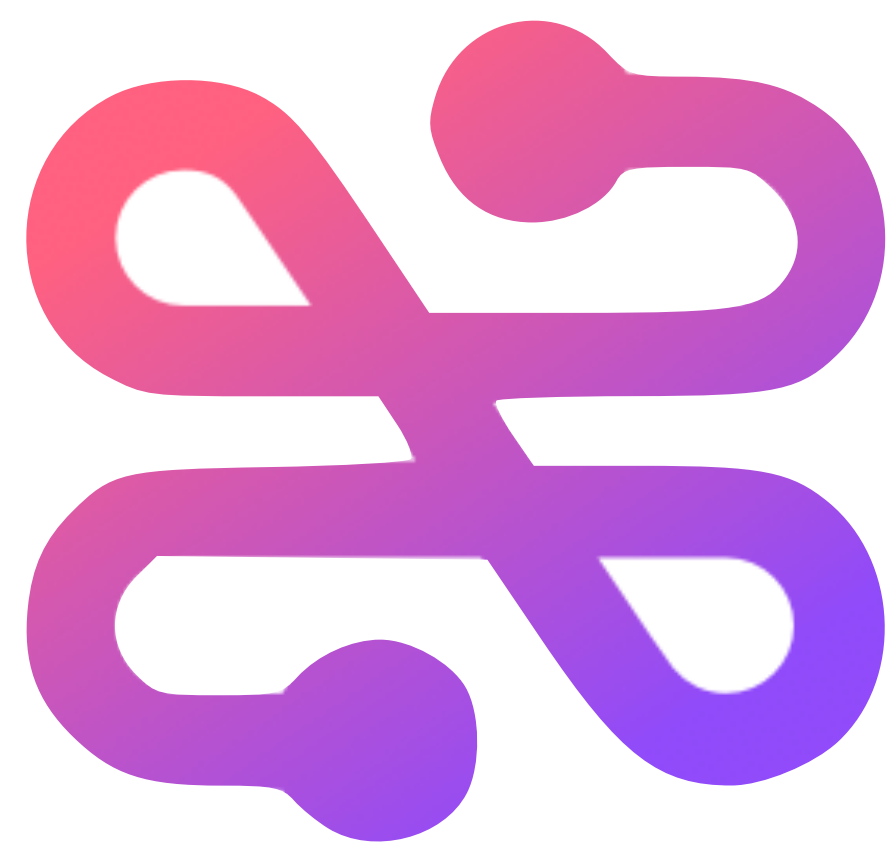
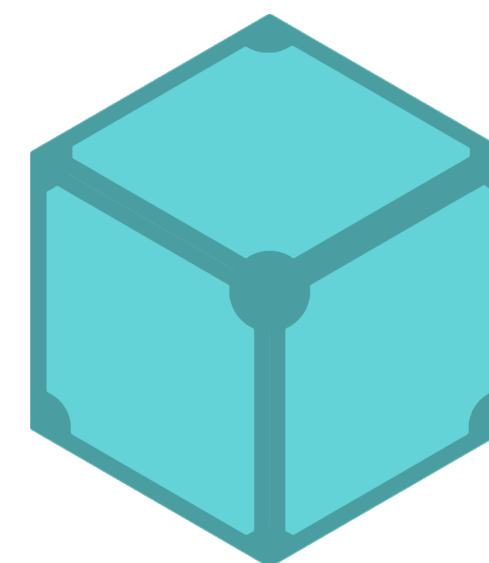




fission



IPFS 101 & THE NEXT-GEN WEB





BROOKLYN ZELENKA



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- Cofounder at FISSION
- Web3 tools for a Web 2.0 world
- Early access: <https://tools.fission.codes>





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- EIPs
 - 615: Subroutines & Static Jumps
 - 902: Token Permissions & Validation
 - 1066: Status Codes
 - 1444: On-Chain Translation

