RIPE NCC

RIPE NETWORK COORDINATION CENTRE

Validation Reconsidered -03

or.. limit collateral damage in case of inconsistencies of resources in the certificate chain

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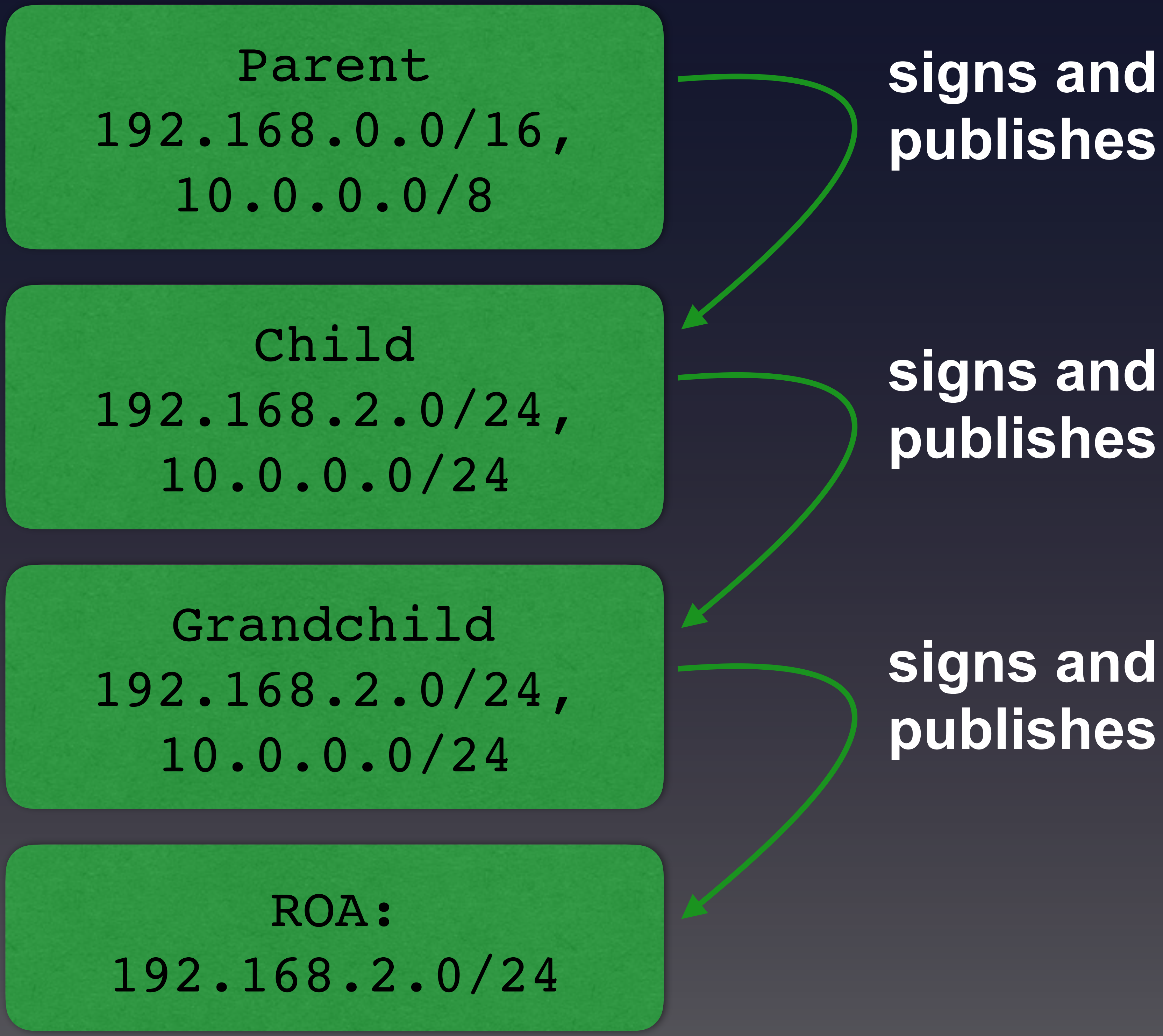
Version -03

- New text and examples, same idea

- Validation algorithm using verified resources for each certificate, rather than listed resources
  - Warnings on overclaims

- Working Group, is the text more clear and are concerns addressed?

