Chapter 17 TACACS+

TACACS+

- Terminal Access Controller Access Control System
- Protocol and software used to provide AAA services to an access server or router
- TACACS+ protocol used in communication from NAS and the TACACS+ daemon running on a security server

TACACS+ Architecture

- Uses TCP port 49 to communicate
- Cisco proprietary
- Outgrowth of TACACS (RFC 1492)

TACACS+ Packet Header Format

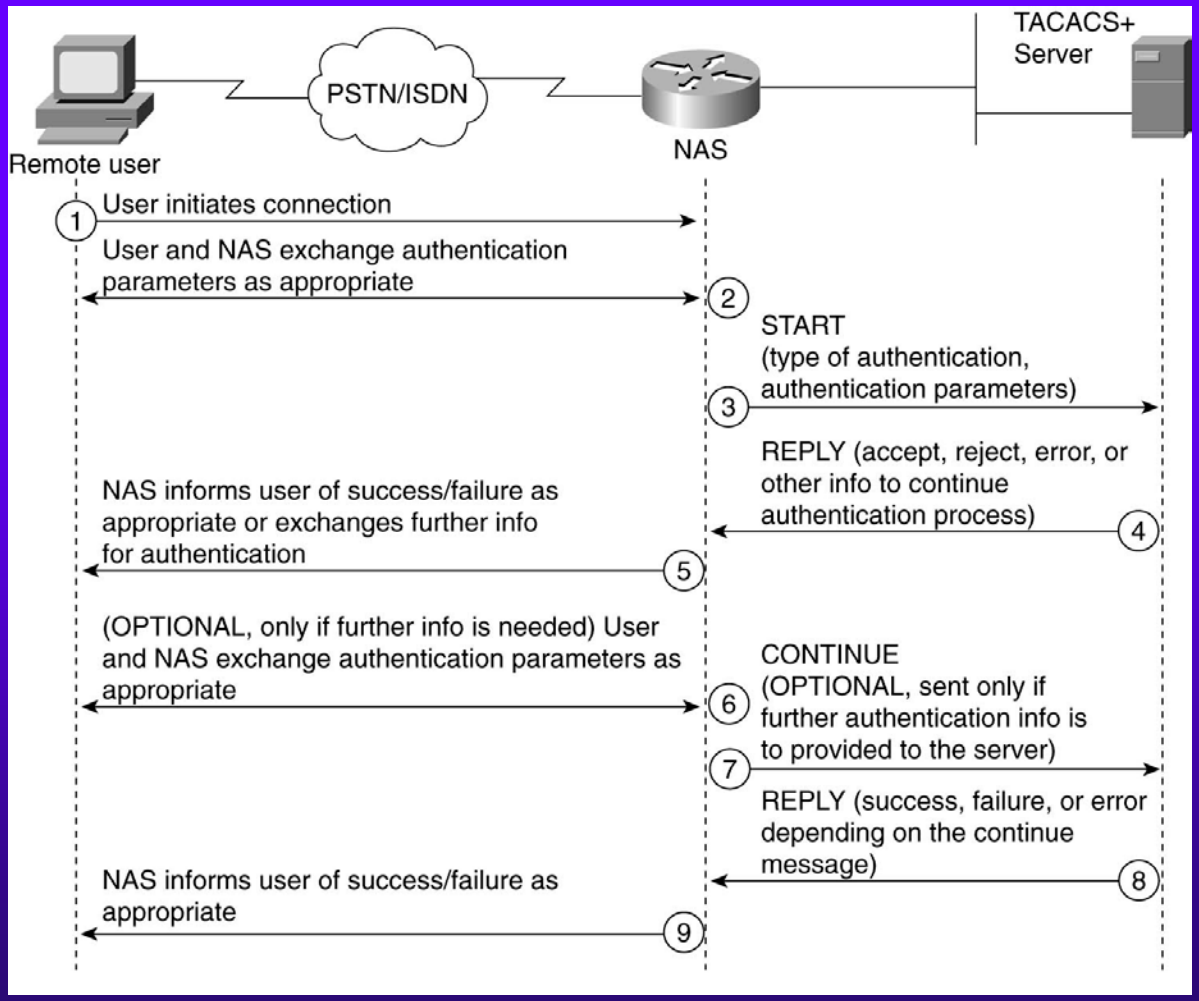
1 2 3 4 5 6 7 8	1 2 3 4 5 6 7 8	1 2 3 4 5 6 7 8	1 2 3 4 5 6 7 8
major version	minor version	type	seq_no	flags
session_id			
length			

