



Radiator

# Radiator, OpenRoaming and IETF update

6th and 8th of June 2023

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# Live Webinars in May and June 2023

## Wi-Fi Roaming and Security

23rd of May 2023 (1h): 08:00 UTC, 10:00 CEST

25th of May 2023 (1h): 16:00 UTC, 09:00 PDT, 12:00 EDT

### Wi-Fi Roaming Security topics:

Evil Twin Man-in-the-Middle (MitM)

Remote Brute Force / Denial of Service (DoS)

(log4j) Injection

VLAN Penetration/Hopping

### Wi-Fi Roaming Privacy topics:

MAC address based tracking

MAC address randomisation

Roaming RADIUS authentication and accounting privacy

SIM authentication privacy and IMSI privacy protection

## Radiator, OpenRoaming and IETF update

6th of June 2023 (1h): 08:00 UTC, 10:00 CEST

8th of June 2023 (1h): 16:00 UTC, 09:00 PDT, 12:00 EDT

### Webinar topics:

Radiator 4.28 release highlights

Radiator OpenRoaming enhancements

Radiator OpenRoaming Configuration Guide update

IETF standardisation and Radiator roadmap

<https://radiatorsoftware.com/webinars/>

# Radiator 4.28

release highlights



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# Radiator 4.28 updates

- AuthBy REST and SIP2 improvements according to customer feedback
- Initial new JSON logging hooks available via goodies. Feedback and comments are welcome as this functionality will be integrated in the Radiator.
- New vendor specific attributes included in the standard dictionary:
  - 3GPP release 17 and 5G internetworking attributes
  - Wi-Fi Alliance Passpoint release 3 Hotspot 2.0 attributes
  - WBA OpenRoaming (latest from github:  
<https://github.com/wireless-broadband-alliance/RADIUS-VSA>)
  - Miscellaneous Aruba, Meraki and PaloAlto attributes
- Ready to use profiles for Linux firewalls: firewalld (Red Hat, Alma Linux, Rocky Linux) / ufw (Ubuntu, Debian)

# Reminder: Radiator SIM support 2.8

- Initially published in February 2023
- With Radiator and Radiator SIM support a service provider can do Wi-Fi offloading, SIM authentication (with IMSI Privacy Protection) and OpenRoaming with one product and extension modules.
- Scalability improvement and other enhanced features:
  - IMSI based operator information discovery for routing SIGTRAN/Diameter messages
  - To make it easier to manage large installations and improve performance, Radiator 3GPP AAA Server now supports configuration with multiple parallel workers that use the same Diameter identity.
  - Support for certificate revocation and expiration notifications for IMSI Privacy
  - SIGTRAN location update for discovering profile information including MSISDN



# OpenRoaming Configuration Guide and Repository

introduction and highlights



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# Radiator OpenRoaming Configuration Repository and Guide

- Initial release available in GitHub:  
<https://github.com/radiator-software/radiator-openroaming>
- Ready-to-be-used/adapted configurations for implementing OpenRoaming ANP or IdP RADIUS/RADSEC server
- Prioritising static roaming agreements for specific realms over OpenRoaming Dynamic Peer Discovery as well as last resort default authentication targets are all supported
- Only Radiator AAA software, supporting Perl libraries and these configurations are needed to implement all this functionality



