

Case Study

**India's Ambedkar Government
Polytechnic Institute:**

**Distance Learning Enabled with
VCON's Rich Media Conferencing
Platform**



VCON

Introduction

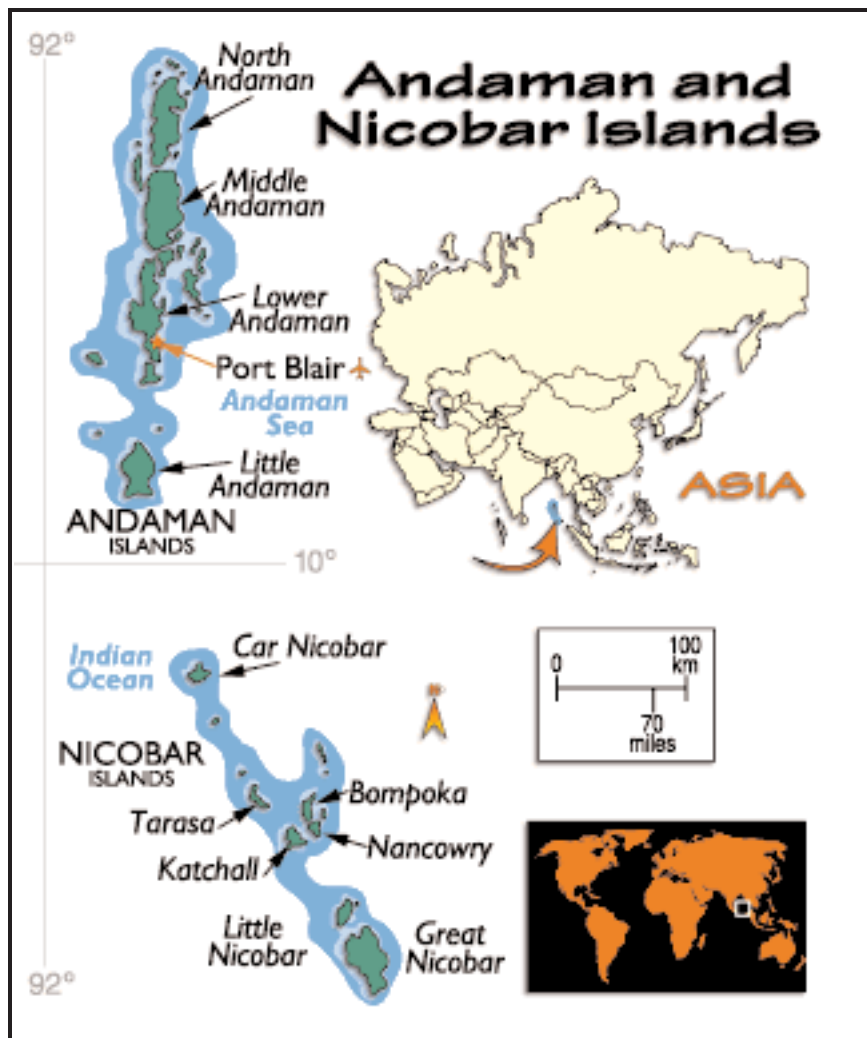
The Dr. B. R. Ambedkar Government Polytechnic Institute is the first Polytechnic Institute in India to receive an ISO-9002 Certification. Established in 1984, the Institute is currently operated autonomously under the mandates of the Maharashtra State Board of Technical Education (MSBTE).

The Institute is located in Pahargaon, Port Blair, among the more than 500 Andaman & Nicobar Islands in the Bay of Bengal. Because of its remote location and severe weather conditions, satellite is the chief communications delivery method among the Andaman & Nicobar Archipelago. For the

Institute, a satellite-driven distance learning curriculum was seen as essential for enhancing educational programs. The Institute determined that videoconferencing would play a key component towards developing an effective distance learning program that integrated seamlessly into existing satellite networks.

Why VCON

The Space Application Centre (SAC), a branch of the Indian Space Research Organization (ISRO), acted as the chief consulting agency for this project and provided the satellite network and bandwidth used by the Institute. SAC sought the most flexible and cost-effective



videoconferencing solution available in order to meet the Institute's distance learning requirements.

Vinshek Marketing Pvt. Ltd. Ahmedabad, VCON's partner in India, introduced a suite of rich media conferencing solutions that combined VCON's Media Xchange Manager (MXM), a management and application server for rich media deployments; and VCON's VCB 2000, a multipoint conferencing, streaming and scheduling server.

