

Experience With Google Chrome's Trust Tokens

Yahoo

W3C Privacy CG - June 2022

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Who are we?

- [Jaime Perez](#) - Sr Principal Architect, Identity Systems, Yahoo
- [Wendell Baker](#) - VP Architect, Advertising Systems, Yahoo

There are others off-stage and in devops & product.



Agenda

- 1. Why we did this?** —————> What was our motivation?
What questions we wanted to answer?
- 2. What did we do?** —————> What we built. How it all works.
- 3. What we learned** —————> The limitations & areas of concern

What we found?

- Successfully built **Proof of Concept** internally
- Unable to determine clear **Proof of Value** being \$-value < \$\$\$-cost
But this could change.
- Found **areas of concern** in operational complexity.
Work is needed to simplify and publish “standard components”
- Found **areas of concern** in protocol evolution.
Unknown effect of multiple proto versions while under \$\$\$ urgency.

Motivation – Why we did all this?

- Google is **building features** to replace some aspects of 3rd party cookies.
 - Deprecate **cross-site tracking**, making 3rd party cookies obsolete by 2023→2026.
 - The Trust Tokens are **addressing spam and fraud** in the Google Privacy Sandbox initiatives.

Our question: Does the technology scheme work in a functional sense?

“Does the math work out in code?”

- As **Yahoo**, we want to [...use case...] Chrome Trust Tokens to [...goal...]
 - Understand how it works **End to End**; where it works; where it fails; how costly to operate.
 - Identify **Use Cases** for the business, the \$\$-benefit to offset all the devops, opex & capex.
 - Identify any **limitations and security concerns**.

Our question: What is the feasibility of Trust Tokens as a gatekeeper to our business?

“What if it breaks?”

“What if they change the T&C?”

“What if they change the proto and we can't?”

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What did we do?

- We built a **Proof of Concept (POC)** in **Q4 2021**.
- We operated it **Q4-Q1** to a friendly population.
- We fixed on protocol version **TrustTokenPMBV2**.
- We were able to issue and redeem Trust Tokens between our own services
Among a small panel of pre-consented pre-disposed users
The convenience sample + snowballing → employees plus more.

What did we NOT do?

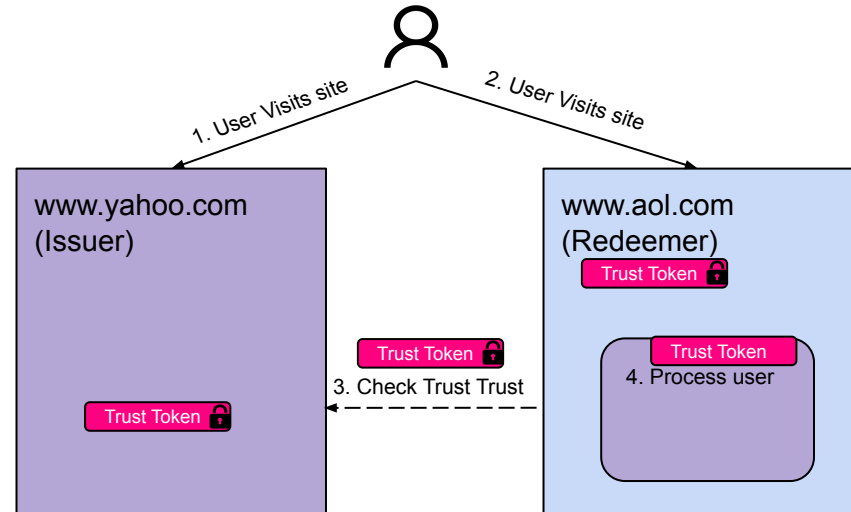
- Tested “at scale” with the full fire hose; e.g. frontpage.
- Operated through two full protocol evolutions v1→v2→v3 across the full serving surface.
- Dress rehearsal of a PO-\$\$\$ event plus outages (think: Black Friday + forced protocol upgrade ratchet)

