imRAD

RADIUS Authentication/Authorization/Accouting
DHCPv4/6 Service

BASE IN NETWORKS
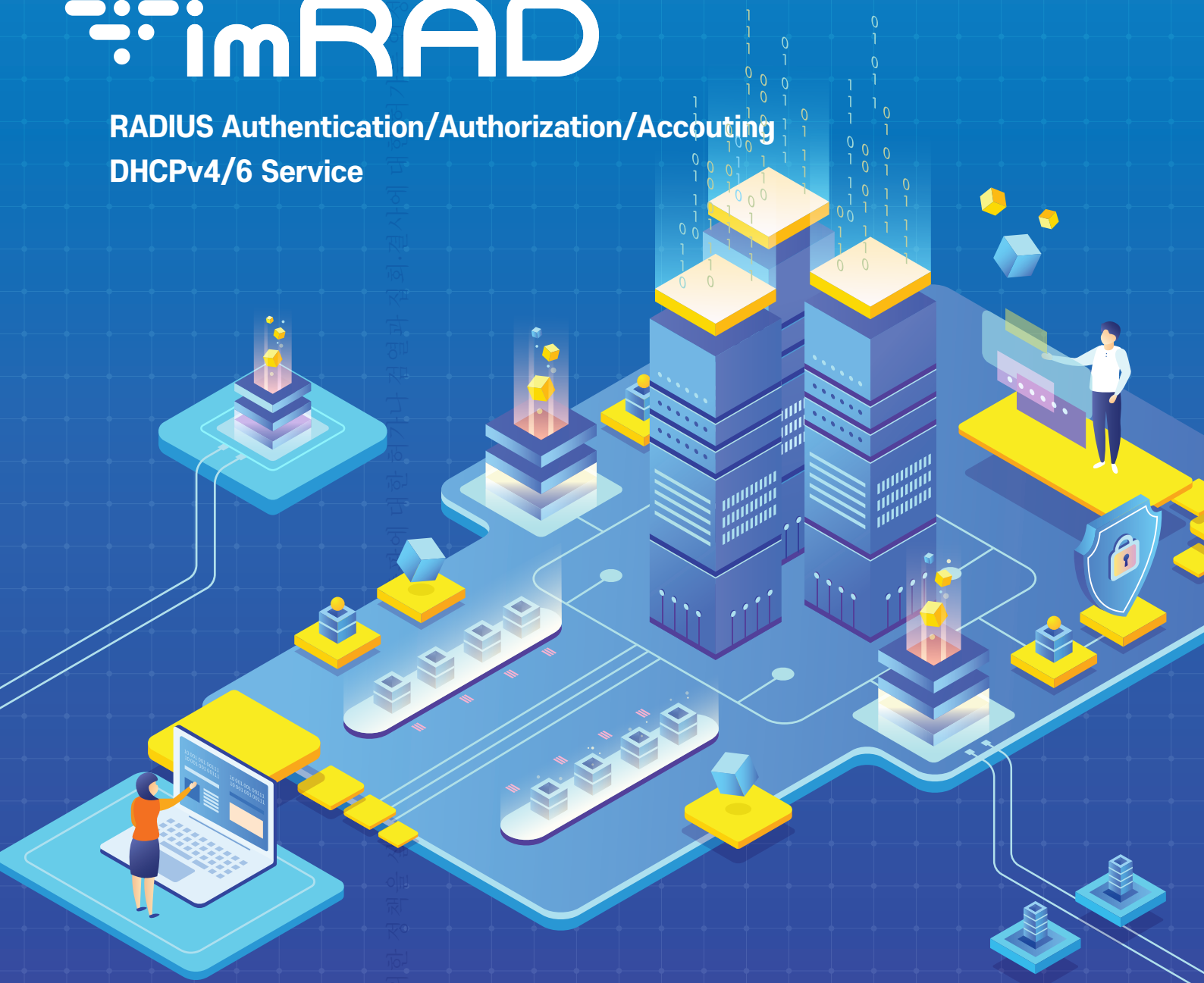
RADIUS

- ⊘ Proxy(Eduroam)
- ⊘ VPN Auth
- ⊘ Wireless Auth
- ⊘ Wired Auth

↔

DHCPv4/v6

- ⊘ Wireless
- ⊘ Wired

- **RADIUS** : RADIUS Service
- **DHCP** : DHCPv4/6 Service
- **USER INTERFACE** : User interface based on https
- **CLI** : Dedicated Command Line Interface

OS	Database	Web Server	Security
Linux	MariaDB FOUNDATION	APACHE HTTP SERVER PROJECT	OpenSSL Cryptography and SSL/TLS Toolkit

RADIUS Remote Authentication Dial In User Service

✓ RADIUS Authetication/Authorization/Accounting

- 802.1x EAP Authentication
- Pass-Through Authentication (example : Customer DB)
- imRAD Local Database Authentication
  : MAC addresss, Username / Password

✓ RADIUS VPN Authentication

- Pass-Through Authentication (example : Customer DB)
- imRAD Local Database Authentication
  : MAC addresss, Username / Password

✓ Pass-Through Authetication(PTA)

- Supports multiple DBMS and LDAP servers

DBMS	LDAP
- Oracle, Tibero	- AD Domain service
- MSSQL, Postgre SQL	- AD Lightweight directory service

✓ Pass-Through Authentication cache

- Save accepted User-Name by the PTA
  for the specific days.
- Username / HASH(Password, 'SALT-XXX')
  : User-Passwords are safely stored
  : SHA256 with salt
- Prevent from heavy traffic to the Cutomer DB.

✓ Failover

- Active / Active or Active / Standby

✓ Accounting & Postauth

- Provides the Accounting log
- Provides the postauth log

DHCPv4/v6 Dynamic Host Configuration Protocol

✓ IP Assignment by the RADIUS User-Name

- Assign IP address by authenticated User-Name
- Can detect who has the IP address
- IP Reservation by User-Name
  : Can assign the same IP address regardless of host.
  : Not the RADIUS DHCP attribute but the DHCP
  : Many Client do not support the RADIUS DHCP attribute

✓ User Interface

- HTML(HTML5) User interface on HTTPS
- Administrator / Operator
  : Local / RADIUS LDAP Login
- Korean / English language supports
- Search several log
  : HOST, DHCP, Accounting and so on
- System managemnet / Dashboard
  Display events and status

**rfc 2131 (DHCPv4)
rfc 3315 (DHCPv6)**

**DHCPv6
stateful/stateless**

**DHCP POOL
Realtime Assignment**

**IP Address
Auto-Reservation**

Architecture

Access Points

NAS-1

NAS-2

WIFI

Wireless
802.1x EAP

VPN/Firewall
VPN

Internet

imRAD #1(Active) **imRAD #2** (Standby)

Customer
DATABASE

Customer
LDAP

DHCP Active
[branch office]

imRAD #3 → imRAD #1 or imRAD #2 is
(DHCP active)   Standby