

## AAA Concepts:

- o AAA is a term, which stands for Authentication, Authorization & Accounting.
- o Authentication, Authorization, and Accounting (AAA, pronounced as a Triple A).
- o AAA is a centralized management of users to access the network resources etc.
- o AAA services allow setting up access control on Cisco Routers or Cisco Switches.
- o Whenever user's attempts to login and access network it verifies by AAA database.
- o User management done on AAA database without need to reconfigure each device.
- o AAA also control connections passing through router for access network resources.
- o AAA provides flexibility and scalability, using privilege levels allows the flexibility.
- o AAA can be RADIUS Protocol or TACACS+ protocol, where the database is located.
- o Use local database fallback if the TACACS+/RADIUS server becomes unavailable.
- o Fallback only occurs, if the AAA Server is unavailable or down for some reason.
- o There are two use cases of AAA, one is device administration other network access.

**Authentication**  
Who are you?

**Authorization**  
How much can you spend?

**Accounting**  
What did you spend it on?

**Credit Card Statement Data:**

Account Number: 1234-567-890 | Statement Closing Date: 01-31-01 | Current Amount Due: \$278.50

JOE EMPLOYEE  
456 SKYVIEW DRIVE  
HOMETOWN, USA 99900-1234

MAIL PAYMENT TO:  
THE BANK  
132 VINE STREET  
ANYTOWN, USA 67500-0010

872919345 00178255000000003

**Statement of Personal Credit Card Account**

Cardmember Name: JOE EMPLOYEE | Account Number: 1234-456-890 | Statement Closing Date: 01-31-01

Statement Date: 02-01-01 | Payment Due Date: 03-01-01

Closing Date: 01-31-01

Credit Limit: \$1,500.00 | Credit Available: \$1221.50

New Balance: \$278.50 | Minimum Payment Due: \$20.00

**Account Summary**

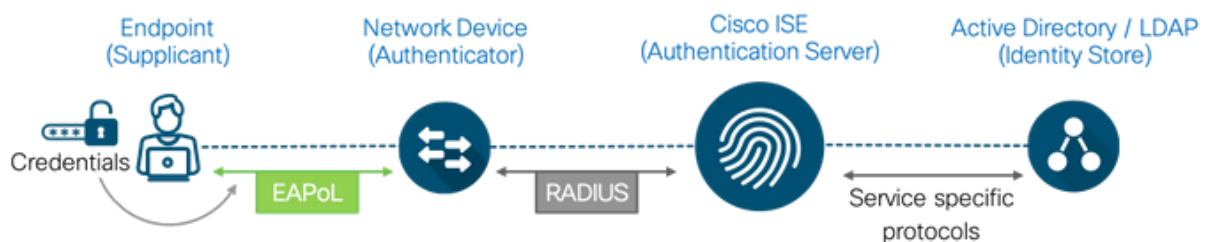
Previous Balance:	+74.24	Transaction Fees:	+3.00
Purchases:	+250.50	Annual Fees:	+25.00
Cash Advances:	+0	Current Amount Due:	+250.50
Payments:	-74.25	Amount Past Due:	+0
Finance Charge:	+0	Amount Over Credit Line:	+0
Late Charge:	+0	<b>NEW BALANCE:</b>	<b>\$278.50</b>

Reference Number	Sold	Posted	Activity Since Last Statement	Amount
43210987	01-03	01-13	Payment, Thank You	-\$74.25
01234567	01-12	01-13	Wings 'N' Things Anytown, USA	\$25.25
78901234	01-14	01-17	Record Release Anytown, USA	\$40.00
45678901	01-14	01-17	Sports Stadium Anytown, USA	\$75.25
3210987	01-22	01-23	Tie Tack Anytown, USA	\$20.75
76543210	01-29	01-30	Electronic World Anytown, USA	\$89.25
2345678		01-30	Transaction Fees	\$3.00
34567890		01-01	Annual Fee	\$25.00

