Providing Access Control and Copy-on-Write for Content Distribution Network Assets

Researching Copy-on-Write solutions

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Outline

1 Background

- Uprise
- CDN
- BattleBinary
- Problem
- Copy-on-Write
- Related Work
- Solutions Idea

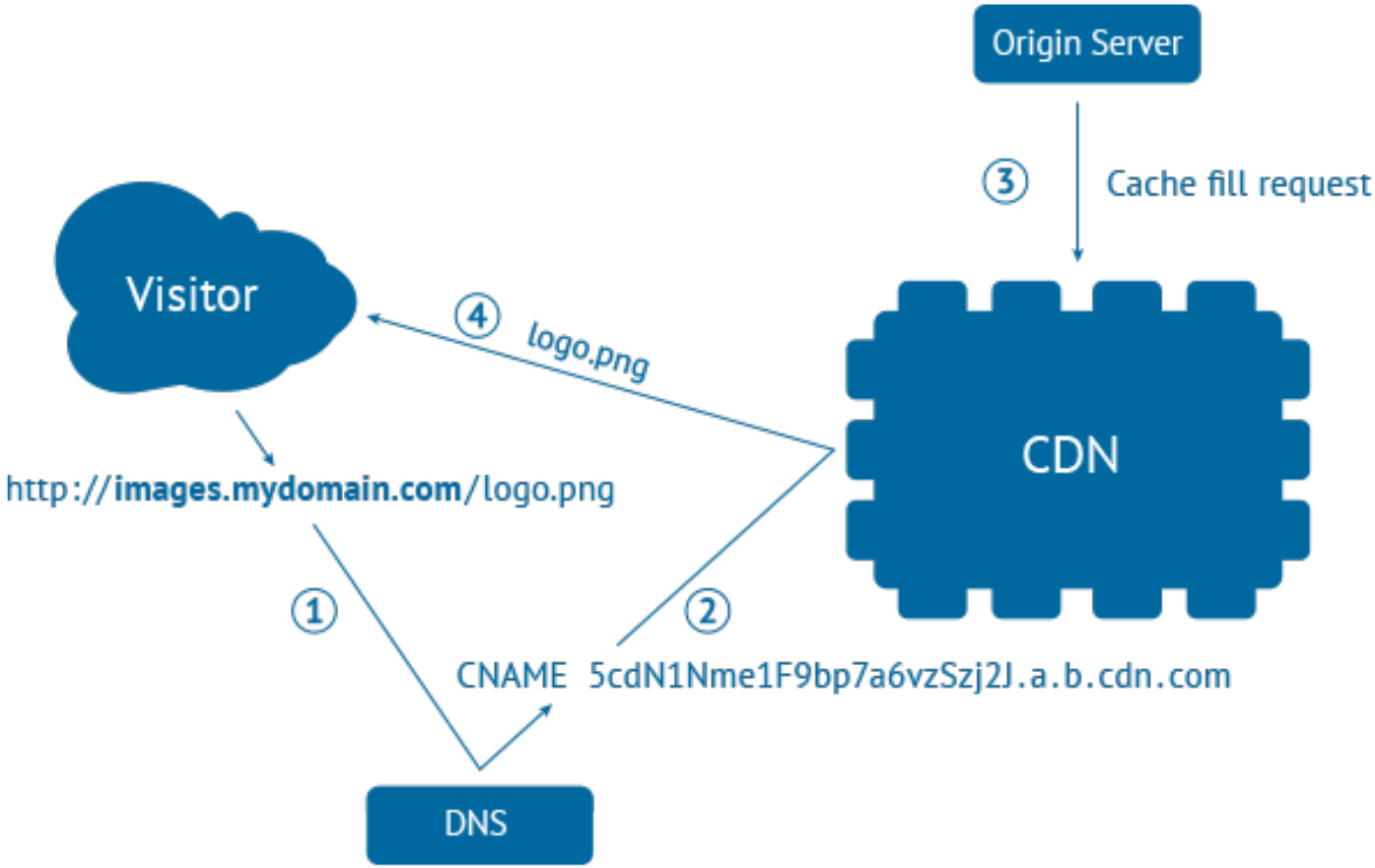
2 What has been done

3 How to proceed