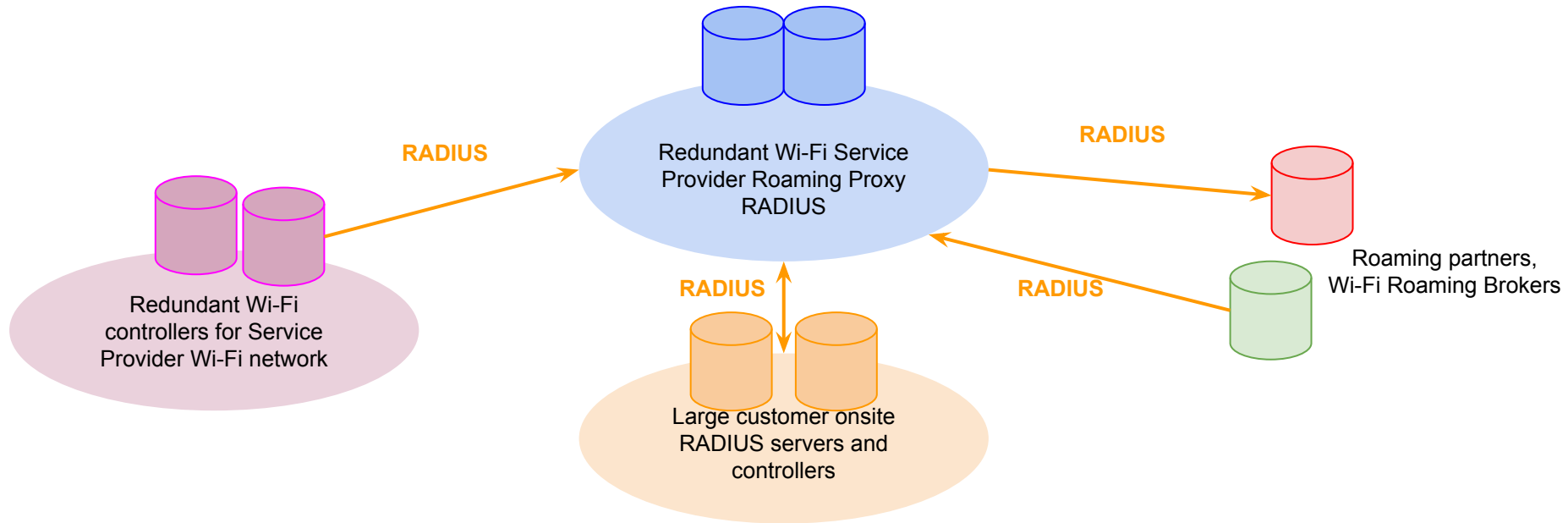
# Radiator OpenRoaming configuration template functionality

- Both inbound (IdP) and outbound (SP/ANP) OpenRoaming RadSec (RADIUS over TLS) configurations
- Local inbound RadSec (RADIUS over TLS) connectivity configurations (for local network devices, customer RADIUS/RadSec servers)
- Separate RADIUS roaming/proxying instance, separate RADIUS authentication and accounting instances (recommended deployment practice)
- DNS peer discovery (with only Radiator configuration needed)
- 3gppnetwork.org realm translation to pub.3gppnetwork.org for OpenRoaming Settlement-Free SIM authentication (with only Radiator configuration needed)
- Wireless Broadband Alliance (WBA) vendor specific RADIUS attributes dictionary
- Ready to be deployed to enhance existing RADIUS infrastructure



