ACME @ IETF96

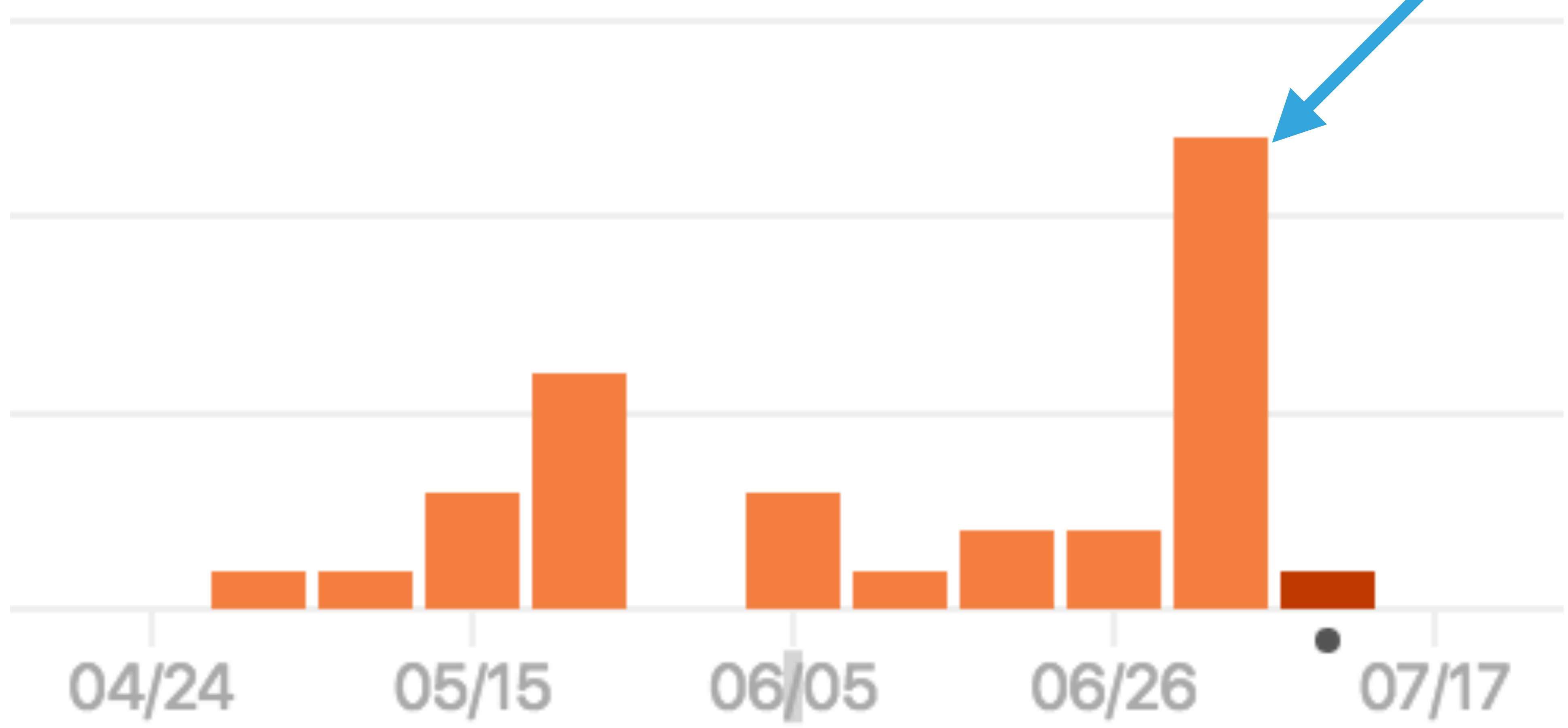
ACME-03

TO COVER TODAY

- Review of changes in -03
- A few open questions
- What do we need to get done before WGLC?

CHANGES IN -03

WE DID SOME STUFF!



