Update on BRSKI with Pledge in Responder Mode (BRSKI-PRM)

draft-ietf-anima-brski-prm-08

Repo URL: https://github.com/anima-wg/anima-brski-prm

Steffen Fries, Thomas Werner, Elliot Lear, Michael Richardson

Shepherd: Matthias Kovatsch

IETF 116 – ANIMA Working Group

BRSKI-PRM Status
History of main changes 05→ 06

- Issue #67, shortened the pledge endpoints to prepare for constraint deployments
- Included table for new registrar endpoints in section 5.3
- Addressed review comments from SECDIR early review (mainly editorial improvements)
- Addressed review comments from IOTDIR early review (Update of return codes in case of errors, terminology clarifications, consequent use of normative language, editorial improvements, update of references)

BRSKI-PRM Status
History of main changes 06→ 07 → 08

- WGLC resulted in a removal of the voucher enhancements completely from this document to RFC 8366bis, containing all enhancements and augmentations of the voucher, including the voucher-request as well as the tree diagrams
- Resolved editorial issues discovered after WGLC (still open issues remaining see next slide)
- Resolved comments from the Shepherd review as discussed in PR #85 on the ANIMA github (editorial, terminology alignments)

BRSKI-PRM
Open Issues collected after WGLC

- Discovery related issues
  - #79 discovery of registrar with BRSKI-PRM function set (DNS-SD subtypes vs. text parameters)
  - #80 pledge discovery using GRASP? → Alternative to be stated but ot-of-scope for the draft

- Interaction Pledge and Registrar-agent (and Infrastructure)
  - #81 Additional text to motivate and explain usage of agent-signed data
  - #82 Enhance text explaining that IDevID cannot be used as TLS server certificate
  - #87 Available information on registrar-agent (serial number sufficient, avoid requirement for IDevID CA certificates)
  - #88 IDevID certificate chain in PVR (omitted to address constraint environments)

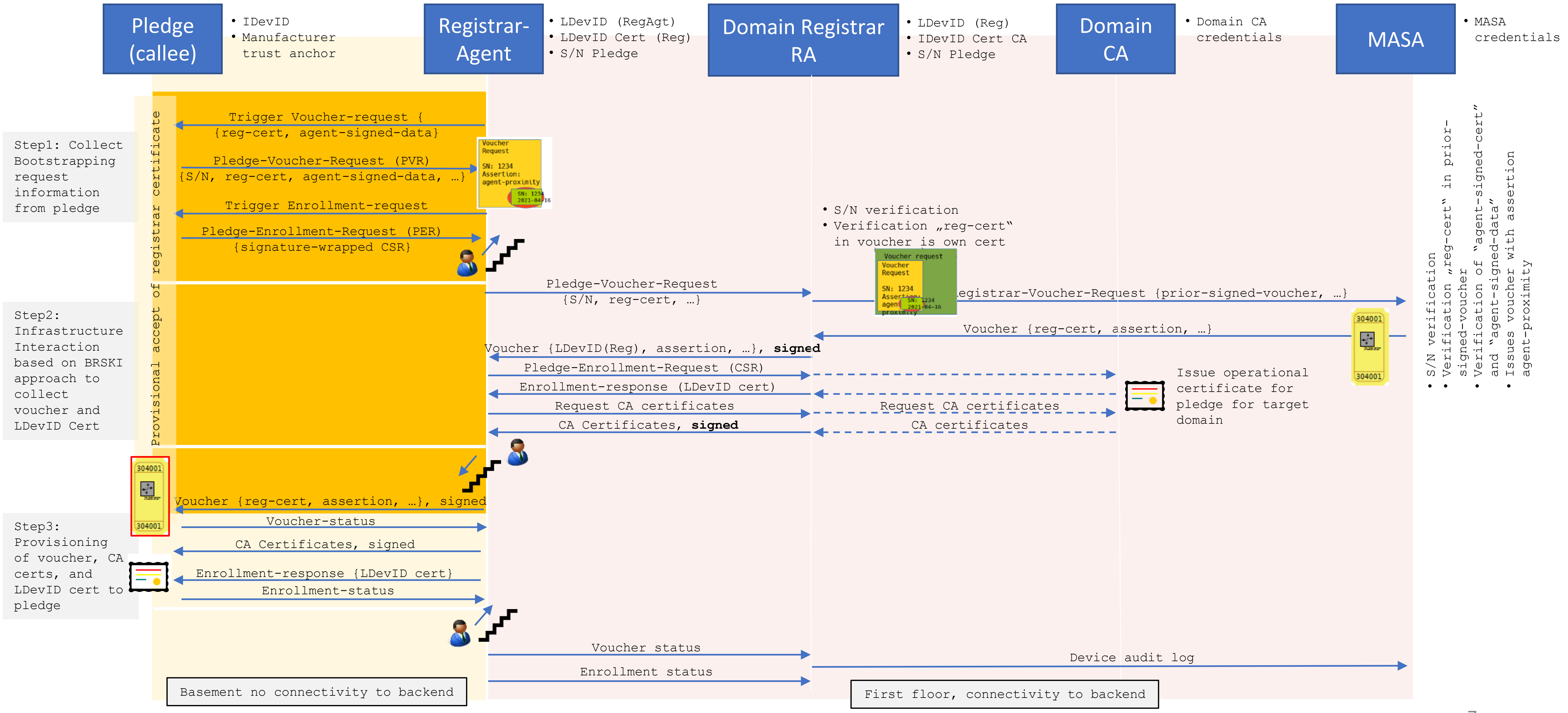
BRSKI-PRM Open
Issues collected after WGLC (cont.)