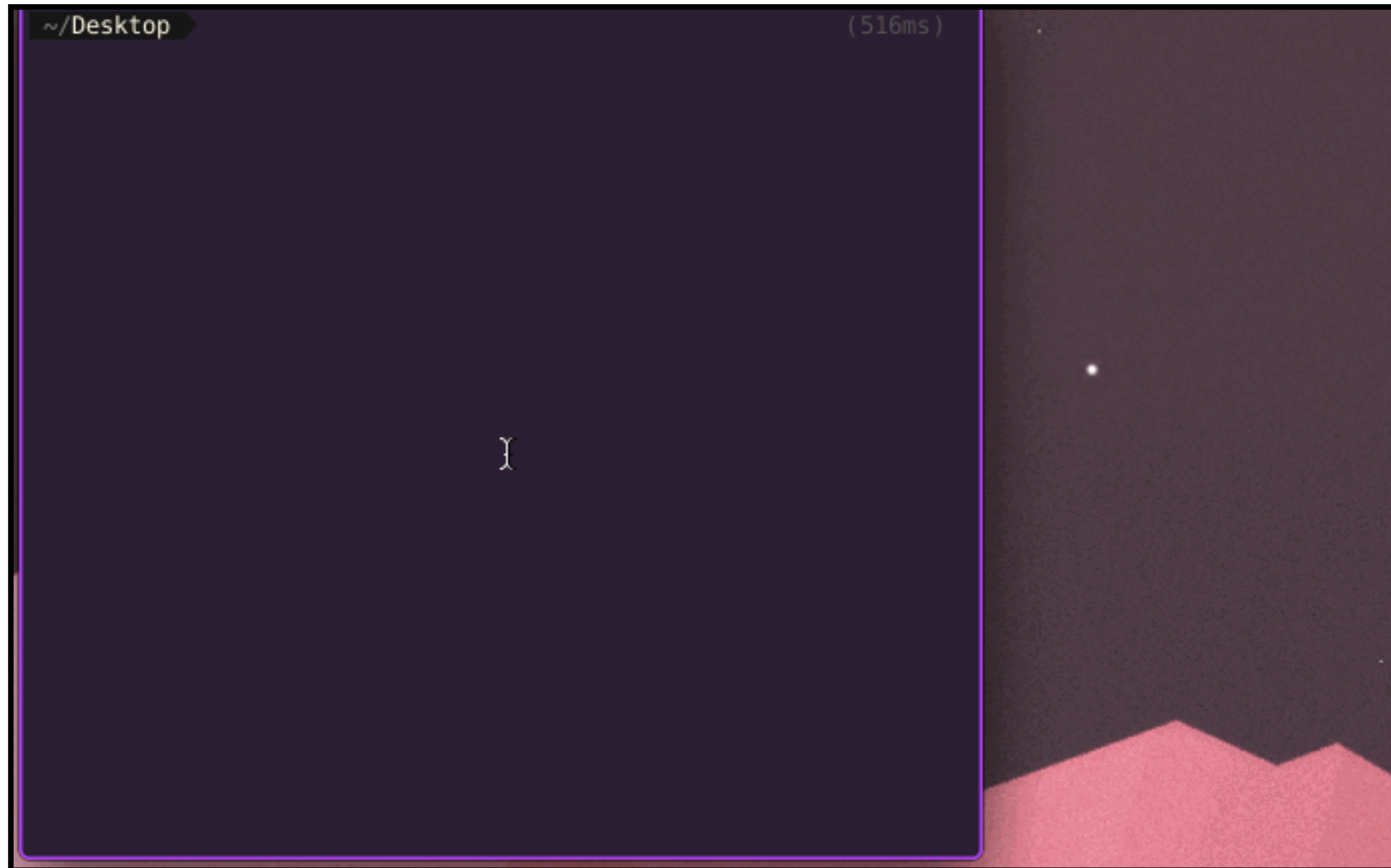


AN IPFS PRIMER

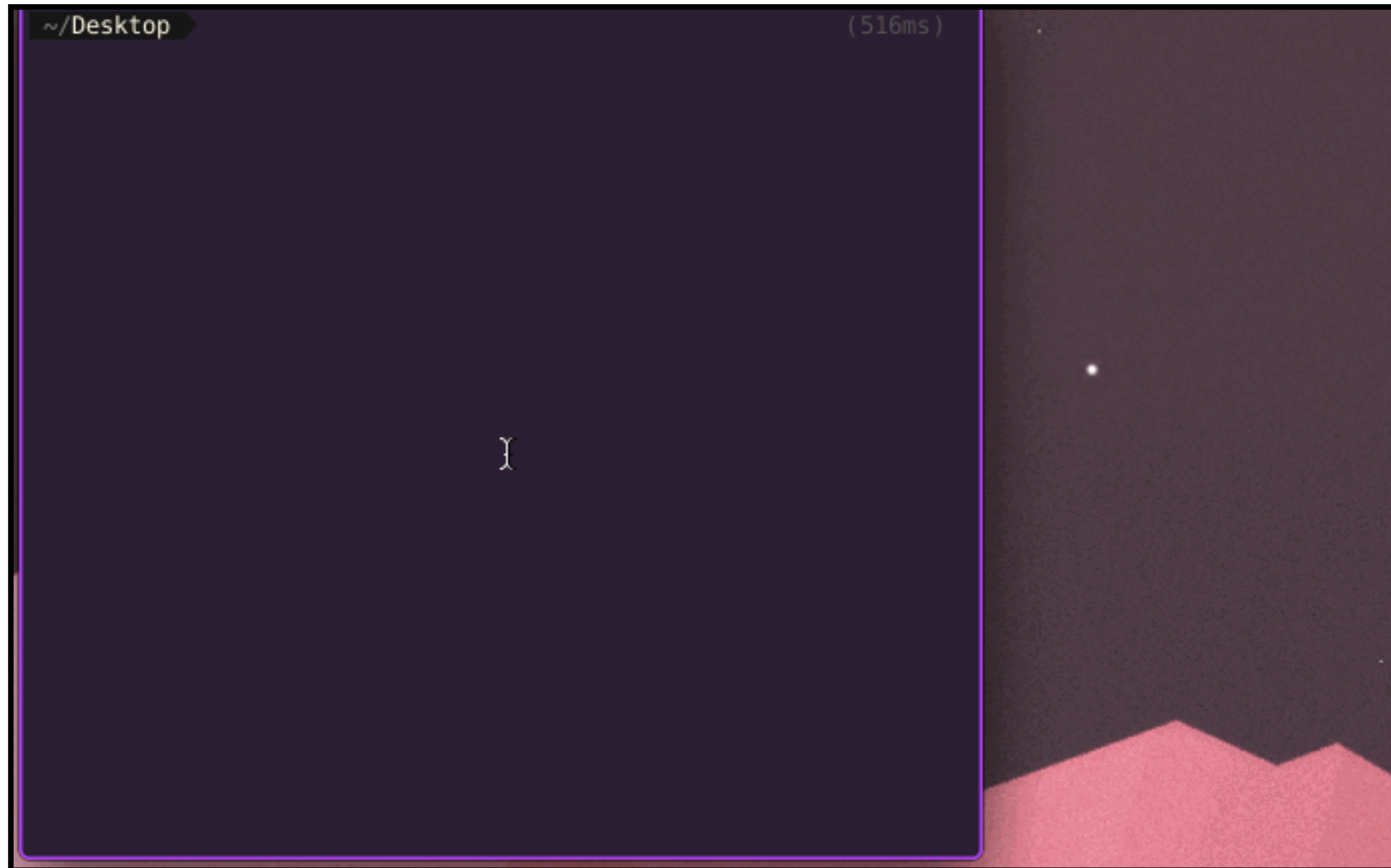
AN IPFS PRIMER

MEET THE CONTENT-ADDRESSABLE WEB

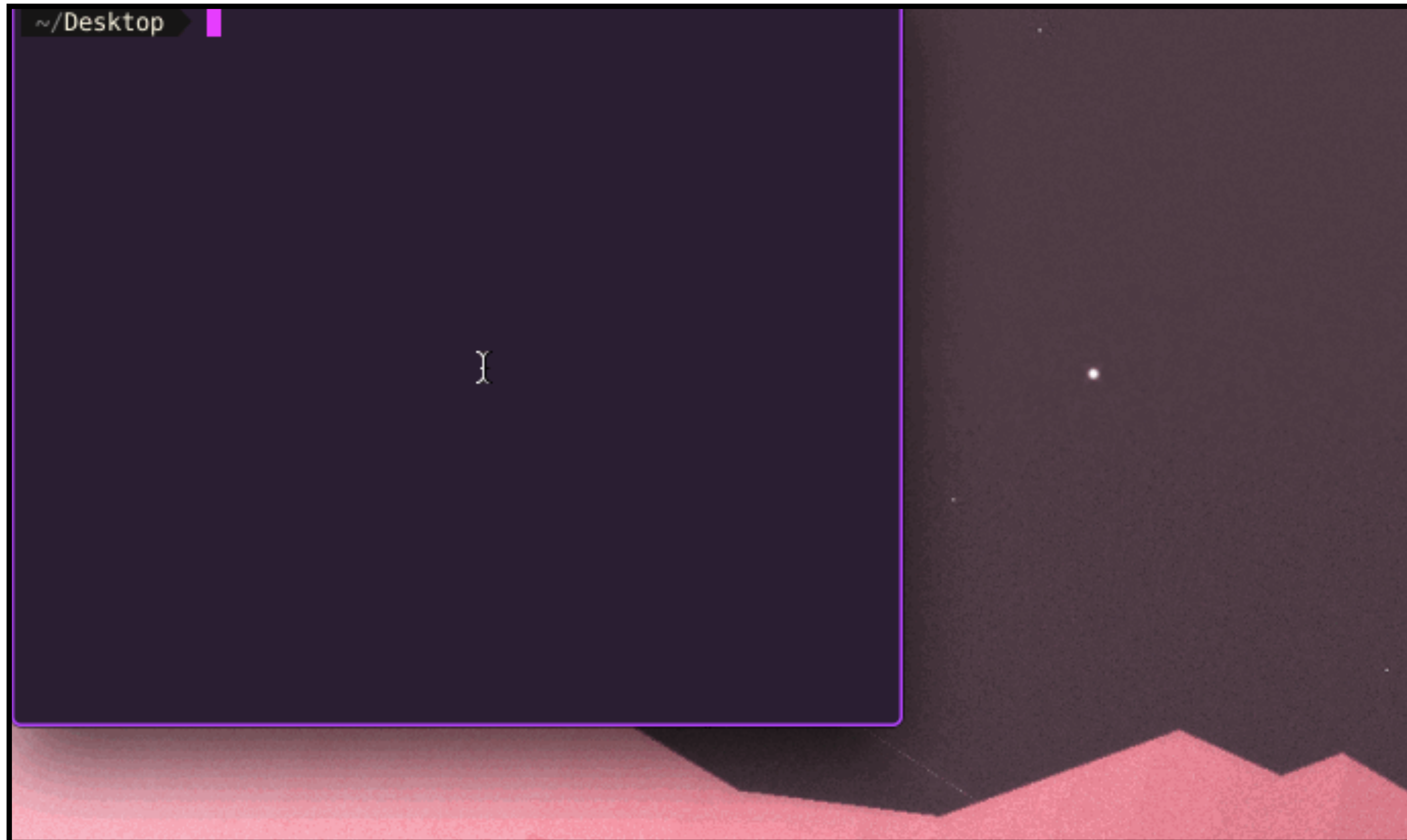
AN IPFS PRIMER IN ACTION — TEXT (JSON, HTML, SOURCE, &C)



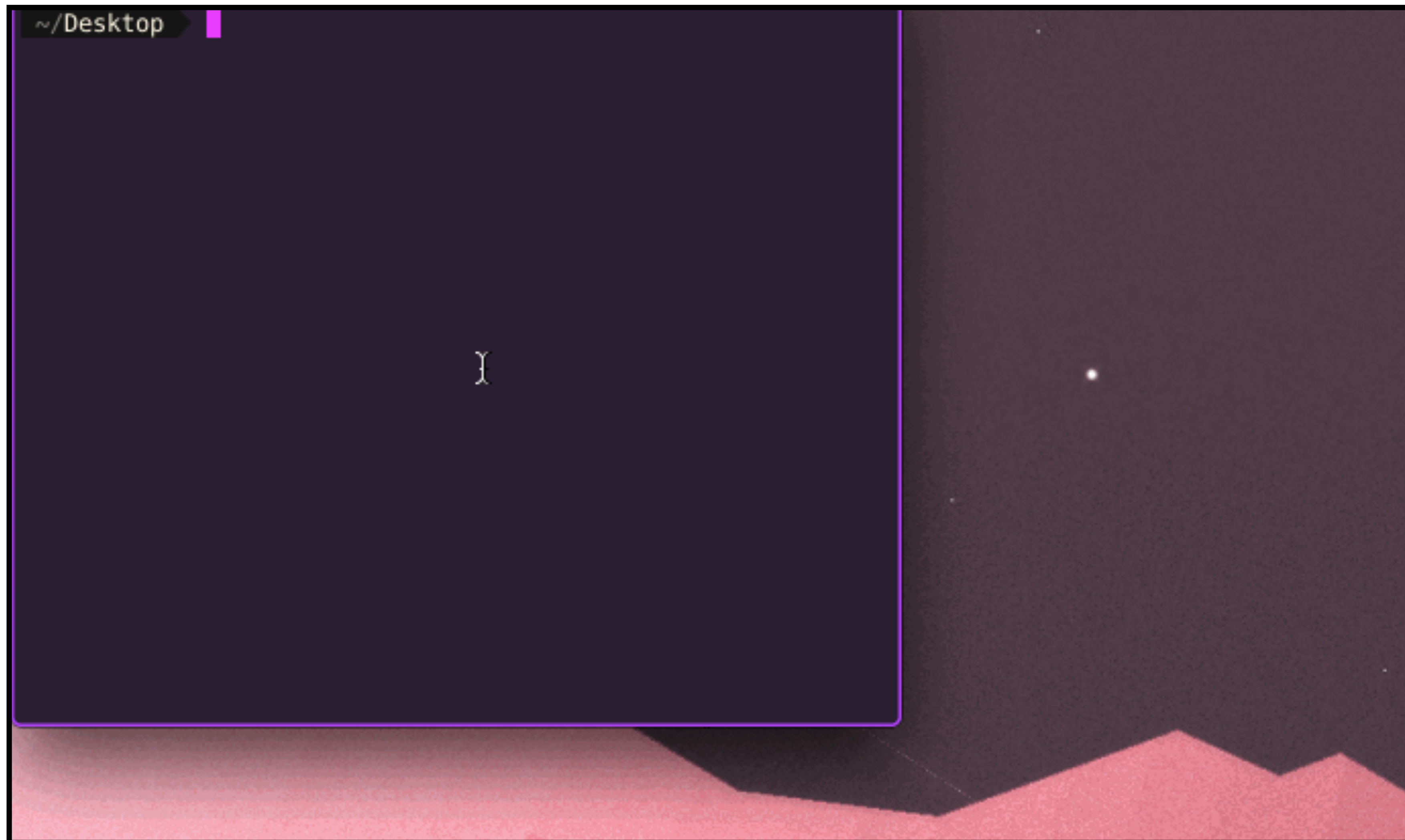
AN IPFS PRIMER IN ACTION — TEXT (JSON, HTML, SOURCE, &C)



AN IPFS PRIMER IN ACTION — IMAGE



AN IPFS PRIMER IN ACTION — IMAGE



AN IPFS PRIMER

THE WEB TODAY

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THE WEB TODAY

- Predominantly single-source (per file) server/client

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- Like a key/value store **{ip => {path => content}}**

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 - DNS maps names to IP addresses
 - Focused on the physical network

VIRTUAL ADDRESS

PHYSICAL LOCATION

AN IPFS PRIMER

THE WEB TODAY

- Predominantly single-source (per file) server/client
- Like a key/value store **{ip => {path => content}}**
- “Location addressing”
 - DNS maps names to IP addresses
 - Focused on the physical network
- Mutable addressing via DNS
 - `www.foo.com/baz` may be JSON today, but a video tomorrow
 - ...or altered content

VIRTUAL ADDRESS

PHYSICAL LOCATION

AN IPFS PRIMER

CONTENT ADDRESSING

VIRTUAL ADDRESS

PHYSICAL LOCATION

AN IPFS PRIMER

CONTENT ADDRESSING

- A layer of abstraction above location

CONTENT ID

VIRTUAL ADDRESS

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AN IPFS PRIMER

CONTENT ADDRESSING

- A layer of abstraction above location
- Like a key/value store **{hash(content) => content}**
 - Content hash AKA “content identifier” or CID
 - Special “universal” relationship to content

CONTENT ID

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- Focused on *the data*
- Does not care where it lives
- Still have paths
 - Immutable DAG
 - Why no loops?

CONTENT ID

VIRTUAL ADDRESS

PHYSICAL LOCATION

AN IPFS PRIMER
LINKED DATA

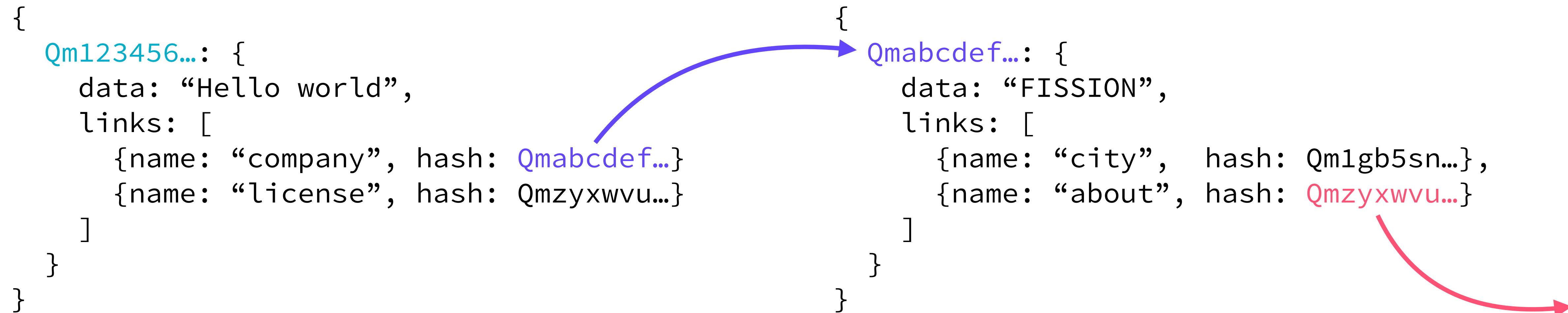
AN IPFS PRIMER

LINKED DATA

```
{
  Qm123456...: {
    data: "Hello world",
    links: [
      {name: "company", hash: Qmabcdef...}
      {name: "license", hash: Qmzyxwvu...}
    ]
  }
}
```

