Q+A

Bill Peters
Head of IT at Caterham F1 Team

Racing around the world

Bill Peters is head of IT at Caterham F1 Team, which he calls "not dissimilar to being head of IT for a major corporation or a small manufacturing business." At the same time, the Formula One (F1) circuit calls for fast high-tech field setups at 20 races and 6 tests each year—supporting 2 cars that reach speeds of nearly 200 miles per hour.

Q: *What challenges does your business face, and how does that affect your IT strategy?*

A: F1 racing requires tremendous computing power to design and produce the cars and process real-time race results. Some 20 GB of data are produced on a racing weekend, beamed from trackside back to base for analysis in a high-performance

computing lab. And we have to move the trackside kit to races in harsh climates for weeks on end.

So we run the gamut from a supercomputer comprising 186 Dell™ servers to Dell Precision™ laptops that must survive extreme conditions like the heat, wind, and sand of Abu Dhabi. Providing the tools to help team members such as aerodynamic and design engineers do their jobs means understanding how they work—which can be complicated. We must look constantly to the future to make sure we can support the latest and greatest applications that our engineering and design guys want to use. But I love racing and I love IT. Bringing those two together is a bit of a dream job, really.

Q: *So different departments need their computers to do vastly different things?*

A: Yes, but it has more to do with the applications that different people need to run. Most of our staff members aren't concerned too much about the actual hardware. They just want the tools to be able to do the job at hand.

By far the biggest power users in the Caterham F1 Team are the computational fluid dynamics (CFD) engineers, who use the high-performance computing facilities we have at Cambridge University. They also have incredibly powerful desktop systems because they require a lot of graphics capabilities and a lot of pre- and post-processing work. We have to make sure that we've got big performance for them, because the CFD department is working 24/7.

And at the other end of the spectrum, for example, is the communications department. They need lightweight laptops that don't require much processing power. But they must be able to communicate anywhere, because PR folks are highly mobile users. Then you've got the race team, which is a mixture of the two: mobile users who need a lot of power.

Q: *Does virtualization come into play?*

A: Trackside, our half-rack runs an environment with 20 virtual servers. Every other week, we're setting up an office for 60 people in a different location, sometimes in a different country. This equipment provides the IT environment needed for the engineers and team staff to set up, run, and manage the race cars over the course of a weekend. It powers the network that connects the garage, the team building, the mobile engineers, and the pit wall where the technical director sits. And the savings from virtualization—not having 20 separate physical machines—are tremendous. Our trackside IT footprint is half of what some other teams take to races, which gives us room to bring things that are vital, such as spare car parts.

Also realize that this equipment constantly has to do more. We've been tweaking it, doubling its capacity, and reallocating more processors to the virtual machines. And remember, this equipment doesn't sit in a pristine location. It gets hauled to extreme environments around the world. In Spain, the winter might be 6 degrees Celsius (42 degrees Fahrenheit), while in Abu Dhabi, it might

be over 40 degrees Celsius (104 degrees Fahrenheit). Not to mention the dust—the equipment gets so caked in dust at the track that it has to be vacuumed.

Q: *How quickly is your organization progressing toward the cloud?*

A: It's something that we are investigating with Dell at the moment. Our main job is helping the engineers get high performance out of the race car. So the cloud could help us focus on critical applications, rather than worry about whether backups have been done or whether a particular server is performing as well as it should be. It would allow us to better use our IT staff resources.

Obviously, the cloud depends on a very good communications infrastructure. But if everything were in a Dell-managed cloud that was accessible all over the world, feasibly we could get to the stage where we wouldn't need to take much kit to a race. The cloud could massively reduce our team's overhead. Maybe not in the next couple of years, but I can see it happening eventually.