A well-known URL for publishing ECHConfigLists

https://datatracker.ietf.org/doc/draft-ietf-tls-wkech/

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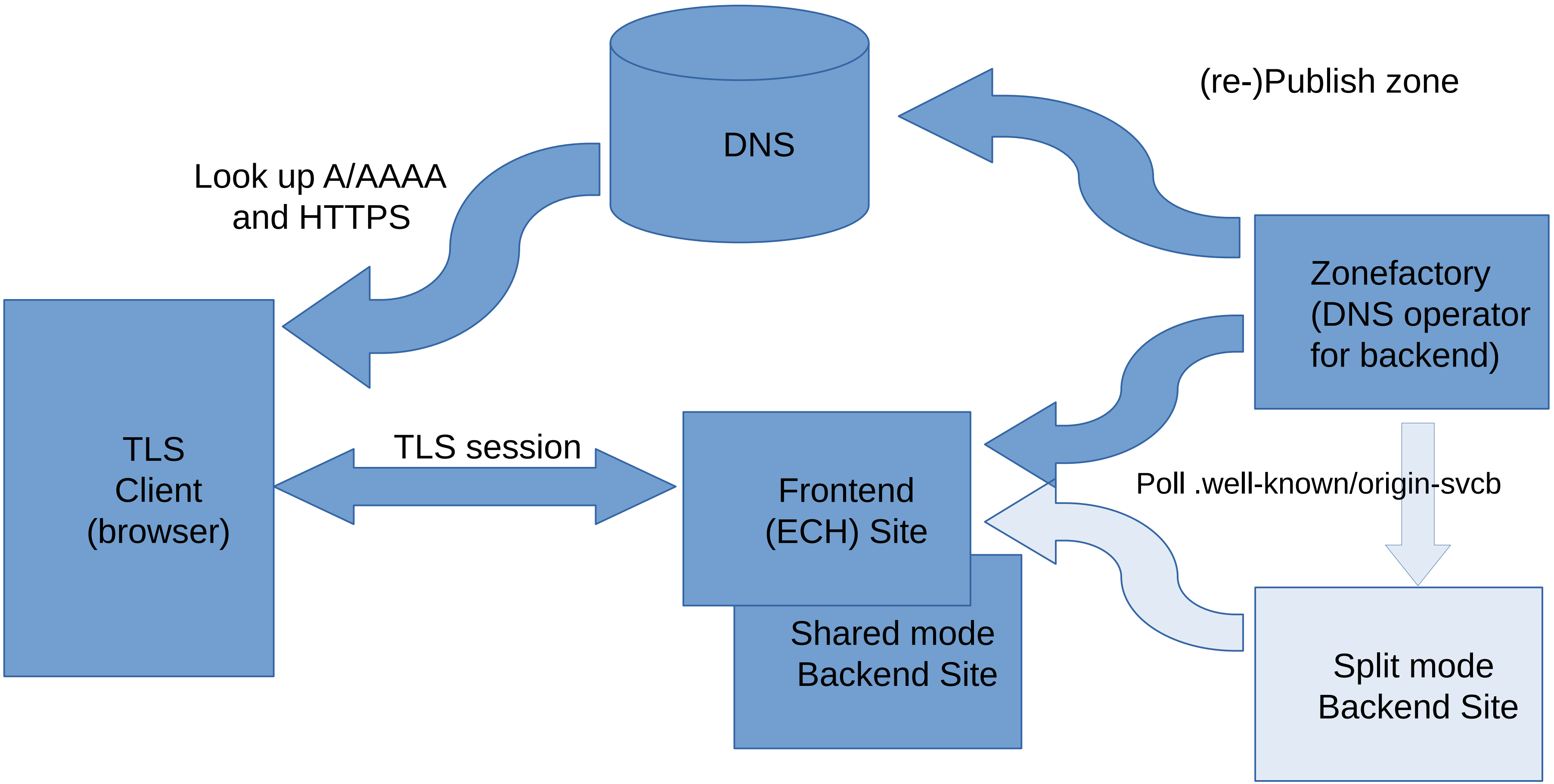
Summary

- ECH keys are **updated regularly** (hourly, but that doesn’t matter here...)
- Some DNS setups won’t use DDNS or provide an API the ECH-enabled frontend (aka the ECH public_name) can use to write to DNS for the backend (aka the “inner” SNI)
- There is a “zonefactory” machine (for the backend) that knows the names of the backend servers and polls those for new ECHConfigLists
  - When it finds new keys it tests those work and if so modifies zone file and re-publishes the backend’s DNS zone
- The situation benefits from a .well-known URL so this aims to specify that

Picture


DNS
Look up A/AAAA
and HTTPS
(re-)Publish zone
Zonefactory
(DNS operator
for backend)
TLS
Client
(browser)
TLS session
Frontend
(ECH) Site
Shared mode
Backend Site
Poll .well-known/origin-svcb
Split mode
Backend Site

Example

URL:

```
https://example.com/.well-known/origin-svcb
        ^^^
        To be used as “inner” SNI later
```

JSON Response ...

```
{ “endpoints”: [ {
        "regeninterval": 1800,
        “priority”: 1,
        "port": 8413,
        "echconfiglist": "AQD+DQA8AgAg..."
} ] }
```

Or

{ “alias”: “cdn.example.net~~:443~~” }

Changes

- -02 was a keep-alive
- Just one substantive change in -03
  - Added “regeninterval” to JSON
- Added (still incomplete) bash implentation to git repo
  - That’s raising issues, so this is more a work-in-progress than -00 was:-)

Issues

- If the SVCB RR ECH stuff becomes a TLS draft should this content be merged with that?
  - Probably not, but worth asking
- https://github.com/sftcd/wkesni/issues
  - We have slides for a few of those that may be worth chatting about

Issue#1

- https://github.com/sftcd/wkesni/issues/1
- $ORIGIN may want to say which alpn values to use in an HTTPS RR
  - Recall: those’d end up as inner alpn values in ECH, outer alpn values (if supported in future) would be inside the ECHConfigList
- We should probably say how to support that

Issue#11

- https://github.com/sftcd/wkesni/issues/11
- Validation – a set of SHOULD statements?
  - For “endpoints” – explode the ECHConfigList into singletons and check each one works for $BACKEND via $ORIGIN
    - May need a “special” ECH client that takes ECHConfig as input
  - For “alias” – check ECH works for $BACKEND via $ORIGIN
- In any case require a client that says if ECH worked
- What URL to use to check?
  - Maybe just our .well-known?

Issue#12

- https://github.com/sftcd/wkesni/issues/12
- https://$ORIGIN/.well-known/origin-svcb doesn’t work if multiple servers share a DocRoot but have different ECH settings
- I do that in my test setup currently but it’s probaby a corner case
- Does that need to be handled?
  - If so, could use https://$ORIGIN/.well-known/origin-svcb/$ORIGIN.json

Issue#10

- https://github.com/sftcd/wkesni/issues/10
- What’s the right HTTPS RR qname and default targetName when port != 443?

Next Steps

- Get the bash implementation working then pop out -04 to match that

Other Issues, likely not discussed

Issue#9

- https://github.com/sftcd/wkesni/issues/9
- Should the JSON response allow e.g. an array of alias entries?

Issue#8

- https://github.com/sftcd/wkesni/issues/8
- Whether/How to handle split mode?
- Seems like $BACKEND can read from $FRONTEND and then serve JSON itself so probably nothing to do other than note that in text

Issue#2

- https://github.com/sftcd/wkesni/issues/2
- We need to think through caching when $ORIGIN uses 2 CDNs (and similar)