AN IPFS PRIMER

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      {name: "company", hash: Qmabcdef...}
      {name: "license", hash: Qmzyxwvu...}
    ]
  }
}
```

```
{
  Qmabcdef...: {
    data: "FISSION",
    links: [
      {name: "city", hash: Qm1gb5sn...},
      {name: "about", hash: Qmzyxwvu...}
    ]
  }
}
```

ipfs cat /ipfs/Qm123456.../company/about/founder
=> "Brooke"

AN IPFS PRIMER

ROUTING & LOOKUP  

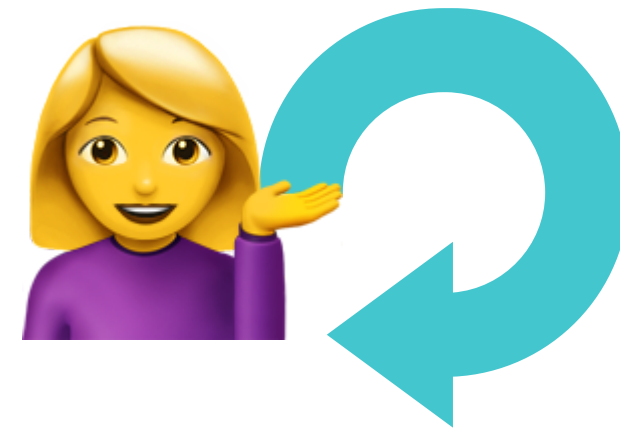
AN IPFS PRIMER

ROUTING & LOOKUP  



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ROUTING & LOOKUP  



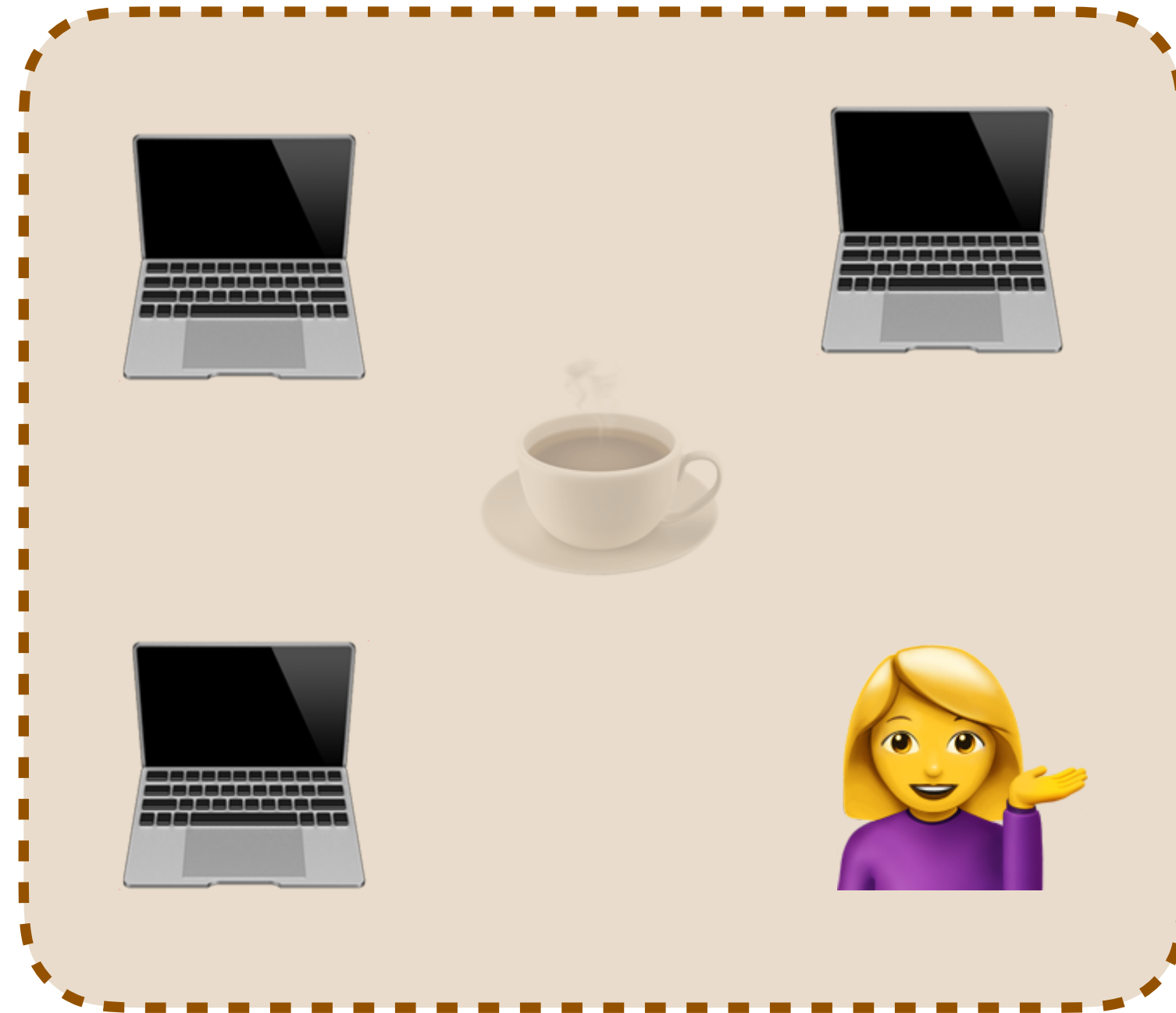
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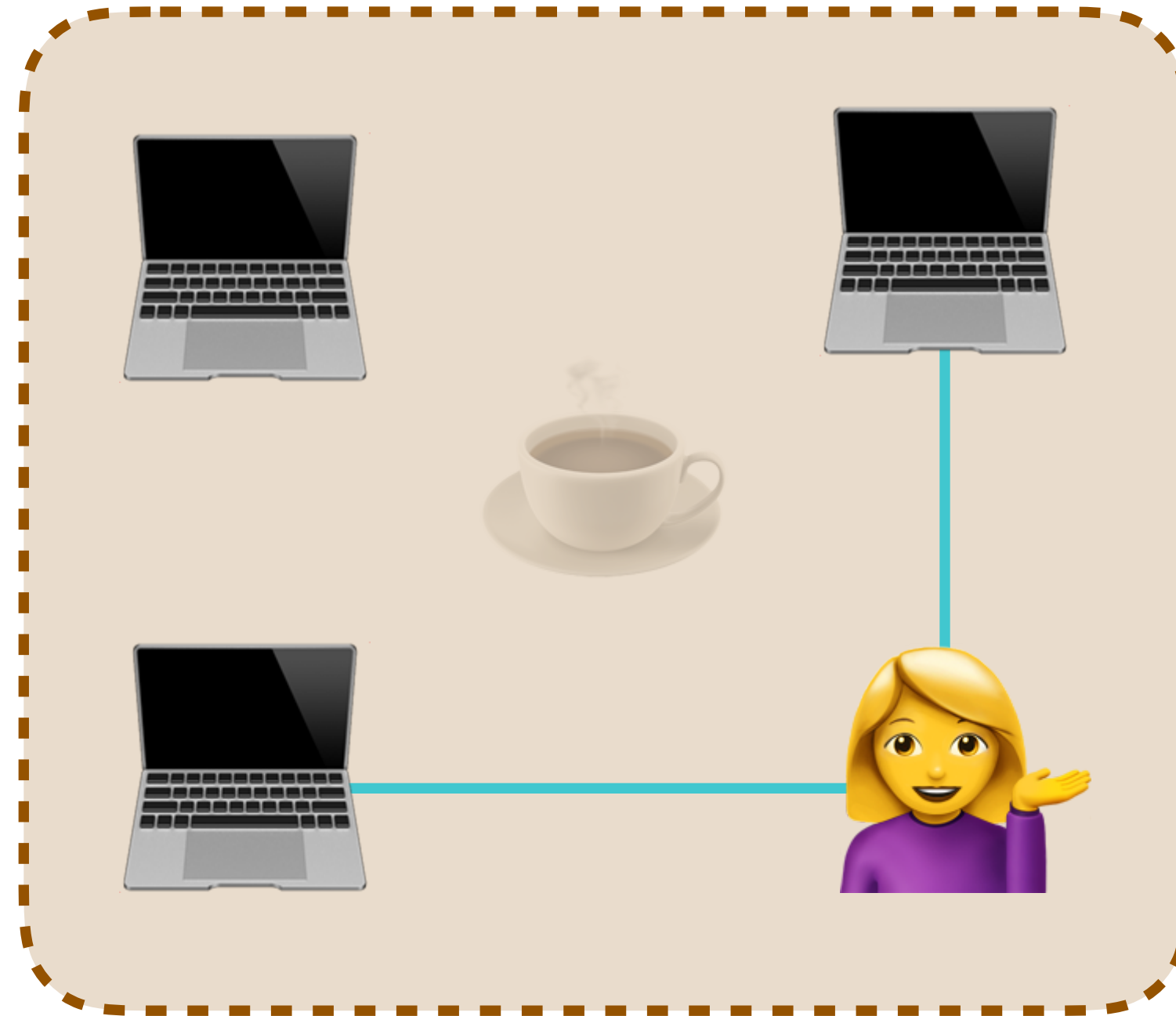
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ROUTING & LOOKUP 🔍🌊

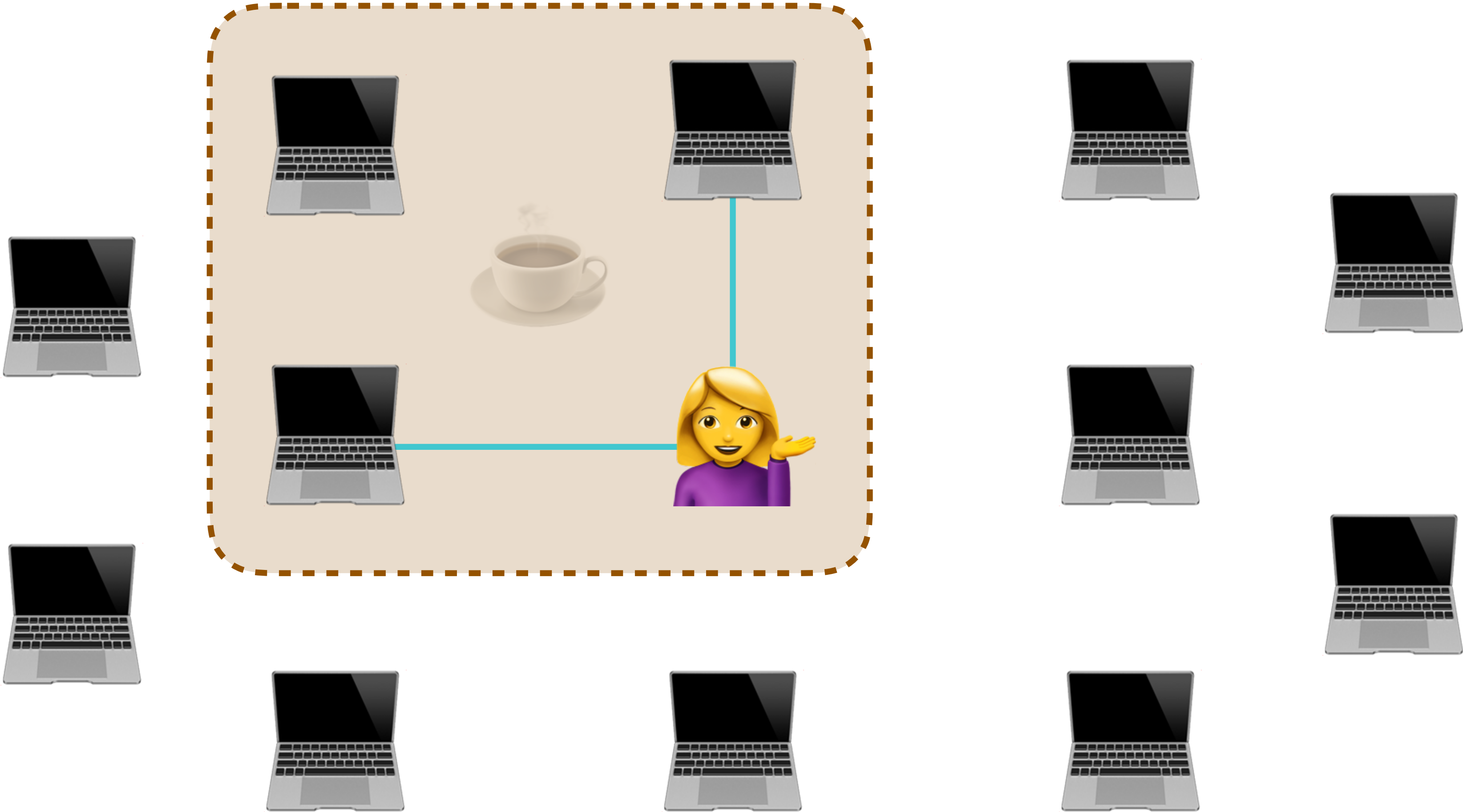


AN IPFS PRIMER

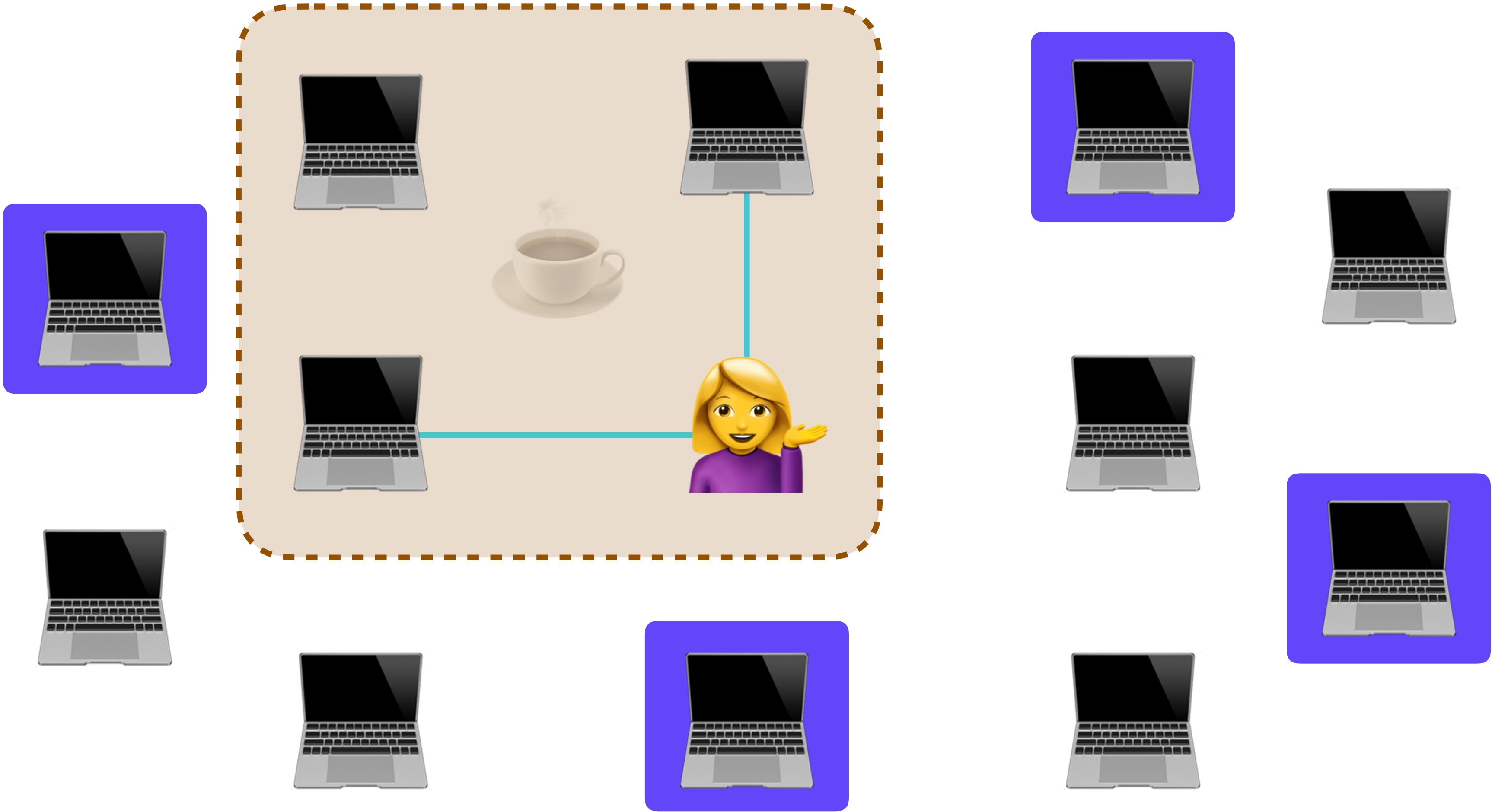
ROUTING & LOOKUP 🔍🌊



