

Transparency.dev Summit 2026
Montreal, Canada, September 29 – October 1

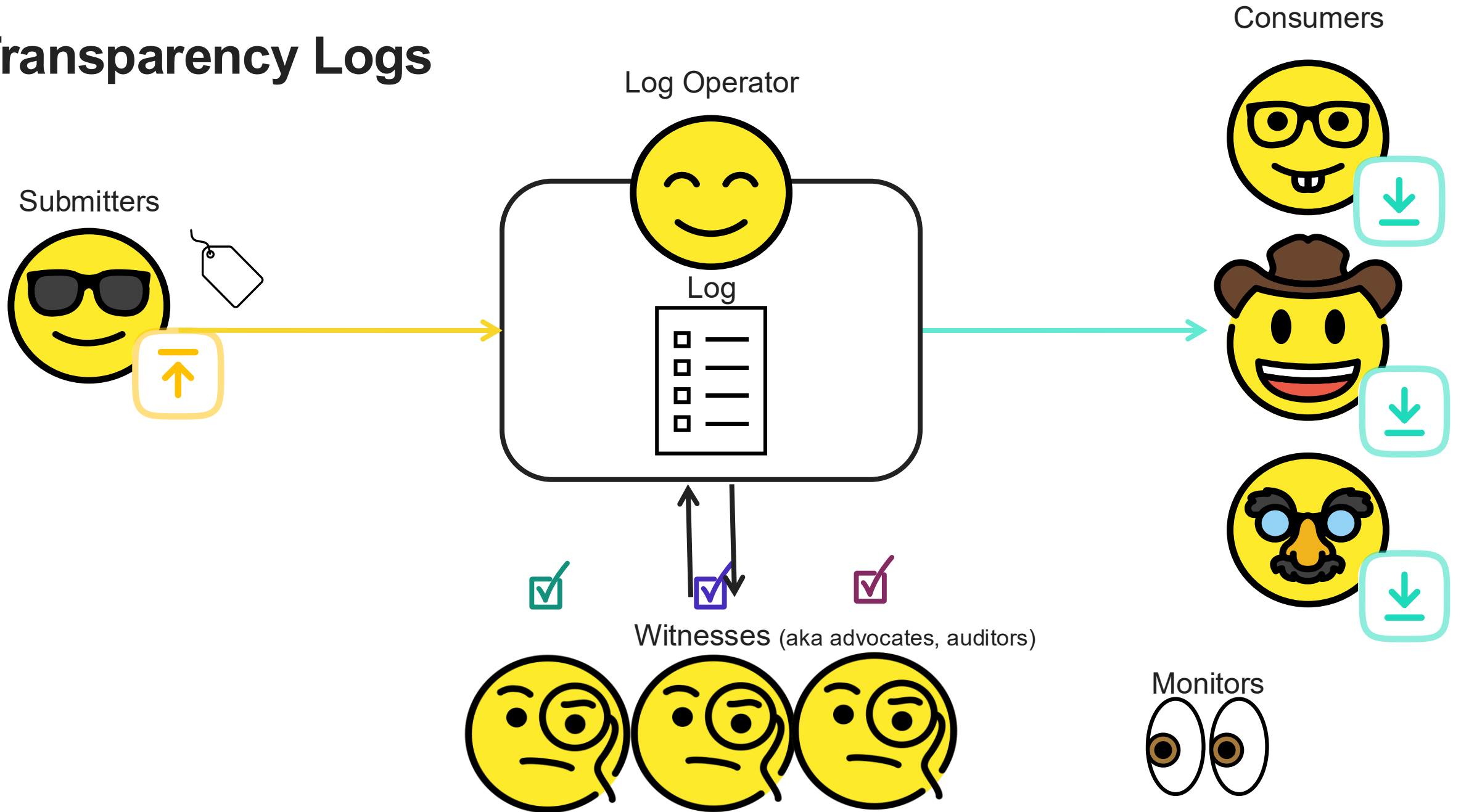


