

The thesis describes the possibilities and issues of existing videoconferencing systems. We focus on open-source solutions for group-to-group communication especially the AccessGrid technology that utilizes the multicast packet delivery method of multimedia content. We describe AccessGrid node created for CIANT organization, which has been taken as a starting point for defining the architecture of a videoconferencing system based exclusively on open-source components, particularly Linux and related software. We address issues related to firewalls and NAT traversal and provide a comparison of various videoconference-related codecs and protocols. Finally, the text touches the question of recording and archiving of conference sessions and provides a new integrated recording application -- StreamVNC. The tool allows users to prepare their presentations using localhost recording facility which includes AGVCR for recoding RTP packets, EVIC for grabbing the VNC display and camera source and RAT as an audio encoder.