This is a problem

- **27** pull requests
- Highlights…

SECURITY IMPROVEMENTS

- #154 - Clarify the impact of SSRF
- #150 - Make key-change depend on both new and old keys
- #147 - Change from ‘resource’ to ‘url’

URLS

- Where once there was “resource”, there is now “url”
- As we discussed, comparing URIs is non-trivial
- Current text mostly punts. Suggestions for how to do better?

> On receiving [a JWS] object in an HTTP request, the server **MUST compare** the “url" parameter to the request URI. If the two **do not match**, then the server MUST reject the request as unauthorized.

> Except for the directory resource, all ACME resources are addressed with URLs provided to the client by the server. In such cases, the client MUST set the "url" field to the exact string provided by the server (rather than performing any re-encoding on the URL).

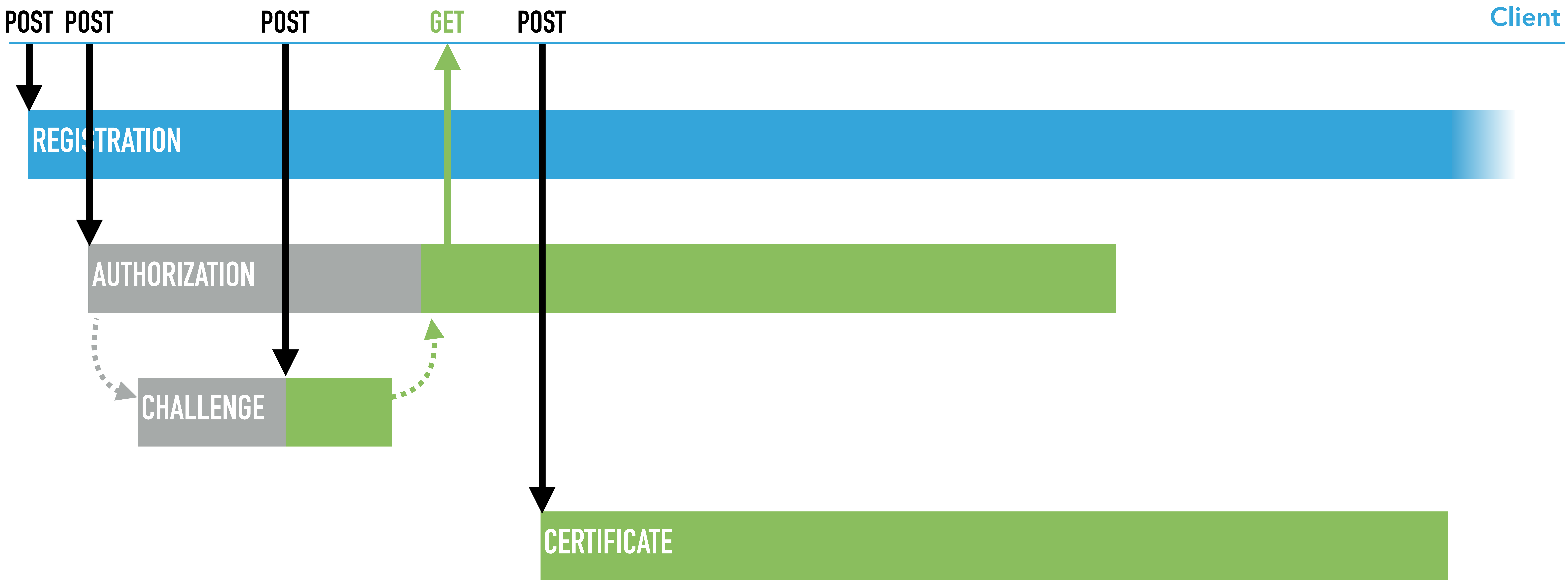
APPLICATIONS: GOALS

- Support a variety of CA issuance flows, e.g.:
  - CA specifying requirements only after CSR is submitted
  - Requiring re-authorization per issuance
- Enable the CA to have other requirements than domain validation
  - To give PHB his cash box
- These violate a number of current ACME assumptions

