If considered purely on the basis of scale, Williams F1 might be a small- to medium-sized enterprise compared with many global companies today. However the industry in which the company operates, Formula One, is unique, and it represents one of the most challenging, time-pressured and increasingly global environments, in which being at the forefront of technology and communication is vital for success.

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Harnessing real value

The introduction of AT&T's Internet Protocol (IP) virtual private network (VPN) service marked the start of this joint initiative in early 2007 and enabled Williams F1 to fundamentally change the way they operate. Martin Silman, Executive Director responsible for Global Portfolio Management, spearheads the technological partnership from within AT&T. "The service previously available to Williams F1 meant that the company employed a segmented operation with activities at their headquarters and trackside being completely discrete, with no overlap – but AT&T's EVPN service has successfully consolidated the company's infrastructure."

During the 2007 FIA Formula One season, this integrated VPN service allowed the AT&T Williams racing division within Williams F1 to place more emphasis on the role of telemetry over a race weekend and explore new ways to utilise this.

Telemetry is the process of logging data from over 100 on-car sensors, allowing the team to understand mechanical, aerodynamic and electrical/control issues with the cars. The data is transmitted via an encrypted radio link to the computer network at the track, and transferred to the UK via the VPN service.



The AT&T Williams drivers and engineers at the track will make the final decision on the setup configuration. However, they have to make many decisions in a short space of time and therefore often call on additional engineers, based at the team's UK headquarters, to perform specific analyses and solve complex problems.

At every Grand Prix, the team have a limited time in which to prepare their cars for Qualifying and the race. Alex Burns, Williams F1's COO, explains, "In this environment it is essential to have rapid, reliable and secure data transfer capabilities, which is why the VPN provided by AT&T is such a benefit. This has given a five-fold increase in the rate of data transfer and also gives the team a dedicated link that does not suffer from contention issues at busy periods, as was the case in the past."

Over a typical Grand Prix weekend, the Saturday schedule includes a Practice Session in the morning (11:00 to 12:00) followed by Qualifying in the afternoon (14:00 to 15:00). At the Spanish Grand Prix in 2007, the team transferred about 450Mb of data from the circuit to engineers in the UK during the morning Practice session. The vital last file, with 50Mb of data, was transferred in eight minutes. In previous years, it took about 40 minutes to transfer an equivalent file.

Burns says, "For our team the significance of this is that, with data transfer complete by 12:10, the engineers in the UK had about an hour in which to analyse and recommend changes to the team at the track and still give the team time to implement any changes before the Qualifying session started at 14:00. Before the AT&T VPN was installed, this would have been more like 30 minutes, and so the increased speed of transfer has doubled the available analysis time.

"As this is the last chance we have to make amendments to the setup and configuration of the cars and we frequently update software parameters, tyre pressures and other settings right at the last minute, this is a tangible benefit, and improves the preparation for each Grand Prix."

Throughout the 2007 season the team were able to benefit from this service, and it proved particularly significant at the Japanese Grand Prix, which was held at the Fuji Speedway circuit for the first time.

"At the 2007 Japanese Grand Prix, Alex Wurz reported a specific problem with the car bouncing in the final corner of the circuit during practice. The engineers at the track referred this issue to the UK, where other engineers examined all the data, and were able to recommend a change to the setup to correct the problem.

"During the same Grand Prix, the UK-based team performed an in-depth analysis of the optimal racing line for this particular circuit and evaluated where

each driver lost time to the other. This information was then sent back to the circuit in Japan with comments that the drivers could use to optimise the line they were taking around the track."

Alex Burns clarifies, "These examples are only possible because of the rapid availability of data sets and the significant bandwidth available to us. This allows the team to increase the resources applied to a problem without incurring the cost, lost time and inconvenience of sending additional personnel to each Grand Prix. Plus, this improved service not only benefits the AT&T Williams team, but can also have a direct positive impact on our drivers."

From an IT perspective, Chris Taylor, Williams F1's IT Manager, explains, "The quality of service for database replication and data transfer has been a substantial improvement, and we expect to benefit from this further throughout 2008. Equally, with this fully supported service we have a single point of contact within AT&T, which is vital due to the nature of the industry in which we operate."

"As the Formula One season expands and new circuits are added within Asia and the Middle East, we also recognise that, as with other companies in today's global environment, the industry in which we operate is increasingly mobile. Having the additional capability of AT&T's Network IP VPN Remote Access service means we are well-equipped for this, as it gives us connectivity with the flexibility to do anything from anywhere."