Current - all valid



Parent
192.168.0.0/16,
10.0.0.0/8

Child
192.168.2.0/24,
10.0.0.0/24

Grandchild
192.168.2.0/24,
10.0.0.0/24

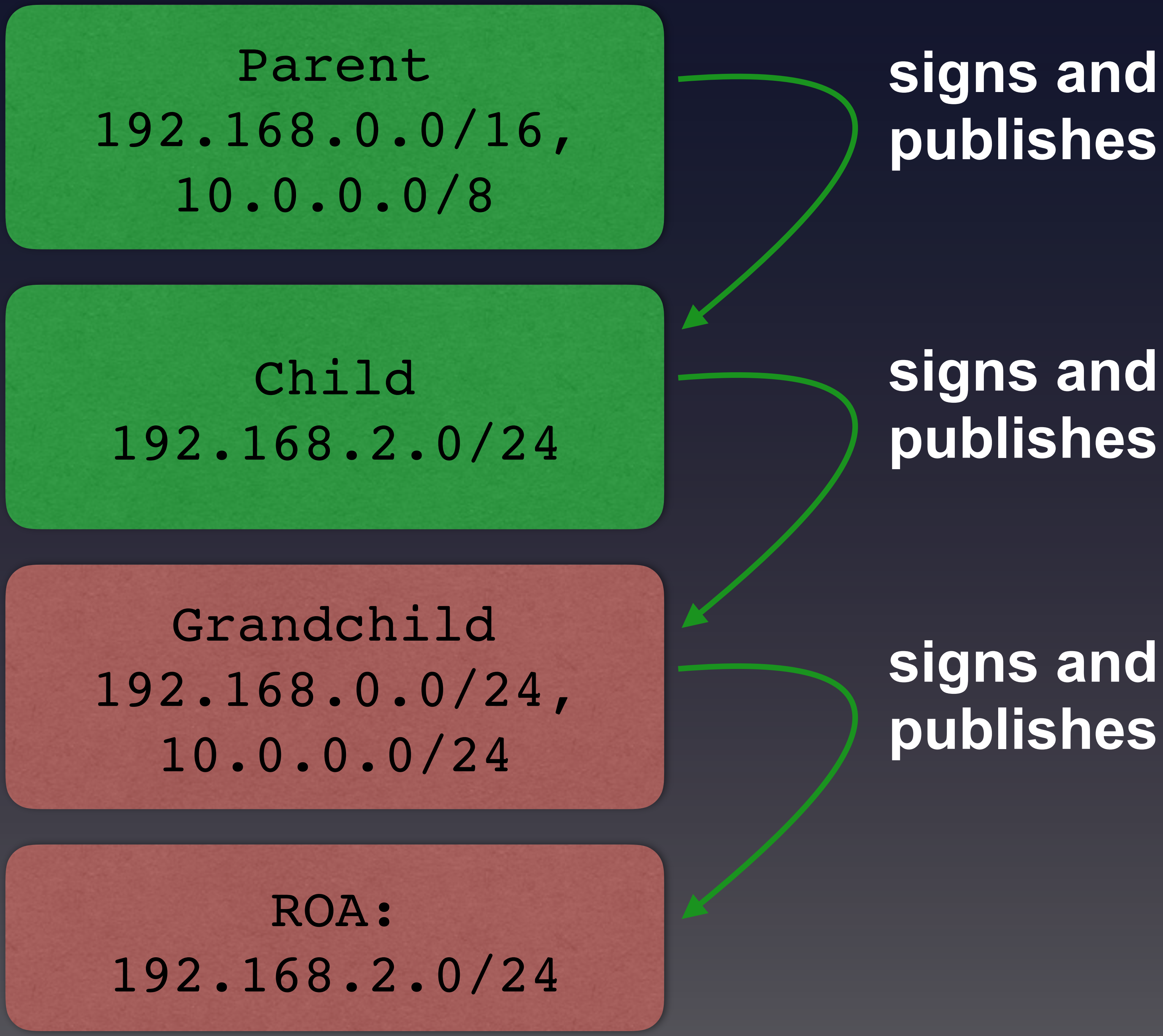
ROA:
192.168.2.0/24

signs and publishes

signs and publishes

signs and publishes

Current - invalidated



Parent
192.168.0.0/16,
10.0.0.0/8

signs and publishes

Child
192.168.2.0/24

signs and publishes

Grandchild
192.168.0.0/24,
10.0.0.0/24

signs and publishes

ROA:
192.168.2.0/24

Validator rejects cert by child grandchild is invalid

Validator rejects everything issued by grandchild

Parent invalidating Grandchild

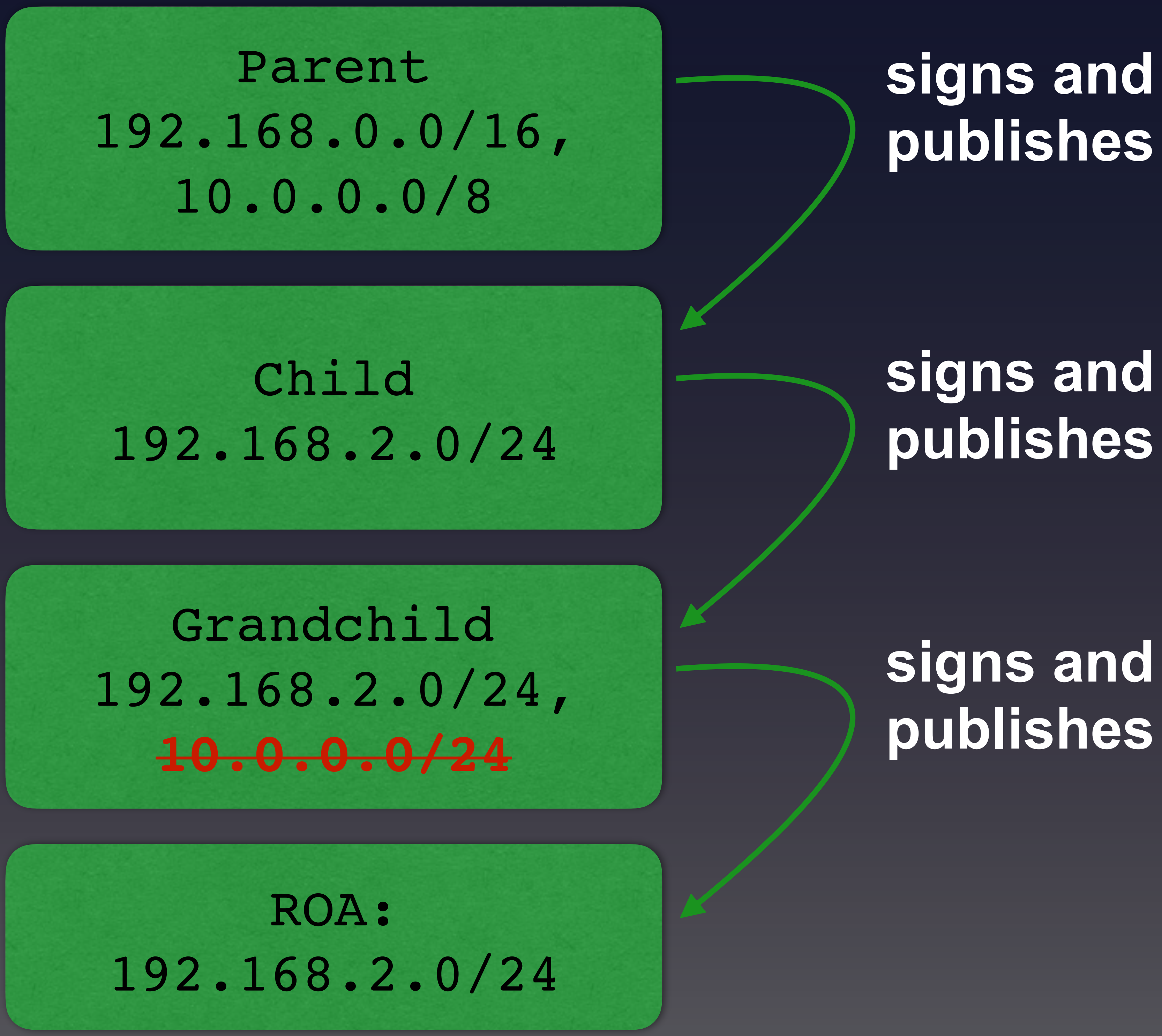
- Parent issues a shrunk certificate to the child
- And the child is unaware
- Now grandchild is invalidated

Reasons?

- Transfer timing gone wrong
- Parent may have to reissue, can't wait forever until child volunteers to shrink
- Parent made a mistake

