# NAP 2

Network Availability Prediction

The Network Availability Prediction (NAP) application enables users to predict the availability of networks. The NAP network availability model utilises an extended Network Block Diagram (NBD) methodology that addresses the specific characteristics of network elements and their connections. The effectiveness of network restoration after single or multiple failures may therefore be modelled accurately in NAP. In addition to predicting network availability, NAP also provides criticality rankings that identify weak spots in the network. NAP provides many time-saving features to allow users to quickly construct the network diagram. These include a parts definition facility that allows users to organize their parts data in convenient groupings, a library facility that allows users to construct common network element diagrams and a fully interactive network diagram construction facility.
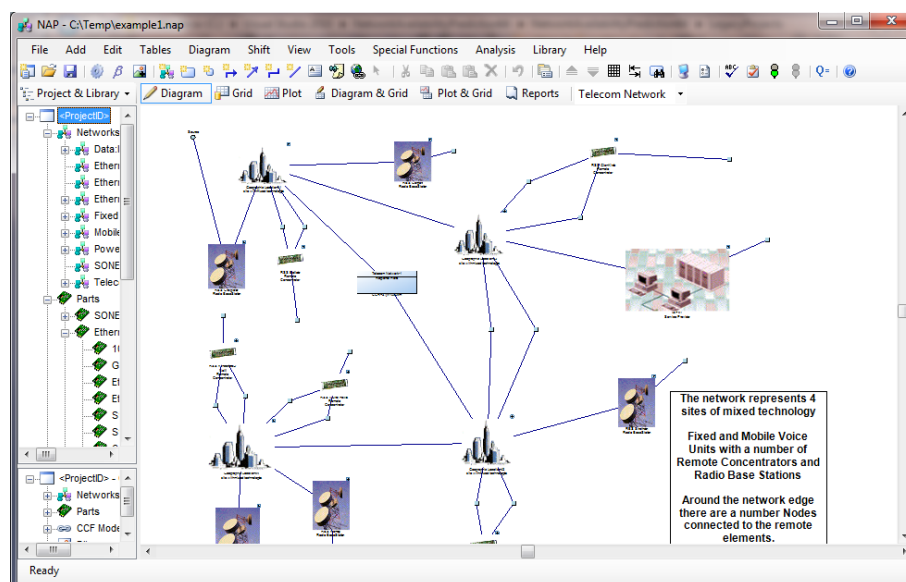

One of the important features of NAP is that it allows the modelling of data flow in different directions along the same network path. This means that users need not be specific about the direction of data flow in selected parts of the network. NAP will then automatically determine the allowable paths between a source and target, and hence determine the minimal cut sets that determine the availability of the network.

NAP allows you to quickly construct network diagrams using drag and drop facilities. Users may simply drag a network element or part from the project tree onto the network diagram. Once a network element is realised in the network diagram you may modify the default parts (control, power, interface cards etc.) associated with the element by selecting options from alternative part lists. Then the network element may be interactively connected to other elements, through a chosen interface, simply by clicking the mouse.

Complex or simple networks may be modelled using NAP. Network elements may be logically modelled right down to part level using the powerful NAP pagination facility. Individual network

element diagrams have been extended beyond traditional NBDs to allow users to model multiple interfaces and their interactions with common equipment. In addition, NAP models the effect of switching delays on network availability using Markov Analysis.
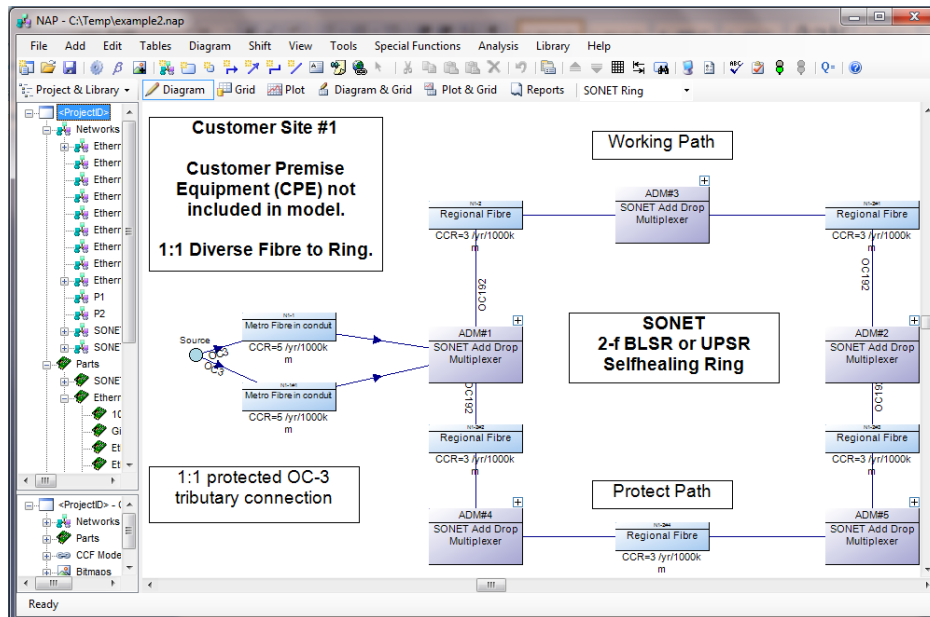
Failure data is normally specified at the part level. Failure rates or MTTFs (Mean Time to Failure) may be specified for cards, shelves etc. and 'cuts per km per yr' specified for cables (other units are available). Repair times may be specified at the network element or part level. NAP analyses the network diagram using sophisticated minimal cut set generation algorithms allowing the effects of common failures to be modelled correctly. A wide range of network parameters (availability, reliability, MTBF etc.) are calculated and presented to the user. Importance rankings allow the user to identify weak spots and indicate the most effective way to improve network availability.