

1. INTRODUCTION

- a. External Affairs and International Trade Canada (EAITC) have undertaken a program to deploy an international distributed computing and communications environment to service their operations in Canada and around the world.
- b. This document defines the requirements and design for the internetwork component of SIGNET. The internetwork component comprises the ISO Opens Systems Interconnect (OSI) physical, data link, and network layers. For the purpose of comprehending the role of the internetwork and the allocation of responsibility for the various components of the internetwork, the physical and data link layers may be combined and termed the subnetwork components of SIGNET. Two important types of subnetworks are identified:
 - i. Subnetworks which service the local environment. These subnetworks are traditionally known as Local Area Networks or LANs. From the perspective of the intended users or clients of SIGNET, SIGNET will have global connectivity and hence the term Local Area Network is not appropriate. Therefore for the purposes of the design of the SIGNET internetwork architecture, the general term subnetwork is used. The SIGNET internetwork requirements address the LANs in detail.
 - ii. Subnetworks which service the wide area. These subnetworks are traditionally known as Wide Area Networks or WANs. EAITC has deployed a sophisticated wide area network known as MITNET. For the purpose of SIGNET, MITNET is viewed as a subnetwork across which the SIGNET internetwork traffic will traverse. MITNET services will be utilized by SIGNET as required. The detailed design of MITNET is outside the scope of SIGNET; from the perspective of MITNET, SIGNET is a client. In regions of the world where MITNET does not offer a service and a requirement for SIGNET presence is identified, the wide area connectivity will be designed as part of the SIGNET internetwork design.
- c. From the perspective of the end user, SIGNET is required to provide any-to-any connectivity from desktop to desktop. Therefore, SIGNET is a single network.
- d. From the perspective of the SIGNET designers, SIGNET is a cohesive internetwork which utilizes local and wide area subnetworks to provide the required connectivity. Members of the SIGNET design team whose primary purpose is to develop the end user services view SIGNET as a single network resource with a common interface definition. Members of the SIGNET design team whose primary purpose is to deploy the global connectivity view SIGNET as a network layer, which provides a common interface for end user services, operating over two primary types of subnetworks. A great deal of co-operation and synergy amongst the members of the design team is required to ensure the network layer interface will meet the requirements of the end users. Furthermore, it is important to recognize that security and management will transcend all 'layers' of SIGNET. Figure 1.1 illustrates the overall architecture of SIGNET from the perspective of the designers. The shaded areas are the components of SIGNET relevant to the Internetwork design.