

Many Government organisations operate wide area mobile radio networks for emergency services and other functions are often dependent on the use of leased backhaul capacity. Service Level Agreements provide contract remedy for performance where often actual performance is required.

A Government operator of a state wide trunked voice radio network utilised leased backhaul capacity from a private carrier. While the carrier was meeting most of the Service Level Agreement (SLA) conditions the effect of minor outages on the carrier network was causing extended outages for the customer's trunked network. Prior to further expansion of the mobile radio network the client embarked on a review of the leased backhaul network performance and the underlying architecture.

The Business Challenge

A State Government authority owned and operated state wide mobile radio network had evolved from analogue to digital and further expansion was planned. The network is heavily dependent on a third-party carrier backhaul and linking network to connect radio sites and management centers. The customers utilising the network include state emergency services dependent on reliable communications during disaster response. Prior to further expansion the client sought to understand ongoing performance, exacerbated since the conversion from analogue to digital, and the risk of loss of service due to single points of failure within the current network. Gravelroad was engaged to undertake a desktop review of the current network with the third-party carrier to identify single points of failure, inherent risks due to infrastructure, and identify solutions to mitigate risks.

The Gravelroad Solution

Gravelroad conducted a desktop review of the current linking network components to identify the potential Single Points of Failure. Each of the current Network Sites was reviewed in terms of key attributes including power supply, frequency of microwave links, diversity of connection, media, expandability and contracted capacity. The results were combined to identify sites which are classified as presenting a risk. The third-party carrier provided information regarding some existing linking network performance issues, plus any current rectification activities and some

potential investments which may improve current performance.

The Outcome

For each of the 175 sites within the network, a weighted risk value was assigned based on the client impact of a failure at the site plus the number of single points of failure that the chosen site was dependent on. The value provided a relative measure of the potential impact and probability of occurrence.

The final report contained several recommendations regarding the high risk Single Points of Failure and suggested improvements to the Service Level Agreement (SLA) to better reflect current requirements, the establishment of end to end network management access for all links, replacement of low capacity radios, and an audit of power systems used to supply power for the linking network equipment.

Related Work

Emergency services, electrical network protection, and public safety networks all require high performance levels, often to protect high cost assets such as electrical transmission infrastructure, or human lives.

Gravelroad have completed multiple projects producing specifications, design standards and operating procedures, network design, performance evaluation, and commercial negotiations for electrical utilities, government radio networks, and emergency service agencies.

Gravelroad is an independent professional change management consulting firm with a difference. What sets us apart is our customer centric culture, which drives our collaborative approach. The combination of our teams' deep and practical industry experience, our ability to work in close partnership with our Clients, and our independence from any one solution, enables us to provide Clients with advice that is aligned to their strategic direction.

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Analysis and Evaluation
Requirements Specification
Infrastructure Planning & Design