

Official Team Partner



# Data, Infrastructure and the Great Modernisation Debate

An interview with Michael Taylor, IT Director,  
Mercedes-AMG Petronas Formula One Team  
& Patrick Smith, EMEA Field CTO, Pure Storage.



Against the backdrop of huge change and disruption that all organisations have felt during 2020, we asked Michael Taylor and Patrick Smith to discuss the key themes around data, infrastructure, and the how's and why's of modernisation that CIOs across industries can tap into.

**Michael, can you talk to us about Mercedes-AMG Petronas Formula One Team's own programme of modernisation? When did it begin and what were your core objectives?**

**Michael:** Yes, of course. Modernisation of our data infrastructure started in 2015 when we took the strategic decision to standardise on one vendor. Before that we'd effectively been collecting infrastructure from many vendors in the data centre and things were getting complex and really quite expensive to manage.

**One vendor. Three benefits.  
Simplicity. Cost reduction. Agility.**

Around that time we also started seeing exponential growth in data from the team's perspective. By that I mean that we were bringing new services online, including simulators and dynos. So we were generating the equivalent or more of the volumes of data that we'd been generating trackside for many years.

Data for us, as for many organisations suddenly became a huge operational overhead in the data centre. But there

was also another challenge occurring and that was limited functionality at an applicational system level. We were putting apps on different systems according to how mission critical they were deemed to be, so different lines of business or application owners were experiencing quite different levels of performance.

As a result, we're now much better at serving the needs of the business. Key database applications have gained a 90% improvement in query times. At the track we experienced a dramatic improvement, about 66%, in just opening the raw data files, and a 5x improvement on structured data in database queries. This might seem like a niche improvement, but when you can open and look at data quickly you make critical decisions much faster, and they could influence our own race outcome.

Our focus was on enhancing data performance, but off the back of our modernisation to Pure, we realised other benefits. Suddenly we only needed one storage administrator to run the entire 3 PB of data. And then there was a raft of intelligent tech baked in, which also took care of some of the other challenges we had on our to-do list. Things like the ability to safeguard data with ActiveCluster data replication using protection groups.

Snapshot technology allows us to iterate much faster in our development environments and bring in meaningful production data into the earliest stages of the process.

**"We needed to find a way to better serve the needs of all parts of our business, which triggered our strategic standardisation – onto one vendor and the migration of 3 petabytes of data onto two platforms – FlashArray™ and FlashBlade®."**

**Michael Taylor**



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**Michael, that level of change – putting all your eggs in one basket – could be seen as quite a risk. How do you combat that risk of change as an IT decision-maker?**

**Michael:** For us, it was about removing the emotion around data. Yes, it's an incredibly important asset for almost every kind of user. When you think too heavily about that, it's easy to be trapped into retaining the status quo. Why change when things are ok?

We really tried to focus on the outcomes we wanted. We knew we needed to provide data services to the organisation at a cost point that is effective, but we also needed basic controls to secure the data and provide a certain level of performance. From there, it was and is up to the data owners to ensure their data is in the right shape to be used for the requisite applications, such as AI.

Then process-wise we evaluated the vendors. The performance of Pure was an immediate standout for us, but the simplicity of the offer made them absolutely different from the competition even back in 2015.

Culturally, I would say it's also important that there is a fit between the business and the vendor. We were fascinated by Pure Storage – and particularly that they had built a storage array from the ground up. That mentality also set them apart from others in the market at that time. They were taking the F1 approach to storage. And then as we went through proof of concept and proof of value stages, we realised even more synergies which have stood as a strong foundation for a really quite long-lasting relationship.

**Patrick:** I find this idea that you move to a new platform primarily for performance gains, and then you begin to realise other benefits, really interesting. The cost pressures that most organisations are under really come down to a need to drive efficiencies. You put a platform in place because you want to be able to do things faster all the way up the business stack, then achieve dramatic changes such as only needing one storage admin. And that's before you start layering on things like automation, or treating infrastructure as code, which are other efficiency enablers. The other thing I think is relevant to all organisations from the Mercedes story is the trackside aspect: the small footprint was really helpful. If they don't need to take as much storage kit, they can take more spare parts for the car. Most businesses don't have mobile data centres, but it does help every other kind of business in terms of reducing data centre footprint, power and cooling and supporting sustainability, all of which is creeping up the corporate agenda. The other thing that is important is the cultural synergy between a vendor and a customer.