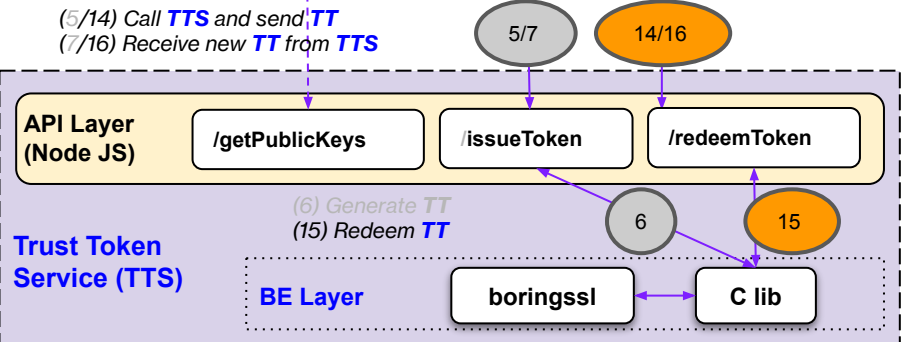
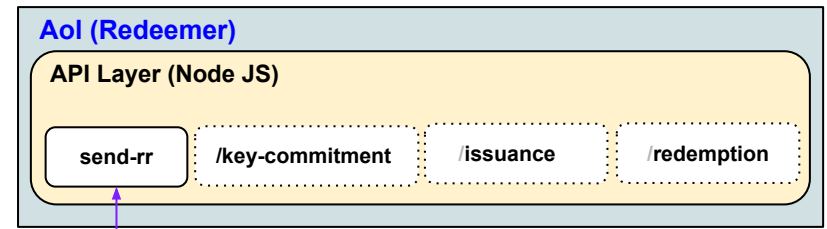
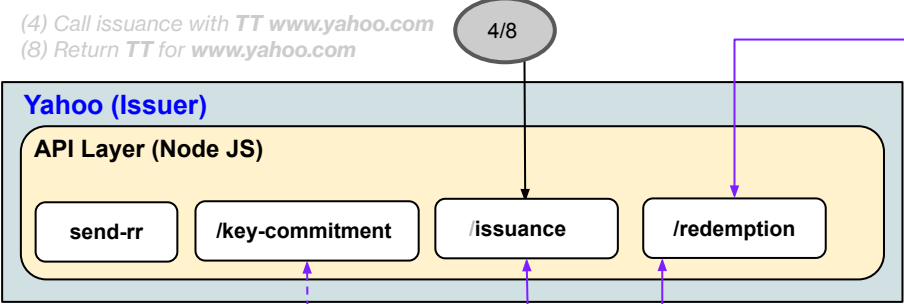
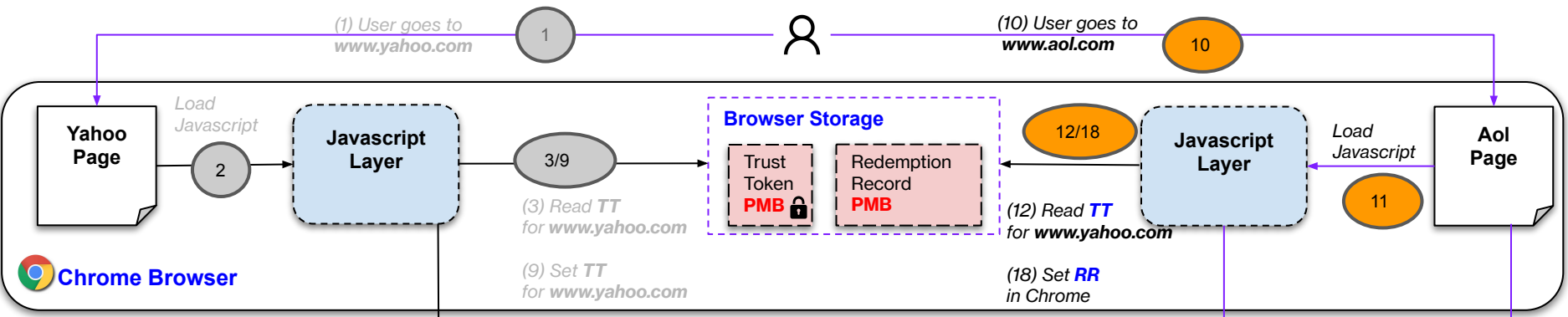


Use Case Explored

- Distinguish between a **real user** and an **imposter**.
 - When serving **Ads**
 - When user is trying to **login** or **create** an account

1. User visits www.yahoo.com and a **Trust Token** is generated
2. User goes to another site www.aol.com
3. AOL checks **Trust Token** from Yahoo
4. Based on **Trust Token** determine how to handle this user
 - i. allow login?
 - ii. how to handle Ads?





```

Sample Redemption Record
{
  "public_metadata": 1,
  "private_metadata": 1
}

```

19) Parse and verify RR in TT in Chrome + Perform custom logic

What we learned?

- We were able to **Issue** and **Redeem** Trust Tokens successfully.
- Proof of Concept(POC) worked but unable to determine **Proof of Value** (POV).

Areas of Concern

- Unclear if we are using Trust Tokens for the **right Use Cases**.
- Greater value comes when Trust can be **shared** with other companies.
- Redeemer sites can rely on at most **2 Issuers** (avoids fingerprinting but not scalable).
- Presence of Trust Tokens can be **seen by anyone** (Security Risk).
- **Maintenance overhead**
 - BoringSSL C library, sole developer & maintainer is Google?
 - Trust Token protocol version cadence is Google's with no clear down-tempo plan.
 - Maintaining the Key commitments is fraught
 - “and now you have yet another key management problem.”
 - Failure modes & pathologies are unclear; hard to debug failures when PO-\$\$

Wrap up

- Third party cookies in Chrome to be problematic around 2023-2026
- Yahoo looking to use Trust Tokens for fraud prevention
- Successfully built Proof of Concept internally
- Unable to determine Proof of Value
- Found areas of concern in protocol, operations & TBD in business.

Thank You !!!

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Q&A

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