



Mastering the Interplay of 3GPP AAA and HSS in VoWiFi Deployments

The Crucial Role of 3GPP AAA and HSS in VoWiFi

The 3GPP or Mobile AAA Server is a vital component in mobile networks, particularly when managing Voice over WiFi (VoWiFi) services. To deliver seamless and secure VoWiFi experiences to subscribers, network operators must deeply understand the complex relationship between the 3GPP AAA (Authentication, Authorization, Accounting) and the Home Subscriber Server (HSS). In this blog post, we delve into the role of 3GPP AAA, its impact on the HSS, and how Alepo's AAA solution effectively mitigates signaling bursts and safeguards the HSS.

How VoWiFi Impacts HSS

The 3GPP AAA is responsible for authenticating users and authorizing access to services. In VoWiFi scenarios, the [AAA server](#) verifies the identity of subscribers before allowing them to use voice services over WiFi networks. This authentication process is crucial for ensuring that only authorized users can access VoWiFi services, thereby enhancing the overall security of the mobile network.

Implementing VoWiFi services can significantly impact the HSS, a central database that houses user-related and subscription information. Whenever a user initiates a VoWiFi session, the AAA server interacts with the HSS to retrieve subscriber profiles and service permissions. This interaction compounds the existing load on the HSS, which is already handling demands from other mobile services like Voice over LTE ([VoLTE](#)).

Moreover, when devices transition between cellular and WiFi networks, a signaling procedure is triggered between the AAA and HSS. In high-density areas or during peak usage periods, the sheer volume of these transitions can overwhelm the HSS with excessive signaling traffic, leading to network congestion, degraded service quality, and potential service disruptions.

How Advanced AAA Solutions Ensure Seamless VoWiFi Services

Next-gen AAA solutions employ advanced techniques to efficiently scale and handle sudden bursts of signaling load. Session caching is one such technique, where frequently accessed AAA queries are stored in cache memory. By retrieving information from the cache instead of repeatedly querying the [HSS](#), the AAA server significantly reduces the load on the HSS.

Additionally, AAA solutions must offer redundancy and failover mechanisms to ensure continuous service availability. By deploying backup HSS servers and implementing automatic failover, the system can seamlessly redirect traffic to secondary servers in case of an HSS overload or failure. This approach guarantees uninterrupted VoWiFi services, even under challenging network conditions.

[Alepo's AAA solution](#) stands out in the market by offering a standards-based 3GPP AAA that effectively addresses the increased signaling demands of VoWiFi. With its high scalability and robust protection mechanisms for the HSS, Alepo's AAA optimizes the interaction between the AAA and HSS, empowering network operators to deliver high-quality, secure VoWiFi services, even with surging demand.

Conclusion

The 3GPP AAA server plays a pivotal role in managing VoWiFi services by focusing on efficient authentication and minimizing the burden on the HSS. Prominent telecommunications companies have successfully deployed Alepo AAA solutions for their VoWiFi services, leveraging advanced techniques to optimize the interaction between AAA and HSS. This implementation has allowed the operators to deliver seamless and reliable VoWiFi experiences to subscribers. As mobile networks continue to evolve, Alepo remains committed to providing innovative AAA solutions, empowering network operators to tackle the challenges of VoWiFi deployments, and delivering exceptional services to their customers.

Get in touch with our experts at sales@alepo.com to learn more about the comprehensive capabilities of our 3GPP AAA and HSS product line, as well as the successful VoWiFi projects we have delivered.

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