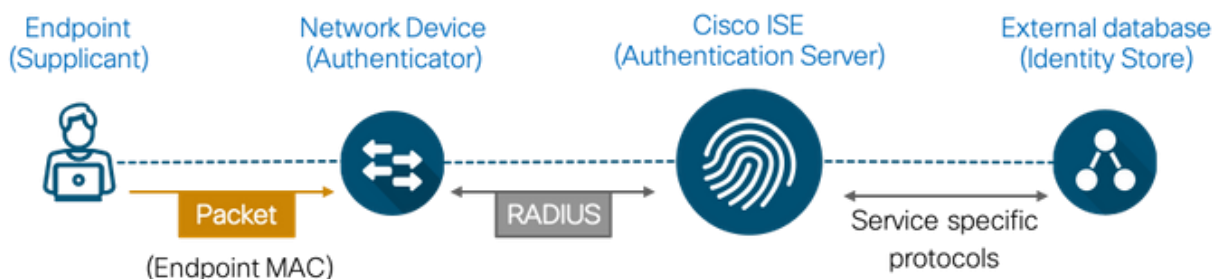
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## Authentication:

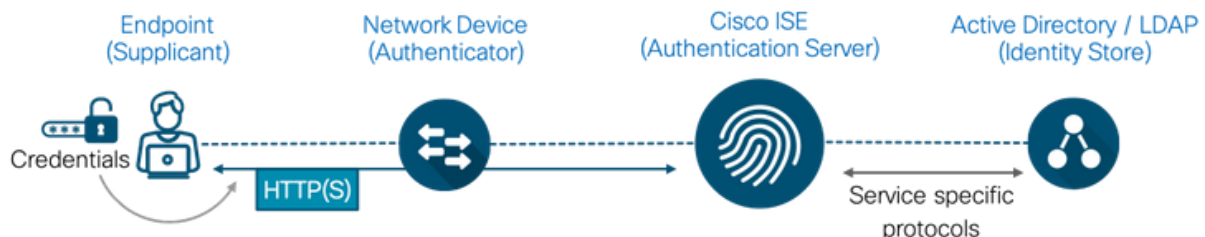
- o Authentication basically means who the user and/or endpoint is.
  - o Authentication involves validating an identity or the credential.
  - o Authentication provides the answer for the questions "Who are you?"
  - o Check the user's credentials to verify their identity is authentication.
  - o It is the process in which identify of a device or a user is verified.
  - o Authentication is the process of proving identity to the system.
  - o Authentication is the validation of an identity or the credential.
  - o The user or computer has to prove its identity to the server or client.
  - o Log on to a PC with a user name and password you are authenticating.
  - o Authentication does not determine, what tasks the individual can do.
  - o Authentication merely identifies and verifies who the person or system is.
  - o Authentication is about who somebody is or who some device endpoint is.
- o In Cisco Identity Service Engine One Authentication Methodology is IEEE 802.1X.



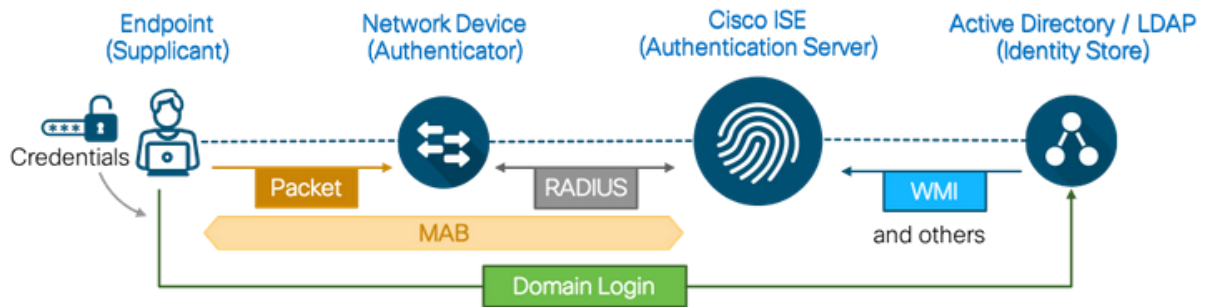
- o In Identity Service Engine one authentication Method is MAC Authentication Bypass (MAB).



