

IEEE 802.11 Accounting Extensions

Date: 2013-05-10

Authors:

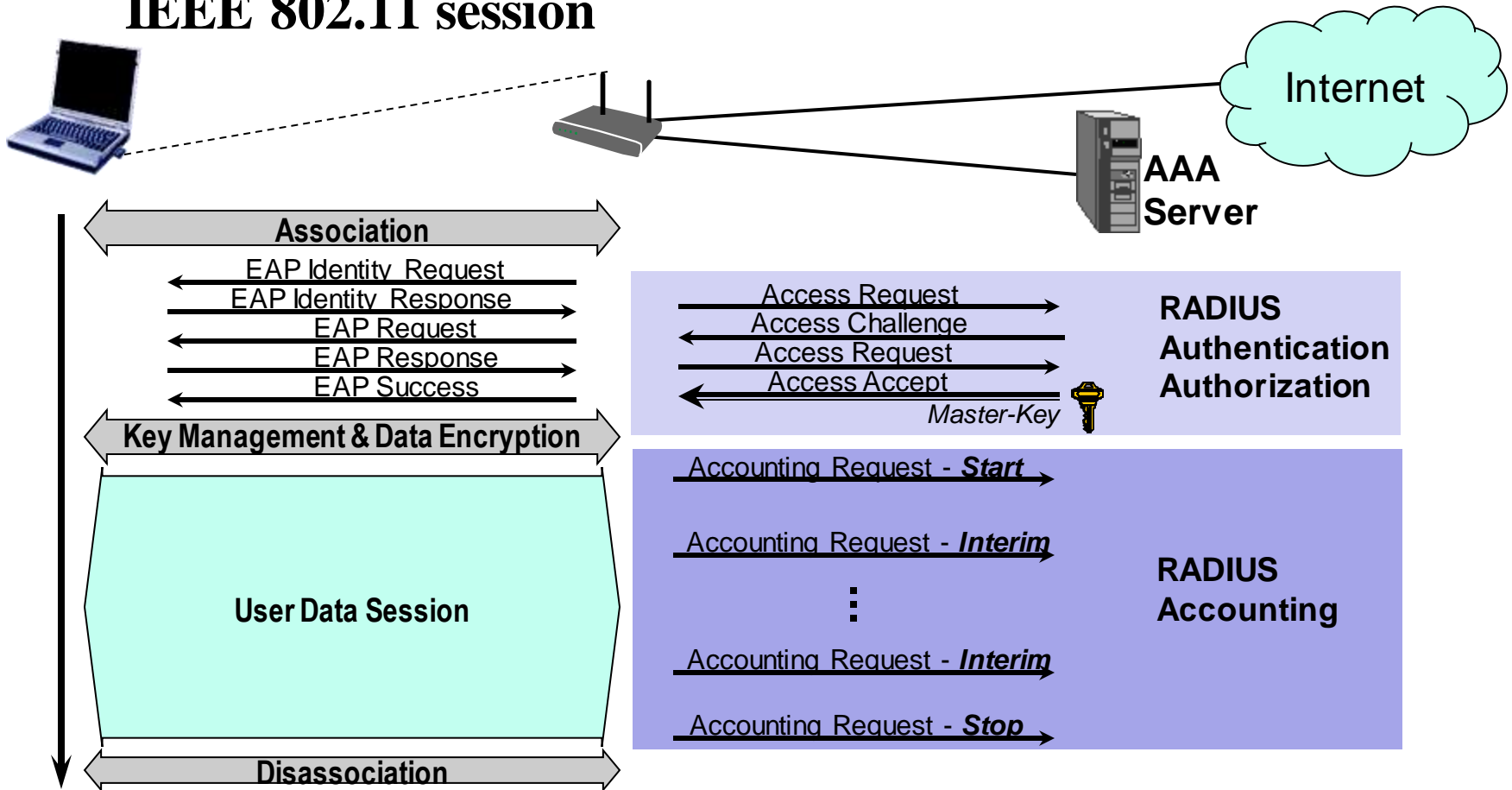
Name	Affiliations	Address	Phone	email
Max Riegel	NSN	St-Martinstr 76, Munich 81541, Germany	+49 172 293 8240	maximilian.riegel@nsn.com

Abstract

This presentation proposes extensions to the existing RADIUS accounting attributes to retrieve and forward to service providers better information about the service delivered by an IEEE 802.11 wireless link.

What is RADIUS Accounting?