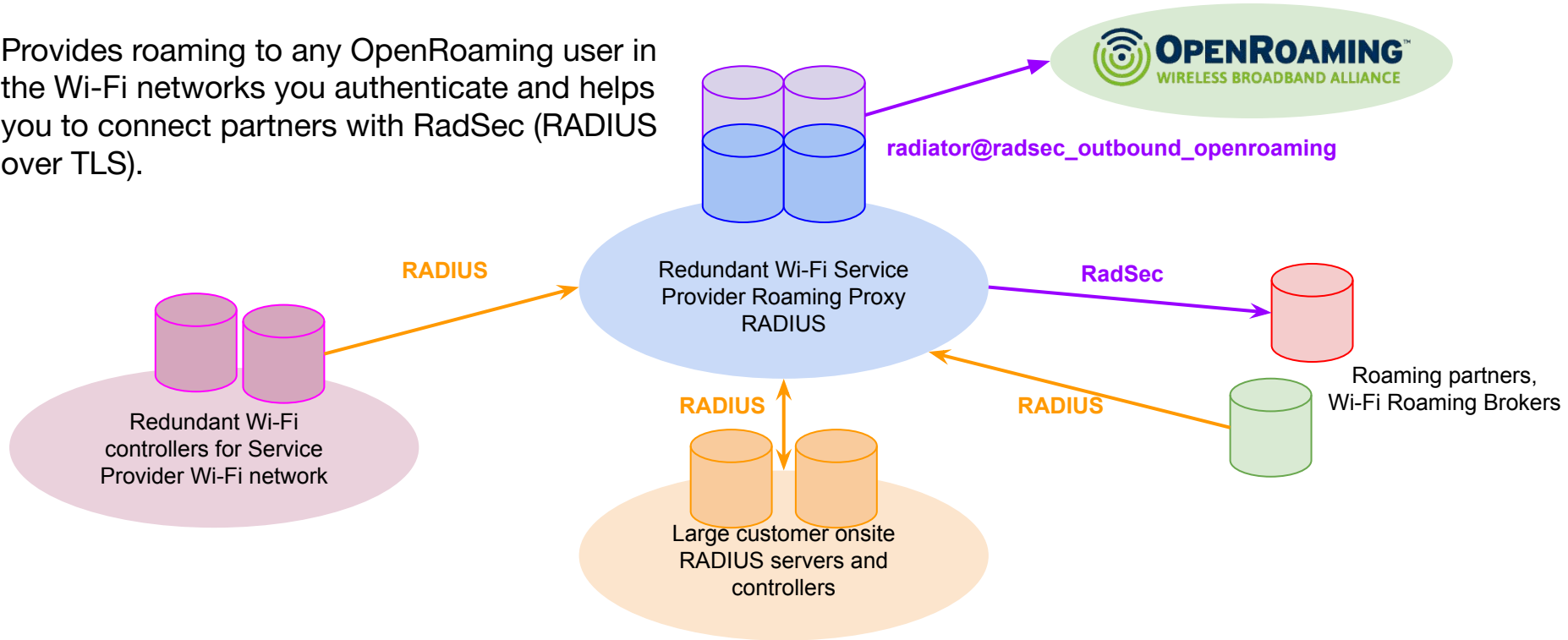


# Existing Service Provider RADIUS infrastructure



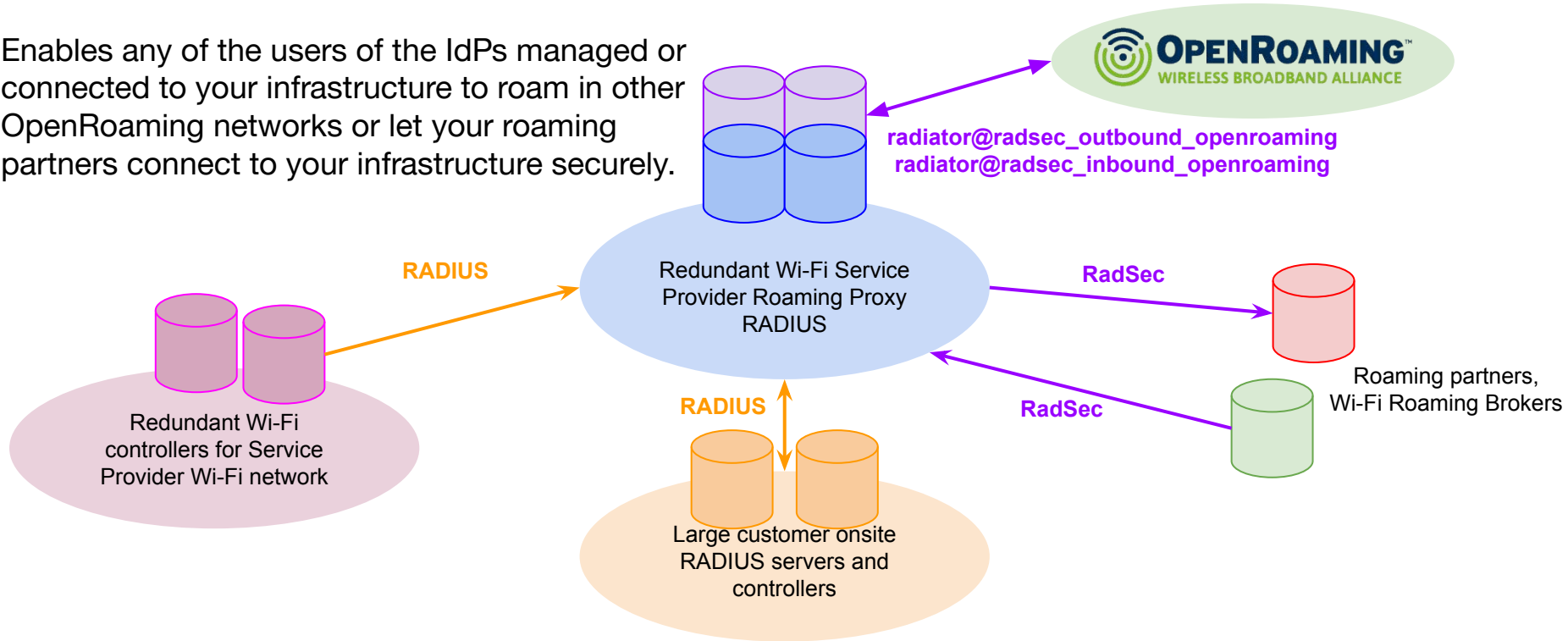
# Outbound OpenRoaming ([radiator@radsec\\_outbound\\_openroaming](mailto:radiator@radsec_outbound_openroaming))

Provides roaming to any