➡ Low likelihood, but **high** impact

Reconsidered - some invalid resource



Parent
192.168.0.0/16,
10.0.0.0/8

signs and publishes

Child
192.168.2.0/24

signs and publishes

Grandchild
192.168.2.0/24,
~~10.0.0.0/24~~

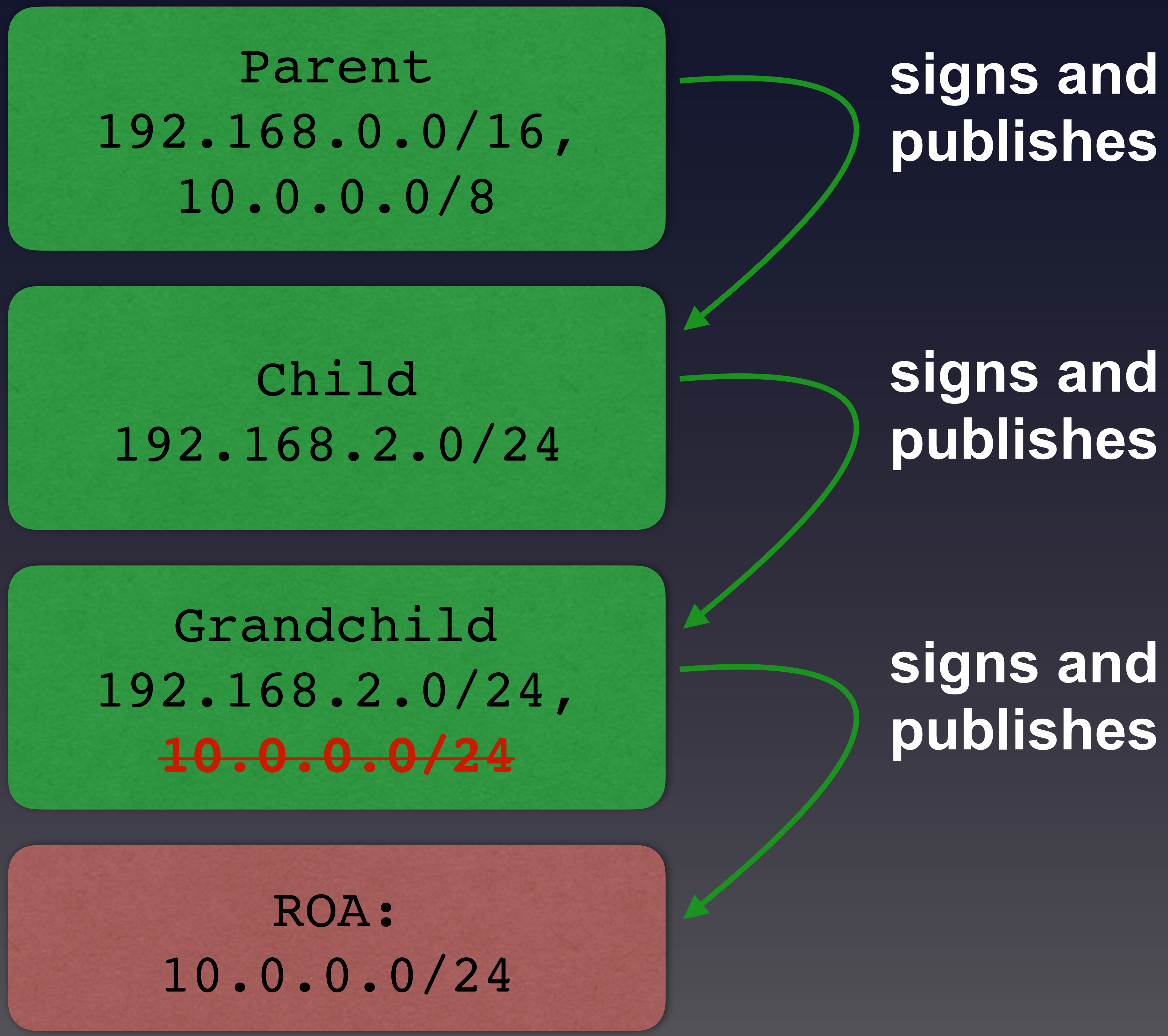
signs and publishes

ROA:
192.168.2.0/24

Validator rejects
only 10.0.0.0/24
on cert by child

Validator accepts
ROA for 192.168.2.0/24
by grandchild

Reconsidered - no valid overclaims



Parent
192.168.0.0/16,
10.0.0.0/8

signs and publishes

Child
192.168.2.0/24

signs and publishes

Grandchild
192.168.2.0/24,
~~10.0.0.0/24~~

signs and publishes

ROA:
10.0.0.0/24

Validator rejects only 10.0.0.0/24 on cert by child

Validator rejects ROA for 10.0.0.0/24

Could this introduce new problems?

- Less incentive for child to clean up
  - There are warnings
  - And actually it may not be the child's fault
  - We believe this is better than having invalid
- Parent can revoke only specific resources used by grandchild with less collateral damage for layer-9 reasons
  - But, really, would invalidating all of grandchild stop them?
  - We have a bigger problem if this happens

Why we think this is a good idea

- Limit the impact of inconsistent resources to just those resources
  - Overclaims are never seen as valid
  - Works in running code, not seen warnings in production

➡ Change this to a low likelihood, lowest possible impact problem

Questions