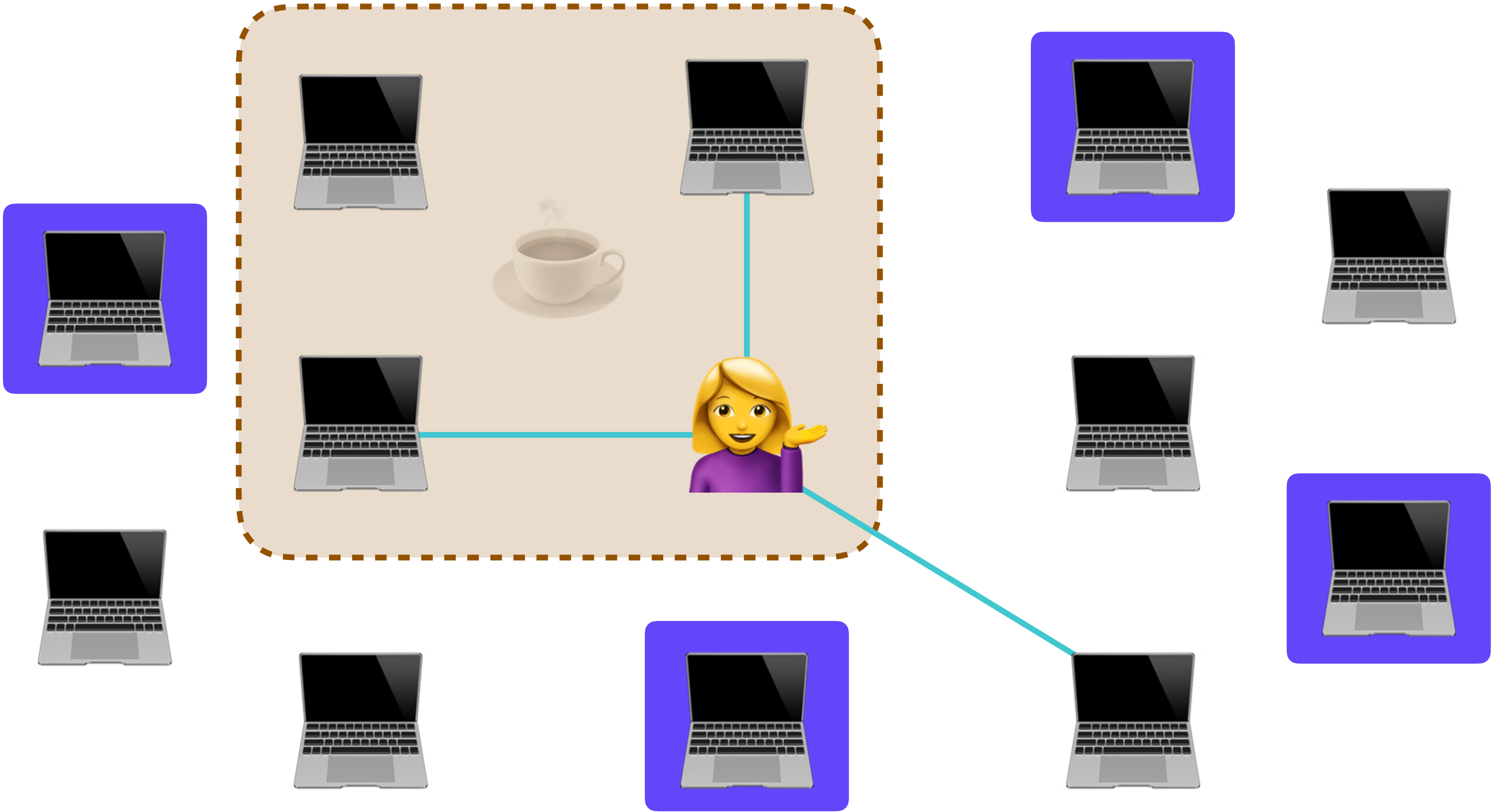
AN IPFS PRIMER
ROUTING & LOOKUP 🔍🌊



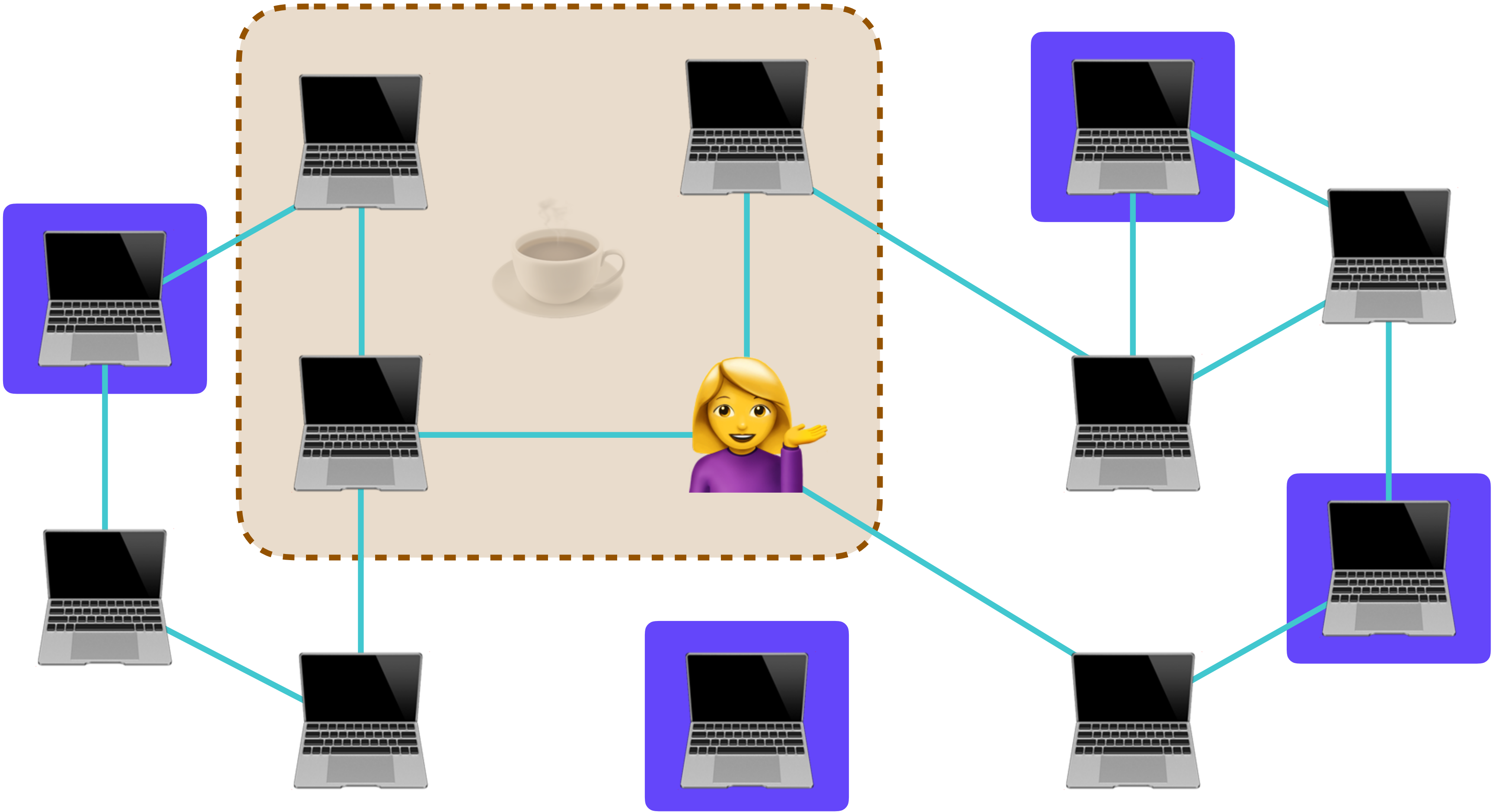
AN IPFS PRIMER
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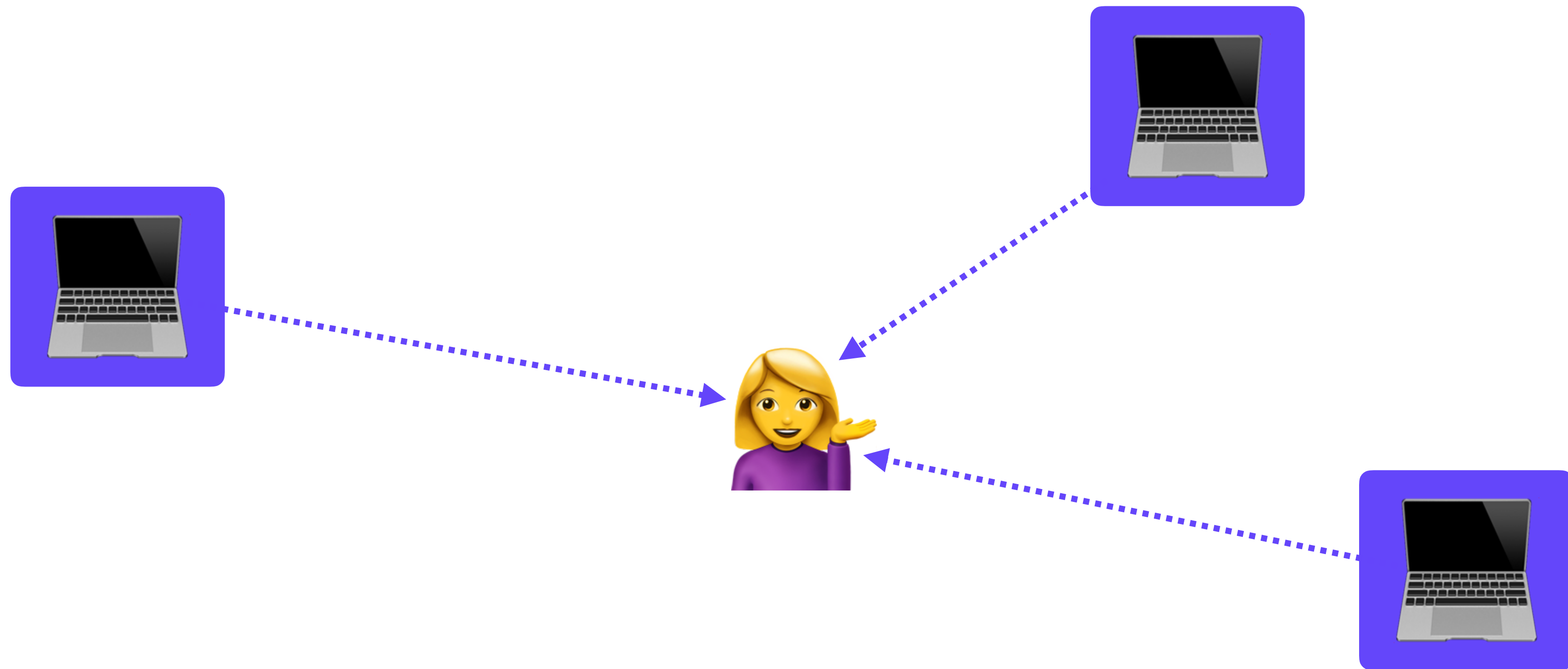


AN IPFS PRIMER
ROUTING & LOOKUP 🔍🌊



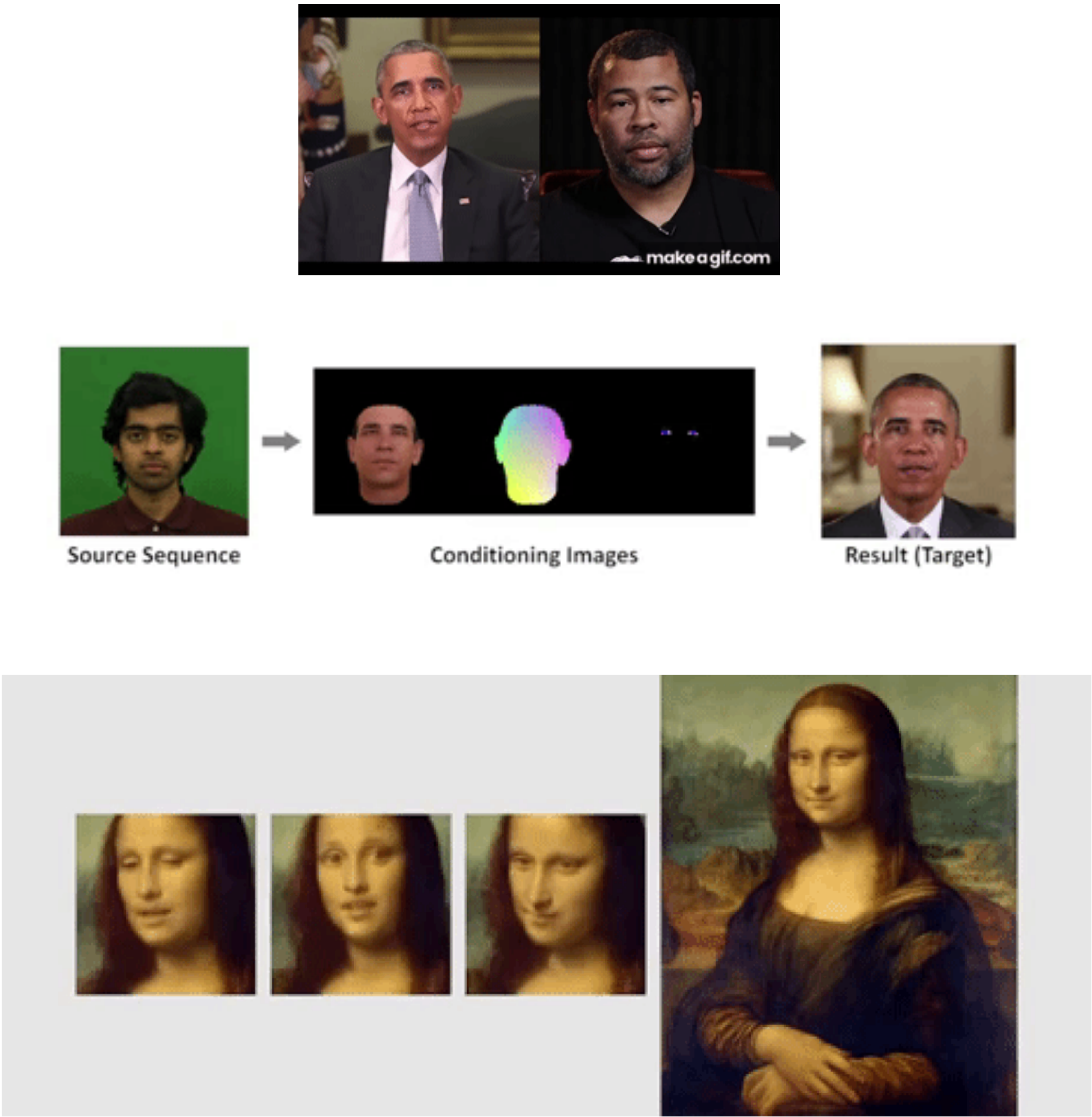
AN IPFS PRIMER

ROUTING & LOOKUP 🔍🌊



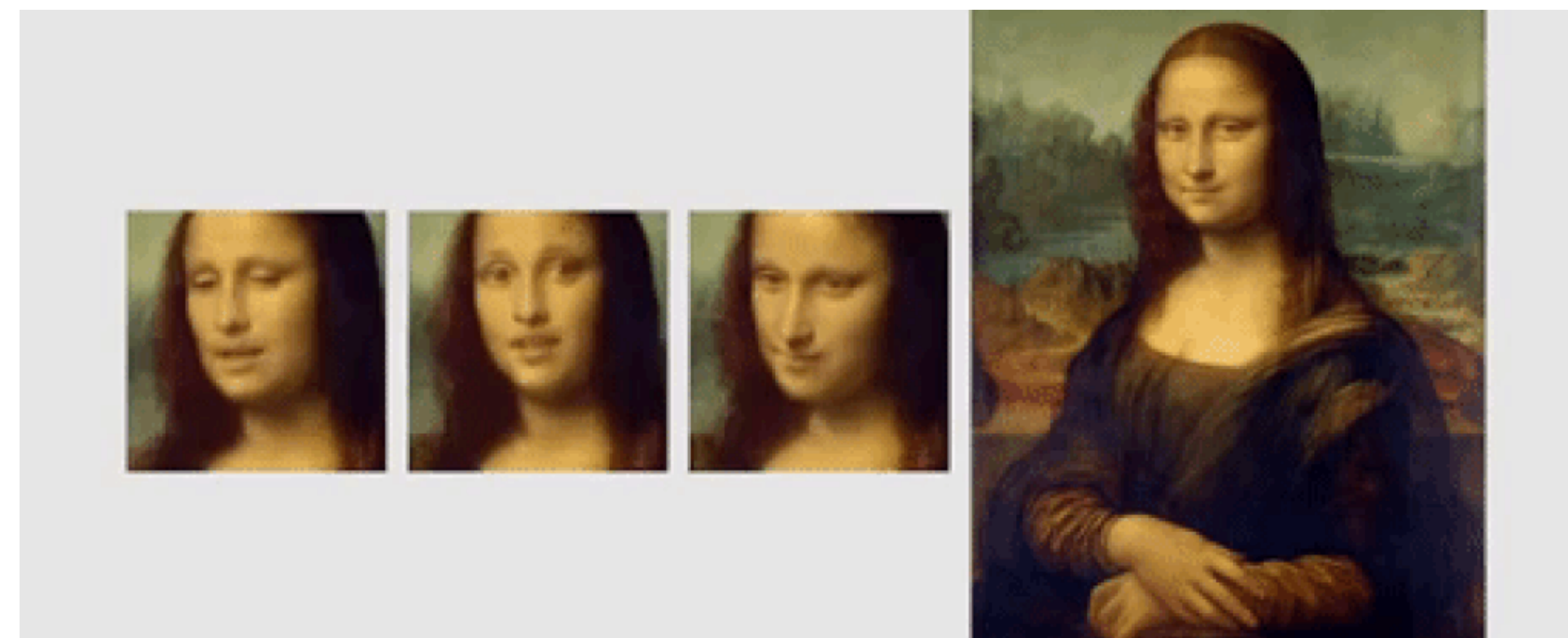
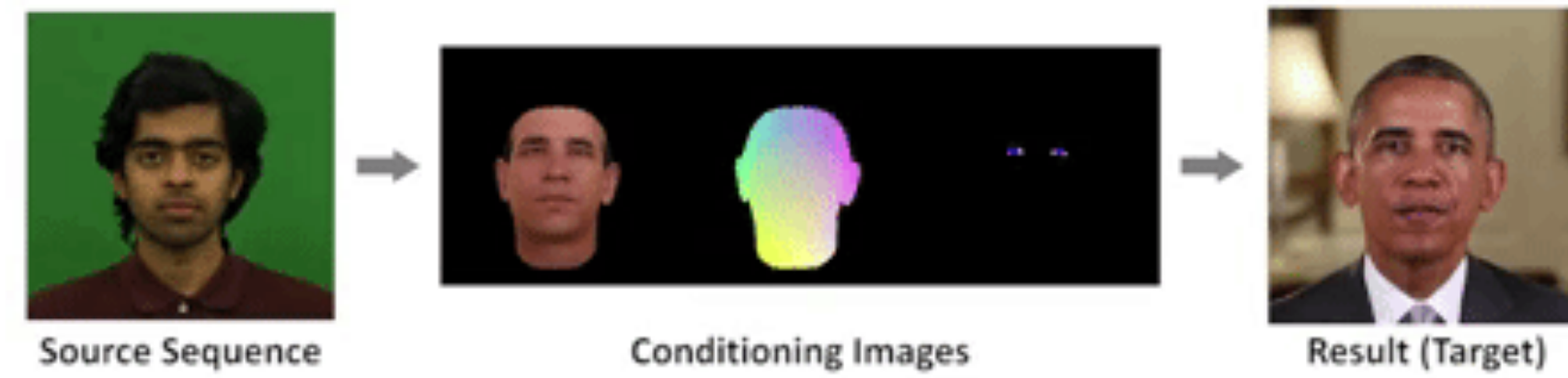
AN IPFS PRIMER

AUTHENTIC DATA (FINGERPRINTING)



AN IPFS PRIMER

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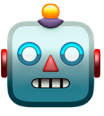


AN IPFS PRIMER

ONE NAMESPACE TO RULE THEM ALL  

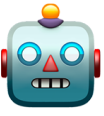
AN IPFS PRIMER

ONE NAMESPACE TO RULE THEM ALL  

- Same file = same hash
 - No matter when 
 - No matter where  
 - No matter who     

AN IPFS PRIMER

ONE NAMESPACE TO RULE THEM ALL

- Same file = same hash
