iQUILA
SOFTWARE DEFINED NETWORKS

The University of North Carolina at Chapel Hill

Modernising Campus Connectivity with iQuila SD-WAN 2.0

OVERVIEW

The University of North Carolina at Chapel Hill (UNC-Chapel Hill), one of the oldest and most respected universities in the United States, supports a community of more than **55,000 students** and **12,000 staff.** The campus spans a large geographical area, with **a large number of buildings,** each accommodating significant numbers of users and requiring secure, seamless access back to the university's data centres.

As the demand for reliable high-performance connectivity continued to grow, UNC-Chapel Hill sought a next-generation networking approach that could simplify their architecture, improve control for administrators, and deliver campus-wide Layer 2 consistency. iQuila SD-WAN 2.0 was selected as the strategic solution.

CHALLENGES

UNC-Chapel Hill needed a way to:

- Connect **a large number of remote buildings** distributed across campus as one extended network
- Deliver **consistent VLAN traffic** to every location without excessive configuration at each site
- Maintain **high availability** across their two primary data centres
- Improve **network resilience,** ensuring continuity even during infrastructure failures
- Reduce operational complexity and give **simple, centralised control** back to the IP administration team

Traditional SD-WAN solutions introduced complexity, required redesigning network segments, and did not natively support the Layer 2 extendibility the university needed.

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THE IQUILA SOLUTION:
SD-WAN 2.0 WITH FULL LAYER 2 VIRTUALISATION

To meet these requirements, UNC-Chapel Hill deployed iQuila Enterprise across its two data centres, creating a resilient SD-WAN 2.0 fabric that links every remote campus building without changing the existing network design.

KEY DESIGN FEATURES:

- **Dual Data Centres**
  Each data centre hosts an iQuila Enterprise server, configured as a **High-Availability (HA) pair.**
- **Active-Standby Protection**
  In the event of a failure at Data Centre A, traffic is automatically and instantly routed to Data Centre B with an average failover time of **4 milliseconds.**
- **VLAN Continuity to Every Building**
  iQuila extends the university's VLANs across all buildings exactly as if they were connected to the same physical switch fabric.
- **100+ Users Per Building**
  Each remote building connects hundreds of students and staff directly to the university data centre without requiring complex local routing configurations.
- **Simple Centralised Administration**
  iQuila gives full control back to the IP admin team, enabling rapid deployment, monitoring, and policy changes without touching remote equipment.

RESULTS

1. SIMPLIFIED NETWORK ARCHITECTURE

UNC-Chapel Hill eliminated the need for complex routing overlays, reducing operational overhead and significantly speeding up network changes.

2. FULL LAYER 2 DOMAIN ACROSS CAMPUS

All buildings now operate as part of one seamless Layer 2 network, enabling easy VLAN extension and rapid service deployment.

3. HIGH AVAILABILITY WITH MILLISECOND FAILOVER

The dual-data-centre design ensures continuity. If one data centre goes offline, iQuila automatically activates the second site with a 4ms failover, ensuring uninterrupted connectivity.

4. IMPROVED PERFORMANCE AND USER EXPERIENCE

Students and staff experience consistent, stable connections regardless of where they are on campus.

5. CENTRALISED CONTROL FOR THE IP ADMINISTRATION TEAM

Network administrators gained a simplified management console, enabling them to make changes centrally without visiting remote sites.

CONCLUSION

iQuila SD-WAN 2.0 provided the University of North Carolina at Chapel Hill with a modern, resilient, simplified networking platform that supports its large and demanding academic community. With seamless Layer 2 extension, millisecond HA failover, and full administrative control, the university now benefits from a future-proof network that scales with its needs and supports its mission of innovation and academic excellence.

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