



Success Story

Sauber F1 Team Increases Efficiency and Productivity With NetApp as the Storage Standard



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KEY HIGHLIGHTS

Industry

Formula 1 Motorsport

The Challenge

Reliable, flexible, and uniform storage infrastructure as a basis for complete IT services in technology, business, and administration

The Solution

NetApp® storage and data management with the 24/7 reliability of the MetroCluster™ solution, integrated data protection, and comprehensive scalability of performance, functions, and capacity

Benefits

- Simplified management and reduced complexity by consolidating all data services
- Storage efficiency reduced IT costs and freed up resources for racing technology
- Deployed a mobile data center on the racing circuit thanks to the FlexPod® solution with NetApp, Cisco, and VMware
- Achieved business continuity with 24/7 storage utilization

Customer Profile

Sauber Motorsport AG (www.sauberf1team.com), with about 300 employees of various nationalities, has its headquarters at Hinwil, a 30-minute drive southeast of Zurich, Switzerland. Founded by Peter Sauber in 1970, the company has taken part in Formula 1 races since 1993.

The company is located on a highly efficiently developed site approximately 15,600 square meters in size, excluding the wind tunnel building. The site houses the operational business and also development, design, and production facilities. Prototypes are tested for aerodynamic performance and optimized for the racing circuit in the wind tunnel building.

The Challenge

Fully integrated IT infrastructure from a single source

Formula 1 racing is a race against time from development through to the checkered flag. The quality of design and development, the skill of the drivers, and not least a robust, reliable, and high-performance IT infrastructure contribute to the team's success. Applications such as computer-aided design and

computational fluid dynamics (CFD) help to optimize the technology. A super computer provides the performance required to carry out the highly complex CFD software simulations. The grid models used in these simulations often consist of more than 100 million cells.

The Sauber F1 Team's wind tunnel is a closed circuit with a total length of 141 meters, excluding the test section. The test objects, 60%-size models of the racing cars, are exposed to airflow from the front and also from a slight angle; the whole measuring platform can be rotated. The workplaces of the model designers and makers, as well as the CFD engineers and aerodynamicists are all located in the same building.

The large amount of data that is created by development, wind tunnel testing and simulations in Hinwil must be stored quickly and reliably, but in such a way that it can also be retrieved at any time. And there's more: Even at the racetrack, IT and data capture are absolutely essential. Since 2008, the behavior of the cars in races has been recorded by an application that is standard for all teams, the Standard Electronic Control Unit (SECU) from McLaren

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Magnus Frey

Head of IT, Sauber Motorsport AG

Electronics Systems. The data is transmitted by radio, in some cases virtually in real time, to the teams' central data centers.

Sauber Motorsport AG decided on storage solutions from NetApp as long ago as 2007. The desire for a consolidated IT infrastructure that easily adapts to the steadily growing requirements was best implemented by using the NetApp Unified Storage Architecture. The approximate annual increase in data is about 15%, and the dataset quickly becomes obsolete and is deleted. Sauber Motorsport AG wanted to provide all IT services via a single platform, which takes the place of numerous individual solutions and so increases the efficiency of the services. The recommendation of the previous team owner, BMW, to consider NetApp solutions, has proven to be groundbreaking.

The Solution

NetApp storage as standard

Efficiency has top priority for the Sauber F1 Team. Short distances mean optimum workflow. For that reason, a closed bridge connects the wind tunnel with the design offices and IT area. A NetApp FAS8040 system is implemented as the central storage with 720TB gross capacity. Together with its counterpart in the main building, this forms a fail-safe storage cluster with automated failover, currently accommodating

around 240TB of data. NetApp MetroCluster software makes it possible to place the two systems kilometers apart from each other, while data communication still flows smoothly.

Today, all application data – Dassault Systèmes CATIA, Windows File Services, Microsoft Exchange, databases, and the SAP landscape – is consolidated in this cluster. The servers have been virtualized using VMware solutions and are incorporated into the high-availability concept using VMware VMotion. The storage design includes a cross-configuration for data protection: File data is backed up by using NetApp Snapshot® technology, while NetApp SnapManager protects applications such as Microsoft SQL Server, Oracle, and SAP.

“Actually, the whole company depends on the MetroCluster solution. Were it to stop, it would suddenly become rather quiet in Hinwil,” says Magnus Frey, head of IT at Sauber Motorsport AG. The 24/7 availability of the system is an absolute must, especially during the racing season. And the wind tunnel is also in operation almost 24/7, so the data generated must be constantly processed and saved. The environment has around 250 users. Almost a third of the workstations operate CATIA, often with two

computers simultaneously—for example, if a simulation is running on one system and design is being carried out on the other system.

Private cloud at the racetrack

The high availability of the MetroCluster solution is not only critical for the work at Hinwil, but also for data transfer during the race. NetApp technology also plays a critical role here. “Specifically for the racetrack, we needed a small and lightweight system that can be easily flown from one place to the next. It had to be extremely reliable and deliver the performance required for demanding graphics applications. With our mobile FlexPod data center, we can implement this highly efficiently,” says Magnus Frey. “Without NetApp, and with only conventional technology, a data center of this type would be extremely difficult to realize, and the cost of resources would certainly be higher.”