 - No matter when 
 - No matter where  
 - No matter who     
- Zero file duplication per node
- Replication = CDN-ish features
- Immutable data structures
- Files & data living together!
- 

AN IPFS PRIMER

DISADVANTAGES (IN MID-2019)

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- vs. location-addressing
 - Less consistent lookup performance
 - Not natively supported by browsers (other than Opera for Android)

AN IPFS PRIMER

DISADVANTAGES (IN MID-2019)

- vs. location-addressing
 - Less consistent lookup performance
 - Not natively supported by browsers (other than Opera for Android)
- vs. blockchain
 - No availability guarantee

AN IPFS PRIMER
DEVELOPMENT

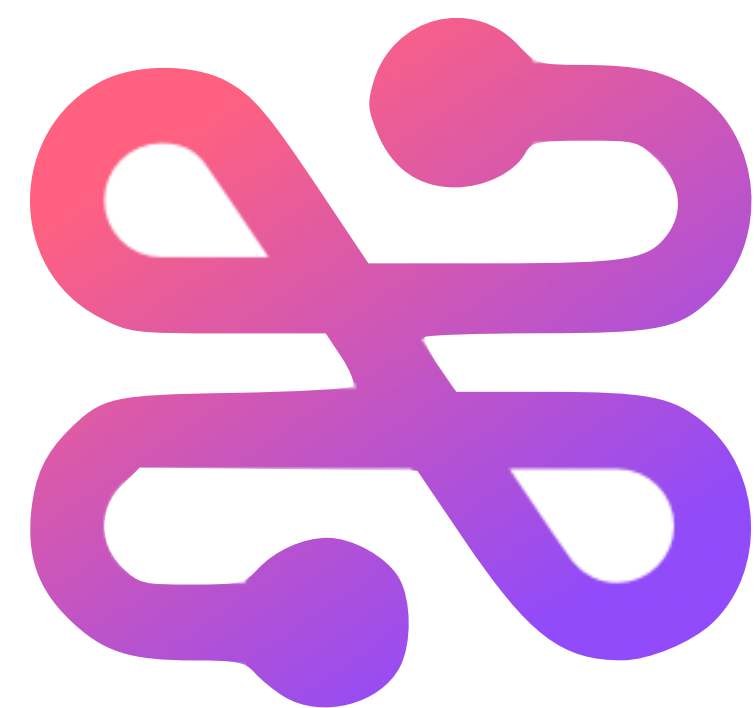
AN IPFS PRIMER DEVELOPMENT

- Backed by Protocol Labs 

AN IPFS PRIMER

DEVELOPMENT

- Backed by Protocol Labs 
- FileCoin 
 - Pre-ICO: raised \$52M USD
 - ICO: \$200M USD