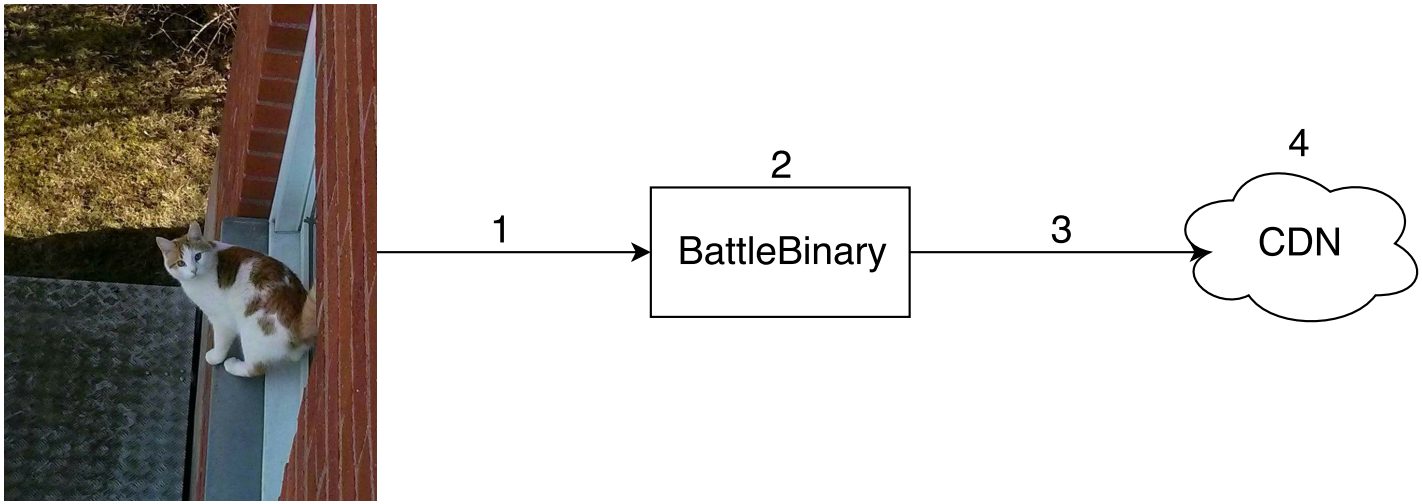
UPRISE

GHOST

Content Distribution Network (CDN)

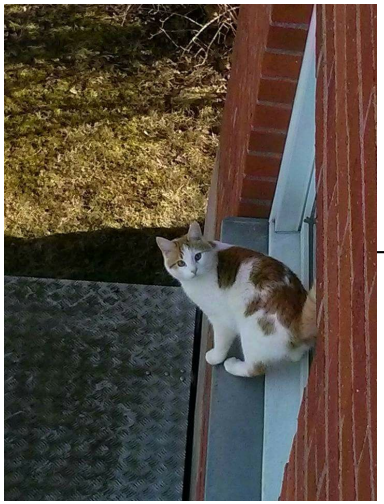


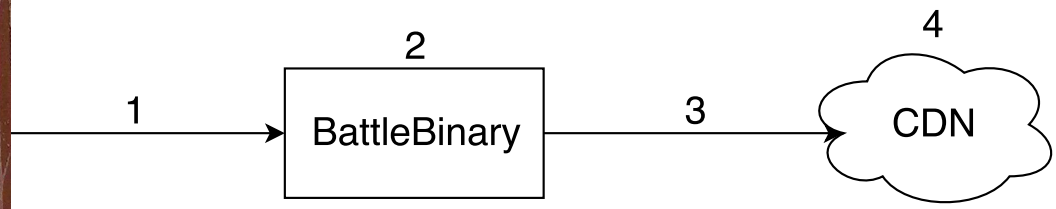
BattleBinary



- 1. Image is uploaded to BattleBinary
- 2. Filename + Part of file's hash = Asset Identifier
- 3. Upload image to CDN
- 4. Image is available to everybody with link `http://ea.akamaihd.net/cat-f1ee0283b6accd6.jpg`