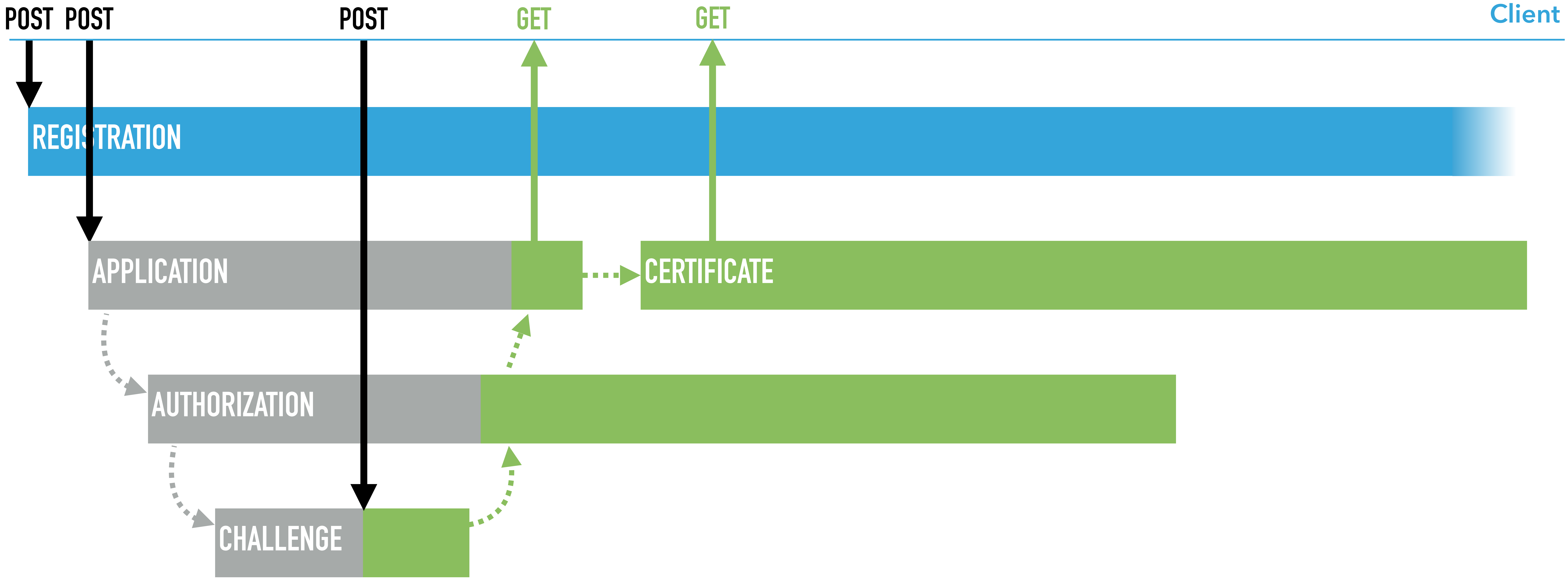
APPLICATIONS: APPROACH

- Instead of sending in the CSR as the last step, make it the first step
- CA can then respond with requirements, including:
  - Authorization: You need to prove you own $DOMAIN
  - Out-of-band: You need to go visit this website

APPLICATIONS: BEFORE



APPLICATIONS: AFTER



APPLICATIONS

- Work for client is about the same (save one POST)
  - If the server allows reusable authorizations, future applications can use them
  - Endless loops avoided by requiring server to state all requirements up front
- Server has to do a little more state tracking
- Current spec is a first draft, bunch of questions in the next section

OPEN QUESTIONS

#128 – INDICATE ACME VERSION IN DIRECTORY (OR ELSEWHERE?)