 - Network launching “soon”



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WHAT ARE WE DOING WITH THE DISTRIBUTED WEB?



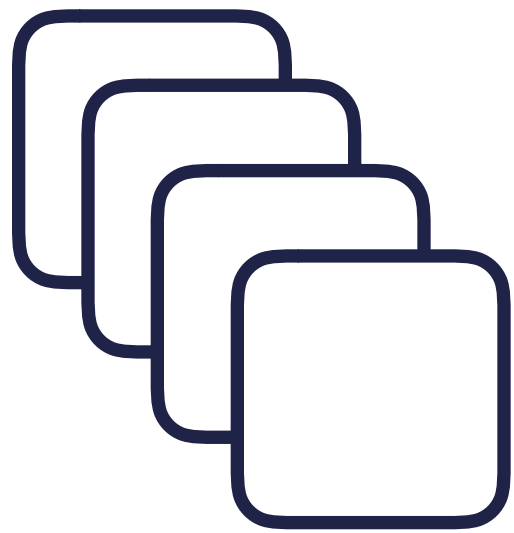
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PARADIGM WAVES



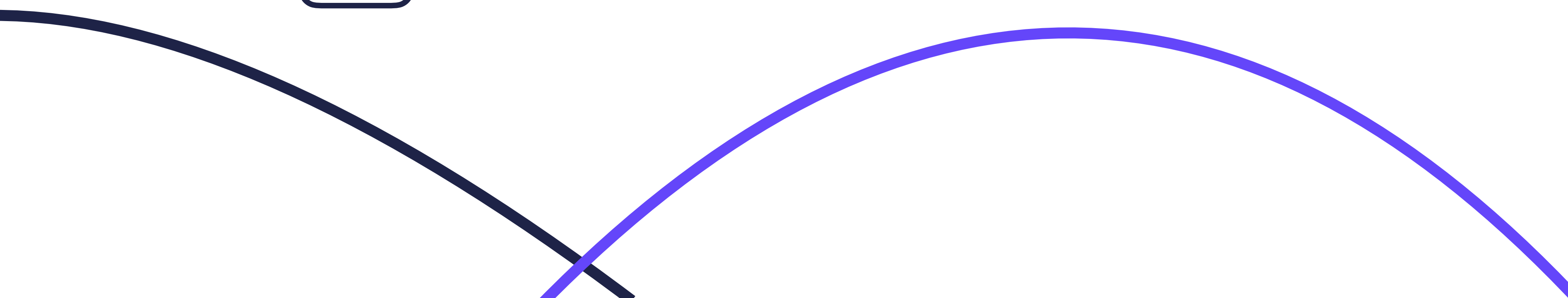
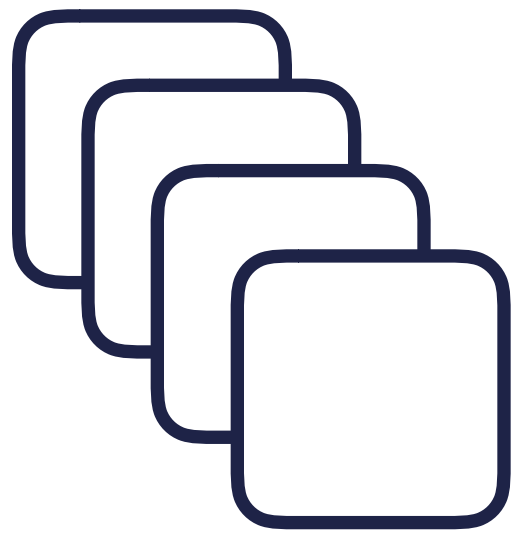
PARADIGM WAVES

CONTAINERS



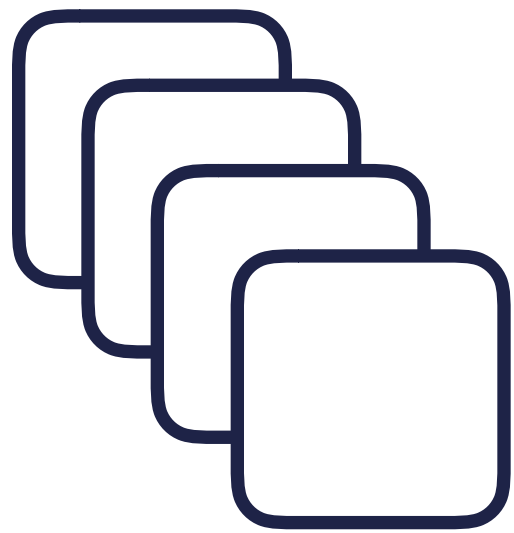


PARADIGM WAVES





PARADIGM WAVES





HOSTLESS & THE DECENTRALIZED WEB

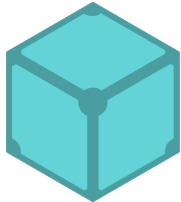


HOSTLESS & THE DECENTRALIZED WEB

TECHNOLOGY	ROLE
------------	------

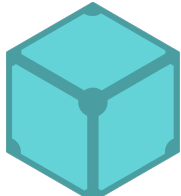


HOSTLESS & THE DECENTRALIZED WEB

TECHNOLOGY	ROLE
 IPFS	Global Storage

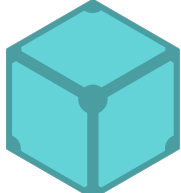


HOSTLESS & THE DECENTRALIZED WEB

TECHNOLOGY	ROLE
 IPFS	Global Storage
 Blockchain	Digital Scarcity



HOSTLESS & THE DECENTRALIZED WEB

TECHNOLOGY	ROLE
 IPFS	Global Storage