I think Mercedes' relentless focus on innovation, combined with ours, keeps their data centre at the cutting edge and them as an organisation extremely competitive whatever the landscape or 'market' might be doing. The current climate makes change and modernisation even more important, not less so, but it's still very important to find those mindset synergies or the change won't happen as smoothly as it could.

**What do you think are the main barriers to modernisation?**

**Michael:** Cost is a barrier, but we tend to talk about that in terms of value now, as CIOs. It's not calculated on a one-to-one ratio, it's a one-to-many ratio. So how do you justify that expenditure? Either the investment has to bring new capabilities or it must dramatically improve your current processes by making them faster, or both would be my ideal.

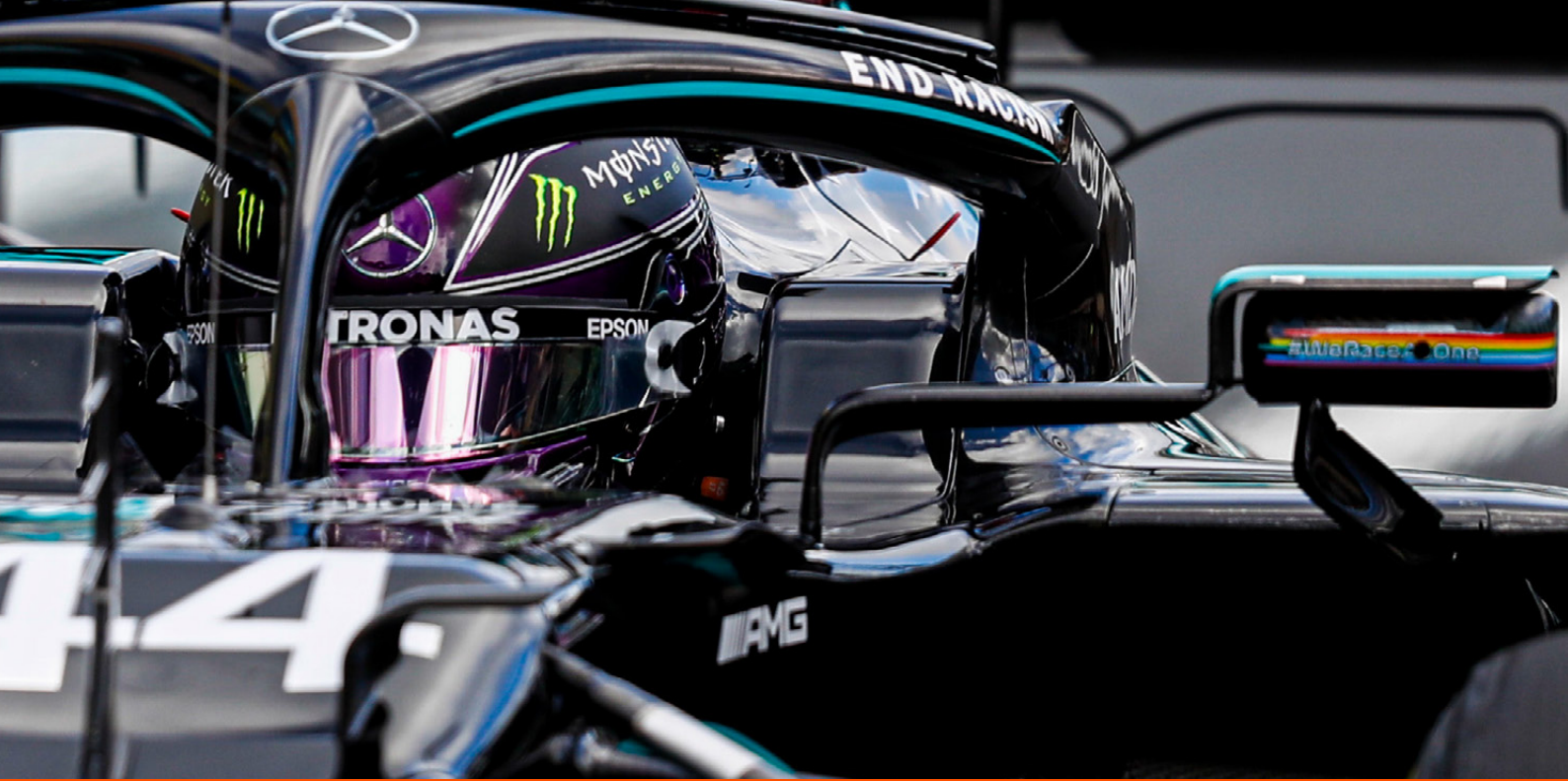
**How can you be certain that you will achieve the outcomes or benefits that you aspire to – what is the process that you go through at Mercedes?**