BattleBinary





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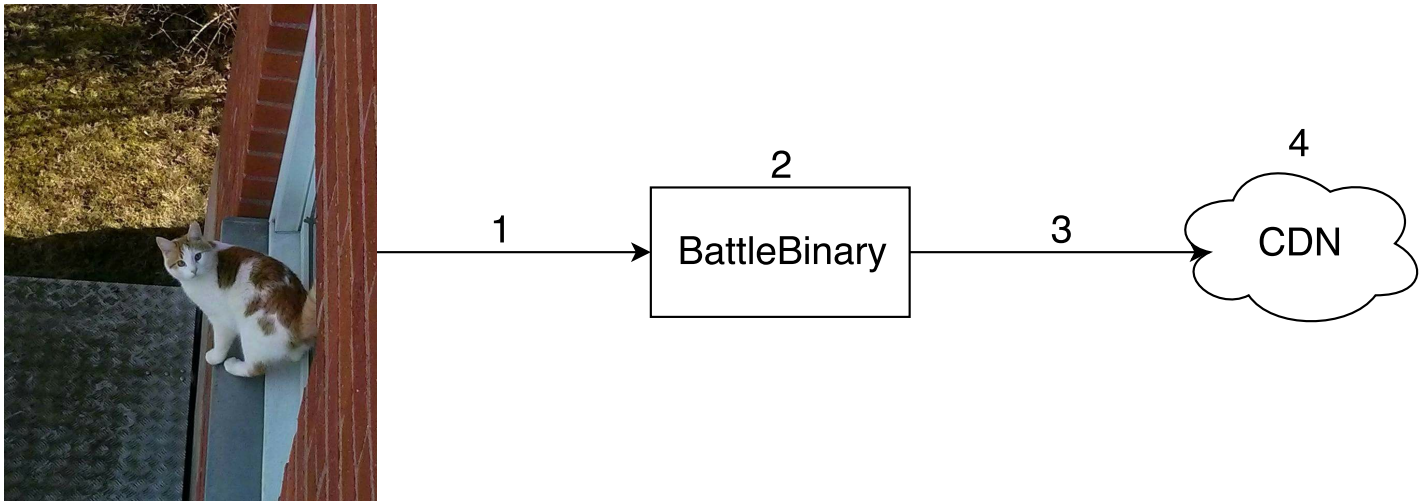

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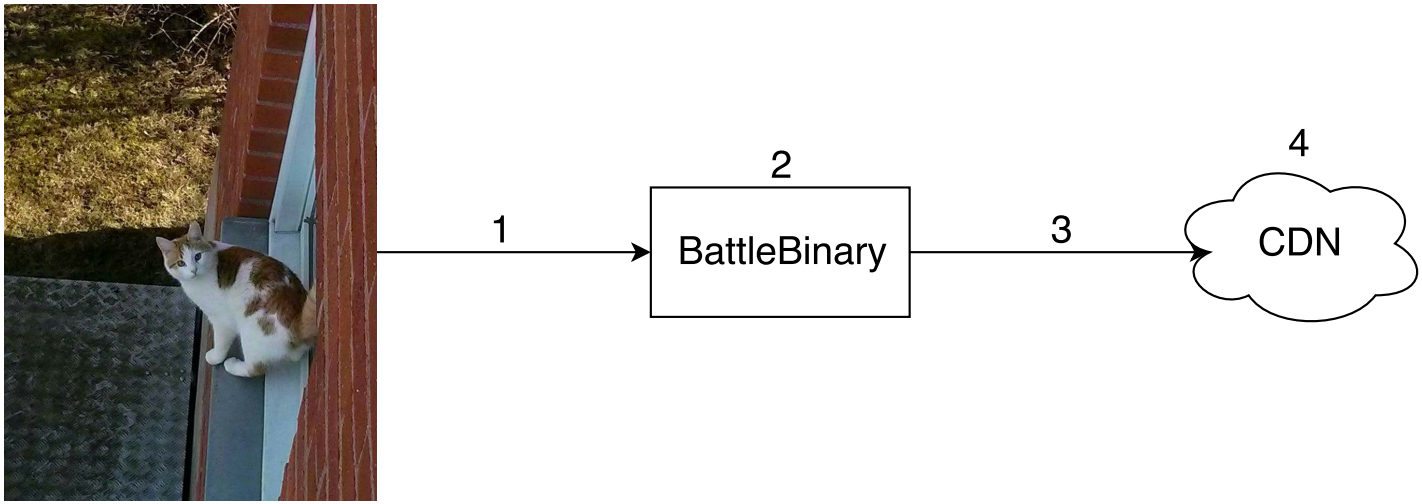

