Content Addressable Stores

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⚡ Lightning Talks
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r2pBADkfbgiFZNMepTngfUep9wTm74NghwZh9
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```

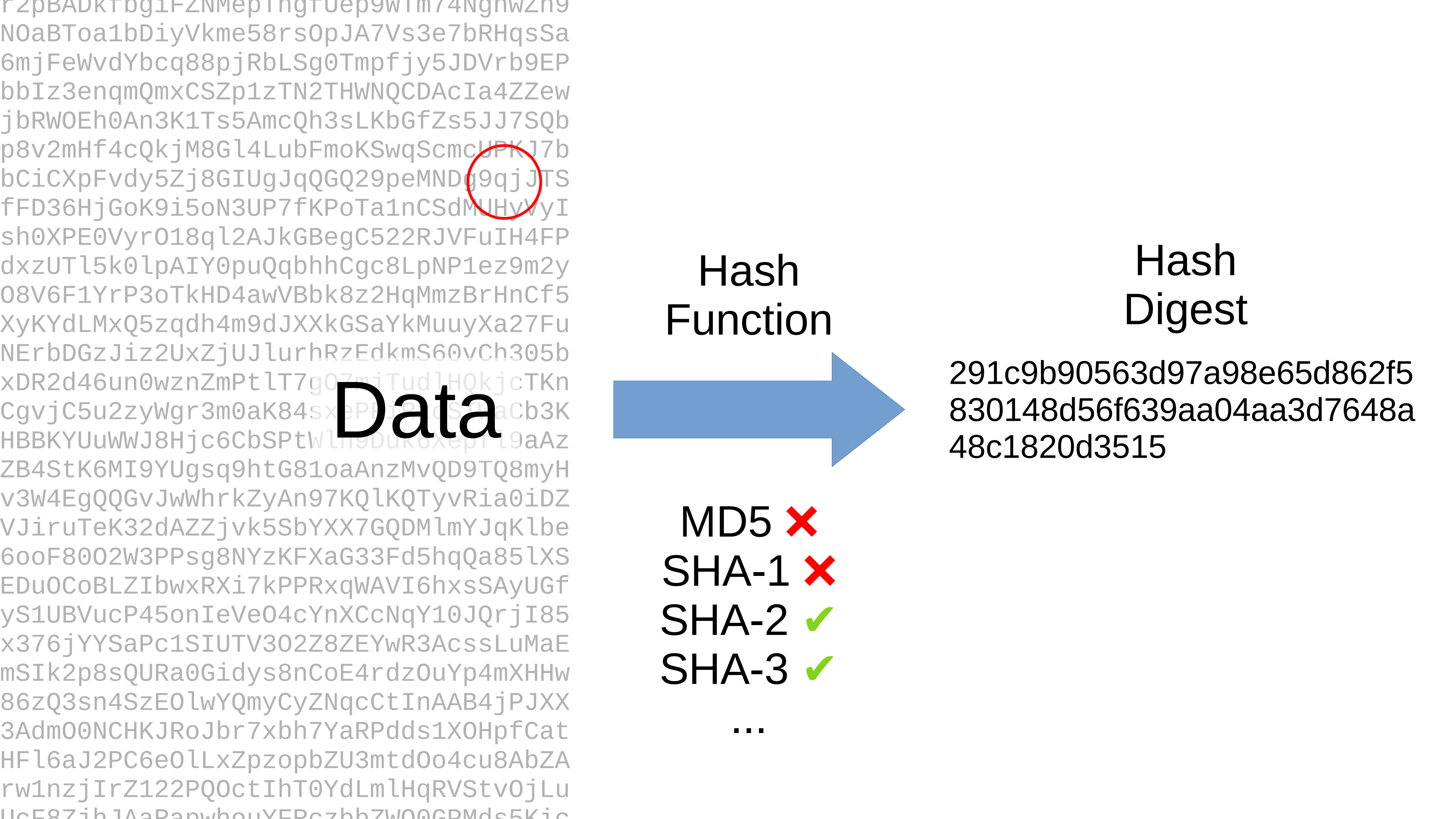
Data

Hash Function

Hash Digest

f125b340930c3d3be26209c7ed
44a2b83059dec7a684ce5b066f
2b5a59abfe0d

MD5 ✗
SHA-1 ✗
SHA-2 ✓
SHA-3 ✓
...



