

Leading Motor Racing Team

Transforming application and data
centre performance



A WhiteSpider Case Study





Challenge: Automate. Improve Agility. Reduce Complexity

Situation:

The technology

The technology and design required for the development and build of a leading motor racing team increases at a pace matched by few other industries. The final performance of a track car is the result of the vast amount of work that goes into the R&D in the factory.

Furthermore, any rule changes, technological advances and the fiercely competitive environment in which such teams exist, places an ever growing demand on the supporting IT infrastructure and applications.

Every innovation, across each area of the factory, requires faster application performance and greater volume of data to be processed and stored. Design areas include:

- Aerodynamic development
- Vehicle Performance and management systems
- Engine development
- Materials design and manufacture

With leading teams separated by the smallest of margins there is an ever present need to invest in technology to create competitive advantage.

Like any of the teams, each of the teams cars are made up of thousands of components, requiring many of hours of CAD design, extensive physical testing and dozens of applications to construct the cars.

To support the resulting increased demand on IT, the team recently transitioned to a hyper-converged infrastructure (HCI), giving greater application performance and enabling the IT team to respond rapidly to demand.

This, however, resulted in a new challenge. With significant increased demand on the incumbent network solution, the team needed to:

1. Increase performance: The HCI solution could support 25Gbps, or even 40Gbps network infrastructure, but the existing infrastructure was

limited to 10Gbps.

2. Increase agility: HCI enabled the team to rapidly allocate compute resources, but was hampered by the inability to allocate network resources at the same speed.
3. Reduce risk of down time: Even with the aggressive, and strategic, cycle of investment in infrastructure, there was a perceived growing risk of costly downtime.

What was required was a radically different approach. They needed a solution that would give real competitive advantage - that would 'make the car go faster' - the standard test applied to any major investment.

So the IT team turned to long term technology partner, Cisco, and trusted consultant WhiteSpider for a solution.

Solution Proposal: Cisco ACI

The brief from the Head of IT Infrastructure, was simple: "Replace my existing infrastructure with no downtime and simple integration".

From the start this was a joint approach between all organisations. WhiteSpider brought their industry leading expertise and in depth knowledge of the team's business operations and Cisco brought the technology expertise, with the fore-running data centre SDN solution, and understanding of what solutions worked best with other customers.

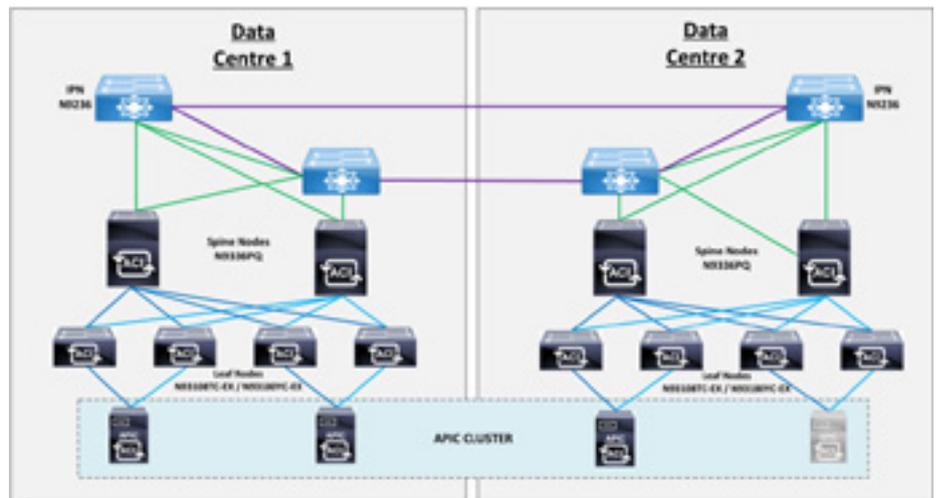
It was apparent from the outset that a Software Defined Network was the ideal solution:

- ACI would solve the challenges facing the team:
 - i. Policy based automation to improve the agility of the IT team to respond to changing requirements.
 - ii. Network - wide orchestration to provide simplification of the infrastructure.
 - iii. Industry leading technology to deliver enhanced

“ We needed a solution that could enable our team to work more efficiently, and at the same time transforming the speed of deploying applications. And we couldn't risk any downtime. The team at WhiteSpider did a great job of delivering the solution we are now reaping the benefits. ”

Head of IT Infrastructure

- performance.
- The existing network infrastructure was already best of breed Cisco Nexus 7k architecture, so the new solution needed to be a further advance on this technology.
- ACI is built for simple integration and migration, reducing the risk to the team of downtime.
- WhiteSpider was Cisco's leading Advanced Technical Partner with extensive experience of designing and deploying ACI solutions of all sizes



ACI Fabric Topology

Situation Delivery: A UK First

Adopting Cisco's Nexus 9000 series platform the solution enables a policy driven fabric on which data centre services are delivered. This has enabled the team to evolve from a 'Network First' approach to a 'Application Centric' architecture.

At the heart of the solution is Cisco's ACI Application Policy Infrastructure Controller (APIC). This enables seamless integration into the team's physical and virtual infrastructure, allowing for a consistent network strategy across their data centre locations operating in an active-active topology.

Utilising the Cisco ACI validated design, WhiteSpider worked with the team to implement a solution with no single point of failure as the infrastructure was distributed evenly across multiple data centres. The figure above illustrates this solutions topology.

The result is both a simplification of the overall orchestration of the infrastructure, and improved agility of delivering uniform configurations from end-to-end within the DCs.





Solution: The Benefits

ACI is delivering many benefits for the team:

According to the Head of Infrastructure at the team, a critical advantage ACI had over other SDN technologies, was that Cisco was the only one to offer a single solution that covered everything — physical, virtual, and all our products — with a single controller. No other solution could do that.

Further advantages of the solution included the following:

Orchestration

ACI enables the centralised control of the entire data centre infrastructure, enhancing the productivity and efficiency of the IT team with less provisioning on individual devices, and less CLI (command line interface) work - rather infrastructure wide changes possible with a simple point and click.

The result is that, by focusing on delivering applications the business needs rather than the plumbing supporting the applications, the team's IT can now move at the speed of business. They are becoming ever more a business enabler.

Automation

ACI provides the ability to programme business policies, ensuring standardised solutions are created and delivered.

ACI is the ideal solution for the team, where workloads required for different applications vary in reasonably predictable ways, enabling the IT team to provide necessary resources to the workloads.

The ability to quickly, efficiently move resources means that the efficiency of development and testing can be improved, giving more time for the development teams spent of productive work.

Performance

With ACI now in place, the team's users benefit from improved network performance, with network bandwidth to 40Gbps from 10Gbps connectivity. This means that the network infrastructure better supports the business and provides the network speeds and capacity that the applications demand.

Visibility

With ACI's built in management capability, partnered with Arecibo (WhiteSpider's user experience monitoring service), the team has a real-time, single screen window into the performance of the entire application and network infrastructure.

“ We don't look at deploying Cisco ACI as a network refresh but as a way of changing how our data centres operate. ”

Head of IT Infrastructure

About WhiteSpider:

Established in 2012, WhiteSpider specialises in providing consultancy, strategic advice, and practical support in enterprise service architectures. The company helps organisations to standardise their IT and communications infrastructures by using a unique new service framework - ea⁴ - developed specifically with the needs of global enterprises in mind. Head-quartered in the UK, WhiteSpider works with global companies across 12 industry sectors, including Financial Services, Pharmaceuticals, Healthcare, Construction and Motor Sports.

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