- ‘type’ field used to differentiate authentication, authorization, and accounting packets
-’seq_no’ increments starting from 1 in any given session
-’session_id’ is a randomly generated value used during entire session

TACACS+ Packet Encryption

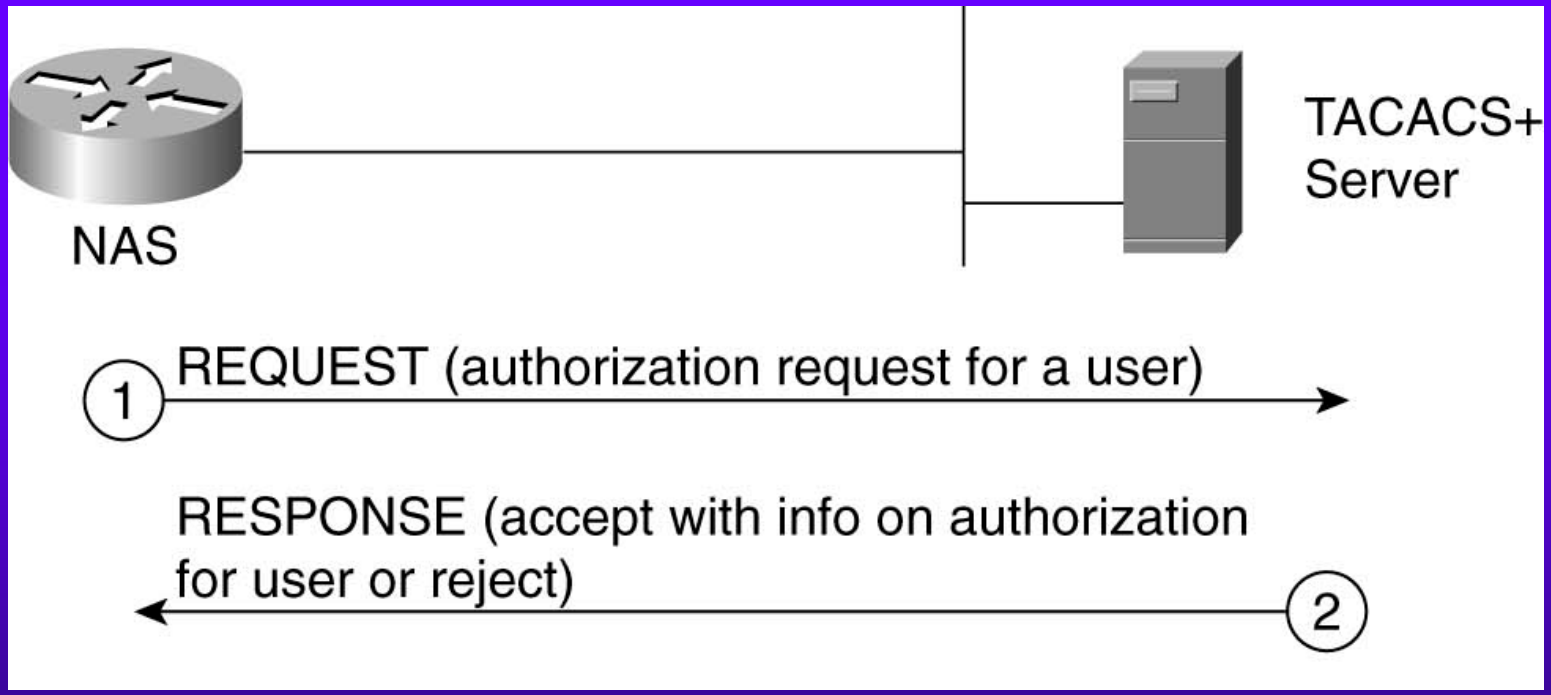
- Entire packet after the TACACS+ header is encrypted
- Relies on a preshared secret stored on both NAS and AAA server
- Cipher text generated by XOR clear-text with concatenated MD5 hashes of session_id, preshared key, version number, and sequence number

