

A UNIFIED COMMUNICATION NETWORK FOR ANTARCTIC COMMUNITY

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In this paper, a unified communication network for whole of Antarctic community is proposed that would serve the communication needs of every individual working on the Antarctic continent. Paper gives details of feasibility and proposed architecture of the unified communication network.

Communication traffic emanating from Antarctic continent can be broadly classified as Scientific data traffic and Welfare traffic.

Scientific data traffic needs to be communicated to parent organization on the mainland in near real time so that it can be analyzed, conclusions drawn and published immediately. In most of the scientific experiments, sensors produce digital and voluminous data output. Therefore, even after applying appropriate compression techniques, near real time transfer of this data would need large bandwidth.

Welfare traffic primarily comprises of voice, fax and at best video conferencing facility. Even this requirement, once added for all the Antarctic stations, shall become quite large in terms of bandwidth.

The overall data transfer needs would therefore demand a dedicated satellite or satellite constellation to serve Antarctic community alone. Satellite (s) would carry the consolidated traffic from Antarctic continent to the gateway earth station (GES). GES can be located in one of the participating country. The gateway may be accessible through Internet technology by participating countries for voice, fax and even video transfer. Scientific data may be stored in centralized servers, ready for pick up after authentication mechanism by the concerned user(s). Detailed architecture may be worked out for a web based integrated infrastructure once Council Of Managers for National Antarctic Programs (COMNAP) take a decision based on the idea.