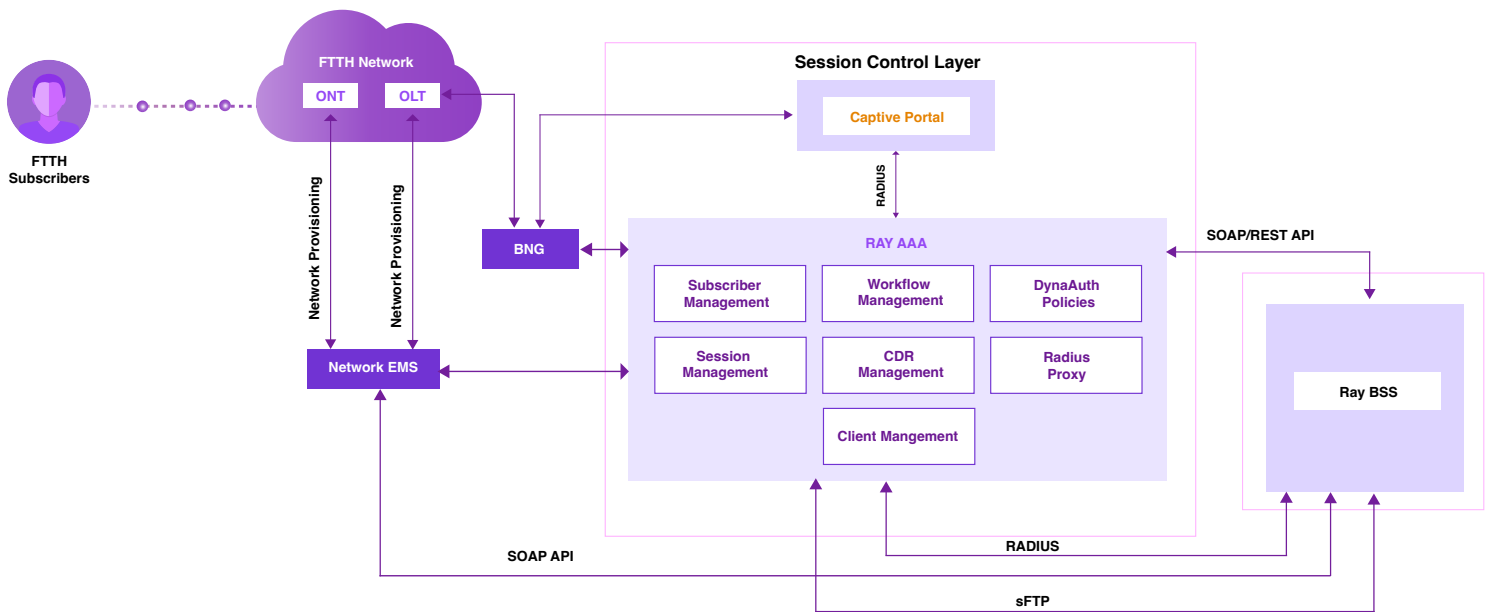


### About AAA

RAY Solutions provides the latest solutions in providing Authentication, Authorization, and Accounting (AAA) solutions to address today’s growing, complex and scaled networks which serves the rapidly growing subscriber base.

AAA is a standard-based framework used to control who is permitted to use network resources (through authentication), what they are authorized to do (through authorization), and capture the actions performed while accessing the network (through accounting). AAA is a very crucial function within ISP networks. It is key to improving the subscriber experience and grants operators more control and flexibility in configuring network access throughout FTTx, 5G, and IoT.

Our AAA solution provides scaled solution to operators which enabled them to configure and control the service delivery for their networks. Our solutions is enabled for NFV and Virtualization Support, and device-specific network parameters for connectivity management across IoT devices.



## Features

### Flexible & Easy Configuration

AAA provides multitenant, multi-level, web-based AAA management solution. A Flexible and easy to use subscriber dashboard feature allows support executive facility to search and get insight about subscriber’s usage, auth status and quota details.

