

THE SOUTH WEST STRATEGY GROUP



Chairman: John Murray

PO Box 203, Jabiru St, QUILPIE Q 4480

Telephone: (07) 4656 2008 - Facsimile: (07) 4656 2124

ENQUIRIES TO: **MANAGER - SWS: Rod Hewitt**

PO Box 224, Hood St, CHARLEVILLE Q 4470

Telephone: (07) 4654 4218 - Facsimile: (07) 4654 1839

Submission to: The Inquiry into infrastructure and the development of Australia's regional areas

PREFACE

This submission is concerned with the telecommunications infrastructure and is based on investigations and consultations undertaken by the South West Strategy in the preparation of a Phase 3 Application to Networking the Nation (NTN) which is currently being considered by the NTN Board.

INTRODUCTION

Unlike the metropolitan areas of Australia where there are much larger population densities, rural people have not had the luxury of being able to pick-and-choose between telecommunications service providers.

The evolution of satellite systems is changing these options to the extent that may provide rural people with a new element of choice. Unfortunately, this may also lure them away from the use of a fundamentally excellent terrestrial telecommunications infrastructure, into which some \$2.5 billion dollars has been invested in the last 20 years.

The thrust of rural telecommunications development must therefore be directed around continuing to maximise usage of this existing infrastructure in association with community oriented solutions to avoid;

- Dilution of potential rural economies-of-scale,
- Waste of established rural telecommunications infrastructure,
- Loss of revenue to overseas satellite service providers,
- Loss of potential for the development of rural employment opportunities in the telecommunications and associated industries.

Potential for secondary benefits should also be possible, including creation of new service industries to do with rural broad band network design, integration, software development, and management.

THE ISSUES IN MORE DETAIL

In studying the problem of rural telecommunications in Australia, a number of points become evident:

1. The potential exists for a considerable reduction of cost, increase in flexibility of delivery and quality of service by aggregating telecommunications traffic through the one resource.
2. That the challenge of delivering rural telecommunications always has-been and will continue to be cost, which will require careful control if future broad band telecommunications in rural areas is to be expanded and maintained.

3. That there exists a considerable amount of established infrastructure in rural areas originally installed for delivery of basic telephone services, but which has equal and invaluable application to any new broad band service.
4. That it makes sense to either fully exploit or at the very least incorporate this infrastructure into rural telecommunications rather than discard it in favour of other delivery technologies such as satellite.
5. The incremental cost of delivering, operating and maintaining such a broad band network over what is already in place would be a small additional percentage cost.
6. That the promise of satellite delivery systems will lead to significant loss of funds to overseas companies which control the satellite networks and delivery medium.
7. There exists some potential for creation and ongoing safeguard of jobs in rural communities through the community maintenance, management and operation of existing rural infrastructure.
8. Usage of telecommunications resource tends to have a hysteresis relationship ie. There is resistance to use and low estimate of potential benefits of poorly performing infrastructure. Conversely, there is often an underestimated increase of usage of high-quality, flexible telecommunications infrastructure once it has been successfully implemented.
9. There have been and are ongoing problems with quality-of-service issues with last-mile telecommunications in rural areas which impede expansion of future broad band services, and which seriously detract from the quality-of-service of the existing backbone telecommunications network.

AGGREGATED TRAFFIC

Our investigations have revealed that an aggregated system using convergence technologies could include but not be limited to the following;

- Telephone,
- Audio Conferencing,
- Low-speed and high-speed data (sub 64 kbit/s and up to 2048 kbit/s),
- Video Conferencing,
- Video Broadcast.

The outcome of having this resource available is expected to open up a range of new and interesting possibilities for local communities including;

- Telephone,
- High Speed Internet/Intranet Access,
- Audio and Video Based School-of-the-Air,
- Access to Local TAFE Courses & Open Learning Education,
- Community News & Current Affair Broadcasting,
- Civil Defence & Emergency Communications,
- Rural Council, Government Networking & Video Conferencing,
- Medical Emergency Diagnosis & Treatment,
- Expansion of SOFO Information Exchange Capabilities,
- Rural Commerce Connectivity,
- Deployment of Microcellular Networks (Tourist & Special Events),
- General Communications (Special Events).

In general, the value of improved telecommunications must be quite significant in rural areas merely as a result of the savings in travelling time.



ESTABLISHED INFRASTRUCTURE

Rural telecommunications infrastructure throughout Australia has been established to support the digital radio concentrator system (DRCS), deployed during the last decade.

The towers that serve as local transceiver sites for the local DRCS, and permit communications with station properties up to a 60 kilometre radius provide a single telephone connection but have been found to suffer in terms of;

- Unreliability due to propagation irregularities arising from the terrain, long path length, and poor fade margin,
- Congestion due to blocking of the local switch limiting the number of simultaneous calls through a repeater,
- Limited bandwidth due to use of coding algorithms which work with voice but which reduce data transmission for Internet traffic to less than 9600 bits/s (currently being upgraded to 28,800 bit/s).

PROPOSED INFRASTRUCTURE

Our investigations indicate that with the exception of the connection from the repeater to the station property, this infrastructure can be very effectively used to implement a broad band network by;

- Using the towers to mount dedicated transmission antenna for each of the properties connected to the broad and network,
- Housing the ATM hubs which interconnect the traffic to/from the station property and the rest of the network,
- Providing the network backbone route for data interconnection back to the local regional centre.

Alternatively even if satellite systems were being contemplated, either as the main or back-up system, these towers could continue to provide an important means of interconnecting a group of sites through the one back bone transmission medium.

In the future it could be reasonably expected that these towers and their associated backbone links would either be upgraded, replaced by fibre and/or used as described in the previous paragraph. In any of these cases therefore it would make sense to maintain all or part of the existing infrastructure as the basis for connecting to the station property.

Broad band radio telecommunications into station properties could also be expected to utilise intermediate low-cost, solar powered repeater towers to improve the quality-of-service over these sectors.

USE OF OTHER TELECOMMUNICATIONS RESOURCE

Satellite particularly the proposed broadband low-earth-orbit (LEO) constellations proposed for deployment in 2002, are seen by some parties as the panacea for all telecommunications difficulties in rural areas.

Whilst their application to this situation is technically feasible, the arguments for their usage in all but the remotest or semi mobile applications in rural applications should be regarded carefully, particularly from the question of;

- Usage cost,
- Minimalist costing regime whether physical connection is 100 kms or 1000 kms,
- Dilution of commitment to existing terrestrial applications (making it more costly for remaining users and therefore more costly for everyone),
- Loss of revenue from the area from where the telecommunications being managed,
- Increased risks of using non-locally supported telecommunications hardware and software,
- Being cut-off from the benefits of additional local services such as community education programs, broadcast news and current affairs.



CONCLUSION

Improved telecommunications has the possibility to transform declining rural and remote regions of Australia. The provision of telecommunications infrastructure and services that will provide Internet access and associated services at affordable rates will ensure the long-term economic and social sustainability of these areas. This will not only benefit these regions but the whole of Australia.

Rod Hewitt
Manager, South West Strategy



SOUTH WEST STRATEGY
Community and Government Working Together

P.O Box 224, Charleville Qld 4470
Phone (07) 46544218 or Fax: (07) 46544225