



# Enriching distance education in Australia

Australian Satellite Communications have assisted The Northern Territory Government Department of Education and Training expand their Interactive Distance Learning (IDL) program enabling students to interact more directly with teachers and peers.

Australian Satellite Communications designed, supplied and commissioned a Broadband VSAT network called The STARS (Satellite To All Remote Sites) project.

- Users of the STARS network reported performance far exceeding their former system allowing broadband intensive activities not possible with previous system.
- The NT Government is able to share network capacity with other government agencies and departments throughout the Northern Territory
- This provides opportunities to expand to new sites, make learning more engaging, keeping operational costs in check and deliver satellite connectivity to other organisations in the Territory.

## National Award winner



**The Northern Territory Government  
for the STARS Satellite Network**

*"For the effective use of Broadband"*

A new network that underpins the rollout of interactive and online services to 50 schools, 21 health clinics and 120 distance education students located in remote areas of Northern Territory.

## REMOTE EDUCATION AND CONFERENCING TOOL

Northern Territory's Interactive Distance Learning Program



## IDL Studios



### Remote Sites

Students are spread across more than 500,000 square miles

**REACT** provides teachers and students with learning options limited only by their imagination...





# The Northern Territory Government STARS Satellite Network

In July 2008 ASC was awarded the contract for the design, supply, installation and commissioning of a broadband VSAT network by the Northern Territory Government (NTG) called the Satellite to All Remote Sites (STARS) project.

### The Brief...

The project required the provision of a dedicated and redundant broadband IP capable satellite communication network together with satellite bandwidth. NTG wanted the network to extend its Department of Education and Training (DET) multimedia distance learning program to new remote sites, including many in the NT's tropical areas, where weather conditions can jeopardize network performance. Based on expected data throughput gains, NTG sought to add inbound video capability to the network and significantly increase the number of Interactive Distance Learning (IDL) lessons available so that students could interact more directly with teachers and peers. Initially four separate IDL studios were to be connected into the network via the NTG WAN including Charles Darwin University, School of the Air (SOTA) – Katherine, SOTA – Alice Springs along with the Northern Territory Open Education Centre in Darwin. In addition, the NT government was to share the network capacity with other government agencies and departments including the Department of Health and Families (DHF) throughout the Northern Territory.

A dedicated Service Management Centre (SMC) was required to support the operation of the network.

### The Solution...

ASC secured the contract in conjunction with iDirect following extensive testing involving ASC, iDirect, NTG and REACT (existing IDL application in use by NTG) in order to achieve significant performance gains over NT DET's previous satellite network.

The teleport infrastructure for the project was installed at a greenfields site located at Winnellie in Darwin. It included an iDirect DVB-S2 hub, a 6.2m Ku-Band earth station and an earth station building (including power system, generator, UPS and air-conditioning) and all associated civil works. The DVB-S2 hub incorporated the latest iDirect technology to provide superior bandwidth efficiency. ASC provided almost a full transponder of Ku-band space segment via the high performance AsiaSat4 satellite. The hub was connected to the NTG WAN via an Amcom optical fibre.



NTG STARS Teleport, Darwin

ASC supplied 1.8m VSAT antennas together with ASC Signal's XR3 transceivers (combined BUC and LNB) and iDirect's X3 eVolution modems for the remote VSAT sites.

The distance learning network supports REACT, the IDL technology suite, administered by the NT DET. The application facilitates multicast video, synchronous audio, file sharing and other bandwidth intensive applications that connect teaching studios in real time to remote classrooms and homes spread across the Northern Territory. To handle the program's bandwidth-intensive applications, iDirect's eVolution platform can support IP data rates of up to 120 Mbps outbound and up to 60 Mbps inbound. The iDirect Adaptive Coding and Modulation (ACM) technology has shown to provide a major advantage while operating under adverse weather conditions common in Northern Australia's tropical regions during the wet season. iDirect's bandwidth allocation algorithm Group Quality of Service (GQoS) allows ASC to manage bandwidth and prioritise traffic according to NTG's user and traffic type requirements, vital for real-time applications.

### The Result...

Through this project ASC again proved its ability to design, integrate and manage a significant turnkey solution and meet an ambitious implementation schedule. In January 2009, in the middle of the tropical wet season, the teleport was commissioned ready for the connection of remote sites. The initial 210+ remote sites began to be transitioned from the incumbent satellite system to the new STARS network via the iDirect eVolution hub.

ASC initiated the 24x7 maintenance and technical support to the NTG Teleport with two full time dedicated staff located at the SMC in Darwin. High level support is provided by the ASC Engineering Department from ASC headquarters in Adelaide and the iDirect Technical Applications Centre.

Users of the STARS network have reported performance far exceeding the prior system allowing broadband intensive activities not possible with the previous system.

The success of the project creates the opportunity for various additional agencies to connect into the high performance network.

In March 2009 the Australian Telecommunications Users Group (ATUG) awarded the NTG a National Award for Effective Use of Broadband. This use of Broadband is enabling new education services and health models within the remote locations in NT.