

# Case Study



## Metro Network Service Provider

---

Background	<p>The client was a metropolitan bandwidth provider who approached Capacitas to analyse the impact of a single large customer order on the existing transmission network infrastructure. The client had a ring backbone topology in a major UK city and was using SDH technology with SNCP protection. The key question was whether the existing transmission design was scalable to meet the expected demand.</p>
Approach	<p>Capacitas undertook a series of interviews with internal stakeholders to determine:</p> <ul style="list-style-type: none"><li>• The client's network infrastructure design</li><li>• The client's customer base and forecast unit demand</li></ul>
Problems	<p>As this analysis was specifically to support a sales project bid, little data already existed. In order to determine the impact of the large customer order on the metro provider's infrastructure the following information needed to be identified:</p> <ul style="list-style-type: none"><li>• Business volume forecast</li><li>• The customer usage of the circuits</li><li>• Traffic forecast</li></ul>
Impacts	<p>These independent variables identified impacted decisions on:</p> <ul style="list-style-type: none"><li>• Whether the existing transmission design could support the customer traffic</li></ul>

- Whether major design changes were needed in order to support the customers traffic pattern
- Determining the cost of supporting this customer
- The profitability of this customer order

## Our Solution

Capacitas built a software model that included the business forecasting, transmission network infrastructure and traffic forecasting and routing. This model was built using a common desktop application in order to reduce training requirements and to enable the customer to manipulate and adapt it over time. By adopting this strategy Capacitas enabled the customer to operate the model with relatively unskilled staff if required.

- Capacitas built a business forecasting function into the model. The model was based on the parameters such as densities of different business types in the surrounding areas of each Point-of-Presence (POP).
- Capacitas built a traffic forecasting function into the model. This used a gravity model to derive the traffic matrix.
- Capacitas built a traffic routing function into the model. This allows the user of the model to change the routing of the traffic in order to traffic engineer the system.
- Capacitas built a model of the client's SDH transmission network into the model, built using a common desktop application.
- Capacitas built a specific traffic matrix for this customer to represent the specific characteristics of the potential end customer order.

After discussions with the client, Capacitas determined that the customer was building a star shaped ATM network in order to collect traffic and send that traffic to a single peering point.

## Benefits

Adoption of the model delivered the following benefits:

- The model results highlighted that the customer's traffic profile would exhaust the number of ports at a single POP on the client's backbone network.
- The model provided a quick and simple way for generating traffic forecasts and analysing the impact

on the network.

## Conclusion

Capacitas delivered an effective capacity-planning model that enabled the metro service provider to optimally develop and deploy a SDH platform to meet customer traffic patterns. This saved the metro service provider both time and money. Although the model was originally intended for use wholly within Engineering, it was recognised that it also held forecasting benefits for Marketing.

© Capacitas Limited 2002.

Capacitas  
Prince Consort House  
109-111 Farringdon Road  
London EC1R 3BW  
United Kingdom