**Michael:** Key for me is really understanding the business. What's really important? What makes the business run? We focus a lot of our investment decisions around competitive advantage. For us, it's about investing to develop a new capability, in other words something that we can't do today but that we could tomorrow, and if there's a technology that makes this possible, the business case is much easier to justify. IT doesn't directly influence the performance of the car, but it can indirectly influence the performance of the car both positively and negatively. So being close to the business, understanding intimately what makes it run effectively and what will bring that competitive advantage helps us make the right investment decisions in the data centre to bring that business value.

"A lot of what we build is based on the principles of people, process and tech. Pure tick all three for us: When working within an organisation the technology bit is often an easy decision to make, but it's the processes that are important. What Pure have done is to build an architecture that made it very easy to provision storage and provide storage-based services in the data centre with the least amount of input but the most amount of control."

**Michael Taylor**





**Is this modernisation process made a lot easier when you work with vendors that are constantly road mapping how and when their innovations will come, rather than those you don't see for three years or so until the next renew cycle?**

**Patrick:** Yes, it doesn't matter how great your tech is if it doesn't fit with existing processes unless an organisation concurrently releasing that process change is the right thing to do. You can often have great tech but if it forces people to work in ways that aren't a good fit for them then the technology won't be deployed no matter how good it is. But on occasion, you can have such great technology that it forces people to rethink how they work and revisit their processes. Often people are the biggest barrier to doing anything – overcoming cultural bias can be incredibly difficult for CIOs to deal with, but it's essential.

Today though, moving past a 'good enough' mindset is really important. If there is one thing that we've learned over the past few months it's that having a foundation for the future is really important, because all of us are having to change in ways that we never would have thought we'd need to.

**If organizations don't modernise what are the challenges they'll come up against?**

**Patrick:** Michael and his team live and breathe the uber competitiveness of Formula. But in the current climate, many organisations are now experiencing similarly intense competition. Those with a platform are in a better place than those who are suddenly having to adapt to change and modernise at the same time. These organisations are typically finding themselves playing catch up.

**"We build our tech strategy around delivering competitive advantage – and that's our unifying ambition"**

**Michael Taylor**

**Michael:** Yes, I can see that and I really feel that tech strategy should be built around business strategy. The agile organisations are the ones who have built agility into the data centre. For example, we are a factory based organisation. Our designers have always found it easier to collaborate onsite and we didn't make lots of investment in VDI. However, because we had made the right investments in the data centre, when the UK went into lockdown, we were able to adjust to change, rapidly and still meet the demands of the business and serve our user community. We went from a factory-based system to an army of remote workers in 10 days.

We were fortunate that we'd made investments that would ensure we could be flexible in order to play out our strategy – shipped out applications like collaboration and productivity tools to the cloud, but retained our focus, time and energy on things that do make the car go faster, like CFD systems, keeping those close to us in our data centres. We just had to be creative in providing the requisite connectivity to allow those teams to keep working together.

**Looking to the future then, is there anything about the nature of data that is going to be game-changing for organisations and data infrastructures?**

**Michael:** Our focus is around organising data in a way that enables ML and algorithmic assessment of our data. We have been logging our telemetry data for many years and had become embedded in certain ways about how we captured it and what data we stored.