This complete VCON rich media conferencing solution enables the Institute to deliver lectures simultaneously to numerous participants. The technology that enables this is called "Interactive Multicast™." Essentially, Interactive Multicast allows students to enjoy streaming video with interaction and gives instructors the ability to multicast audio and video to participants using VCON endpoints or software-only multicast viewers, while allowing any participant using VCON endpoints to fully

interact during the conference. The multicast source can be moved among the VCON participants creating a "virtual podium" effect. Another benefit of Interactive Multicast is its bandwidth efficiency. Because it uses standard multicasting, only one stream is on the network, no matter how many users are participating.

Before making a final decision, the Institute asked Vinshek to conduct a demonstration utilizing the following VCON equipment:

- VCON customized group systems
- Videoconferencing cards with interactive multicast enabled
- VCON's MXM, installed in a main location for remote administration and multipoint conferencing

Vinshek connected the following four VSAT stations to their main ISTRAC hub stations in Bangalore:

CASE STUDY QUICK FACTS

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MXM Size: 10-user license

Number of VCON Group Systems: 8 specially modified group systems and one MediaConnect 6000

MCUs Deployed: 8-Port VCON Conference Bridge (VCB) add-on to MXM for multipoint videoconferencing

Most Valuable MXM Features:

- Low cost multipoint conferencing add-on to the MXM
- Remote management and upgrades of client endpoints
- Centralized management of entire network
- Scalability

- Space Application Centre, Ahmedabad
- ISTRAC Hub, Bangalore
- Narayan Hridayalaya, Bangalore
- Shanker Netralaya, Bangalore

Vigorous testing was conducted over a two week period. Not only did VCON's solutions test work flawlessly, it signified the first successful demo of multipoint videoconferencing over the University's VSAT deployment. Today, VCON is fully installed.

MXM

The VCON MXM offers a number of features that have proven ideally suited to the Institute's requirements. The MXM supports a diverse suite of services including:

- Multipoint videoconferencing
- Centralized control for ease of management
- Streaming Video
- Web-scheduled and ad-hoc videoconferencing

“The Andaman & Nicobar Islands are geographically dispersed and difficult to reach,” said Benia Varghese, Asst. Principal, Dr.B.R.A.Poly. “VCON's multipoint and point-to-point videoconferencing solutions over VSAT allow us to expand our educational programs by providing students with previously unavailable educational opportunities.”

Benefits

The primary benefit of the VCON solution is the provisioning of high quality videoconferencing with a low-cost multipoint conferencing capability. A key advantage of the VCON solution is the bandwidth conserving feature of Interactive Multicast. In many ways, IP Multicast is analogous to broadcast television. In both cases, a single signal is transmitted for receipt by multiple participants. The participants effectively “tune in” to the broadcast. IP Multicast does this by sending packets on the IP network in such a way that they can be received by multiple desktop PC users. IP Multicast sends only one copy for all of the receivers at once. Thus, multicast transmission reduces the load on the network significantly, allowing multipoint conferencing to occur over any existing network infrastructure, typically with little extra cost or replacement of equipment. Bandwidth is more efficiently utilized, resources are saved, and video packets are transmitted with less processing.

The MXM also supports multiple interfaces to endpoint devices that require access to rich media services. These endpoints include standards-based VCON (or non-VCON) H.323 or SIP endpoints, multipoint conferencing units (MCUs), gateways to H.320-based ISDN endpoints, directories, and proxies and encryption devices.

The MXM enables efficient installation, configuration, monitoring, management, and upgradeability of all endpoints, regardless of where they are, from a single location. The MXM also has a full suite of tools for centrally managing and administering bandwidth requirements and QoS prioritization provided to each endpoint.

