SIP URI Service Discovery using DNS-SD

draft-lee-sip-dns-sd-uri-00

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DNS-SD/mDNS Overview

- DNS-Based Service Discovery (DNS-SD) adds a level of indirection to SRV using PTR:

```
_sipuri._udp.local. PTR  sip:bob@a.com._sipuri._udp.local.
_sipuri._udp.local. PTR  sip:joe@a.com._sipuri._udp.local.

sip:bob@a.com._sipuri._udp.local.
                    SRV  0 0 5060  bobs-host.local.
sip:bob@a.com._sipuri._tcp.local. TXT
  txtvers=1 name=Bob contact=sip:bob@bobs-
  host.local
```

  - PTR used for directory listings only
- Multicast DNS (mDNS)
  - Run by every host on a local link
  - Queries & answers are sent via multicast

Comparison: SIP multicast

- REGISTER only, not INVITE
- UAs can track peer locations using multicast REGISTER
- No query capability
  - new UA won't discover existing UAs until their registrations are refreshed (up to an hour delay)
  - not reliable - may miss registrations

SIP URI Advertisement

- Service instance name: *Instance.Service.Domain*
  - *Instance* = (SIP-URI / SIPS-URI) [SP description]
  - *Service* = “_sipuri._udp” / “_sipuri._tcp” / “_sipuri._sctp”
  - E.g.) sip:bob@example.com - PDA._sipuri._udp.local.
- *Contact* TXT record attribute
  - Similar to Contact SIP header except:
    - It contains only a single URI
    - Non-SIP URIs are not allowed
  - UA capabilities advertised via field parameters (RFC3840)

User Agent Client Behavior

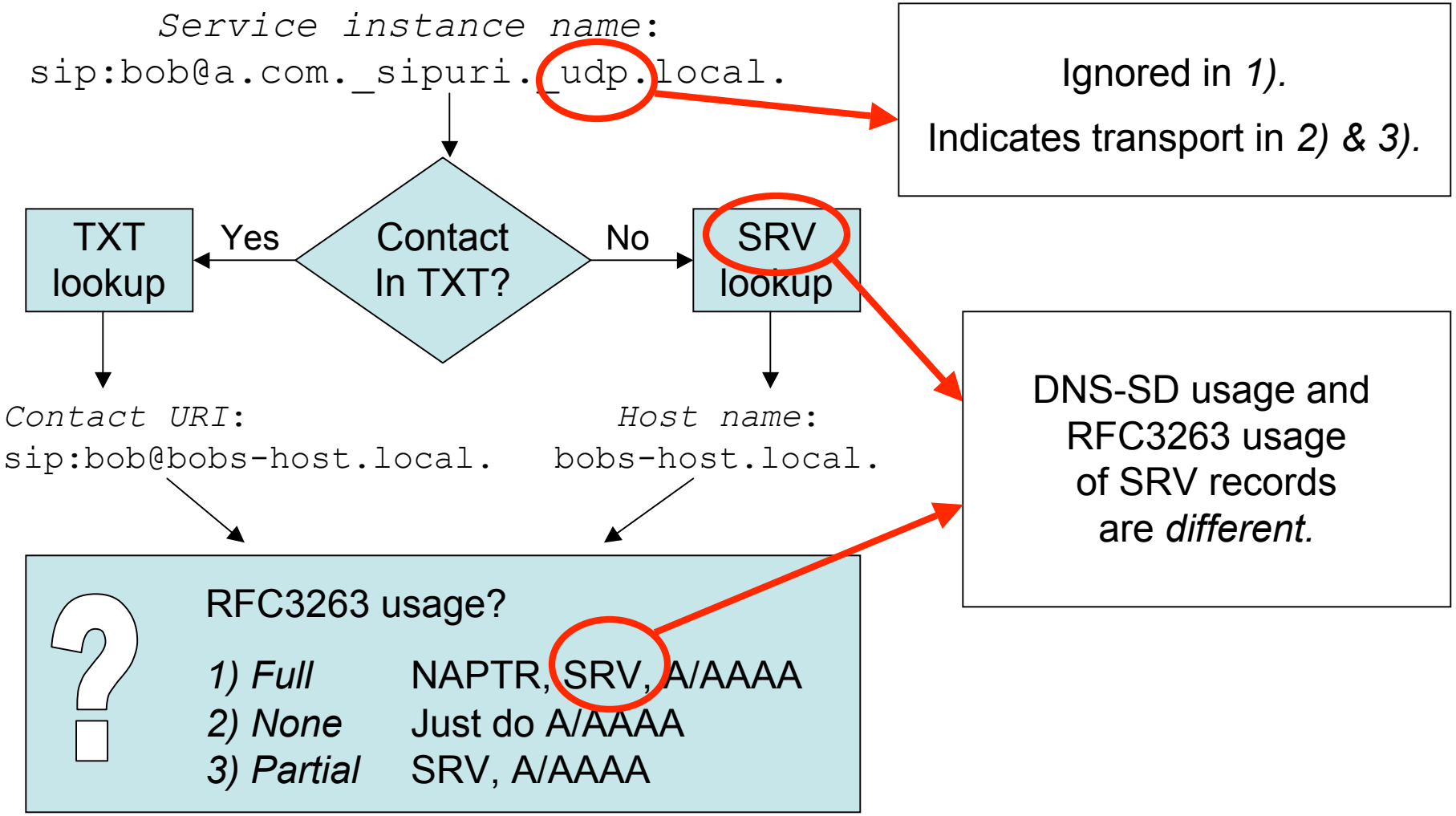
- "To" header
  - SIP/SIPS URI from service instance name (normally AOR)
- Request-URI
  - SIP/SIPS URI from contact attribute if available, otherwise same as "To" header (*changed from I-D)*
- Open issue: determining request destination
  - *3 possibilities of RFC3263 compliance:*

1) *Full*: resolve (TXT) contact URI according to RFC3263

2) *None*: IP address determined from DNS-SD records (SRV, A)

3) *Partial*: skip NAPTR, but do SRV lookup (_sip.)

Open Issue: Request Destination



Pros and Cons

	Pros	**Cons**
1) Full	•Conceptually clean (DNS-SD replaces proxy/registrar) •Full flexibility of RFC3263	•NAPTR & SRV overkill for common local settings •Tweaked use of DNS-SD
2) None	•Simple •Normal DNS-SD usage	•May not work for complex SIP deployment scenarios
3) Partial	•A compromise	•A compromise

Other Open Issues

- Transport label ("_tcp" or "_udp") in service instance name
  - DNS-SD treats it as boilerplate text, not as an indication of desired transport
  - Advertising under one "primary" transport (as DNS-SD specifies) is inconsistent with SRV usage of RFC3263
- "_sip" service type currently used by Asterisk
  - Server advertisement rather than user advertisement
  - Further investigation/collaboration needed