Moving much further forward I'm interested in smarter sensors. So at the moment we generate many thousands of channels of data and then augment and supplement them with virtual channels on top. In the future, smart sensors will do some of the processing, so we'll be able to filter out noise from beneficial, insightful data. I hope that this could happen during a race, which means that we will likely store less, but more valuable data.

**Patrick:** Yes, I think there will be significant impacts ahead. Michael talks about feeding machine learning as a focus area and I think that is true. We see a difference though between heritage organisations that are awash with years of data, but perhaps are struggling to get access to it through silos in order to derive real value from it, and younger organisations who are keenly aware of how to extract value from data, but perhaps don't have enough of it due to their relative youth.

The commonality however, is that they now need to make the right infrastructure choices in order to tie the tech strategy to the goals of the business, and data back to the needs and ambitions of the business.

Looking at where data growth is ramping up, through IoT sensors, it will be more important to be able to process at the edge, just because of the sheer volume of data expected. And even with modern connectivity such as 5G, it will soon become impossible to gather all data and to store it centrally. As a consequence, organisations will no longer be able to behave like data sponges as legacy architectures won't cope.

**What are your feelings about business continuity and how that very traditional model of duplication of technology might be modernised?**

**Michael:** Interesting. The instrumentation of our car generates more than a billion data points and many terabytes of data, but we don't just instrument our car, we instrument almost every aspect of our business operations from our social media to lean manufacturing, so that data is a core part of our decision-making process.

If we experienced downtime in either of our data centres, that would be a huge problem. We've begun to supplement some traditional DR techniques with new technologies, such as ActiveCluster, that enable us to transition our workloads between both data centres seamlessly so we can maximise our resources, but also maintain service availability if one should go down. If CIOs are looking to cut costs quickly and build resiliency into their operations, I would recommend reviewing DR/BC practices as a great first step in the modernisation process. However, what also needs to happen is that data management practices also need to be reviewed. Understanding the lifecycle of data is key: when is the right time to archive data? When will that data be used to turn insight into knowledge?

**"Many organisations talk about being data-driven, but we want to go one step further to knowledge-driven. So we must reduce operational friction and seamlessly use data as an enabler to make effective decisions. This means enriching it and making it more accessible by building connections between datasets – in part, that demands a modern data architecture."**

**Michael Taylor**





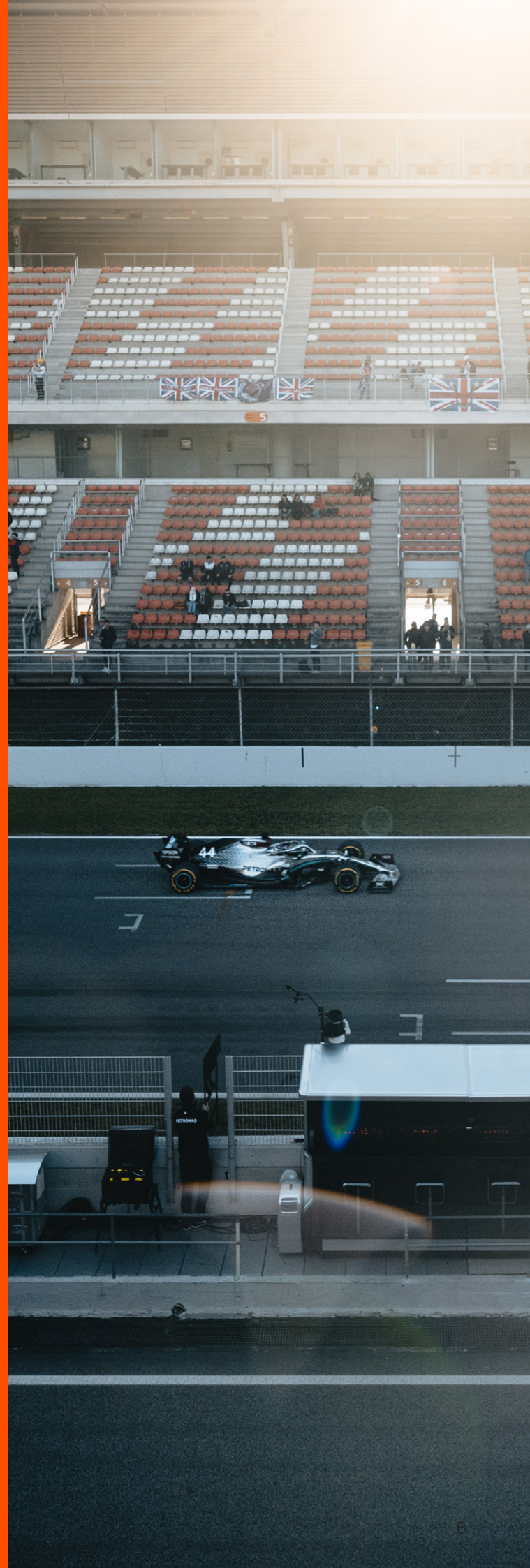
**Patrick:** If data is as important as it's deemed to be, then it's critical to protect not only it, but the whole data infrastructure. I'm finding that these are the areas our customers are focusing on especially in the always-on business models that many are increasingly important. We're seeing this a great deal in retail, for example.

