

# Transparent cloud service encryption

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## Abstract

Nowadays the services used by individual people, institutes, or companies are often not placed on infrastructure inside their own system, furthermore, many times not only the infrastructure, but even the service itself is provided by a third party, and it is placed on this third party's infrastructure. This kind of service usage is cost efficient, but it can raise a lot of questions about the privacy of the user's data, because this data often can contain sensitive information, and the need for an extra level of privacy can be an acceptable need.

On the other hand, most organisations have at least one level of security at the edge of their network, to keep them safe from the outsider attacks: the firewall. Today's firewall technology usually contains various proxies for different protocols, and some of these products even allow the user, to define its own proxies.

Our goal is to use a modern firewall technology to encrypt the data that is stored in the third party's cloud infrastructure, to achieve a higher level of privacy. We will do it in a transparent way, so the users behind the firewall will not even notice the change, but those, who do not belong to the organisation (so they do not use their firewall), can only access to encrypted data. Furthermore we want to achieve this goal by using open source products. We will show that our solution can be used to help those, who need an extra level of protection when using third party cloud services.

*Keywords:* encryption, privacy, cloud services, firewall.

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