SNS COLLEGE OF ENGINEERING

Kurumbapalayam (Po), Coimbatore – 641 107

An Autonomous Institution

Accredited by NBA – AICTE and Accredited by NAAC – UGC with 'A' Grade
Approved by AICTE, New Delhi & Affiliated to Anna University, Chennai

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING(IoT and Cybersecurity Including BCT)

COURSE NAME : Fundamentals Of Cryptography

II YEAR / III SEMESTER

Unit III-

Topic : **Kerberos**

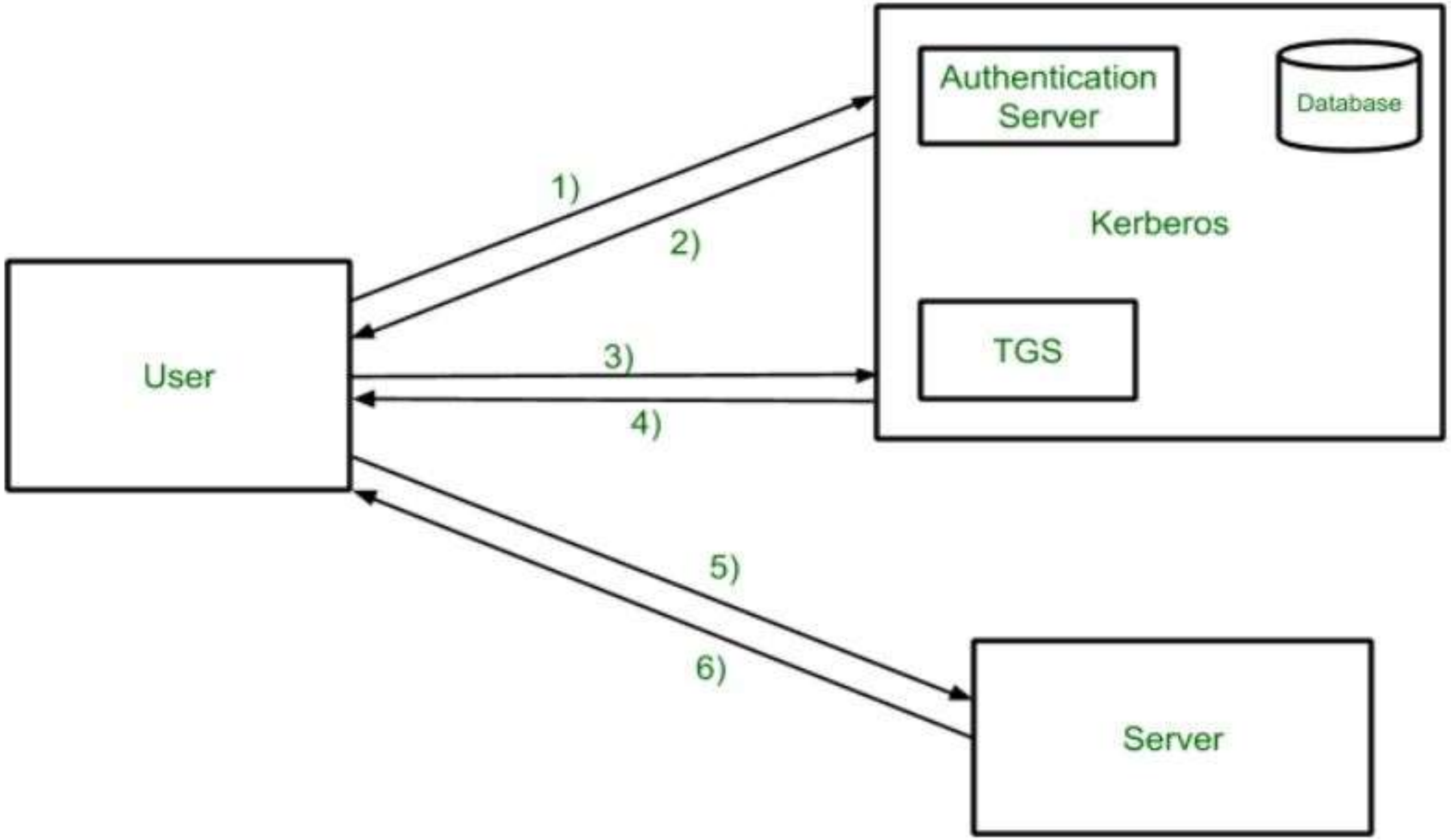
- **Kerberos** provides a centralized authentication server whose function is to authenticate users to servers and servers to users.
- In Kerberos Authentication server and database is used for client authentication. Kerberos runs as a third-party trusted server known as the Key Distribution Center (KDC).
- 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 ticket for Ticket Granting Service.

•Database:
The Authentication Server verifies the access rights of users in the database.

•Ticket Granting Server (TGS):
The Ticket Granting Server issues the ticket for the Server

- **Kerberos Overview:**



- **Step-1:**
User login and request services on the host. Thus user requests for ticket-granting service.

- **Step-2:**
Authentication Server verifies user’s access right using database and then gives ticket-granting-ticket and session key. Results are encrypted using the Password of the user.

- **Step-3:**
The decryption of the message is done using the password then send the ticket to Ticket Granting Server. The Ticket contains authenticators like user names and network addresses.

- **Step-4:**
Ticket Granting Server decrypts the ticket sent by User and authenticator verifies the request then creates the ticket for requesting services from the Server.

- **Step-5:**
The user sends the Ticket and Authenticator to the Server.

- **Step-6:**
The server verifies the Ticket and authenticators then generate access to the service. After this User can access the services.

Kerberos Limitations

- Each network service must be modified individually for use with Kerberos
- It doesn’t work well in a timeshare environment
- Secured Kerberos Server
- Requires an always-on Kerberos server
- Stores all passwords are encrypted with a single key
- Assumes workstations are secure
- May result in cascading loss of trust.
- Scalability