Data

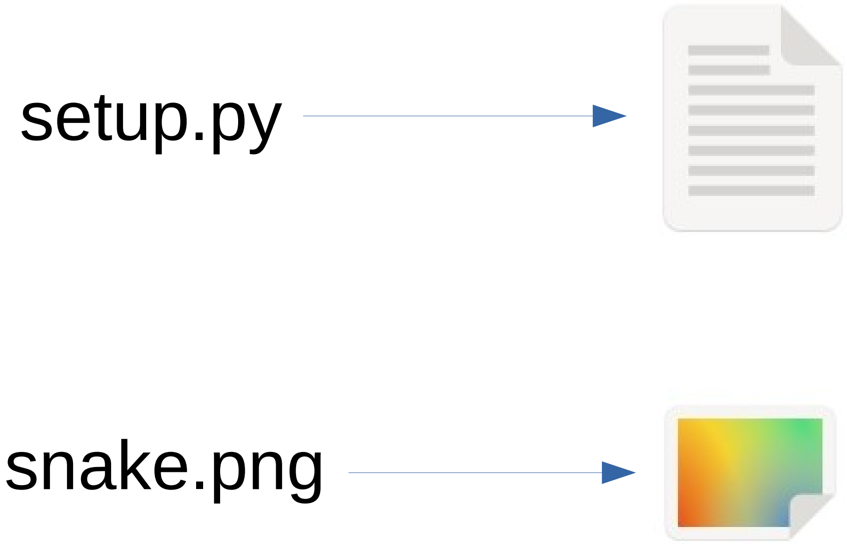
Hash Function

Hash Digest

291c9b90563d97a98e65d862f5
830148d56f639aa04aa3d7648a
48c1820d3515

MD5 ✗
SHA-1 ✗
SHA-2 ✓
SHA-3 ✓
...