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- impractical
- wont scale

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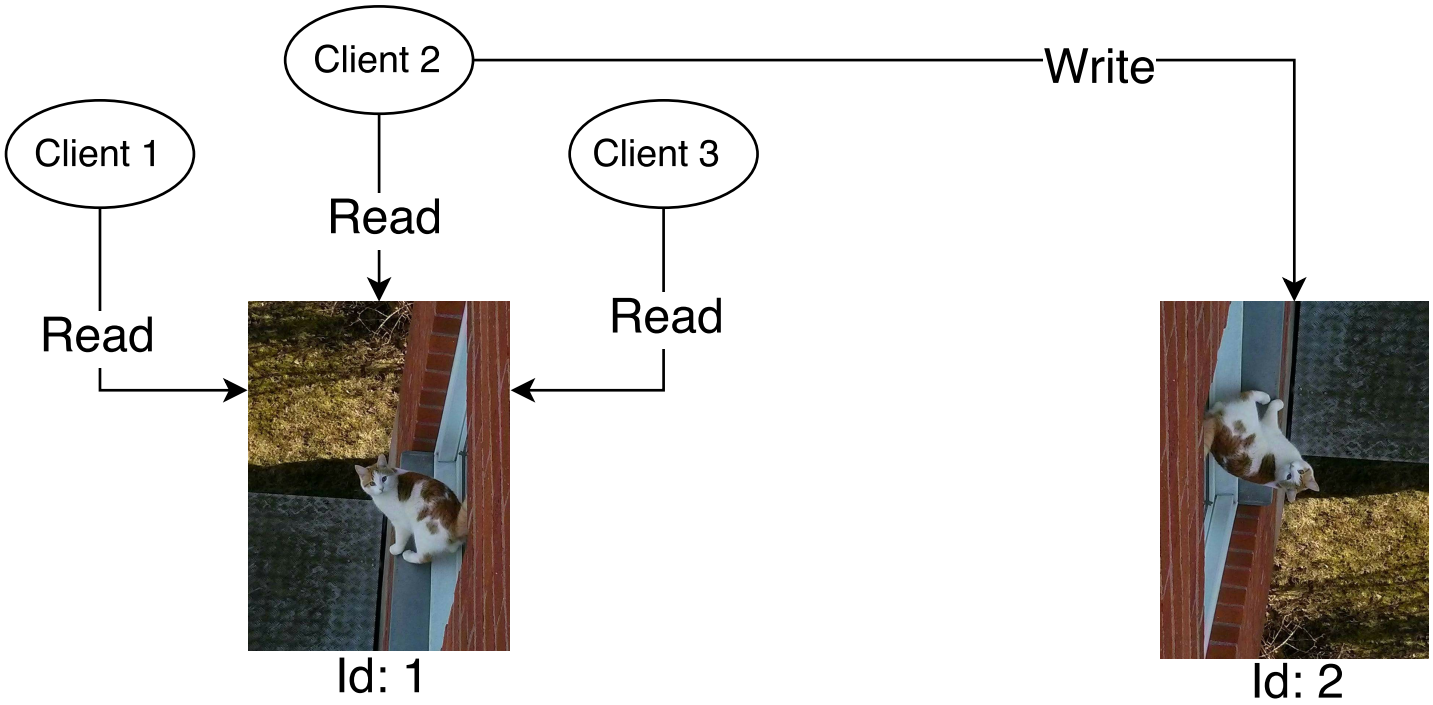
Copy-on-Write



*IDs are GUIDs in real implementations

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- No accidental incremental changes or race conditions
- No locks needed $\rightarrow$ Scalability
- Take snapshots of system in constant time
- Needs some form of garbage collection/awareness