- Current: No in-band signaling of the version the server thinks it's speaking
  - Could be indicated, e.g., by using different URLs per version
- Might need some further thought
  - E.g., might be valid to use a v1 registration to do stuff in v2

Editor suggestion: **Discuss**

#157 – FETCH REGISTRATION RESOURCE

- Current: If a client attempts to re-register with the same key, return 409 Conflict
    - People are using this to retrieve the registration for a key
- Proposal: Return 200 instead of 409

Editor suggestion: **Fix as proposed**

#152 – REDUCE THE NUMBER OF OOB THINGS

- Current: Two out-of-band things:
  - “Requirement”: You must do this OOB thing before I will issue the certificate you requested
  - “Challenge”: You must do this OOB thing before I will consider you authorized for this identifier

Editor suggestion: **Drop** or **Remove OOB challenge**

#156 – UN-PARALLELIZE THE SIGNATURES IN THE KEY-CHANGE REQUEST

- Context: Want to change account key from oldKey to newKey
- Current: Message is (M, sig_old(M), sig_new(M)), where M=[oldKey, newKey]
  - Requires a multi-signed JWS, which is not supported by some libraries
  - Breaks the pattern of every POST being signed by a single key
- Proposed: sig_new(sig_old(M))

Editor suggestion: **Fix as proposed***

#156 – ECONOMIZE ON NONCES

- Current: Server MUST provide a “Replay-Nonce” header in each successful response
  - Assertion: This means that the server has to track a bunch of nonces
- Proposal: Restrict the requirement to POST responses, plus some sort of priming source (e.g., directory)

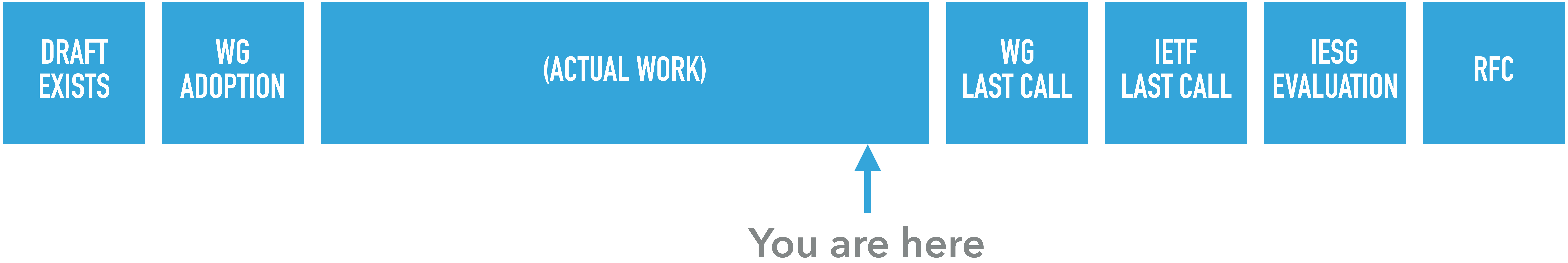
Editor suggestion: **Drop**

A FEW (UN-FILED) THINGS NOTED IN THE SPEC

- Details of applications
  - Should they require a request to “activate” / “buy”? (Optionally?)
  - Should they be modifiable?
  - Should they allow multiple CSRs / Certificates?
- Recovery: Declare really and finally gone?   Punt to a later extension?
- Should scoping of authorizations be more flexible?

WGLC PREP

IETF PROCESS REMINDER



DRAFT EXISTS

WG ADOPTION

(ACTUAL WORK)