OpenRoaming user in the Wi-Fi networks you authenticate and helps you to connect partners with RadSec (RADIUS over TLS).



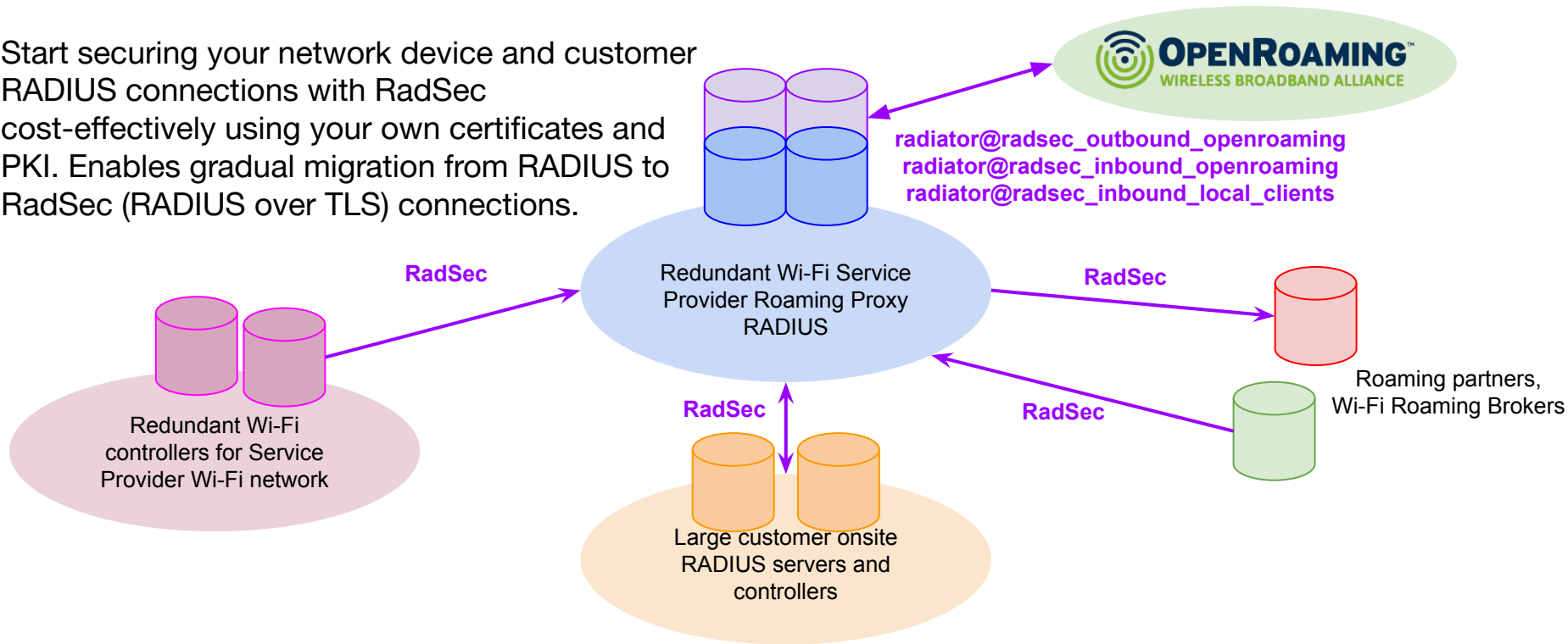
# Inbound OpenRoaming ([radiator@radsec\\_inbound\\_openroaming](mailto:radiator@radsec_inbound_openroaming))

