Chapter 1
The Role and Responsibilities of the System’s Administrator

Filipe Moreira
Higher Polytechnic Institute of Gaya, Portugal

Joel Luz
Higher Polytechnic Institute of Gaya, Portugal

ABSTRACT
In this chapter, the authors present an overview of the role and responsibilities of the system’s administrator. They start with giving a background description on how this activity has been changing within the last decades considering not only the roles but also how the educational background changed and the new challenges regarding high-level IT management. After this contextualization, the authors reproduce some thoughts and experiences shared by experienced IT professionals giving their vision on how the industry has been changing and what would be the future of system administrators. They advance some suggestions and tools that might help IT teams improve their daily work from the technical and organizational point of view and highlight some future points of research concerning educational paths.

INTRODUCTION
Thanks to the evolution of critical activities within enterprise context, system’s administration has a particular importance because corporate activities tend to be directly or indirectly dependent on data networks. Naturally, not only system’s administrators but also manufacturers, facing new issues related with heterogeneity and systems flexibility, have found new challenges regarding network management systems. Factors like the increasing creation of new services, the need to provide quality of service for all the organization and also the requirement of “managing people” takes the network administration to face a whole bunch of new “activities”, roles and responsibilities transposed to IT Professionals, namely system’s / network administrators. In this chapter we will approach the “social” and “technical point of view of these professionals,
understanding who are they, what they do and how they roles have changed through the last years. To fulfill this objective it will be presented not only the “background literature” about the theme but also some statements of IT professionals working in the industry for more than fifteen years.

It is a matter of fact that system administration is a mix of technical and sociological skills. Because of the broad branch of activities that these professionals face it is not easy to define their activity specifically. Certain positions maybe more social, others more technical and even though we are talking about the same professional category. Just as a point of start, when we talk about system’s administrators we are not excluding network administrators from this discussion. Obviously, from the semantic point of view, someone who is a system administration is a person that manages an array of systems, software, which might be Customer Relationship Management – CRM - solutions, operating systems, helpdesk platforms, etc. However we are not going to split this role from the network management as it is commonly seen together and, generally, share the same definitions only changing the scope: software (systems) and hardware (network).

BACKGROUND

So, what is the job of a system administrator? This professional builds and manages IT infrastructures taking care of security issues, software and hardware management / deployment. It’s also common to deliver to this IT staff some development / programming roles specially on automat ing management roles (ie. scripting) though they are not Software Engineers (Kichel, 2003). One of the main requirements of a system’s administrator is to be versatile with a wide variety of skills. The best system administrators are often quite general, both theoretically and practically. From making or repairing wiring cable installations, installing operating systems or software applications, correcting problems and errors in the systems to developing scripts, software, planning, constructing and managing databases and also training company users, their main objective could be resumed as: to automate a large number of common tasks and increase the overall work performance in the organization.

From the 1980 / 1990 decade the system’s administrators that were present on lots of companies were the persons who “understood” about computers which the main role were to fix computers and put it back to work. Their profile were not clear, and they did not have extensive knowledge but only basic knowledge of a dozen of applications (word processor, spreadsheet, databases, etc.) and some basic knowledge of hardware were sufficient for the everyday tasks. This was the picture of lots of companies and public institutions back then. The evolution of this professional role is highly linked with Internet growth and the companies need to have multiple systems in heterogenic ecosystems. From the end of the 1990 decade through the new millennium the presence of these IT Staff in the companies developed to persons who had to own general understanding, theoretical and practical, of very diverse areas from networking technologies, operating systems, applications. Also, the new paradigm asks for knowledge on programming in a wide variety of programming languages comprehensive knowledge of both network and hardware, Internet technologies, databases construction, etc. Obviously, in bigger companies, nowadays, it is common to see that this generic profile divides itself in sub-profiles such as operating systems administrator, database administrators, security specialists, helpdesk staff, etc. As we said before we are not excluding network administrators from this logic but with the evolution of IT careers it is imperative to understand that there are some particularities that distinguishes these two professionals. Network management is to manage services, devices and network systems on a certain infrastructure. It clearly depends on how big is a company to have different staff doing the system’s