IETF 95

MICE

SRI PERFORMANCE IS *BAD*

INTEGRITY OVER ALL

Recap

Reference resource, include a hash of that resource

<script src="https://other.origin.example/script.js"
integrity="sha384-dOTZf16X8p34q2/kYyEFm0jh8…">

Client checks hash and aborts if it doesn't match

Hash calculation requires the entire resource

This blocks progressive loads

Or forces nasty handling logic for errors (not always possible)

SOLUTION

MORE HASHING

...and maybe a little hipster crypto

Support both signing and hashing together

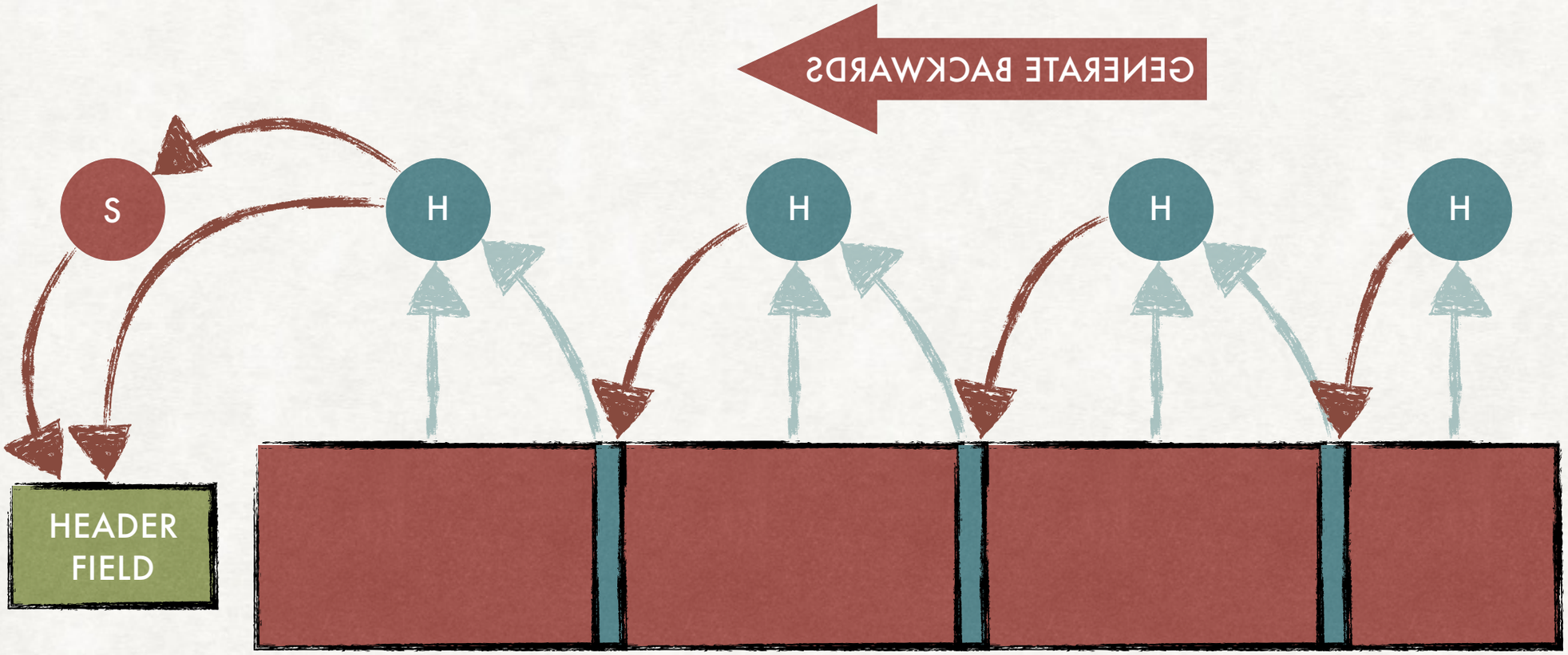
- Straight integrity: match hash to expected value
- Signing: sign over hash and check signature