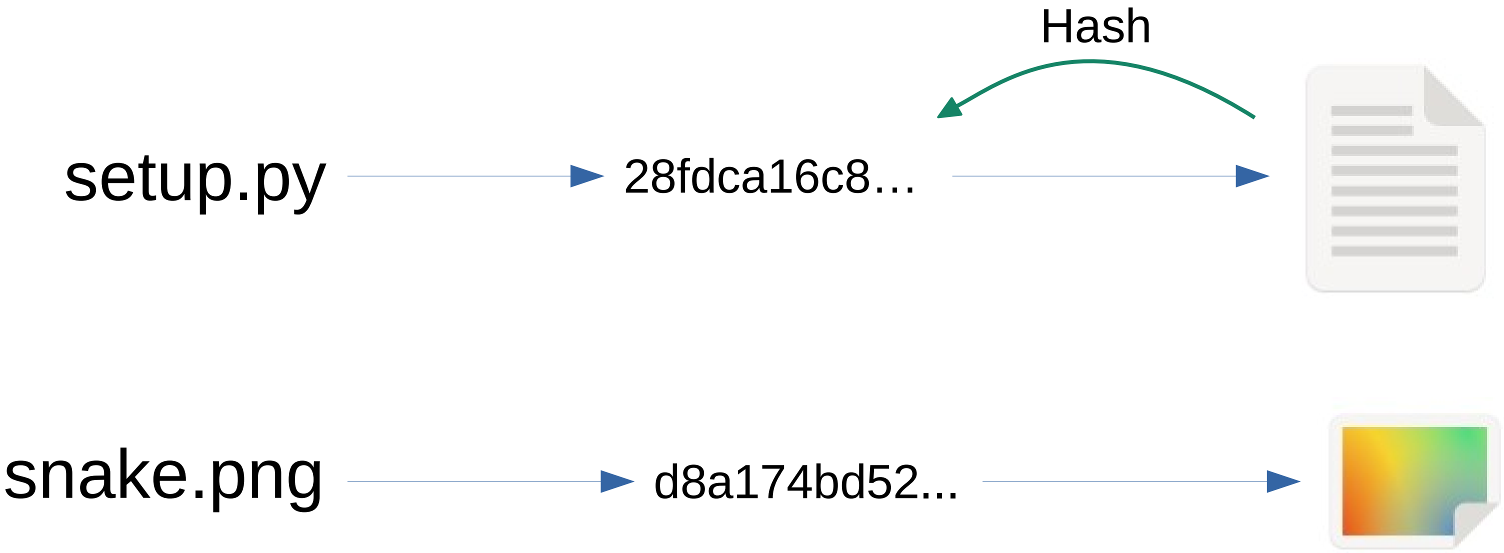
Normal filesystem



setup.py

snake.png

Content addressable store



Hash

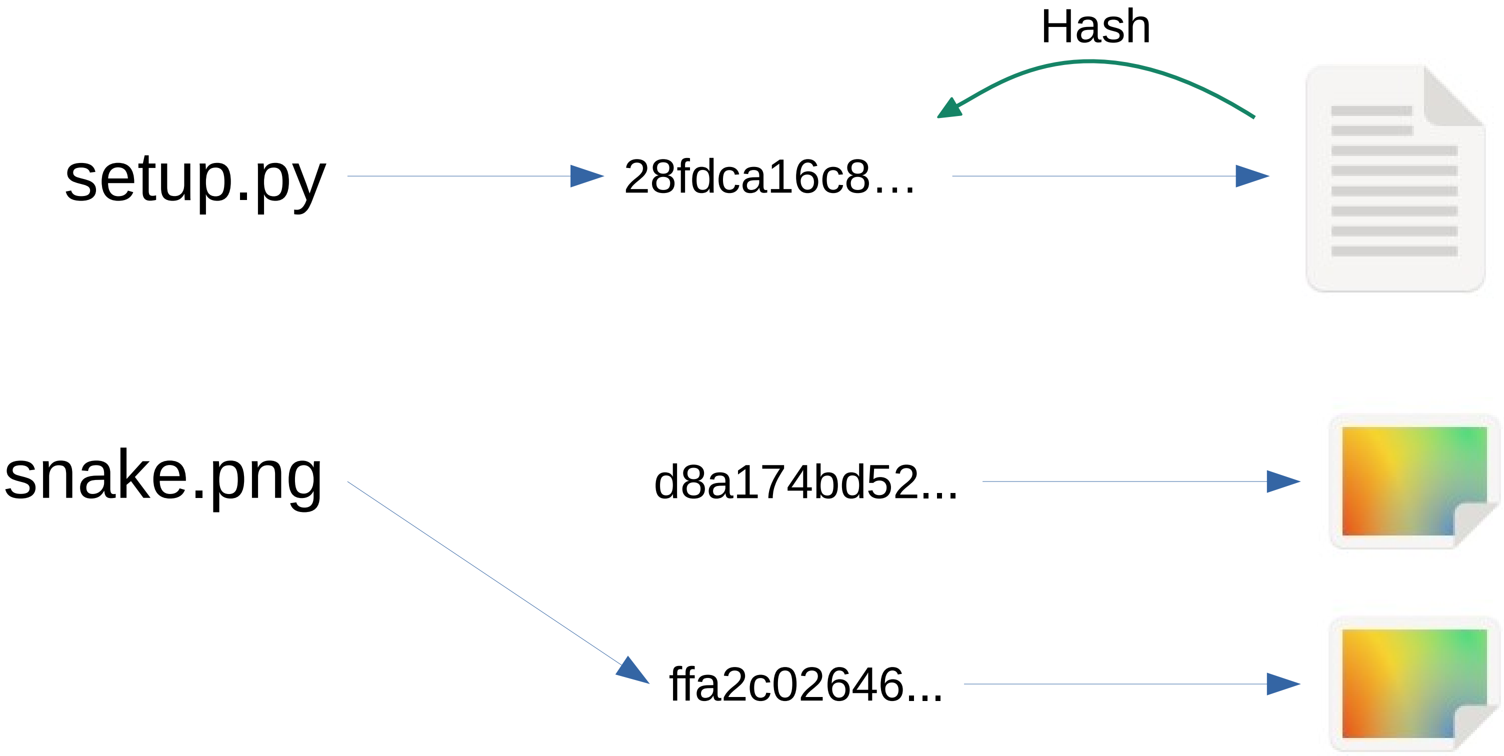
setup.py

28fdca16c8…

snake.png

d8a174bd52...

Content addressable store



Hash

setup.py

28fdca16c8…

snake.png

d8a174bd52...

ffa2c02646...

Knowing our data

- Don’t send data twice
- Don’t store data twice
- Check data is correct

Applications

- Efficient backup (e.g. Borg)
- Git
- Hangar (See Richard Izzo’s talk)
- Caching (e.g. pip)
- Peer-to-peer sharing (e.g. IPFS)