Chrome Browser Update

CA/Browser Forum F2F 58
February 28, 2023

Agenda

- Chrome Root Program Updates
- Certificate Transparency Updates
- General Browser Updates

Chrome Root Program Updates

- Policy
- Application Process
- Reminder of Priorities (“Moving Forward, Together”)
- ACME Survey Results
- What’s Next?

Chrome Root Program Updates

- Latest Policy
  - **Version:** 1.4 (**COMING SOON**)*
  - **Effective:** Immediately upon publication
  - **URL:** https://g.co/chrome/root-policy

*****_CA owners with certificates included in the Chrome Root Store will be notified of publication via CCADB message._

Chrome Root Program Updates

- **Comparing Version 1.4 against Version 1.3**
  - alignment with CCADB Policy Version 1.2 and the Baseline Requirements…
    - updated audit and incident reporting requirements
    - require subordinate CA disclosures in CCADB
    - standardize terminology
  - clarify requirements to...
    - better align with program intent (e.g., CA owner policy document freshness)
    - reduce opportunities for confusion (i.e., related to the submission of annual self assessments)
  - remove requirements to reduce…
    - duplicative effort (i.e., incident reporting)
    - operational burden (i.e., CA certificate issuance notification)

Chrome Root Program Updates

- **Apply for Inclusion**
  - process outlined here, described at F2F 57
- **Reminders:**
  - TLS hierarchies, only
  - Applications and changes are processed through CCADB
  - Self Assessment is required at time of submission
  - Applicants must demonstrate:
    - broad value for Chrome users
    - why the benefits of inclusion outweigh the risks to user safety and privacy

Chrome Root Program Updates

- **Long-term priorities focused on [REMINDER FROM F2F 55]:**
  - encouraging modern infrastructures and agility
    - replace “legacy” roots (i.e., keys established before the BRs or modern audit schemes) with newer ones
  - focusing on simplicity
    - purpose-driven infrastructures with dedicated use cases (e.g., HTTPS only)
  - promoting automation
    - establish minimum expectations for ACME support
  - reducing mis-issuance
    - set minimum expectations for pre/post-issuance linting
  - increasing accountability and ecosystem integrity
    - improve automated monitoring and reporting capabilities
  - preparing for a “post-quantum” world
    - encourage experimentation with and testing of quantum-resistant algorithms

Chrome Root Program Updates

- **“Moving Forward, Together”:**
  - Beginning in Version 1.1, our policy has referenced our “Moving Forward, Together” (MFT) initiative.
  - MFT:
    - represents our goals and priorities.
    - reinforces our commitment to working alongside CA owners to make the web a safer place.
    - describes our vision for the future that includes modern, reliable, highly agile, purpose-driven PKIs that promote automation, simplicity, and security.
    - is non-normative, but describes what might become normative.

Chrome Root Program Updates

- **ACME Survey Summary:**
    - **Focus:** understanding adoption (existing and planned) of automated certificate issuance and management solutions for CA owners included in the Chrome Root Store, with an emphasis on ACME
    - **How:** CCADB message with embedded survey form
    - **Response Window:** Dec 13, 2022 to Jan 13, 2023
    - **Participation: 48** responses

Key Results...

41.7%

of respondents offer the use of ACME services for publicly-trusted TLS certificates

Key Results…

70%

observe ACME use **increasing**

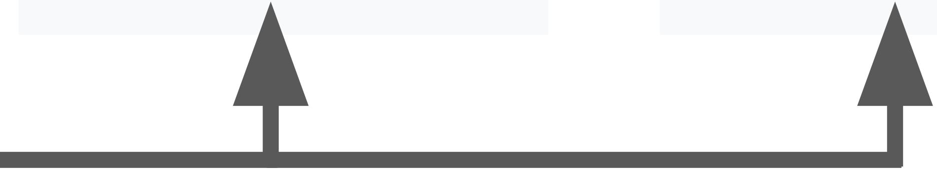
Key Results...

