



METU  
Computer Engineering Department

## PROJECT PROPOSAL

by

TEAM MindUs

PROJECT MindGate

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## 1. Team Information

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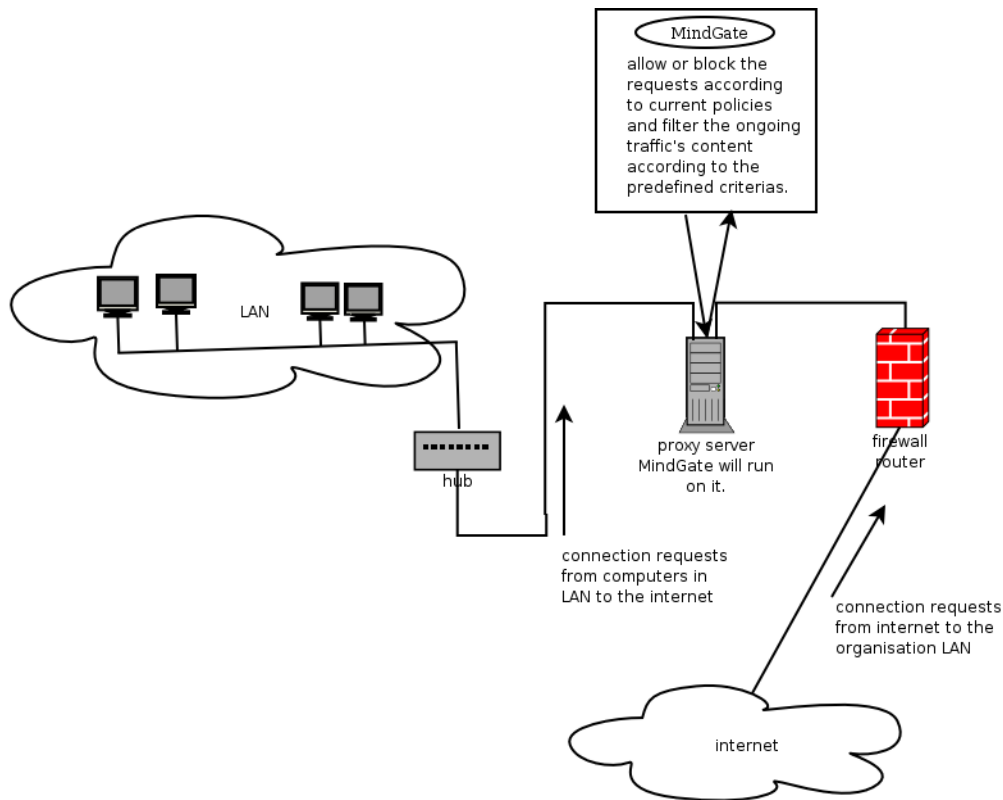
## 2. Motivation

Once only used by a group of scientists, today Internet became the part of the daily life. Due to the atmospheric increase in the number of its users, Internet's content is now untrusted. There are many products to block standart technical attacks to the systems such as, firewalls, anti virus etc. Unfortunately, there is a lack of protection for users from the malicious, harmful, irritating content. Although there are some personnel software products, checking from static domain lists these are not sufficient for Internet's dynamic structure. In addition, web sites which has the choice of adult or limited content are not always useful since they give the permission to choose to the user who should not be able to choose, as in the case of Internet access from especially schools ,other governmental organizations and companies. Our motivation is to design and implement a dynamic content filter software, which is modular, extensible and integrable with other security products, as a part of complete security solution for organizations which have large local networks.

### 3. Project Definition

Project Name: **MindGate**

The aim of the project is to develop a **content filtering software** which prevents unwanted content to enter the LAN(local area network) of the user organization. All content over various protocols(http,mail,ftp,ssh etc.) will be checked and dealt with according to their nature. The software is planned to run on the gateway computer of the LAN and have a built in web interface which will be used by the administrator of the LAN. Administrator will have the ability to change the configuration of the program, add or remove access policies and keep track of the past network traffic, which is kept in a database, by using this web interface. Content of the traffic will be classified by the program, access to the destination will be blocked or allowed by the software, according to the current policies of the system. Unwanted and insecure protocols(ICQ,IRC, P2P etc.) will be blocked partially or completely if needed (for example according to bandwidth consumption P2P will be prevented above some level). The main idea under the project is to block the threat before it enters to the subnet. Classified statistical information will be reported to administrator on demand.



## 4. Project Scope

To make project easy to develop and integrable with other products, software planned to be built as a composition of different logical divisions and possibly increase in number and will be changed according to the needs. Functionality of the application will be explained over these parts, which have external domains.

**The Content Analyzer and Classifier** will be designed to learn about the previous accesses to the internet, it will have the ability to check similarities between different contexts in the future. And it can be easily modified from the administrator via the user friendly interface it will have. It will be designed to be easily updateable, and it should have a clear structure and hierarchy which makes it portable. So in the future organizations can easily share their meta-data between each other and will more secure networks.

**The Engine** in MindGate will control the internet access of the organization dynamically, it will have an index which holds information about the destination hosts in the internet which is used to give access or not. And also will have a different index which will be looked up to check the validity of the incoming traffic of the organization. These indexes are generated from the information taken from the content analyzer and classifier module previously.

**The Database** in the MindGate will be designed to hold the client specific logs which will be used to obtain statistical information about the user's internet usage and also organizations general internet usage and information about the web pages, so this records could be used when an accidental event occurs such as index crash of the engine to build a new index.

**The Interface** which will supply a full-featured administrative interface will be designed to add new specifications on the current settings of the MindGate's Content Analyzer Module and Content Classifier Module. It will be a web interface, so the application can be easily controlled any platform inside subnet. Administrator will have the ability to correct decisions of content analyzer and classifier module by these interface.

## 5. Goals

MindGate will be designed to run on gateway machines, so it should not slow down the web traffic of the organization while checking the web traffic according to the organization's policies.

MindGate should be able to operate efficiently do not be effected by the number of clients.

Mind gate planned to have learning ability to make more accurate decisions as time passes with the correction of administrators.

The ultimate goal of the project is to have classified index of frequently used websites, general structure of spam mails and have keyword lists, and doing most of the work efficiently with less costly methods.

MindUs plan to construct a central content meta-data update and share platform for users of the MindGate product.