Flexible record sizing allows tuning of chunk sizes

- If `rs>=Content-Length`, the result is hash of `body||0x1`

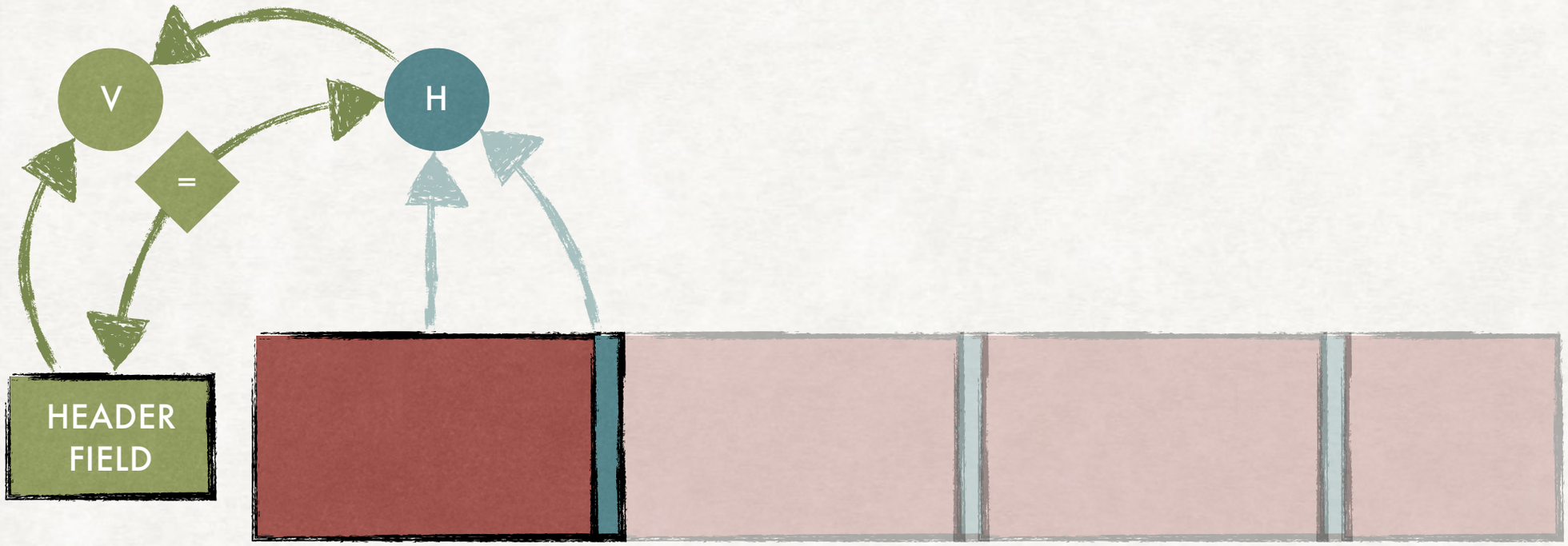
PROGRESSIVE INTEGRITY

GENERATION IS RELATIVELY EXPENSIVE



PROGRESSIVE INTEGRITY

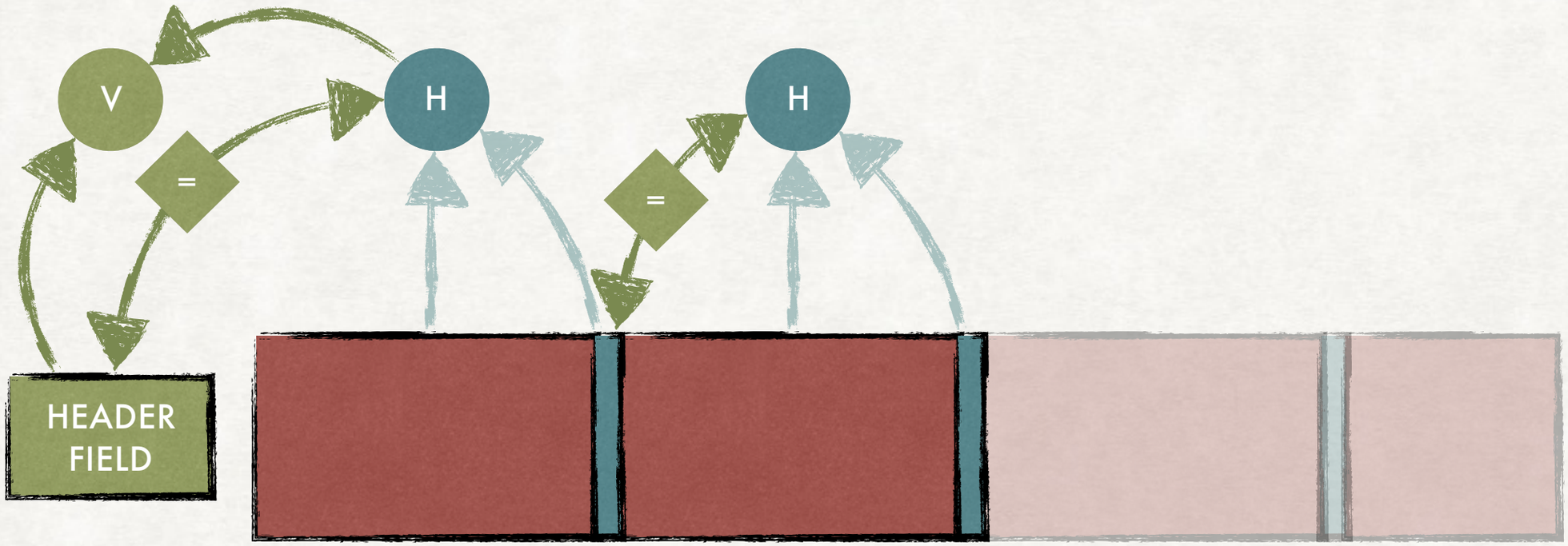
FIRST CHUNK IS VALIDATED



VALIDATE FORWARDS

PROGRESSIVE INTEGRITY

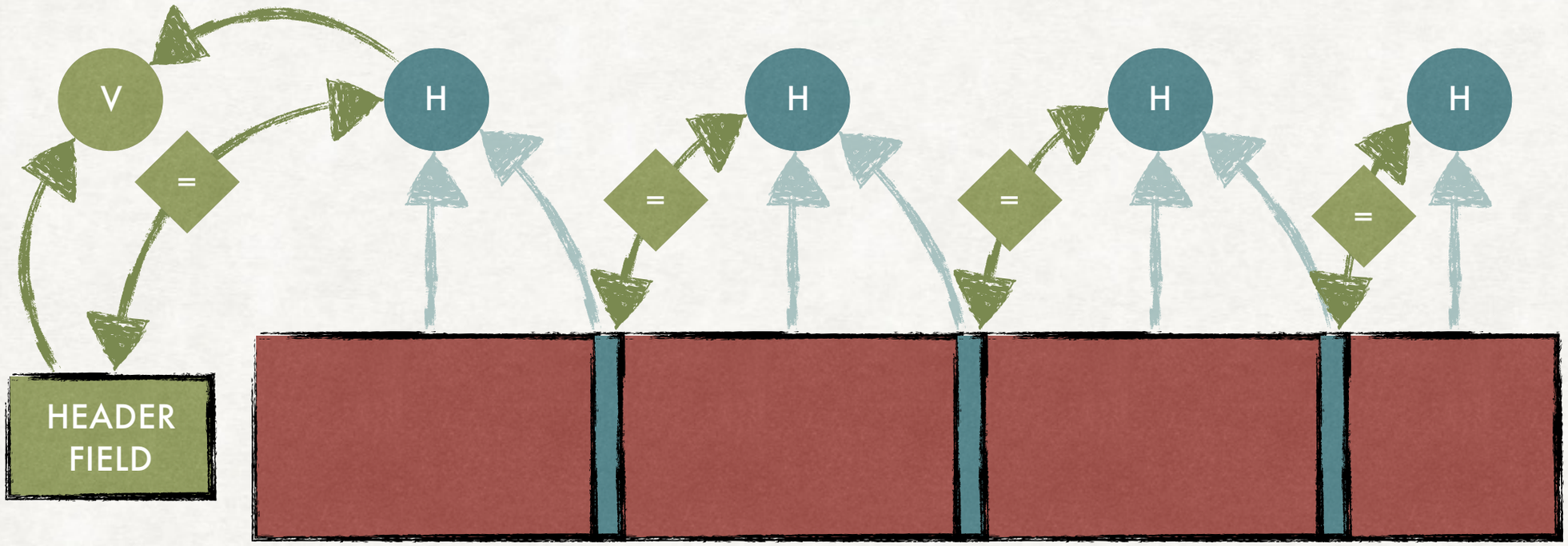
RELEASE EACH CHUNK AS IT IS VALIDATED



VALIDATE FORWARDS

PROGRESSIVE INTEGRITY

SIGNATURE IS VALID ALL THE WAY



VALIDATE FORWARDS

CONTENT ENCODING

YEAH, I SEEM TO LIKE THOSE

Allows for interstitial interleaving of integrity

Solves questions about when the integrity applies

Interaction with gzip, brötli, and other C-E resolved

Can compress either before or after authentication

IS A SIMPLER DESIGN BETTER?

OR IS TOO MUCH MERKLE BARELY ENOUGH?