io by HFCL

Case Study

Central University of Kerala - Education

Connecting Minds Everywhere

HFCL's Wi-Fi Solution at Central University of Kerala Enabling E-Learning with Seamless Connectivity

Background

The Central University of Kerala, located in Kasaragod, Kerala, India, was established in 2009 with a vision to provide quality higher education across various disciplines. The Central University of Kerala (CUK) is among the 15 central universities founded under The Central Universities Act, 2009 by the Parliament of India.

CUK stands as one of South India's premier educational institutions, spanning vast acres of campus grounds and encompassing numerous buildings housing various academic departments. With a student body exceeding 2500 individuals, the university prides itself on offering diverse educational opportunities across a wide array of disciplines including Arts, Humanities, Social Sciences, Sciences, Commerce, Management, and Education. Its curriculum is designed to promote critical thinking, innovation, and holistic development among students, preparing them to tackle complex challenges of the modern world.

The university features modern infrastructure and state-of-the-art facilities, including well-equipped classrooms, laboratories, libraries, hostels, sports complexes, and residential quarters for faculty and staff.

These facilities create a conducive environment for learning, research, and overall growth. As the landscape of higher education continues to evolve, Central University of Kerala remains committed to leveraging technology to enhance teaching, learning, and research. The university's strategic initiatives include the deployment of advanced infrastructure to ensure seamless connectivity and access to digital resources across its campus.

- In the 2024 Times Higher Education World University Rankings, a cumulative of 101 Indian institutions attained qualification. Additionally, in the QS World University Rankings 2024, 10 Indian Institutes secured positions within the Top 500.[1]

- In the financial year 2020, the market size of the education industry was about 117 billion U.S. dollars across India. Projections indicated a significant expansion, with the market expected to reach $225 billion USD by the financial year 2025.[2]

Our deployment of HFCL's Wi-Fi solution at the Central University of Kerala has yielded remarkable results. By leveraging our Wi-Fi 5 Access Points and hardware controller, we successfully addressed the challenge of providing reliable connectivity to over 2500 students across a sprawling campus. The implementation led to a significant improvement in network uptime and browsing speeds, creating an environment conducive to seamless digital learning. Our solution not only met the university's connectivity needs but also empowered administrators with enhanced network visibility and management capabilities.

Anand Kumar
(Associate Vice President, Communications)

Overview

As digital technologies increasingly influence education and research, Central University of Kerala recognized the importance of upgrading its network infrastructure to meet the growing demands for connectivity, reliability, and security. The university's students and staff heavily rely on connectivity for their daily learning activities, online collaboration, and communication. However, concerns were voiced over dropped Wi-Fi connections, leading to subpar user experiences. With a bring your device policy in place, managing and securing a multitude of connected devices presented further challenges, emphasizing the need for a comprehensive solution that could provide seamless connectivity, efficient management, and robust security measures.

In response to these challenges, Central University of Kerala sought a technology partner capable of delivering a solution that addressed its connectivity needs. The objective was clear: to establish a campus-wide Wi-Fi network that not only provided seamless coverage but also offered a consistent and reliable user experience across all areas. Centralized network management capabilities were identified as crucial for ensuring efficient administration and maintenance of the network, while simplified user onboarding procedures were deemed essential to promote user adoption and accessibility. By prioritizing connectivity, reliability, and security, the Central University of Kerala aimed to create an environment conducive to innovation, collaboration, and academic excellence.

- In the fiscal year 2020, higher education enrollment across India stood at approximately 40 million students. Forecasts anticipate a surge in enrollment to 92 million by the fiscal year 2035.[3]

- According to the All India Survey of Higher Education (AISHE) 2020-21, Kerala is ranked among the top in terms of both the number of colleges and college density in the country.[4]

Challenge

Central University of Kerala, serving over 2500 students across a sprawling 310-acre campus, faces a critical challenge in upgrading its Wi-Fi infrastructure to meet the growing connectivity demands of its faculty and students through a Make in India compliant solution as per the directives of government of India. Ensuring seamless coverage across buildings housing various departments poses a logistical hurdle. Additionally, the university wanted to have a centralized management and monitoring system for troubleshooting capabilities, traffic optimization, and configuration consistency.

Solution

To address the challenge of providing a high-speed, seamless Wi-Fi network across the campus, our team devised a comprehensive solution centered around deploying 100 advanced Wi-Fi 5 4x4 Access Points and a hardware controller for centralized management. After conducting a thorough survey of the campus, major areas within the college premises were identified through the heat mapping process for the optimum deployment of the Wi-Fi network and to ensure blanket coverage and deliver high-speed Wi-Fi connectivity to all areas. Built on the Wi-Fi 5 standard, it offers significant improvements in data transfer speeds, capacity, and performance. These Access Points are equipped with advanced technologies such as MIMO (Multiple Input, Multiple Output) and OFDM (Orthogonal Frequency Division Multiplexing) to efficiently handle multiple devices and high-density network environments. They also support features like WPA2 security encryption for enhanced data protection.

Indoor Wi-Fi

Wi-Fi 5 Access Points

A hardware controller was deployed to effectively manage hundreds of mobile devices accessing the university's network on a daily basis. This hardware controller facilitated centralized management, troubleshooting, traffic optimization, and ensured configuration consistency across all Access Points. Implemented an active-active configuration for the hardware controller to enhance reliability and redundancy of the network infrastructure.

The hardware controller offers a comprehensive suite of capabilities, enabling flexible network distribution, bandwidth allocation, management, tracking, troubleshooting, configuration, communication, and policy enforcement across all access points in the network. Equipped with built-in analytics and reporting functionalities, the controller provides valuable insights into usage patterns. Empowering the IT department with complete oversight, the controller facilitates the implementation of various measures such as blocking inappropriate sites, controlling bandwidth usage, and enforcing security protocols. This ensures that users enjoy seamless Wi-Fi connectivity throughout the campus while maintaining network integrity and security standards.

Result

01 Achieved a significant improvement in the uptime of the Wi-Fi network across the campus, ensuring uninterrupted connectivity for students and faculty members.

02 Increased the average browsing speed per student significantly, resulting in faster access to online resources and improved productivity.

03 Managed network infrastructure led to reduced network downtime and further enhanced the average browsing speed, fostering a seamless digital learning environment.

04 Witnessed an increase in the utilization of Wi-Fi services across the campus, reflecting the improved reliability and performance of the network infrastructure.

05 Administrators were equipped with greater visibility into network activities, allowing them to effectively monitor and manage student behavior while ensuring network security and compliance standards were upheld.

Conclusion

Our solution, centered around deploying advanced Wi-Fi 5 4x4 Access Points and a hardware controller for centralized management, has brought impactful outcomes at the Central University of Kerala. Achieving a significant improvement in network uptime and increase in browsing speed per student, HFCL facilitated an environment conducive to seamless digital learning. Witnessing heightened utilization of Wi-Fi services and empowering administrators with enhanced network visibility, our solution not only addresses critical connectivity challenges but also lays the foundation for a future-ready academic landscape.

References

1. https://www.investindia.gov.in/sector/education
2. https://www.statista.com/statistics/1286064/india-education-industry-market-size/
3. https://www.statista.com/statistics/1286736/india-estimated-growth-of-student-enrolments-in-higher-education/
4. https://www.thehindu.com/news/national/kerala/kerala-among-states-having-highest-number-of-colleges-in-country/article66450800.ece

Disclaimer

io by HFCL

For further information about this document,
contact our sales team iosales@hfcl.com

visit our website: io.hfcl.com | hfcl.com