Up and Running

VCON's videoconferencing implementation took just over one month and was up and running by May, 2004. Since June, 2004 the Institute has had a fully functioning

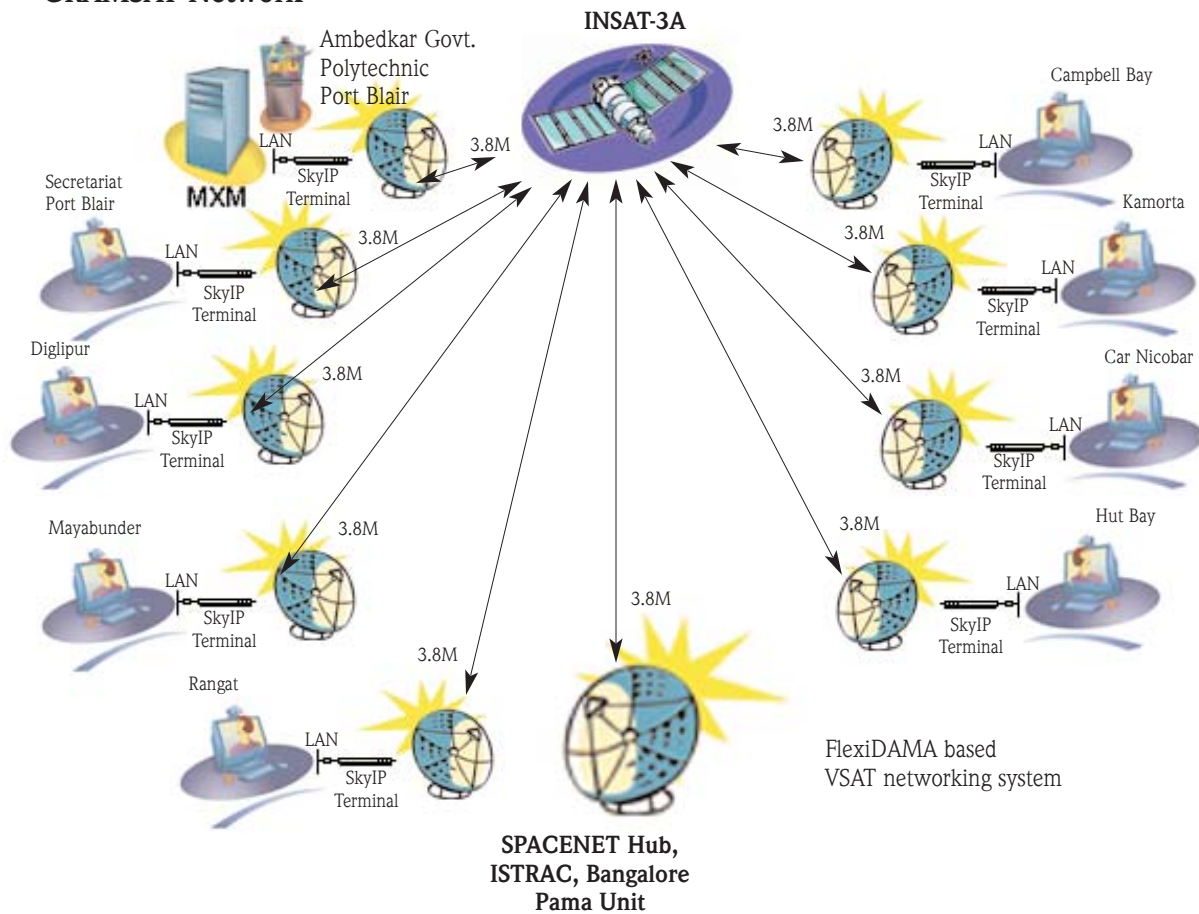
videoconferencing network that takes full advantage of Interactive Multicast, multiparty, and point-to-point videoconferencing.

An Eye to the Future

The Institute plans to expand its videoconferencing network to least another 22 sites which will cover each campus throughout the Andaman & Nicobar Islands, including:

- a five-site group working on medical robotics
- a multinational group researching medically oriented proteomics
- a four site group studying geriatrics
- several other small ad hoc conferencing groups

**Andaman & Nicobar Islands
GRAMSAT Network**



This diagram shows the complete network for the Andaman & Nicobar Islands, which is thinly distributed yet has a worldwide footprint. The SPACENET HUB, which provides videoconferencing facilities between any two locations or multicasting from one location to many, is the main hub that has a Pre-Assigned Multiple Access (PAMA) unit, which provides “always-on” satellite connectivity. The Govt. Polytechnic uses the FlexiDAMA VSAT networking system, which is capable of providing a wide variety of satellite-based communications services in an extremely cost-efficient manner.

The remote nodes have Sky IP (POLARSAT) Terminals. All nodes are connected to the FlexiDAMA networking system, which is connected to the PAMA Unit placed at the Spacenet hub (ISTRAC, Bangalore). The PAMA unit allocates the available bandwidth for the network, which is 2mbps outbound and 384kbps inbound. All remote nodes have been allocated with 384kbps bandwidth.

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