

Kerberos :- Kerberos provides a centralized authentication server whose function is to authenticate users to servers and servers to users. In Kerberos used for client authentication, Kerberos server and database is run as a third-party trusted server known as the Key Distribution Center (KDC). Each user and service on the network is a principal.

The main components of Kerberos are :

- Authentication Server (AS) :

The authentication server performs the initial authentication and issues the ticket.

- Database :-

The authentication server verifies access rights of users in database.

- Ticket Granting Server (TGS) :

The ticket granting server issues the ticket for the server.

# X.509 is a standard defining the format of public key certificates.

X.509 certificates are used in many internet protocols, including TLS/SSL, which is the basis for HTTPS, the secure protocol for browsing the web. They are also used in offline applications, like electronic signature.

• An X.509 (also called digital) Certificate contains a public key and an identity (a hostname, or an organization, or an individual), and is either signed by a Certificate authority or self-signed.

# Common applications of X.509 certificates includes:

- SSL/TLS and HTTPS for authenticated and encrypted web browsing.
- Government-issued electronic ID.
- Code Signing
- Document Signing
- Client authentication