70%

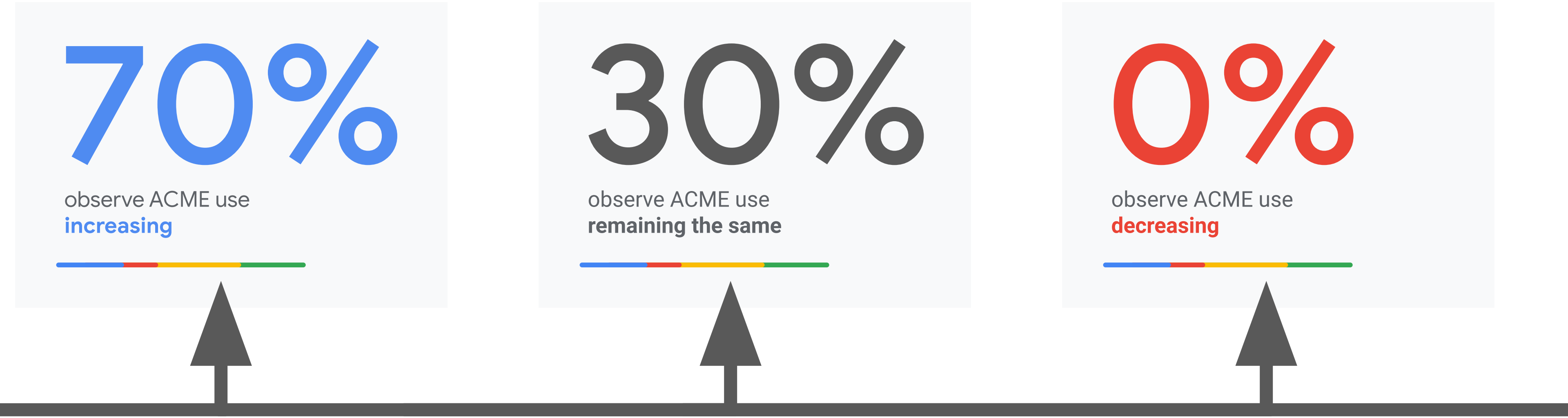
observe ACME use
increasing

30%

observe ACME use
remaining the same



Key Results...



70%

observe ACME use **increasing**

30%

observe ACME use **remaining the same**

0%

observe ACME use **decreasing**

Key Results...

>95%

of the certificates issued by the “Web PKI” today are issued by a CA owner with some form of existing ACME implementation available for customers (**this includes DV, OV, and EV**)

Key Results...

1 in 2

certificates issued by the
“Web PKI” today rely on ACME

ACME is not [yet] ubiquitous...

58.3%

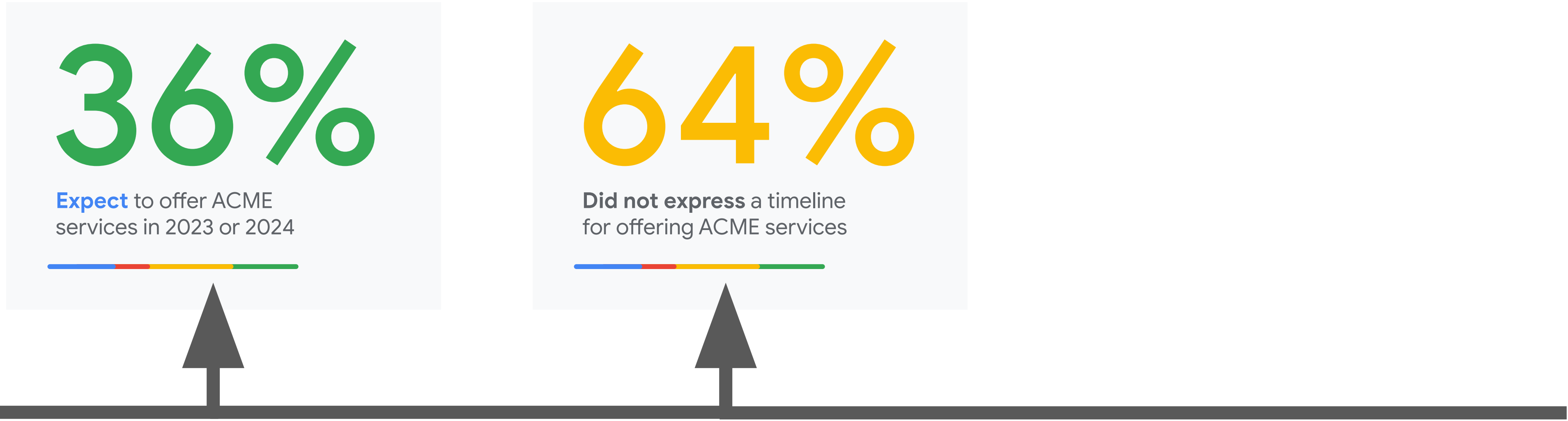
of CAs owners included in the Chrome Root Store **do not** offer ACME services for publicly-trusted TLS certificates

Key Results...

36%

Expect to offer ACME services in 2023 or 2024

Key Results...



36%

Expect to offer ACME services in 2023 or 2024

64%

Did not express a timeline for offering ACME services

Understanding why ACME is not offered…

- **“ACME isn’t…”**
  - compatible with OV/EV (a common misunderstanding)
  - compatible with existing certificate issuance systems and workflows
  - an option for all customers

- **“We offer…”**
  - other forms of automation (i.e., proprietary methods based on SCEP, EST, CMP, etc.)

Chrome Root Program - What's Next

- **Strengthening our commitment to ACME:**
  - After carefully reviewing responses and considering CA feedback, we're planning a **future policy update that will require ACME support for applicant hierarchies**.
    - ACME must be *an option*, not the only option.