TACACS+ Authentication



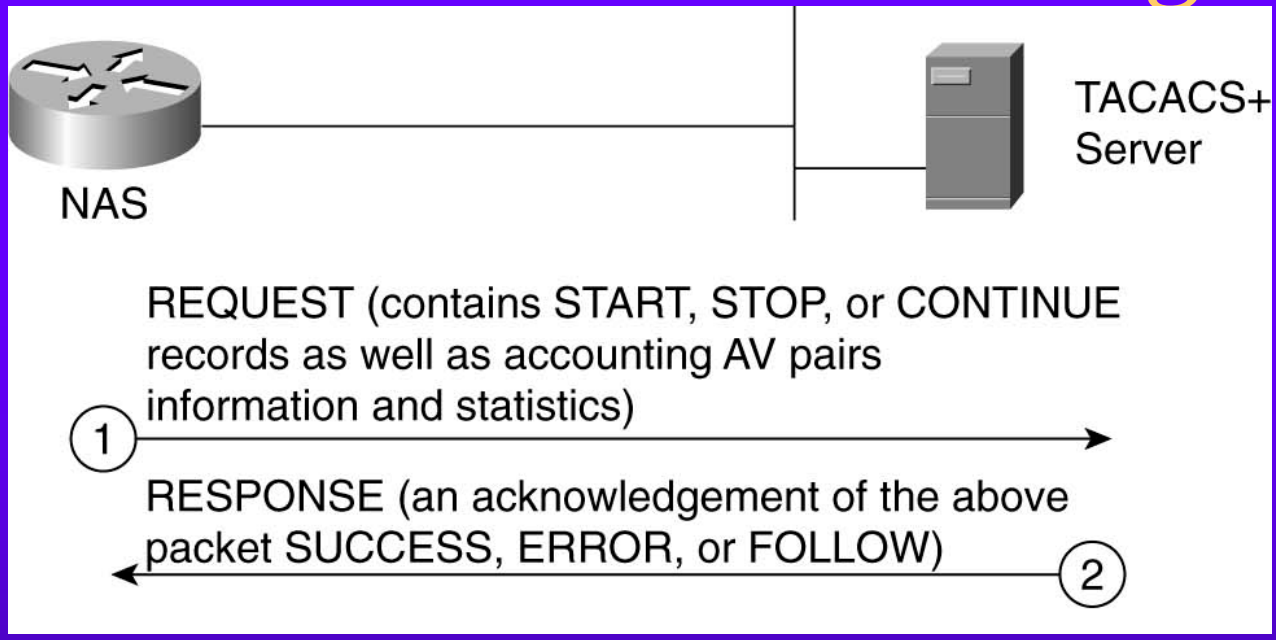
-uses ‘start’, ‘reply’, and ‘continue’ packets
-authentication results in ‘success’, ‘failure, or ‘error’

TACACS+ Authorization



- Request contains services or privileges needed to be authorized
- Response may contain fail, pass with additional attributes, pass with replacement attributes, error, or redirection to an alternate AAA server

TACACS+ Accounting



- Request packet
  - 'Start' record indicates that a service is about to begin
  - 'Continue' record sent periodically while service is in progress
  - 'Stop' record sent when service has terminated
- Response packet
  - 'Success' status indicates that AAA server has received packet from NAS and has stored info into its database
  - 'Error' implies AAA server failed to commit record to its database
  - 'Follow' status indicates that NAS should send the records to another AAA server listed in packet data