

## Application Report IPR100 VoIP Interface

### Customer Profile

- Public safety agency operating multiple repeater sites covering 1M square Kms.

### Application

- To replace existing 4-wire leased line circuits between repeater sites using low bandwidth IP links.

### Business Benefits

- Reduced operating costs from the elimination of leased lines and the use of a cost effective VPN
- Improved reliability.
- Flexibility in radio infrastructure.

### Products Used

- IPR100.

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# BANDWIDTH EFFICIENT LEASED LINE REPLACEMENT

### → Customer Overview

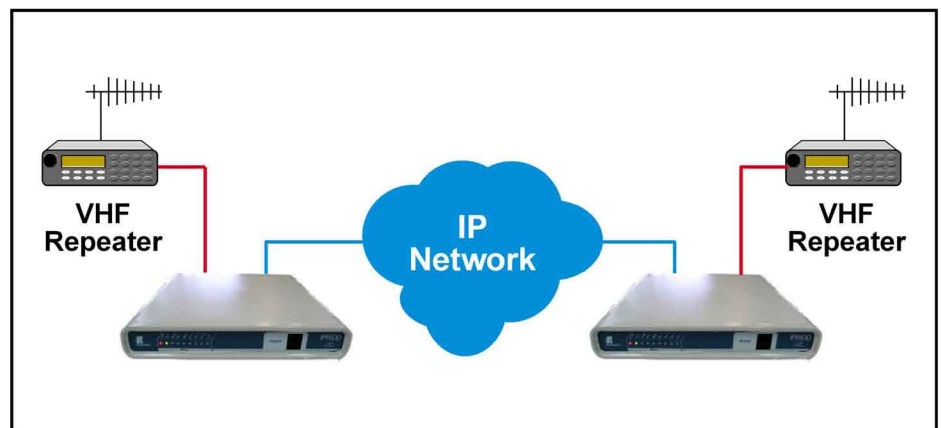
The customer operates a vast radio network which contains hundreds of repeater sites, many of which are interconnected through public leased lines. The customer also operates a private data network with bandwidth leased from a carrier.

### → The Challenge

To eliminate the leased lines and to reduce operating costs by replacing the lines with Voice over IP connections. However, since the bandwidth available over the IP network is limited, the VoIP links must transport radio audio efficiently and without degrading the performance of SELCAL signals.

### → Solution

IPR100 units were placed at each repeater site to create point-to-point VoIP links. Each IPR100 was configured for 13kbps compression and 5-tone SELCAL operation. This level of compression results in the minimum use of the available bandwidth of the IP network. Also, with silence suppression, IP traffic is reduced even further. Normally this configuration would not allow tone signals to be transported reliably however, because of how the SELCAL encoding and decoding is processed within the IPR100, SELCAL will work seamlessly on the customer's network. Also, because the destination address of each IPR100 is re-configurable, the network infrastructure can be modified if and when it is required to do so.



### → Conclusion

The organisation has reduced its operating costs drastically by eliminating many of the expensive leased lines in favour of VoIP links. The IPR100 units enable the organisation to benefit from the reduced costs of leasing a limited bandwidth VPN service - and even more repeater links can be added to the IP network because of the efficient use of the available bandwidth. Most important, the organisation maintains the ability to use SELCAL without sacrificing bandwidth. Furthermore, reliability is improved because the mesh IP network provides an inherent resilient infrastructure that is not subject to a single point of failure.