Enables any of the users of the IdPs managed or connected to your infrastructure to roam in other OpenRoaming networks or let your roaming partners connect to your infrastructure securely.



# Inbound local RadSec clients (radiator@radsec\_inbound\_local\_clients)

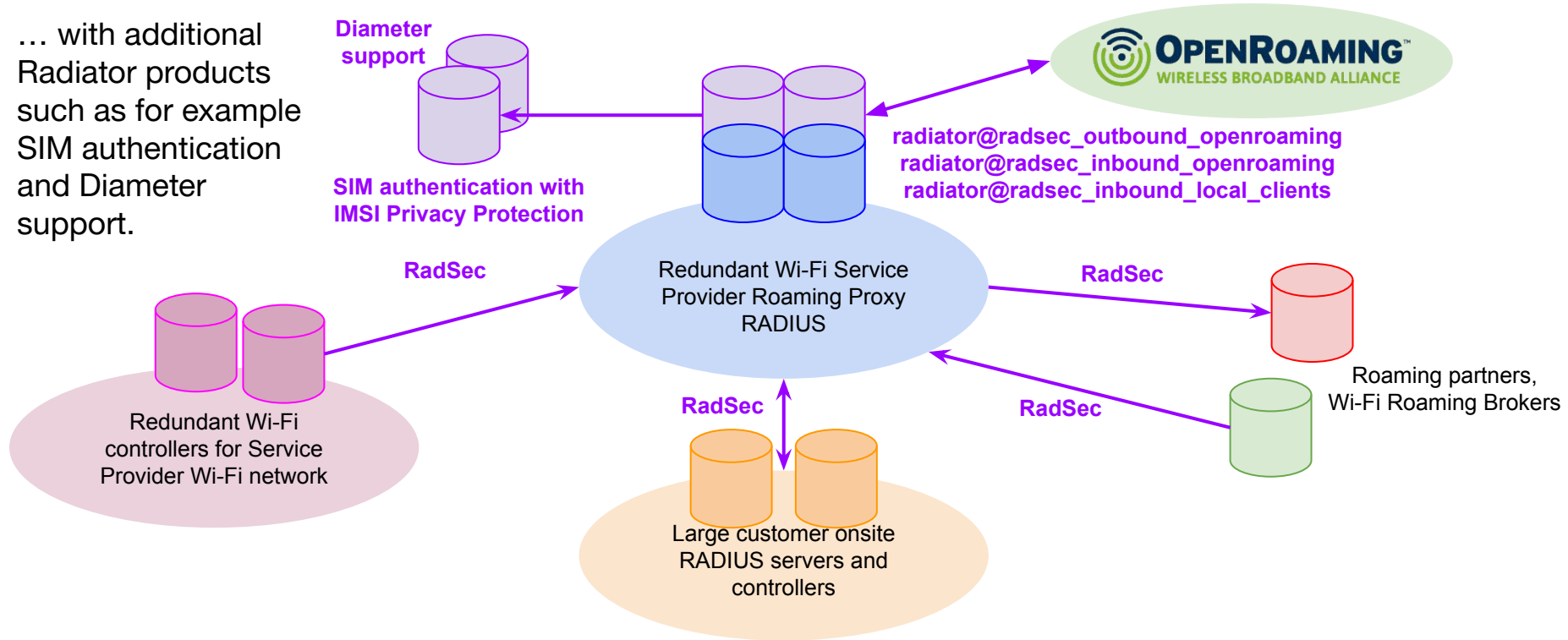
Start securing your network device and customer RADIUS connections with RadSec cost-effectively using your own certificates and PKI. Enables gradual migration from RADIUS to RadSec (RADIUS over TLS) connections.