### Scalability and Reliability

AAA is a web scaling enabled containerised component which provides carrier grade scalability and performance. It supports effective Load Balancing and Failover. System also supports OS level virtualization where multiple instance can be run in parallel on same server also. System supports multiple hypervisors like Amazon Aws, Microsoft Azure, RHEV, VMware as well as major Orchestration platforms.

### Multi-Vendor Network Support

AAA provides easy to use and policy driven control of the radius traffic which enables the single deployment to handle multi-vendor onboarding and internetworking. With support of pluggable/hot deployment components (Groovy), system can communicate with any OSS/BSS, Network Devices, Third party system for customer authentication, authorization and accounting.

### Multiple Authentication Methods

AAA supports PAP, CHAP, EAP-TTLS, EAP-TLS authentication methods

## Subscriber Management & Access

AAA provides Management of prepaid, postpaid & Hybrid sub-scribers within common infrastructure. Subscriber Profile information like QoS policy, static IP address, dynamic policy checks, authorization configurations etc. can be configured with subscriber data. This subscriber information can be updated by BSS systems using HTTP SOAP and/or HTTP RESTful APIs. System have provision for various sources for authentication and authorization like RDBMS, LDAP, Active Directory & external system API calls which gives flexibility to authenticate and authorize the subscriber from any system from the network.

This enables the AAA to integrate with any public WiFi offering solutions that provides various platform access options like SMS OTP, Email, Voucher, Code, User Credentials, Social Media Login, Enterprise Authentication/Authorization, Mac Based Authentication etc.

## Roles, Audit & Tracking

AAA has support for role based access of users into system which enables system to audit and keep track of the activities performed by individual user from the management portal. AAA has flexibility to define various roles and define the access for particular role into system

## Monitoring

AAA is enabled with SNMP which helps to monitor the health and KPIs of the system from any centralized networking monitoring platform. It provides with real time logs & reports and real time stats through SNMP. Below are few of the monitoring supported.

1. Total Auth Success & Failure, Accounting Start, Accounting Stop and Interim Requests
2. Memory usage of System
3. Network/Client wise user counts
4. Network/Client wise data usages

## Session Management

AAA is equipped with policy driven session management. Management interface provides flexibility to define rule based session management based on the NAS. It also provided the flexibility to define the location to preserve the sessions and subscriber session CDRs which holds the subscriber's Identify, quota usage details, network details like NAS IP etc for future references.

## Flexible Policy Management

AAA is enabled with the concept of policy driven traffic management. In system we can define the rules for each network workflow/device and define the authentication and accounting approaches for them. System also has support to define network device base attributes management which enables AAA to serve heterogeneous network device at the same time in network

## Realm Support

Provides flexibility to combine traffic from multiple networks and proxy the traffic to designated network based on the users' domain (Realm). It also helps the administrator to load balance network traffic to upscale the overall performance of the system with help of realm based proxy support.

## IP Pool Management

AAA provides the feature to manage private, public IP pools into the system. These Ips can be either associated to NAS or can be leased to customer based on Pool binding with the customers. System keeps track of availability of the IP Addresses and provides a graphical user interface to see the list of associated and available IP Addresses.

## Next Generation IPv6

AAA provide support for IPV6 to make solution future ready. It can delegate IP Address directly from the AAA or it can also pass the pool name against which IP would be leased from Access Gateway. AAA also keeps track of the IPV6 into subscriber CDRs.

## Reporting & Logs

AAA provides various reports & Logs which can be used for multiple purposes. These includes Subscriber Usage Session Details, Subscriber Auth Logs, System Audit Details, Location wise Live Customer and Bandwidth Usage Details etc. AAA is also integrated with open source reporting tools like Kibana & Grafana which facilitates creation of any report on the fly in very short time utilizing the power of industry grade reporting solutions.

## Dynamic Authorization Policies

AAA is enabled with functionality of dynamic authorization which helps in enforcing the updated policy for connected subscribers. These policies can be configured at client levels to support heterogeneous clients in the same network.

## Performance & Deployments

1. AAA can be deployed on platform supporting JDK 1.8 or above with TPS of 800 on 8 Core CPU x 2 of 2.4 Ghz&64GB RAM
2. Currently system supports Same site and Geographical cluster deployment models with Active-Active or Active-Stand By



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