- **Why ACME and not [$OTHER_SOLUTION]**
  - Widespread ecosystem support and adoption (CA owners and site owners)
  - ACME is open and benefits from continued innovation and enhancements from a robust set of ecosystem participants
  - Extensive set of well-documented client options spanning multiple languages
  - Designed specifically to meet to TLS certificate issuance needs for the "Web PKI"

Chrome Root Program - What's Next

- **Benefits of unifying the Web PKI ecosystem in support of ACME:**
  - promote agility
  - increase resiliency for CA owners and website owners alike
  - help website owners address scale and complexity challenges related to certificate issuance, installation, and management
  - drive innovation through ongoing enhancements and support from an open community
  - ease the transition to quantum-resistant algorithms, and
  - better positions the Web PKI ecosystem to manage risk

Chrome Root Program - What's Next

- **“Moving Forward, Together” Update (COMING SOON)**
  - We continue to sharpen our focus while promoting modern, reliable, highly agile, purpose-driven PKIs that focus on automation, simplicity, and security.
  - An update released alongside policy Version 1.4 will:
    - offer expanded commentary on existing initiatives (e.g., ACME)
    - highlight new areas of interest and signal commitment for leading change
      - promote subordinate CA agility
      - reduced maximum TLS certificate validity
      - reduced domain validation reuse periods
      - require multiperspective domain and CAA validation

Chrome Root Program - What’s Next

- **CCADB Survey (COMING SOON)**
  - An upcoming CCADB survey will seek to understand operational impacts related to many of our proposed initiatives to include:
    - root CA “term limit”
    - establishing maximum validity periods for subordinate CA certificates
    - reducing leaf certificate validity and domain validation document reuse
    - sunsetting use of id-kp-clientAuth in server authentication certificates

Chrome Root Program - Feature Launch Roadmap

Platform	Current State (Today)		Future State (Spring 2023, ~Chrome 115)	
	Certificate Verifier	Root Store	Certificate Verifier	Root Store
Android	🟨 Chrome Cert Verifier	🟨 Chrome Root Store	🟩 Chrome Cert Verifier	🟩 Chrome Root Store
Chrome OS	🟩 Chrome Cert Verifier	Platform Root Store	🟩 Chrome Cert Verifier	🟩 Chrome Root Store
iOS	Platform Verifier		Platform Verifier	Platform Root Store
Linux	🟩 Chrome Cert Verifier		🟩 Chrome Cert Verifier	🟩 Chrome Root Store
macOS	🟩 Chrome Cert Verifier	🟩 Chrome Root Store	🟩 Chrome Cert Verifier	🟩 Chrome Root Store
Windows	🟩 Chrome Cert Verifier	🟩 Chrome Root Store	🟩 Chrome Cert Verifier	🟩 Chrome Root Store

Feature Rollout In-Progress 🟨 Feature Launched 🟩

Certificate Transparency Updates

- **Certificate Transparency Policy (https://goo.gl/chrome/ct-policy)**
  - No policy updates to report
  - Looking to better understand active use-cases of SCTs delivered via OCSP Stapling and/or TLS extension (i.e. not embedded in the certificate)

- **Certificate Transparency Log Policy (https://goo.gl/chrome/ct-log-policy)**
  - No policy updates to report

Certificate Transparency Updates (continued)

- **Log State Changes:**
  - **February 1, 2023**, the following logs transitioned to *Retired*, with the last ‘Qualified’ SCT having a timestamp no later than 2023-01-15T00:00:00Z:
    - Sectigo 'Mammoth' (https://mammoth.ct.comodo.com/)

Certificate Transparency Updates (continued)

- **Log State Changes:**
    - **February 1, 2023**, the following logs transitioned to *Rejected*:
        - Cloudflare 'Nimbus2022' Log (https://ct.cloudflare.com/logs/nimbus2022)
        - DigiCert Yeti2022 Log (https://yeti2022.ct.digicert.com/log)
        - DigiCert Yeti2022-2 Log (https://yeti2022-2.ct.digicert.com/log)
        - DigiCert Nessie2022 Log (https://nessie2022.ct.digicert.com/log)
        - DigiCert CT2 Log (https://ct2.digicert-ct.com/log)
        - Google Argon2022 Log (https://ct.googleapis.com/logs/argon2022)
        - Google Xenon2022 Log (https://ct.googleapis.com/logs/xenon2022)
        - Let's Encrypt Oak2022 Log (https://oak.ct.letsencrypt.org/2022)
        - Trust Asia Log2022 Log (https://ct.trustasia.com/log2022)

Certificate Transparency Updates (continued)

- **Log State Changes:**
  - **November 22, 2022**, the following log transitioned to *Qualified*
    - Trust Asia Log2024-2 (https://ct2024.trustasia.com/log2024)

General Browser Updates

- Beginning in **Chrome 111** (*March 7, 2023*)
  - Chrome Root Store Version 10
  - "Trusted People" / Leafs
- Beginning in **Chrome 112** (*April 4, 2023*)
  - Mixed content auto-upgrading (Chrome on iOS)
- Beginning in **Chrome 113** (*May 2, 2023*)
  - Remove "ChromeRootStoreEnabled" enterprise policy on Mac and Windows
- Coming Soon (*TBD*)
  - Encrypted Client Hello (ECH) [thread]
  - Chrome Root Store on Chrome OS and Linux
  - Chrome Root Store and Certificate Verifier on Android

Contact us at:

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Policy page at:

https://g.co/chrome/root-policy