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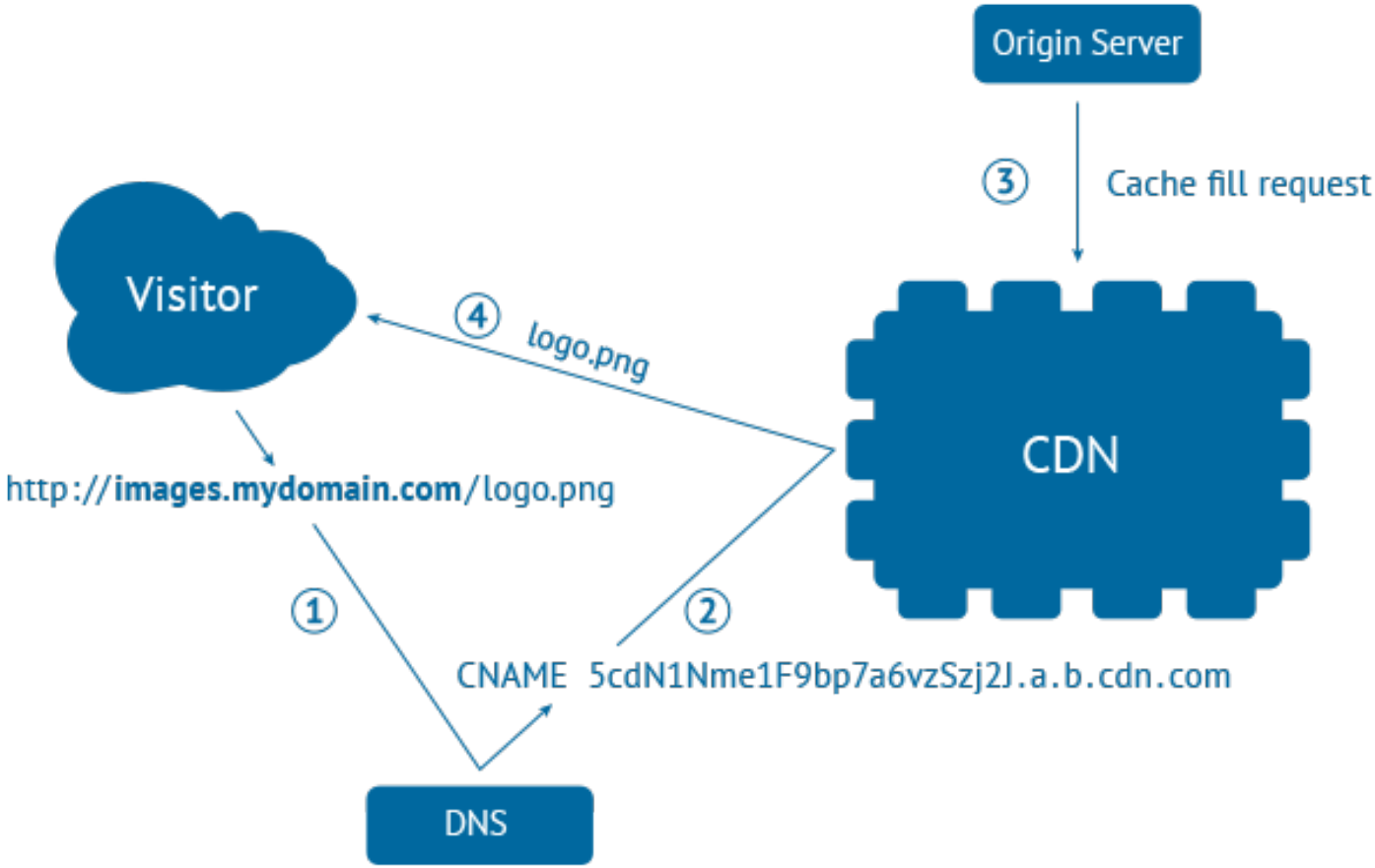
Solutions Idea



Example Operation

(a) Tree T_p (b) T_p cloned to T_q

BTRFS: The Linux B-Tree Filesystem, O. Rodeh et al

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