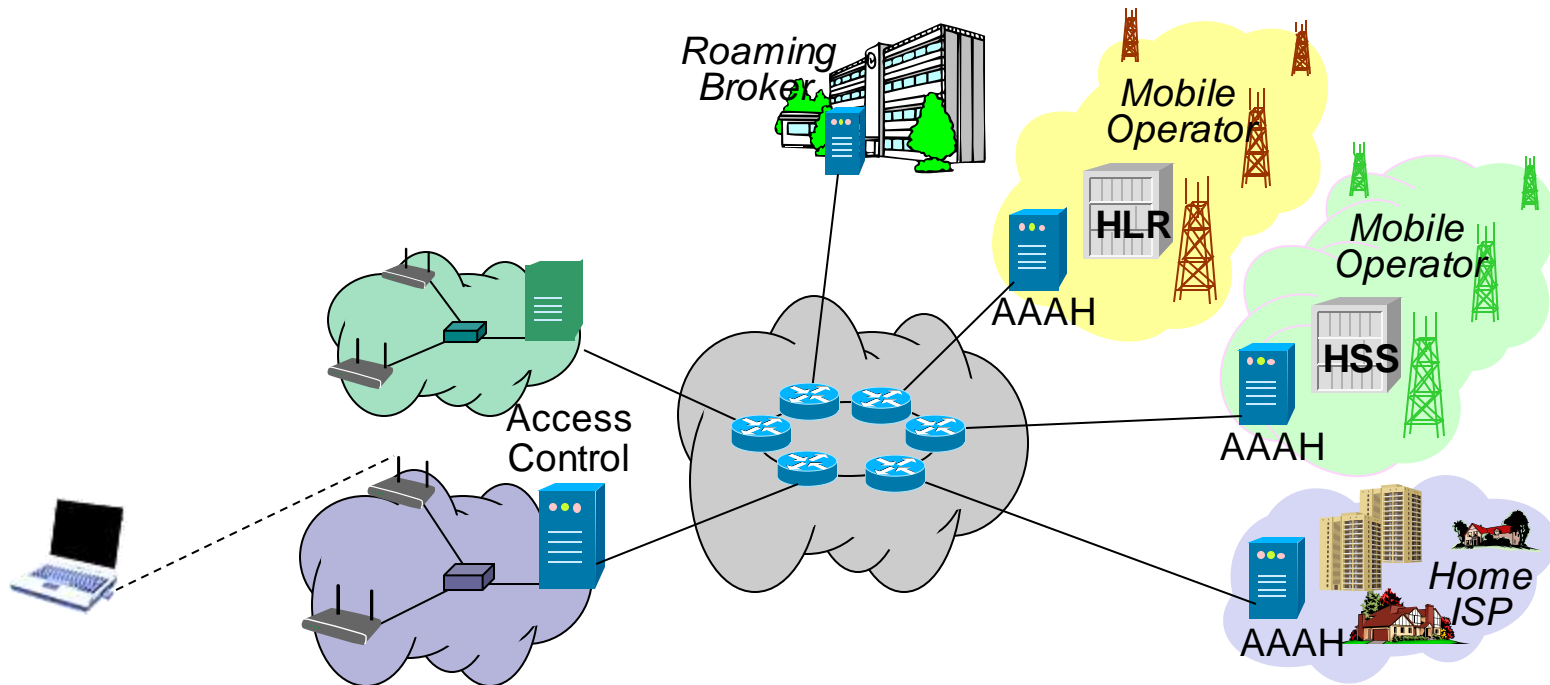
RADIUS accounting reports about the usage of an IEEE 802.11 session



Where is RADIUS Accounting used?

Subscriber Hotspot Operators

Service Providers



- **Subscriber specific service monitoring in IEEE 802.11**
- **Usage information for Wi-Fi roaming business**

What kind of information is available today?

- RADIUS Accounting attributes are specified in RFC2866 and RFC2869 with IEEE 802 specific interpretations in RFC 3580.
- Location information within RADIUS Accounting is specified in RFC 5580.

RFC 2866	
Type	Attribute
40	Acct-Status-Type
41	Acct-Delay-Time
42	Acct-Input-Octets
43	Acct-Output-Octets
44	Acct-Session-Id
45	Acct-Authentic
46	Acct-Session-Time
47	Acct-Input-Packets
48	Acct-Output-Packets
49	Acct-Terminate-Cause
50	Acct-Multi-Session-Id
51	Acct-Link-Count

RFC 2869	
Type	Attribute
52	Acct-Input-Gigawords
53	Acct-Output-Gigawords

RFC 5580	
Type	Attribute
127	Location-Information
128	Location-Data
129	Basic-Location-Policy-Rules
130	Extended-Location-Policy-Rules

What is the Issue with the current Accounting Attributes?

- **All bits are treated equally!**
... which may be valid for wired links.
- **However there is a huge variation of link behavior in IEEE 802.11**
- **From a user perspective (and from a business perspective) it makes a difference, whether bits are delivered over an error-prone 1 Mbps link or an error-free 300 Mbps link.**
- **RADIUS Accounting currently is not able to report anything about the IEEE 802.11 link characteristics.**
- **It would be desirable to include IEEE 802.11 link attributes into accounting records.**
 - Which ones?

Link Information in IEEE 802.11

- **(Much) More comprehensive information would be available in IEEE 802.11 by making use of the defined MAC counters**
- **Even more when taking into account the STA Statistics Report, introduced by IEEE 802.11k and IEEE 802.11v**
- **Probably much too much to make an appropriate choice easy.**



Practicalities of Defining RADIUS Attributes

- **RADIUS Attributes are usually defined by the IETF**
 - ...when the attributes do not touch MAC or PHY layer issues or specific network knowledge is required.
- **RADIUS Attributes may be defined by other SDOs, making use of the vendor-specific extension fork.**
- **When defining IEEE 802.11 link specific RADIUS Attributes, both approaches would be possible**
 - Using a ‘vendor-specific’ extension to the attribute space
 - Cooperating with IETF RADEXT on creating an RFC on it

Conclusion

- **IMHO, it would make sense to define a couple of IEEE 802.11 link specific accounting attributes to get better reporting of service quality in Wi-Fi hotspots.**
- **Open issue: how to select the small number of attributes, which really make sense from a service quality perspective?**
- **Questions and Comments?**