- Interaction Registrar-agent and Registrar
  - BRSKI-PRM assumes the registrar can distinguish LDevID (registrar-agent) vs. IDevID (pledge) also on existing endpoints→ proposal to keep this handling
  - #84 use of registrar endpoints for responder vs. initiator mode
  - #86 pledge/registrar recognition based on credential
  - #91 PER processing (refer to handling as in BRSKI to sent PVR and PER over the same connection)
  - #83 Clarify re-enrollment support in BRSKI-PRM (current focus initial enrollment)
  - #92 Necessity for new registrar enrollment endpoint
- Voucher Request and Voucher
  - #89 Naming: agent-proximity vs. agent-invited (or similar)
  - #90 Concept of second signature on voucher

BRSKI-PRM Status
Next Steps

- Address open issues (see ANIMA git)
- Restructure section 5 and 6 for better readability and understanding
- Interop testing with others welcome ☺,
  PoC implementations of all components available, please get in touch
- Finalization of document, shepherd writeup

Backup: BRSKI-PRM – Abstract Protocol Overview



Pledge (callee)
- IDevID
- Manufacturer trust anchor

Registrar-Agent
- LDevID (RegAgt)
- LDevID Cert (Reg)
- S/N Pledge

Domain Registrar RA
- LDevID (Reg)
- IDevID Cert CA
- S/N Pledge

Domain CA
- Domain CA credentials

MASA
- MASA credentials

Provisional accept of registrar certificate

Step1: Collect Bootstrapping request information from pledge

Trigger Voucher-request {
{reg-cert, agent-signed-data}

Pledge-Voucher-Request (PVR)
{S/N, reg-cert, agent-signed-data, …}

Trigger Enrollment-request

Pledge-Enrollment-Request (PER)
{signature-wrapped CSR}

Step2: Infrastructure Interaction based on BRSKI approach to collect voucher and LDevID Cert

Pledge-Voucher-Request
{S/N, reg-cert, …}

- S/N verification
- Verification „reg-cert" in voucher is own cert

Registrar-Voucher-Request {prior-signed-voucher, …}

Voucher {reg-cert, assertion, …}

- S/N verification
- Verification „reg-cert" in prior-signed-voucher
- Verification of "agent-signed-cert" and "agent-signed-data"
- Issues voucher with assertion agent-proximity

Voucher {LDevID(Reg), assertion, …}, **signed**

Pledge-Enrollment-Request (CSR)

Enrollment-response (LDevID cert)

Issue operational certificate for pledge for target domain

Request CA certificates

Request CA certificates

CA Certificates, **signed**

CA certificates

Step3: Provisioning of voucher, CA certs, and LDevID cert to pledge

Voucher {reg-cert, assertion, …}, signed

Voucher-status

CA Certificates, signed

Enrollment-response {LDevID cert}

Enrollment-status

Voucher status

Enrollment status

Device audit log

Basement no connectivity to backend

First floor, connectivity to backend