



**Hewlett Packard
Enterprise**

Helping create sport's most dramatic live experience

**Ryder Cup Europe adds a digital layer to bridge
the gap between on-course and armchair fans**

Twenty years ago, clubs would ban mobile phones from the golf course. Today, the game is embracing the phone's ability to deliver live updates and rich media content. Ryder Cup Europe is using its latest event to test new concepts, creating a live experience that is engaging and frictionless. It relies on a secure and dynamic network infrastructure.

Closing the gap between the on-course and armchair experience

The Ryder Cup is many things — part global sporting event, part live TV show, and part traveling theater. Golf's premier team competition not only draws in excess of 270,000 spectators on-site but also captivates millions more worldwide tuning in.

It is also a logistical wonder. Each event must be built and disassembled in weeks. Banks of seating, shops, VIP lounges, media facilities, and food and beverage outlets must be brought in. Days after the event finishes, the site should be left in pristine condition.

The 2023 event, which took place at the Marco Simone Golf & Country Club in Rome, had extra complexity: 90% of spectators would be traveling from overseas; archaeological sensitivity placed limits on local building work; Rome was unseasonably warm, yet there was the threat of torrential downpours.

"This is the largest, most complicated deployment of technology at a temporary sporting event," says Michael Cole, Chief Technology Officer at Ryder Cup Europe. "In effect, we were creating a new smart city, within weeks."

What Cole is attempting to do is redefine the possibilities of a live sporting event. Using the 2023 Ryder Cup as an innovation testing ground, Cole and his team are aiming to transform the way events are managed and experienced.



Industry: Sport

Region: Rome, Italy

Vision

Create a mobile-first experience for on-course fans, from ticketing to retail to media-rich access to real-time updates during play

Strategy

Ensure optimal wireless coverage across the site, integrating environmental sensors and streamlining network management

Outcomes

- Supports effortless connectivity for 20,000 concurrent users
- Reduces reported network issues by 50% compared to the 2018 event
- Carries 90TB of data across the Ryder Cup week

“The ideas we’re testing in Rome will influence live golf events throughout Europe for the next four years,” Cole says.

For golf fans, this means bridging the gap between the live on-course and the armchair experiences. Real-time stats, shot replays, commentary, and score graphics will be available to spectators on their smartphones within a geofenced area. Ticketing, payment, and food and beverage ordering services will also be available through the phone.

For course officials, stewards, and security, this would also be a mobile-first work environment. Officials could check rulings, stewards could anticipate crowd surges, and security would have live status updates.

The goal was blanket network coverage but with fewer engineers and less hardware on site. Remote management would enable an off-site team to oversee the installation, security, and operations of the network. New AI capabilities optimized connectivity and network health.

Creating the most intelligent sporting event

Most sporting events take place within a purpose-built stadium. The action is contained within a small space; crowds may be big, but spectator patterns are predictable.

The Ryder Cup is not like that. The Marco Simone Golf & Country Club course spans 7,181 yards and the action takes place all across the course. Fans could walk five miles watching a day’s play. At 8 am, there may be 10,000 fans massed at the first hole, yet 15 minutes later that part of the course could be deserted.

From a connectivity perspective, providing coverage involved the use of more than 200 switches, 800 access points, 30 kilometers of fiber-optic cable, and a private 5G service to connect the hardest-to-reach areas.

Moreover, Cole wanted sensors in place across the site to monitor network health, along with environmental measures. Big screens and live updates

to the app would broadcast the latest action.

“We want to make this the most intelligent sporting experience ever,” says Cole. “We want to capture live data, for that data to then generate insight, and to use that insight to create actionable outcomes.”

In this instance, ‘intelligence’ takes many forms. Fans can be pointed toward quieter food stalls, grandstand seating, or toilet queues, cleaning crews or security teams can be directed to attend on-course issues, and there are constant updates on who is statistically likely to win each match. Team captains have their own dashboards, with live data on shot choices and outcomes.

“This event has seen a huge uplift in the amount of edge devices gathering data, with cloud-computing then surfacing key insights,” says Cole. “It is a true edge-to-cloud deployment.”