- o In Cisco Identity Service Engine one authentication Method is Web Authentication.

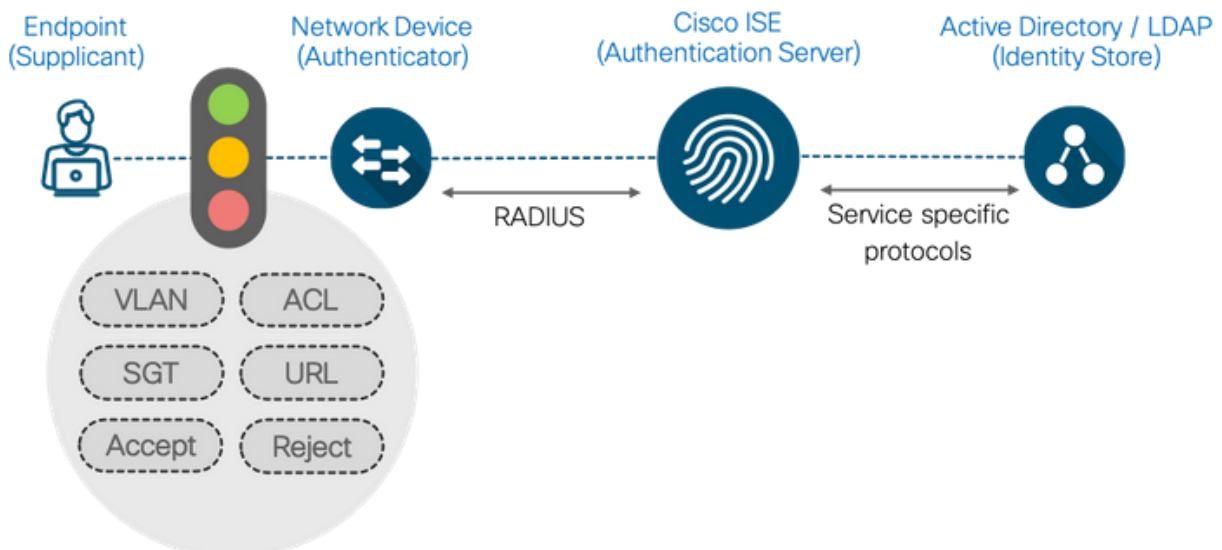


- o In Cisco Identity Service Engine one authentication Method is EasyConnect.



### Authorization:

- o Authorization basically means what User and/or device are allowed to.
- o Provides the answer for the question "Are you allowed to do this task?"
- o Determines what the user/device is allowed to do is called Authorization.
- o Restrict the access to the user or the Endpoint is called Authorization.
- o Server determines client has permission to use a resource or access file.
- o Authorization is the process of verifying access to something or resources.
- o Authorization is about what they are allowed to do inside the network.
- o Authorization is the function of specifying access rights to the resources.
- o Authorization is the process to confirm what you are authorized to perform.



## Accounting:

- o Accounting basically means recording what end-user/endpoint have done.
- o Provides answer for questions "What did you do?", "Who is responsible for this?"
- o In AAA model, accounting features is also very much important in security.
- o Accounting occurs after authentication and authorization have been completed.
- o Accounting allows administrators to collect information about users and devices.
- o Accounting command tracking commands, services and resources used by user.
- o Accounting is the measure of resources consumed by a user/device during access.
- o Accounting, includes amount of time, amount of data user has send or received.
- o Accounting is carried in the form of logs of session statistics and usage information.
- o Accounting data is used for authorization control, resources utilization, billing & planning.
- o Accounting is also very much helpful to troubleshoot if network devices are not working.
- o Accounting is disabled by default in Authentication, Authorization & Accounting model.
- o AAA Accounting Types Network, Exec, Commands, Connection and Resource.
- o AAA collects and stores information about logins and activity happen in network.
- o Recorded while accessing the specific device during specific time in the network.