WG LAST CALL

IETF LAST CALL

IESG EVALUATION

RFC

You are here

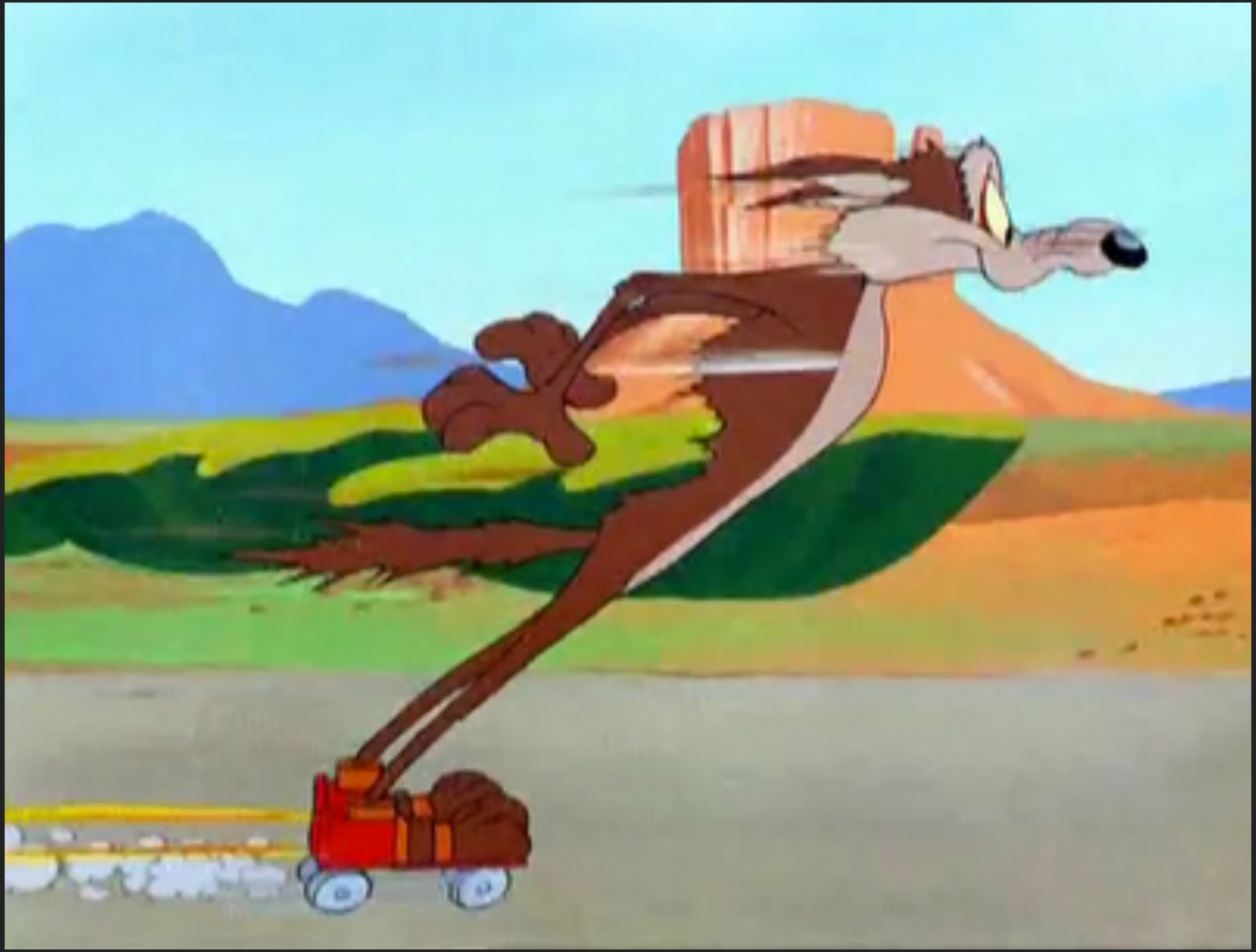
WGLC BLOCKERS

- Anything left from the previous section that we didn’t solve
- What else?
- Would like to have at least a couple of implementations of the latest spec

ROUGH TIMELINE

- Mid-August - “Implementation draft”
  - Implements agreements from this meeting
  - Baseline for implementors to get working
- September - See how implementation proceeds
  - Maybe a virtual interim if there are issues that come up?
- October - WGLC

ONE MORE THING



ROCKET-SKATES

- Since the I-D deadline, been working on an implementation of -03
- https://github.com/bifurcation/rocket-skates
- Currently very much a work in progress
  - Implements client and server side of the ACME transport layer (JWS, etc.)
  - Server side of the ACME logic is mostly complete
  - No client-side ACME logic, and no challenges yet
  - Comments / Issues / PRs / interop reports very welcome