

Web Service Discovery

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Comodo Security Solutions

Requirements

- Discovery of Web Service endpoints for FOO service by
 - DNS Name “example.com”
 - Account identifier alice@example.com
- Convert to Web Service Endpoint
 - <http://example.com/SOMETHING-UNIQUE-TO-FOO>
 - <https://example.com/SOMETHING-UNIQUE-TO-FOO>
- If a service is implemented by more than one host
 - Go to the host that provides the service flavor we need.

Constraints

- Work within existing DNS infrastructure (only use widely supported records)
- Allow for (limited) service description
 - Information a service might like to know before it starts transport security

RFC 6763 Service discovery

- Constrains design space (great) does not specify single approach
 - Does not fully describe Web service interaction.
- Prefixed records to specify service and description:
 - SRV – specifies the service with support for failover
 - TXT – allows for service description
- Does not:
 - Fallback strategy for when client cannot obtain full DNS access
 - Differentiate host vs service parameters (but implementations can)

Proposed approach

- Use SRV/TXT records as preferred mechanism
 - SRV records defines the set of hosts providing service
 - TXT records prefixing service address describe service
 - TXT records prefixing host address describe specific host
- Fallback to <service>.<domain>
 - Use .well-known/wks/<service> to complete endpoint.
- Last chance <domain>

Example: alice@example.com

```
_mmm._tcp.example.com SRV host1.example.com 0 10 80 host1.example.com
_mmm._tcp.example.com SRV host2.example.com 0 40 80 host2.example.com
_mmm._tcp.example.com TXT "version=1.0-2.0"
mmm.example.com CNAME host3.example.com
host1.example.com A 10.0.1.1
host2.example.com A 10.0.1.2
_mmm._tcp.host2.example.com TXT "path=/service"
host3.example.com A 10.0.1.1
host3.example.com A 10.0.1.2
```

Ways forward

- Depends on extent of service description standardization
- If we are standardizing only PATH/VERSION/Encoding tags
 - Approach is 90% constrained by RFC 6763
 - Just make draft consistent & sensible
- If we want to standardize anything else... it gets complicated