networkRADIUS

OP IMP EXP

OPERATIONAL AND IMPLEMENTATION EXPERIENCE

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OPERATIONAL AND IMPLEMENTATION EXPERIENCE

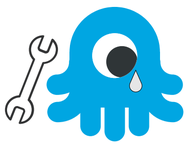
- Review of what we have versus what we want
- Concentrating on Open Source and Eduroam
  - This information is widely available.
  - Harder to find information about commercial products
- With some public information on commercial vendors
  - More participation from commercial vendors would help a lot

RADIUS/TLS

- Not as widely used as it could be. Why?
  - radsecproxy has a limit of one connection per home server
  - FreeRADIUS had issues (recently fixed) with blocking
  - Radiator, Cisco, Nokia implement it, NPS does not
- Supported in some NAS equipment
  - Cisco, Aruba, Aerohive, …

RADIUS/DTLS

- Much less used
  - radsecproxy has the single connection issue
  - FreeRADIUS does not implement it
  - Cisco ISE, others are unknown
- Supported in some NAS equipment
  - Cisco switches, others are unknown



TLS OPERATION

- Much of roaming is still RADIUS/UDP
- TLS-PSK is essentially unused
- TLS certificates are hard to get
  - Misleading CAs is wide-spread practice
- TLS certificates are hard to manage
  - How did we renew them last time? What's the process?

ROAMING IS OFTEN STILL UDP

- Much of Eduroam is still UDP
  - See previous comments on TLS / DTLS implementations
- OpenRoaming uses TLS, and RFC 7585 dynamic discovery.
- Many roaming providers use IPSec.
- “RADIUS in the cloud” providers are almost entirely UDP
- Most roaming uses TLS-based EAP methods, but anything else is “in the clear”

TLS-PSK

- Essentially not implemented
- RFC 6614 or RFC 7360 suggest it, but say nothing about identities
  - It looks like NAS vendors went “We don’t know what to do, and the specs don’t give guidance, so we’ll just ignore TLS-PSK”
- Implementation?
  - FreeRADIUS. Not radsecproxy
  - Commercial vendors ???

TLS CERTIFICATES AND MANAGING THE CA

- The CA forum is the CA / *Browser* forum
  - Web-specific
  - Essentially impossible to get certificates with non-WWW OIDs
  - RADIUS admins just say “yes, this is for a web server”
- Private CAs are hard to manage
- No one has $1B to create a new global CA for RADIUS / EAP / …

TLS CERTIFICATES ARE HARD TO MANAGE

- It's hard enough to get shared secrets correct:
  - Log says "**`Please check shared secret`**". *What could that possibly mean?*
- Certificates expire
  - Who requested it last time? From where?
  - Configuring supplicants is hard, too
    - Many of them just ignore the server certificate and often the CA

HOW TO FIX THESE PROBLEMS?

- Mandate good behavior
- Describe how to do it
- Implement missing functionality