Setting Thresholds in Witness Cosigning

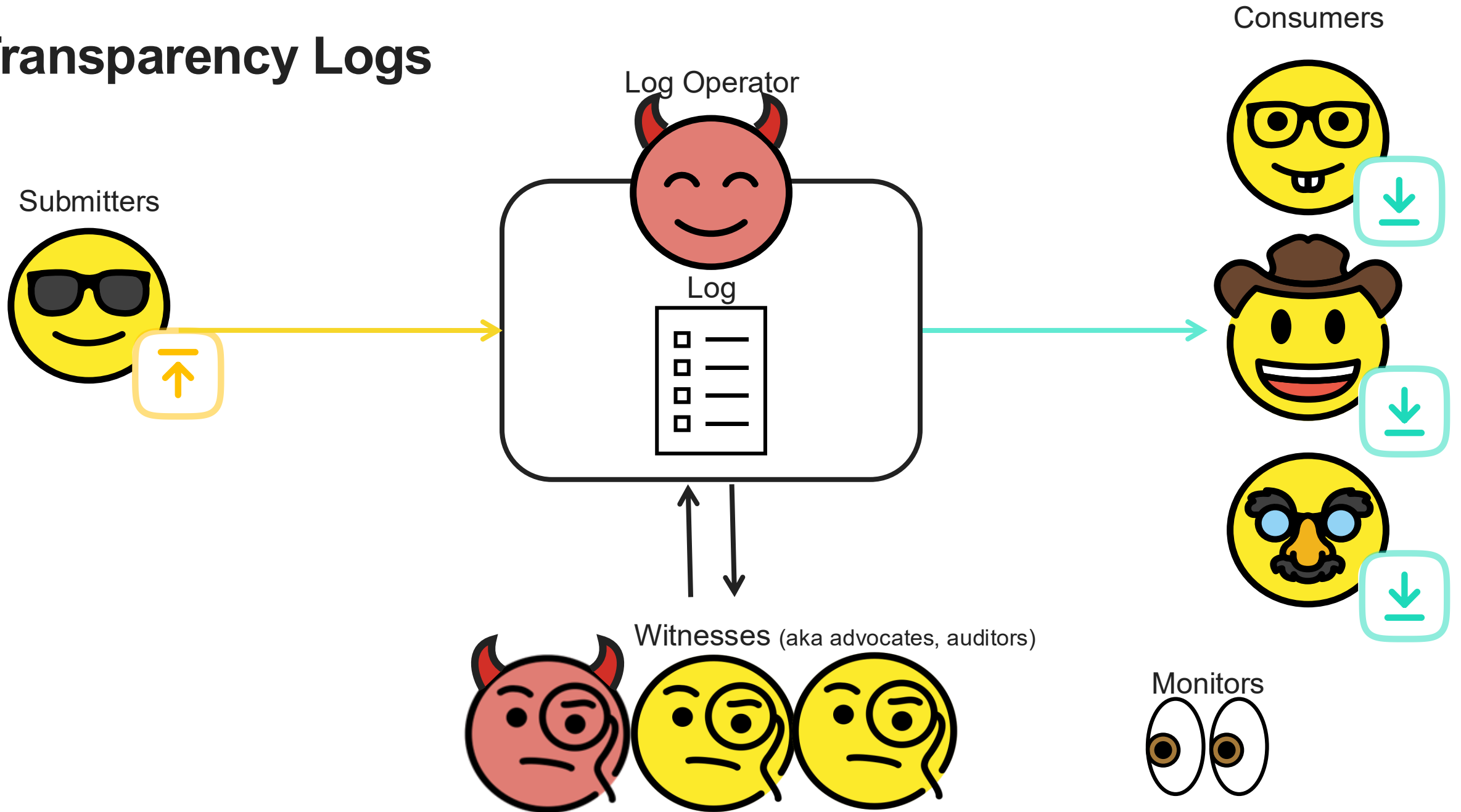
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Transparency Logs