 Blockchain	Digital Scarcity
 Web Assembly	Universal Compute



A FRAMEWORK FOR THE NEXT WAVE



A FRAMEWORK FOR THE NEXT WAVE

Storage

FILES



DATABASE





A FRAMEWORK FOR THE NEXT WAVE

Storage

FILES 

DATABASE 

Scarcity

IDENTITY 

ASSETS 



A FRAMEWORK FOR THE NEXT WAVE

Storage

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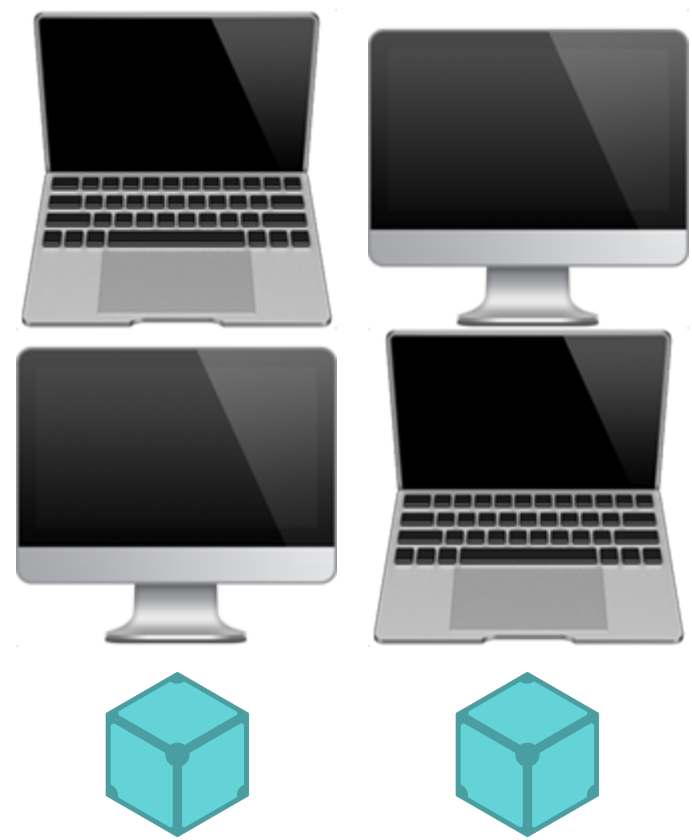
Compute

DISTRIBUTED COMPUTE 

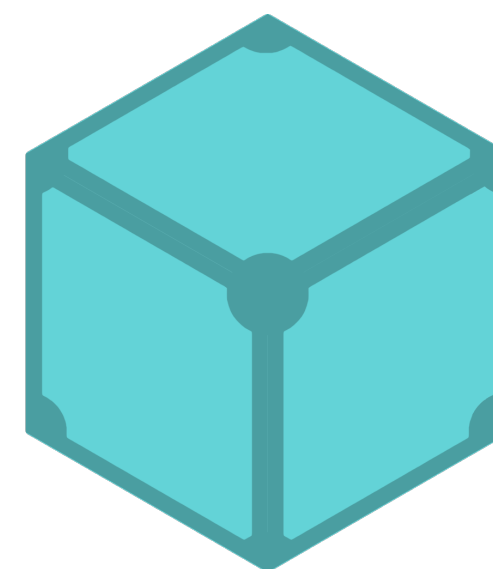
SMART CONTRACTS 



BETTER LIVING THROUGH SCIENCE 🧑💻 🧑💻

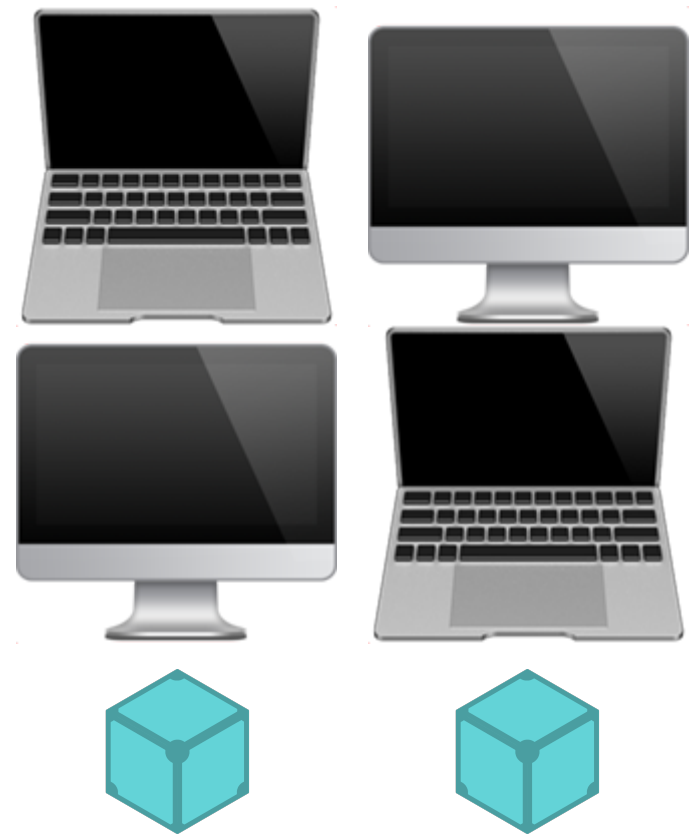


<https://yourname.fission.tools>

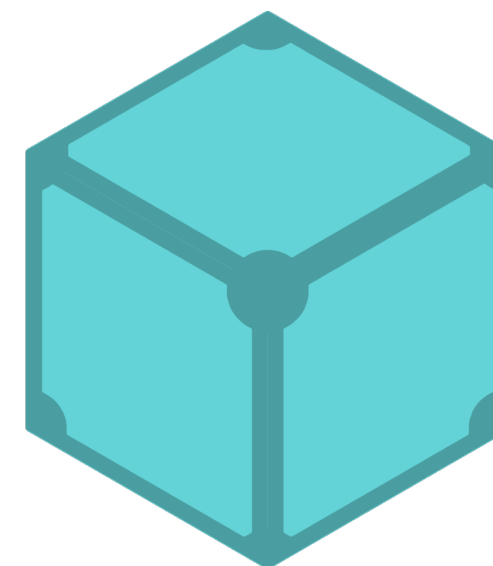




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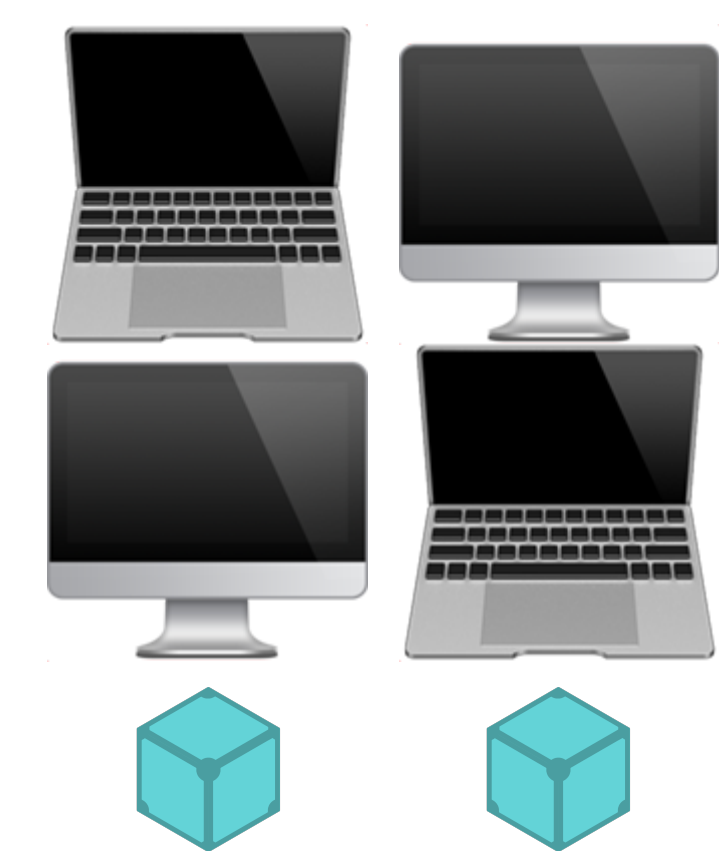


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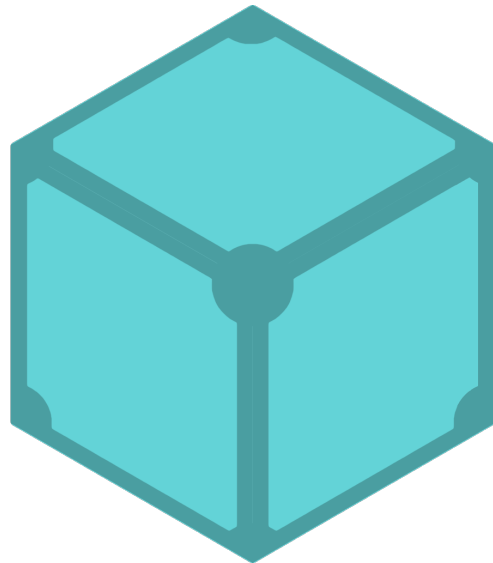


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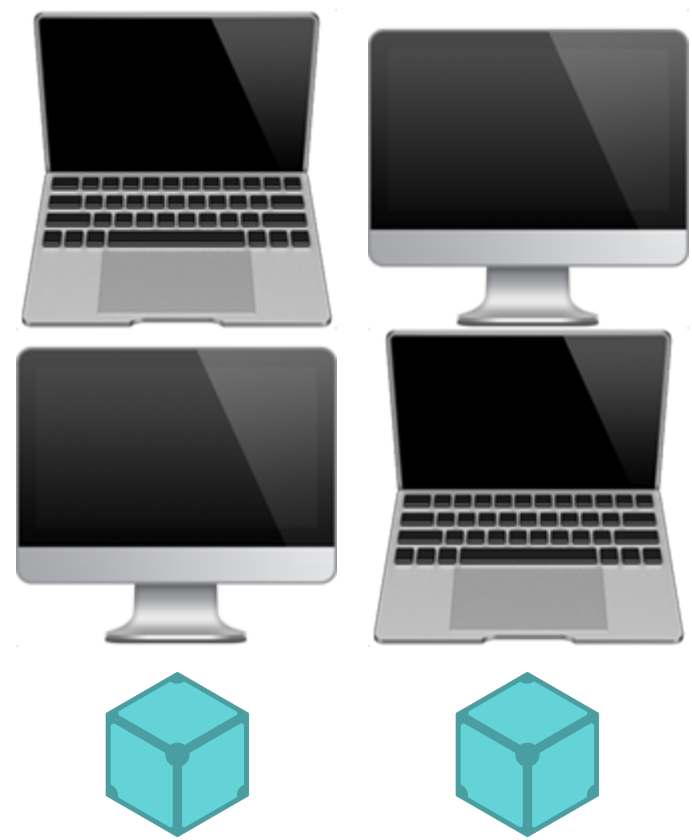
