Estimating Number of Organs using Erlang's B & C-Formulas

James K. Tamgno*, Mamadou Alpha Barry*, Simplice E. Gnang*, Claude Lishou**

*ESMT-DETIC-LTI, ESMT, Dakar Senegal

**LTI Laboratory, UCAD, Dakar Senegal

james.tamgno@esmt.sn, alpha.barry@esmt.sn, avecgnang@gmail.com, clishou@ucad.sn

Abstract — This paper recapitulates the work performed to study Poisson distribution model, Erlang distribution model and constraints of dimensioning a network related to these models. This paper also describes the planning tool of a network based on the models considered. We introduced the application behavior, used for packaging Erlang resources. Resources can vary from libraries to process clusters, and can be configured to run on a single processor or be distributed on a set of nodes. These studies have let us to the development of a tool for planning network, which also underlined the limits of the use of Rigault's rule.

Keywords – Erlang; Rigault; Traffic; Network; Dimensioning.

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. Simplice E. Gnang 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 Superieure Multinationale des Telecommunications) where I did my Master's Degree in telecommunications and network engineering. I currently work at Huawei Technologies as Service Engineer in applications and softwares

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 ...)