# Manipal University Creates an All-Wireless Campus with Motorola

"Manipal University is recognized for imparting high-quality professional education and believes in providing world-class infrastructure and facilities to the students. We chose to partner with D-VoiS and Motorola to help us establish a state-of-art facility with ubiquitous indoor and outdoor connectivity for our students and faculty."
- Balakrishna Rao, IT Head, Manipal Universal Learning Pvt Ltd (Part of Manipal Group working for Manipal University)

## Company Overview

Located in southwest India, Manipal University has been recognized for educational excellence for over five decades. The university offers more than 180 courses across 13 diverse disciplines and is home to many of India's top ranked educational institutions — including Manipal's Medical College, Institute of Technology, College of Pharmaceutical Sciences, and Graduate School of Hotel Administration. Its high profile faculty and world class infrastructure attract students from over 50 different nationalities. Manipal University enrolls over 14,000 students every year and has an active alumni base of more than 65,000 students across the world.

## The Challenge : Unwire the campus to provide best-in-class education facilities

As part of its vision to provide leading educational facilities and infrastructure for its students and faculty, Manipal University was seeking to unwire its campus and deliver a ubiquitous wireless LAN and wireless broadband network throughout the 5 square km campus. To fully support the university's educational needs, the wireless network had to deliver video and data uniformly across indoor and outdoor campus spaces, as well as support the university's very large user base of students, faculty and guests.

The physical environment of the campus posed a major challenge. In addition to housing more than 100 buildings throughout its large campus, the majority of such buildings being over 25 years older, many of the buildings had thick stone walls that posed a potential coverage issue for wireless services.

**Customer Profile**

प्रज्ञानं ब्रह्म
Manipal
INSPIRED BY LIFE

MANIPAL
UNIVERSITY

**Company**
Manipal University

**Location**
Manipal, Karnataka, India

**Industry**
Education

**Products**
- RFS7000 RF Switch
- WS5100 Wireless Switch and AP300 Access Port
- AP5131 Wireless Access Point
- Canopy™ Point-to-Multipoint solutions
- PTP 400 Series Point-to-Point Ethernet Bridge
- MOTOMESH
- One Point Wireless Suite

**Partner**
D-VoiS Broadband Private Limited and GTL Infrastructure

**Application(s)**
Secure, comprehensive and seamless wireless service for students inside and outside the campus buildings

**Benefits**
1. Provided an enhanced learning environment and infrastructure
   - faster access to information anywhere on campus
   - inside and outside
2. Provided superior investment protection through support for future wireless technologies
3. Substantially reduced the cost of networking the campus environment
4. Provided new subscriber-based revenue opportunities

## The Solution: Motorola wireless infrastructure for always-on campus-wide voice, video and data communications

Motorola's wireless LAN and wireless broadband infrastructure was selected by D-VoiS Broadband Private Limited for its superior ability to deliver highly resilient wireless services inside and outside the four walls, providing a level of performance and security equal to that of the wired network. Motorola helped D-VoiS implement an end-to-end wireless LAN that provides seamless and highly resilient indoor and outdoor wireless coverage throughout the campus — from dense student housing areas to the sports grounds and other outdoor areas. The network provides the bandwidth required to deliver seamless high-speed data and video services for both fixed and mobile users. And the highly scalable architecture enabled the easy design of a network capable of supporting the university's 14,000+ users — including students, faculty and guests.

## Comprehensive wireless services

The wireless network was connected to the Manipal University core wired network and intranet, providing students and faculty with the anywhere, anytime connectivity needed to access class materials, research, the Internet and more. And since the core network is protected by a firewall, only authorized users can gain access, ensuring the security of the information on the university's network.

## Seamless inside outside coverage

At the heart of the network are Motorola's RFS7000, WS5100 and WS2000 Wireless Switches, providing centralized and remote control over all wireless LAN access points installed in and between campus buildings. Two products extend comprehensive wireless coverage inside the four walls: the AP300 Access Port and the AP5131 Access Point. Small cells of thin client AP300 access ports provide cost-effective wireless coverage for high density areas inside the four walls (such as student housing), while mesh-enabled 802.11a/b/g AP-5131 access points complete the indoor wireless network by extending wireless connectivity in areas that are hard to reach or very expensive to cable.