FlexPod is an “out of the box” data center from NetApp and Cisco. This validated and preconfigured solution for computer, network, and storage has been optimized for a range of applications; and, by using hypervisor software, it can be expanded up to a cloud solution. In the Sauber F1 Team's FlexPod system, servers and desktops are virtualized by using VMware solutions and are stored on the NetApp platform together with the

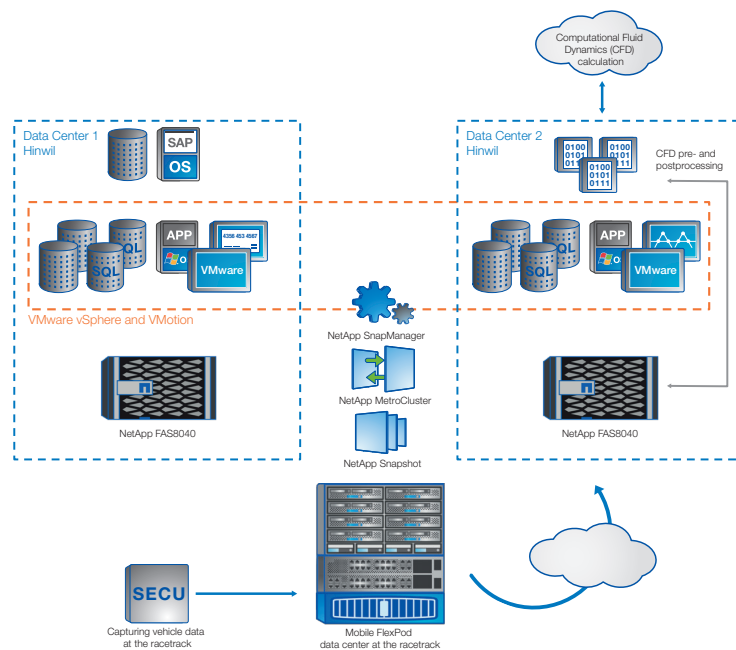


Figure 1: Storage infrastructure and data communication at Sauber Motorsport AG.

file data. A Cisco Unified Computing System (UCS) provides the compute power. The FlexPod system, with a total of eight hosts, is situated in the team garage at the racetrack. Here the SECU data is merged and is analyzed on site.

The Sauber Motorsport AG IT team is supported by NetApp and system integrator BSR & Partner AG. Magnus Frey is delighted with the collaboration: “We have been working with BSR & Partner AG for a long time. Particularly for a project such as IT at the circuit, it is important that our needs are understood and the budget also adds up. After all, every Swiss franc that goes into IT is not going into vehicle development.”

Business Benefits Using efficiency to counter time pressure

The Sauber F1 Team strives to extract the maximum possible advantage within the FIA rules and takes unconventional approaches to aerodynamics and design, leading to innovative solutions. “However, the essential thing is that we have everything ready on time and that we arrive at the start in tip-top condition,” explains Magnus Frey. “If development was to stop, or be delayed due to an IT problem, and a new wing did not get to the car in time, we would have an enormous problem. We simply have to be able

to rely on our IT, but we also need innovative functions so that we can increase our productivity.”

With NetApp as standard storage, Sauber Motorsport AG benefits significantly from the efficiency of the considerable number of features – from uniform management to deduplication to Snapshot backup. Thanks to more frequent backup of file versions and immediate file restores, this technology has helped to avoid many hours of extra work, which was met with great enthusiasm from the design team.

Deduplication avoids the tendency to store things twice, and clients know that no storage capacity is unnecessarily occupied and therefore wasted. With this feature, Sauber F1 Team can eliminate 10% to 15% of the data on the FlexPod system; on the virtual machines, the figure is 65%. This means that the team can manage with a small storage system at the racetrack. Last but not least, the integration with the VMware solutions offers convenient storage administration through VMware vCenter.

Constant optimization

“Sauber Motorsport AG and NetApp are both highly innovative companies that pay attention to quality and reliability,” says Magnus Frey. “We can see how NetApp continues to develop its products, as well as the benefit that we get from them. With the upgrade to the current model, we can also use the NetApp Flash Cache technology and benefit from a performance boost. This also contributes to our productivity and efficiency.”

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Head of IT, Sauber Motorsport AG

SOLUTION COMPONENTS

NetApp Produkte

2 NetApp FAS8040 systems
NetApp MetroCluster software
NetApp deduplication
NetApp Flash Cache software
NetApp SnapManager for SQL Server, Oracle, and SAP
NetApp SnapRestore® data recovery software
NetApp Snapshot technology

Protocols

FC, NFS, CIFS

FlexPod

Cisco Nexus switch
Cisco UCS Server
NetApp FAS2040 system
VMware View
VMware vSphere

Environment

Computational fluid dynamics
Dassault Systèmes CATIA
Microsoft Exchange Server
Microsoft SQL Server
Microsoft Windows Office
Microsoft Windows Server®
Oracle Database
SAP R/3 ECC 6.0
VMware ESX Server
VMware vCenter Server
VMware VMotion
VMware vSphere

Partner

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