This protection of the data has never been more important, partly because of the value of the data, because of the volumes of the data, the need to access it constantly, but also because of the rise of cyberthreats such as ransomware.

Michael talked about reducing operational friction and the reason why you need to protect the data is because you can't reproduce it from the car, for example. So you'd have a gap in your learning and any insights you'd gain would be less valuable. Being able to take regular copies of the data, without disruption and cost-effectively, is therefore also really important.

“Technologies like ActiveCluster allow organisations not just to reduce risk of data centre or major component failure by providing always-on business continuity, but by allowing organisations to test processes quickly and have certainty that they'll recover from an issue quickly with almost no business impact.”

**Patrick Smith**



## Finally, what advice would you give to CIOs: where to start and where not to start with modernisation?

**Michael:** I think most CIOs know their businesses really well, so they'll know best, but that's really the key isn't it. It's about really understanding the key stakeholders – learn what makes them unique and find ways to fit services around their needs. Making sure that tech is fit for purpose is essential rather than buying cool tech for the sake of it. The traditional model of deploying apps into the user community isn't right these days; it's about consulting with the business.

**Patrick:** I think CIOs know this already, but for me, it's about very carefully identifying which technology innovations and tech processes can deliver business benefit. While Michael's team are subject to some specific regulations and requirements, all CIOs and their organisations need to focus on cost pressures and identify projects that deliver value quickly where there's a high level of confidence of success. The idea of failing fast has never been more relevant and factors into the rapid agility theme we at Pure have been talking about for some time. The ability to be able to identify what's going to be successful is absolutely crucial now.

Senior leadership in IT can now help educate senior business leaders about the art of the possible, in terms of the capabilities of current technology and where it's going in the next 6, 12, 18 months. I would suggest avoiding any gap between business objectives and technology, and start by creating structures that form and sustain those close ties.

Finally, having a modern foundation to support the business is vital and while tech always needs to show its value now, there's always a need to show that technology is capable of delivering for the future. This means keeping a keen eye on legacy technology to make sure that it's not holding the organisation back.

In summary, there are few key learnings that have informed Mercedes-AMG Petronas Formula One Team's modernisation plans and that you can deploy within your organisation:

- 1 Act now:** so that your organisation is in a stronger, more adaptable position to deal with disruptions, such as COVID-19, and opportunities, such as evolutions in data and technologies such as IoT and artificial intelligence. Moving away from a good enough mindset is absolutely critical moving forward.
- 2 Stay close:** driving value from tech is all about making sure it directly delivers against your strategy. For Mercedes-AMG Petronas Motorsport, this is about investing for competitive advantage.
- 3 Fail fast:** experimentation is key in order to discover exactly which tech modernisation projects will deliver the right kind of transformation for your business, delivering process improvements and business benefits along the way!

- 4 Remove emotion:** while data has never been more critical to organisations' operations and commercial success, make modernisation decisions based on value generation or capability development.
- 5 Find synergies:** work with a partner that has a similar approach and mindset as your organisation. Long term strategies may lead to divergence over time, staying in lock-step through close partnership is essential to avoid this.

### Find out more

If you would like support with modernising your data infrastructures we, at Pure, will of course be happy to help you. Please contact us at [purestorage.com](https://purestorage.com).

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