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– Michael Cole, Chief Technology Officer, Ryder Cup Europe



Capturing data to inform insight

The 2023 Ryder Cup experience was enabled by HPE Aruba Networking. It is the latest progression in a long-term engagement between Ryder Cup Europe and Hewlett Packard Enterprise.

The event included many firsts: HPE GreenLake, HPE Aruba Networking Central, and HPE Aruba Networking UXI sensors. It is the first major sporting event to use Wi-Fi 6E and private 5G.

“Unequivocally, this is the best network infrastructure we’ve ever had,” says Cole. “It is the largest ever Wi-Fi deployment at a sporting event. We’ve been able to easily support a peak of 20,000 concurrent users with over 90TB of data across the Ryder Cup week.”

At the heart of the network is HPE Aruba Networking Central. It enables Ryder Cup Europe to consolidate network operations, streamlining the installation and management of the network across the week. AIOps then drive further efficiency and proactive optimization.

“We’re able to gather the network data, spot issues early, and automate how

we resolve them. We’re fixing problems before they even happen,” Cole adds.

Together, this means fewer engineers are needed on site, and hardware can be installed more quickly. This will be the template for how European tour events are managed in the future, Cole says. It creates a lighter footprint in terms of the resources needed to run an event.

In terms of sustainability, Ryder Cup 2023 saw the use of solar-powered access points, 14 solar-powered weather stations, and more than 100 environmental sensors. A project sustainability dashboard tracked carbon footprint, power utilization, and energy cost. From a network hardware perspective, more equipment can be reused.

The event also embraced the use of IoT. A pioneering move in golf, and possibly in sport at large, Ryder Cup Europe used an IoT platform powered by HPE GreenLake edge devices to cloud computing, with proactive monitoring of the technology across the course. Connected sensors included power, temperature, and humidity sensors, along with water leaks, smoke, and motion detectors. The 240 buggies

used to transport players, officials, and VIPs were all tracked across the course with HPE Aruba Networking architecture carrying the data and ensuring connectivity.

Security, too, was stepped up. In addition to an on-site network operations center, Ryder Cup 2023 featured a Security Operations Center (SOC) — another first in any golfing event. “I don’t think the threat landscape had ever been greater,” says Cole. “The unified fabric of the HPE Aruba Networking solution meant we were ahead of the game.”

The SOC monitored an average of 175 million firewall session log records per day and was able to actively block over 100 malicious attempts from across the globe. Overall, the number of troubleshooting tickets raised was down by half compared to the 2018 event while providing far greater connectivity for fans throughout the course.

“Plus, the integrated ticketing and access control and the ability to track devices meant we had heightened security capabilities but with a frictionless experience for guests,” Cole adds. “The eyes of the technology world were on us, and we succeeded.”



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– **Michael Cole**, Chief Technology Officer, Ryder Cup Europe



Drama broadcast to 200 countries

Ultimately, sporting events are judged on the quality of the sporting drama. The Ryder Cup 2023 saw Europe regain the trophy, holding off a spirited comeback by the US team on the final afternoon. The event was broadcast to more than 200 countries, with an estimated reach of 724 million households.

“This is one of the world’s top five sporting events, and the feedback has been incredibly positive,” says Cole. “This was one of the best Ryder Cups ever staged.”



About Ryder Cup Europe

The Ryder Cup is golf’s number one team event. It takes place every two years and brings together the best players from Europe and the US. The 2023 event was held in Rome and had a global reach of 724 million households. More than 10,000 people are involved in the event’s staging.



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Solution

Hardware

- HPE Aruba Networking CX Core and Access Switches
- HPE Aruba Networking Wi-Fi 6/6E Access Points
- HPE Aruba Networking Mobility Gateways
- HPE Aruba Networking UXI Sensors
- HPE ProLiant Servers

Software

- HPE Aruba Networking ClearPass Policy Manager
- HPE Aruba Networking Central
- HPE GreenLake Sustainability Dashboard



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