Optimising technology for the season ahead

Rod Nelson, Chief Operations Engineer at Williams F1, is an end-user of AT&T's services and explains the broader benefits that this technology affords.

"Beyond using data transfer over a Grand Prix weekend to help make immediate decisions, we also start to use this straightaway to prepare for 2008, which is necessary because the Formula One season is so long."

"We compile the raw information about the track for use, such as on the shaker rig or in the windtunnel at our facility, and this helps to improve the simulations of the effects that any track will have on the car without us actually being there. More and more of the development process in Formula One



takes place in this virtual environment because it is cheaper and often more consistent to run simulations to assess car development direction rather than redesigning the car and taking it to a circuit test."

"We also use this information to establish how previously modified components performed on certain tracks, and then take this into account when starting our new designs for the forthcoming year. As a result, the information from each race can be used to improve performance overall before the new car is even developed."

Once the Formula One season commences in March each year, the team is restricted on the amount of car running time, so the optimal time to develop the car is during the 7-week pre-season testing period.

During pre-season testing the three main goals are firstly to assess reliability and address any issues that the team may have with the new car, secondly to evaluate performance levels and identify areas that could be improved, and thirdly, to give direction for future chassis development.

"This means AT&T's VPN service is fully optimised during this period, because the improved rate of data transfer directly correlates to an increased rate of development of the components for the cars. For example, in the UK headquarters we have aerodynamists viewing the telemetry transferred back from the car during pre-season testing. This allows us to efficiently perform aerodynamic analysis whereby we correlate the on-track performance of the car with the data generated from the windtunnel. If there is a discrepancy, we can locate the cause faster than previously and therefore rectify it in a much shorter timeframe."

Benefits throughout the company

It's not just the AT&T Williams race team that benefit from the new infrastructure. The improvements from the affiliation with AT&T have been felt company-wide. As one of the most successful teams in the history of Formula One, AT&T Williams has a large fan base across the world, and the website is a primary method of communicating with the fans.

Liam Clogger, Head of Public Relations at Williams F1, explains. "At the end of 2006 we wanted to reinvent the team's website to reflect the new AT&T Williams image that resulted from the title sponsorship with AT&T. We designed an interactive concept which would deliver something new and exciting for F1 fans immediately, but would also have scope for us to build on in forthcoming years. The challenge was to find a way of bringing the concept to realization, because we required a secure, resilient solution with large bandwidth, plus additional capacity for particular team announcements."



Martin Silman clarifies, "Williams F1 is a small company with the requirements of a 'big company' web presence. This means 24x7 availability and capacity to handle millions of users, which can only be delivered by running web applications in multiple, distributed, secure, industrially hardened data centres which have the latest in fire suppression, continuous power and

cooling. AT&T's hosting capabilities were therefore introduced to allow Williams F1 to achieve their objectives without incurring the high cost of building their own facility – and the AT&T service offers much better web access than competitive offerings, simply because it sits at the very heart of the Internet."

Having successfully deployed a new infrastructure for their corporate communications and fulfilled the hosting requirements, Williams F1 moved to improve the company's web and Internet access by introducing AT&T solutions into this area.

AT&T's Network Based Internet Firewall allows Williams F1 to use their AT&T network for Internet as well as internal traffic and, because it is an MPLS solution, the Internet traffic can always be controlled to ensure that it does not impact higher priority activities.

"Williams F1 now operates a fully managed service with reduced infrastructure layers within the IT department such as hardware, operating systems, user accounts, software applications and support contracts."

Chris Taylor continues, "We also subscribe to AT&T's Secure Email Gateway, again a fully managed service, which scans all incoming and outgoing mail to ensure that viruses, worms and any other potentially damaging malware is kept out of the enterprise. This system is more secure and helps to mitigate risk. Plus it's a scalable solution that can accommodate additional requirements as our company grows."

Alex Burns concludes, "We feel that we achieved our joint objectives in 2007 with AT&T, and now that the infrastructure is in place, our company can look to further maximise this. We are also very aware that Formula One is an ever-changing industry, and we anticipate new challenges ahead. We will be working with AT&T to build on our technological partnership with the aim of becoming even more advanced and successful both on and off the race track in 2008."

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