

A competent data entry person will typically attain peak rates of 450 characters per minute. To achieve this remotely, the data entry person requires an instantaneous minimum response time of:

$$\text{Response Time} = 1 / (450 \text{ characters/min} * 1 \text{ min} / 60 \text{ sec}) < 135 \text{ ms}$$

The data entry person requires a round trip response time of less than 135 ms per key stroke. From Table 3.3, degradation in the service would be noticed once the separation between host and terminal begin to exceed approximately 7500 kms, **assuming no delay associated with the remote application** computing and **no competition for bandwidth** across the communication path.

Performance will degrade as additional users or processes (eg. Messaging) use the facilities concurrently. The envisioned SIGNET wide area subnetwork will, to a limited extent, support real time access for users. However, simulation of EAITC applications is required to identify the limits on simultaneous use of wide area subnetwork facilities by multiple users and processes.

3.2.3 General Recommendations for Mission Wide Area Service

- a. The previous analysis bounds the throughput and delay requirements to be on the order of a minimum of 19.2 kbit/s per 100 users with round trip delays no greater than on the order of 150 - 250 ms. The round trip delays will be impacted by the degree of utilization of the available bandwidth due to simultaneous loading. Although it is possible to extend the model herein to include cross impacts of utilization on delay sensitive applications, the results will be of nominal value. The best way to garner a better information is to perform actual simulations of the typical application cross section within the SIM Centre.
- b. In the absence of the results of simulations, a guiding recommendation is made to assist the SIGNET planners.

Guidelines for the required minimum aggregate bandwidth of a SIGNET Wide Area subnetwork access are:

- 1) Under the scenario of no transaction oriented applications across the wide area subnetwork:

Minimum Aggregate Bandwidth = 19.2 kbit/s per 100 persons

Not to be less than 9.6 kbit/s.

- 2) Under the scenario of transaction oriented applications across the wide area subnetwork:

Limit transactions to mission - regional service. Do not provide global transaction service (i.e.. Tokyo to Ottawa)

Minimum Aggregate Bandwidth = 19.2 Kbit/s + 19.2 Kbit/s per 100 personnel