

WiFi Calling is the New Black



Oliver Kormacher is responsible for Siemens CVC portfolio for Policy and Authentication Control products and solutions. He is defining and developing Siemens CVC solution scope as well as the company's strategic position in this challenging market.

His current focus is to bridge the conceptual gap between 3GPP and IETF, and align the standardization definitions with the market realities.

Prior to Siemens CVC, he served as stream lead for Policy solutions in a large telco vendor and as principal consultant for an international mobile messaging and identity management company for many years, where his focus was the mobile carrier market. He also acquired broad experience by developing and designing wide area communication solutions.

Wi-Fi is one of the remaining wireless network technologies that offers mobile network operators an opportunity to fill the gaps left by poor coverage or congestion in their LTE or 3G networks. Adding Wi-Fi is a unique chance to give your customers ubiquitous access to IMS, voice, and future services provided by mobile devices.

Using IP tunnels and SIM-based authentication, you only need to make minor modifications to your existing packet core and IMS building-blocks. Wi-Fi calling and

VoWiFi can literally be added instantaneously – extending access options with out compromising your security or your investment budget.

The emergence of VoLTE, IMS, IP-based packet-switched paradigms, and other earlier investments in future-proof concepts are now paying off: Adding a new service no longer requires a completely new architecture; and in the foreseeable future, operators will frequently be required to add similar small-to-medium services and solutions to their operator plans.

Wi-Fi calling is one of these services that will prove to be truly beneficial for your customers and your business, because it allows you to improve service, revenue, and network performance at the same time. It is made possible by the architecture designed by the 3GPP standardization body, which strikes the right balance between new functions and investment protection by utilizing existing elements. It permits a secure and efficient integration of non-3GPP wireless networks into the access technology strategies of all operators.

We can offer decades of experience in Diameter for non-3GPP access and a 15-year background in AAA services for packet-switched network control over Radius and Diameter in 3GPP and Wi-Fi offload. Our product is ideally suited for a scalable ePDG authentication that fulfills all operator requirements.

An interoperable ePDG solution

Thanks to standardized interfaces, our authentication solution for Wi-Fi calling is compatible and interoperable with all Wi-Fi ePDG EPC vendors, HSS providers, and IMS ecosystems in accordance with the latest 3GPP specifications. However, flexible dictionaries and customizable handlers can be used to adapt the core and optional Diameter interfaces such as SWm, SWx, and S6b for mobility. Depending on partnering plans in Wi-Fi access, other interfaces are also available. Wi-Fi access authentication may be required in addition to tunnel authentication, or it may be deemed necessary in order to provide a secure and seamless user experience. In this context, Diameter SWa and SWd are useful – and native support for legacy interfaces like Radius and GSM MAP (HLR) are very often indispensable. An ePDG AAA should therefore



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Wi-Fi calling

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Adding Wi-Fi is a unique chance to give your customers ubiquitous access to IMS, voice, and future services provided by mobile devices.

With Wi-Fi calling, you can extend your LTE or 3G networks into areas of poor network coverage, such as rural areas. Wherever there is Wi-Fi access, your subscribers can log on to your network to enjoy a seamless communication experience. Siemens offers secure authentication methods that even allow the use of SIM-less

devices, once they have been combined with a valid SIM card in a mobile device.

Using IP tunnels and SIM-based authentication, you only need to make minor modifications to your existing packet core and IMS building-blocks.

Wi-Fi calling and VoWiFi can literally be added instantaneously - extending access options without compromising your security or your investment budget.

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- ▶ be capable of supporting both native Diameter and Radius and have a proven success history in both worlds.

Authentication services for VoWiFi

VoWiFi utilizes the industry-standard EAP-AKA (extensible authentication protocol) secure authentication methods. These allow subscribers to seamlessly move between 3GPP (LTE and 3G) networks and non-3GPP Wi-Fi-driven access networks with a single login.

The EAP-AKA method uses the existing infrastructure to provide mutual authentication between devices containing SIM cards and the subscriber credentials stored within the HSS (home subscriber server). Your subscribers can access your networks using just their SIM card. After successful authentication, the establishment of secure tunnels to the operator’s core network guarantees data and subscriber privacy by providing encrypted end-to-end communications. Siemens AAA also supports the Protected EAP (PEAP) authentication method preferred by certain Android devices.

SIM and SIM-less devices

The opportunity to connect combined SIM and SIM-less devices using extra authentication tokens and modified ePDG interfaces (as part of future ePDG protocol extensions) will significantly improve subscriber convenience and offer a calling experience known thus far only in proprietary designs. Specific designs for iOS and Android devices (with Windows to follow soon) are already available today. The ability to use various other EAP methods (like TLS and CHAP) and to deploy other authentication methods allows operators to quickly offer individual services to existing and new subscribers in all access networks.

Solution architecture – scalable and reliable

You can begin your involvement with Wi-Fi calling with a relatively small financial and technical commitment and then enhance your system, as subscriber figures grow, from

perhaps 100,000 up to 50 million or more. VoWiFi runs on a highly scalable, Unix-based platform of front-end servers for authentication, authorization, and accounting and a redundant set of high-performance back-end servers for real-time session management and availability in per-site- and geo-redundant architectures. The Siemens Session Manager covers AAA needs and the Siemens Policy Manager (PCRF) controls the QoS (Quality of Service), both with the same user interface. It also offers a virtualized architecture for state-of-the-art NFV-orchestrated deployments; all based on readily available telco-standard OSS and BSS requirements and practical deployment experience with systems serving up to 50 million subscribers and more, serving more than 300 million subscribers worldwide.

Adding unlicensed

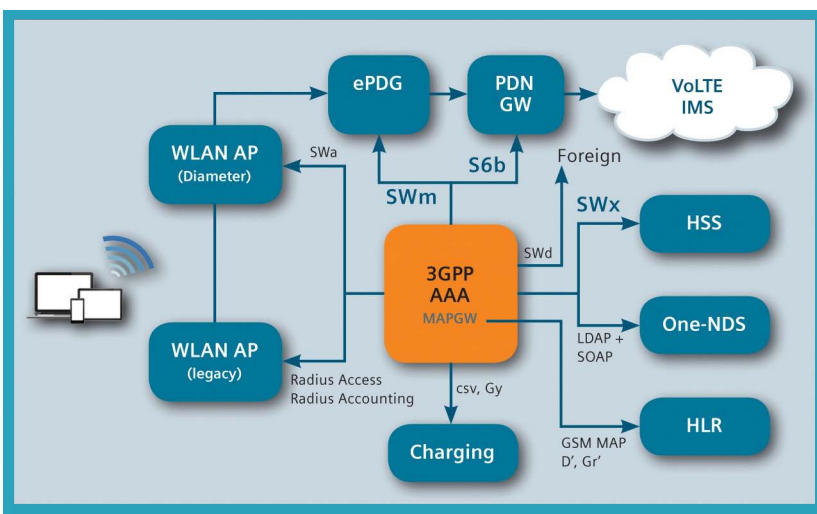
Alternative approaches that use LTE plus Wi-Fi radio aggregation to combine licensed and unlicensed spectrum (LTE LAA, license-assisted access) may potentially play a larger role in specific markets or technical segments, and can be seen as a complementary way of achieving the highest efficiency in spectrum use. Our products in the policing area (for example, Siemens Policy Manager) are used to guide the subscriber toward the optimal network utilization depending on the access network and subscriber status.

Wi-Fi calling: Better quality, more service

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For more information visit:

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