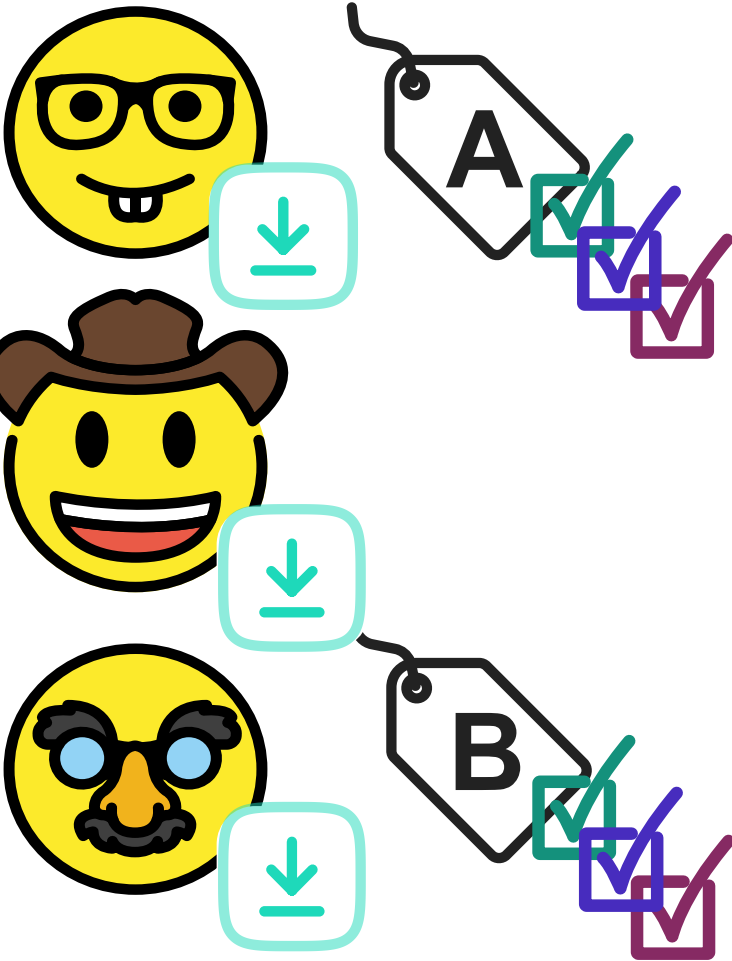


Transparency Logs



Setting Thresholds in Witness Cosigning

Consumers



A consumer accept the value only if it carries at least t out of n signatures.

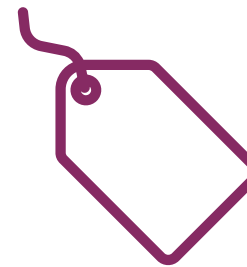
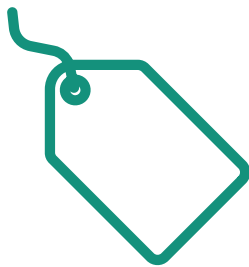
How should be threshold t be set?

A TL system with n witnesses, at most m of which malicious, and the threshold t out of n , achieves split-view protection if

$$t \geq \frac{n + m + 1}{2}$$

Setting Thresholds in Witness Cosigning

In case of $n = 9$ witnesses where at most $m = 3$ are malicious, the threshold should be at least $t \geq 6.5$ to achieve split view protection



Setting Thresholds in Witness Cosigning

- The threshold is **symmetric**: every user performs the same amount of work and verifies the same number of signatures.
- The purpose of the threshold t is to guarantee that any two users share on **at least one honest witness**; the sets of signatures they collect, however, need not be of the same size.
- In practice, the effort required can be distributed across **users and monitors**.

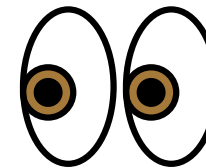
Setting Thresholds in Witness Cosigning with Monitors



Consumers



Monitors



Summary

- ❖ thresholds in witness cosigning must be set higher than intuition suggest;
- ❖ monitors can take over part of the work.



Thank you!

Lavagnino, L. and Pagnin, E. - *What makes a Log Transparent? General framework for Transparency Logs*