

Challenges of Integrating a VoIP Communication System on a VSAT

Mamadou Alpha Barry*, James K. Tamgno*, Claude Lishou**, Renaud K. K. Maleka*

*DETIC Department, ESMT, Dakar Senegal

**LTI Laboratory, UCAD, Dakar Senegal

alpha.barry@esmt.sn, james.tamgno@esmt.sn, clishou@ucad.sn, renaudkatel@yahoo.fr

Abstract — This paper summary whole research aimed to study integration of a VoIP communication system on the VSAT network of ASECNA, which consisted to propose a solution based on VoIP technology, allowing ASECNA's workers to communicate, from different countries and working places. However, since the ASECNA's network is based on satellite transmission, obvious difficulties (such as latency, packet loss, etc.) appear in implementing a VoIP system over this network, because VoIP is demanding in terms of quality of service (QoS).

Thus, in this study, through simulations and tests in real situations, we determined technical choices to be made (software, codecs, and protocols) and corrective actions to take for the successful implementation of a VoIP based system in ASECNA's context.

Keywords – ASECNA, Asterisk, IAX, VSAT/satellite, QoS, VoIP;



Dr. James K. Tamgno, As a senior lecturer at ESMT, i obtained my Ph.D in may 2014 at University Cheikh Anta Diop of Dakar. My researches focused on Promotion of African's languages and dialects and Contribution to a Wider Accessibility of ICT, by Circumventing Language Barriers and Lessening the Impact of Illiteracy or Disability. Previously I have gotten a M.Sc. in Engineering Science from University Cheikh Anta DIOP of Dakar, studied numerical analysis and mathematics at the University of Yaoundé, and worked as a research scientist at ESMT (Multinational High School of Telecommunication) of Dakar. <http://www.esmt.sn/pages/personnel.php?c=J>



Mr. Mamadou Alpha Barry is a senior lecturer at the Ecole Supérieure Multinationale des Télécommunications (ESMT) of Dakar. He obtained a Master 2 professional at University of Rouen, France in the field of Consulting and Engineering Training. And a Master of research of Engineering Science on Computer modeling simulations of complex systems. I had made many expertise on and training on telecommunications systems (switching, ISDN, ATM, architecture and NGN and IMS services). Elsewhere, he studied the implementation of numbering plans (Management of scarce resources) and audit multiple network system such as ISDN, ATM, NSS.

Mr. Renaud Katel Kinzonzi Maleka was a student at Ecole Supérieure Multinationale des Télécommunications of Dakar. Telecoms and IT systems consultant, I worked on many research projects in Telecommunications, QoS and network optimisation with ESMT Dakar (Ecole Supérieure Multinationale des Télécommunications) where I did my Engineer Degree in telecommunications and network engineering. I currently work at ASECNA as Service Engineer in network and supervision.



Pr. Claude LISHOU is Professor of Universities at the Ecole Supérieure Polytechnique of Cheikh Anta Diop University in Dakar (Senegal). He teaches several disciplines ranging from industrial computing to new generation networks in the electrical engineering and computer engineering sections. Director of the Virtual Platform of the UCAD, coordinates the information system and oversees the strategy of open and distance training at his university. He leads an internationally renowned research and development laboratory dedicated to the use of ICT in education and training, environment, energy, transport, e-governance. On the scientific level, he is the author and co-author of several publications in scientific journals with international circulation. Professor LISHOU is a member of several scientific societies, member of editorial committees of scientific journals, member of the Networks of Information and Communication Technologies for teaching and research, Editor in chief of the Journal of Sciences for Engineers . For more than two decades, he has supervised and supported dozens of engineers and researchers in these areas, especially in western Africa. A recognized expert in the development of ICT applications and services, he divides his time between teaching, research and consulting with international organizations (OIF, AUF, UNDP, UNESCO, UNCTAD ...)