Outside the walls of campus buildings, Motorola's MOTOMESH™ technology enables the cost-effective and seamless connection of remote buildings and also provides services to people on foot or in vehicles. Technology includes Motorola's wireless broadband PTP 400 Series of Point-to-Point Ethernet bridges and Canopy™ Point-to-Multipoint bridges.

## Secure and resilient high-performance networking

Selecting Motorola's wireless portfolio ensures the secure delivery of high-performance voice and data to students and faculty throughout the campus. Motorola's comprehensive layered security solution provides exceptional protection without sacrificing wireless performance. A wide range of industry standard security mechanisms — including WPA2-CCMP with 802.11i fast roaming options, Stateful Firewall, integrated RADIUS Server, and IPSec VPN Gateway, Secure Guest Access and more — reduced the need to purchase and manage additional infrastructure. And 24x7 dedicated security via Motorola's Wireless Intrusion Protection System (IPS) provided the advanced technology required to counter any rogue device, protecting the network and its data from hackers and other attacks.

## The Benefits: State of the art facility that is scalable, saves costs and provides potential stream of revenue

Unwiring the campus through Motorola's wireless enterprise portfolio has delivered a wealth of benefits for Manipal University:

- State-of-the-art facility: This campus-wide, high-speed wireless network helps Manipal University realize its vision of offering best-in-class educational facilities. By deploying a high speed ubiquitous Wi-Fi network throughout its entire campus, the university is able to give students and faculty the technology foundation to enrich the educational experience, increase productivity and improve communication. Students and faculty can now access a range of online services and information from the Internet and the Intranet, anytime and anywhere.

- Future-proofing and investment protection: The Motorola wireless infrastructure is designed to meet wireless networking needs today as well as far into the future. The easily scalable infrastructure can be expanded to meet the changing capacity requirements of a growing campus. And since the Motorola RFS7000 is based on Motorola's Wi-NG architecture, the University enjoys a unified platform capable of supporting many new applications in the future — including Wi-Fi as well as RFID, Wi-MAX and rich real-time locationing technologies.

- Significant cost savings: The wireless solution provided pervasive network access with requiring the high cost of extending Internet as well as television cabling through and between buildings. In addition, support for Power-over-Ethernet (PoE) eliminated the need and cost associated with running power to every access port and access point. Centralized control enabled the rapid and remote configuration of the entire network — the entire wireless solution was set up in a record time of less than two months. And remote monitoring and management of the wireless network substantially reduced day-to-day management costs.

- Potential new revenue stream: The network design provides granular control of wireless services at the user level. This capability paves the way for a new stream of revenue. D-VoiS can choose to provide free basic service during certain hours to all students, and offer Service Level Agreements (SLAs) for increased access time and bandwidth. In addition, the flexibility to assign SLAs per application paves the way to enable the University to charge for access to specific applications.

## The Future: value-added wireless voice and video

At Manipal University, D-VoiS is already working to offer more advanced voice and video services on the wireless network. The Motorola Research and Development team in India is working with the business team from D-VoiS on a series of enhancements to enable multicast and unicast video services, enabling subscribers to watch television on a laptop anywhere in the campus. And Voice-over-WLAN handsets are also under consideration, enabling the University to leverage the wireless network for cost-effective voice services throughout the campus environment.

## Additional resources

For more information on how Motorola's wireless network solutions can help your organization, please visit us on the web at www.motorola.com/enterprise

## About D-VoiS

D-VoiS is a Category A Internet Service Provider who provides Internet and other Value Added Services to its customers on a Build, Own and Operate Model. It not only invests in the infrastructure but also operates and manages the same. This helps the clients save valuable capital and relieves the problem of regular operation and maintenance. The company is based in Bangalore and specializes in providing services to educational institutions, corporate, malls, hotels and residential apartments etc.

MOTOROLA

Motorola Enterprise Mobility business, RMZ Ecoscope Block 3B, 4th Floor Sarjapura Outer Ring Road Devaradisana Hali, Bangalore East Taluk, India 560087 +91.80.4109.2000 www.motorola.com/in/enterprise