# Extend your AAA infrastructure even further...

... with additional Radiator products such as for example SIM authentication and Diameter support.



# Radiator OpenRoaming Configuration Repository and Guide

- Template configuration and configuration guide freely available in: <https://github.com/radiator-software/radiator-openroaming>
- Can complement or replace existing RADIUS infrastructure
- Is extendable with other Radiator products such as for example Radiator SIM Pack, Service Provider Pack and/or Policy and Charging Pack
- Fully supported and extendable with Radiator Support and Expert Services.
- Please contact [sales@radiatorsoftware.com](mailto:sales@radiatorsoftware.com) for more information.



# IETF standardisation and Radiator roadmap

status update



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# IETF standardisation

- New working group (radext): <https://datatracker.ietf.org/wg/radext/about/>
- The work items and the immediate goals of the RADEXT working group are:
  - Deprecating the use of insecure transports outside of secure networks. This work updates [RFC 6421](#).
  - Bring [RFC 6614](#) (RADIUS/TLS, RadSec), and [RFC 7360](#) (RADIUS/DTLS) to Standards track.
  - Define best practices for using TLS-PSK with TLS-based transport.
  - Define best practices for RADIUS roaming, and roaming consortia based on experience with RADIUS/TLS.
  - Improve operations for multi-hop RADIUS networks: e.g. loop detection and prevention, a multi-hop Status-Server equivalent with ability to trace the proxy steps a RADIUS message will follow.
  - Extend the 8-bit RADIUS ID space to allow more than 256 "in flight" packets across one connection.
  - Allow for CoA / Disconnect packets to be sent in "reverse" down a RADIUS/TLS or RADIUS/DTLS connection. This functionality assists with transit of NATs.
  - Defining [Application-Layer Protocol Negotiation \(ALPN\)](#) extensions for RADIUS/TLS and RADIUS/TLS which allow the use of those transports in a FIPS-140 compliant environment.
- Timeline:
  - Much of this work should be completed by 2024 in order to be part of the Wi-Fi 8 release, with products in 2026.



# IETF and Radiator Software

- We participate in the [radext](#) and [emu](#) working group work as well as implement selected drafts and standards in Radiator.
- Existing and ongoing implementations:
  - [RFC 9190](#) defines updates for using EAP-TLS with TLSv1.3
  - [draft-ietf-emu-tls-eap-types-13](#) for using TLSv1.3 with EAP-FAST, EAP-TTLS and TEAP
  - TLSv1.3 for PEAP, EAP-TLS and EAP-TTLS is already implemented in Radiator 4.27.

# IETF and Radiator Software

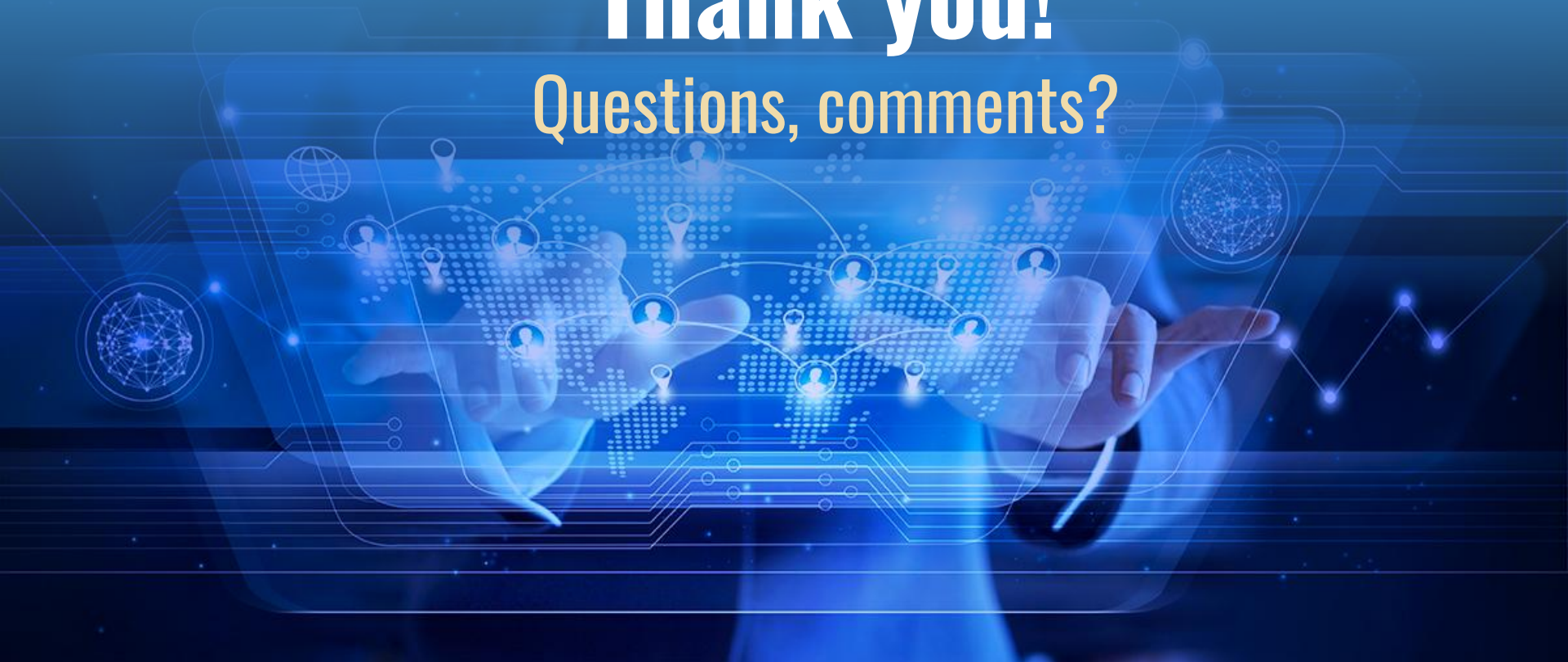
- Ongoing participation and implementation work:
  - [RFC 7170](#) Tunnel Extensible Authentication Protocol (TEAP)
  - RFC 6614 RadSec update: Transport Layer Security (TLS) Encryption for RADIUS
  - RADIUS encryption and FIPS compliance enhancements, efficiency updates: RADIUS Version 1.1
  - Guidance for using pre-shared keys as an alternative for certificates with (D)TLS: RADIUS and TLS-PSK
- For more information:
  - <https://blog.radiatorsoftware.com/2023/04/whats-next-after-ietf-116-for-radiator.html>



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# Thank you!

## Questions, comments?





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