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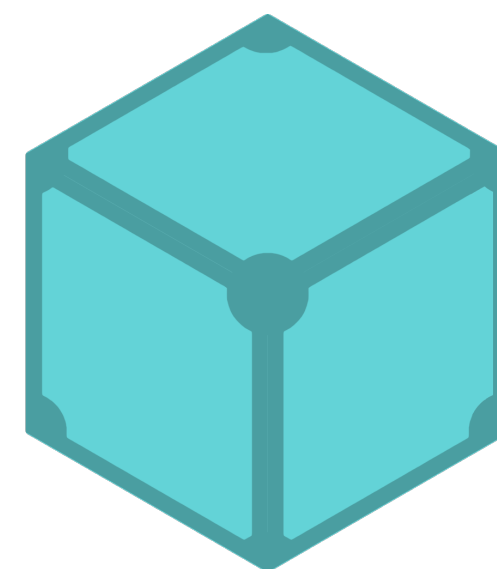




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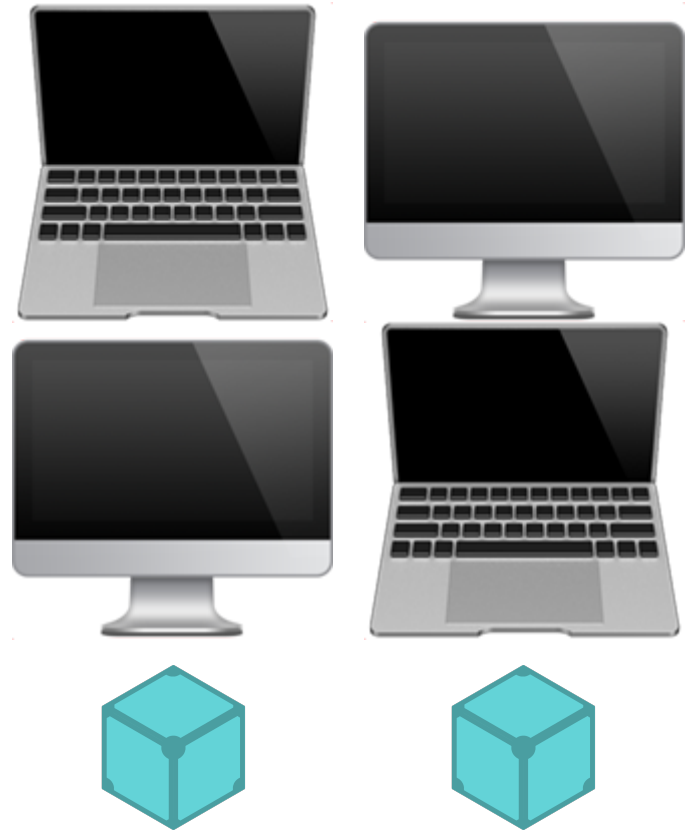


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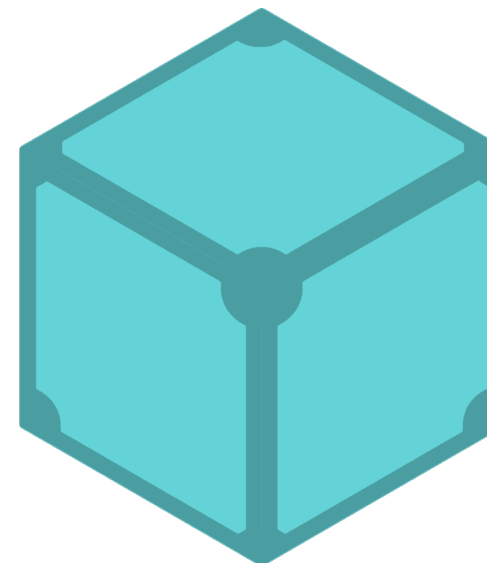




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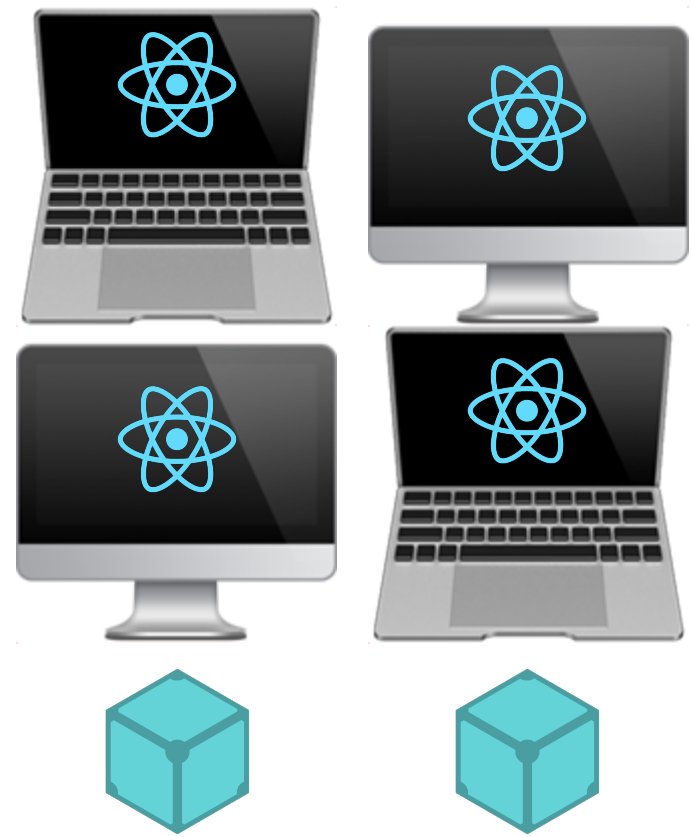


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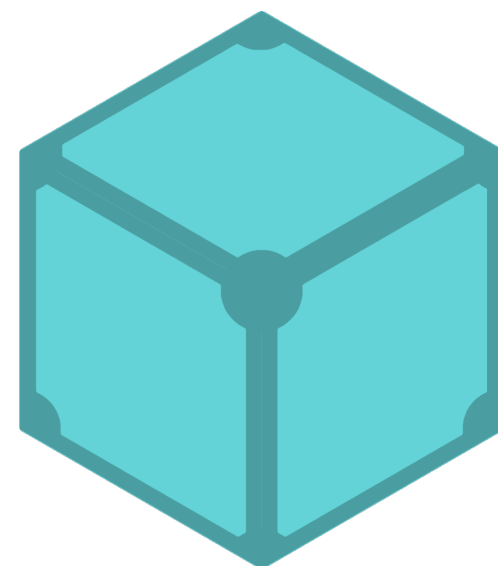




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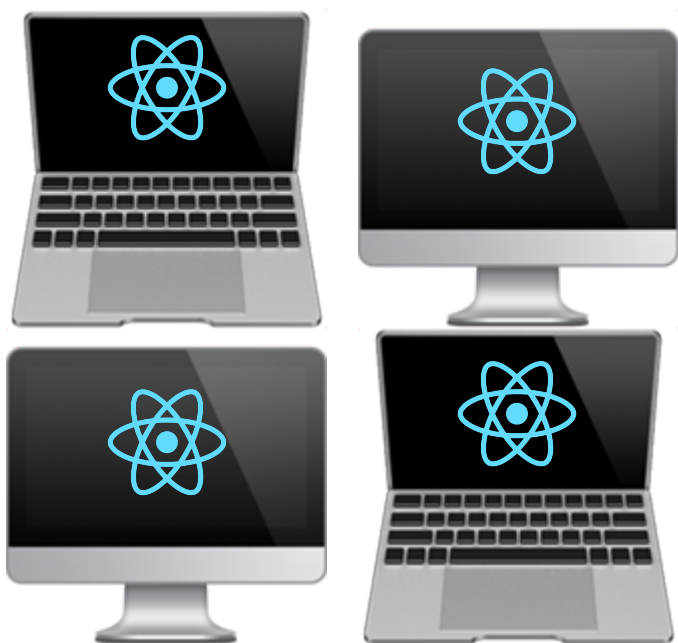


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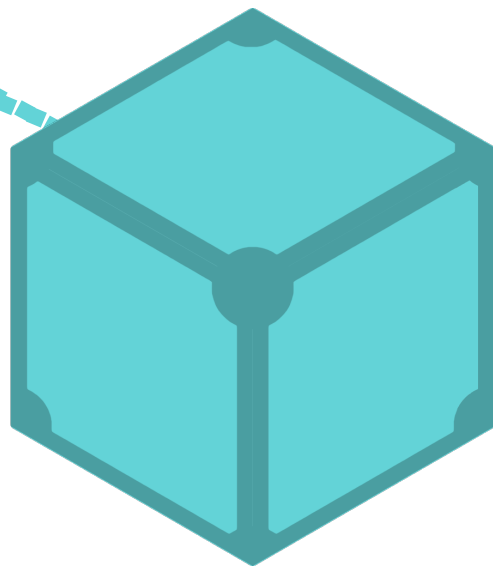
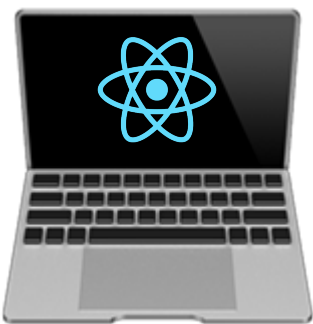




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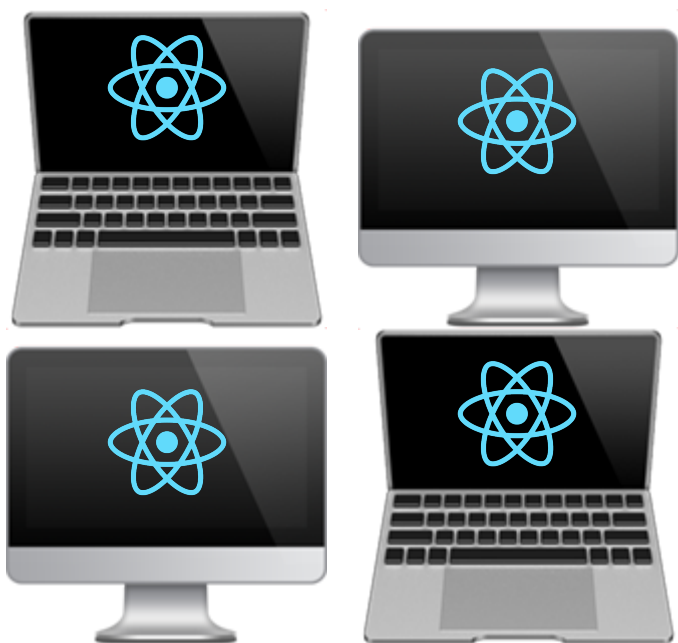


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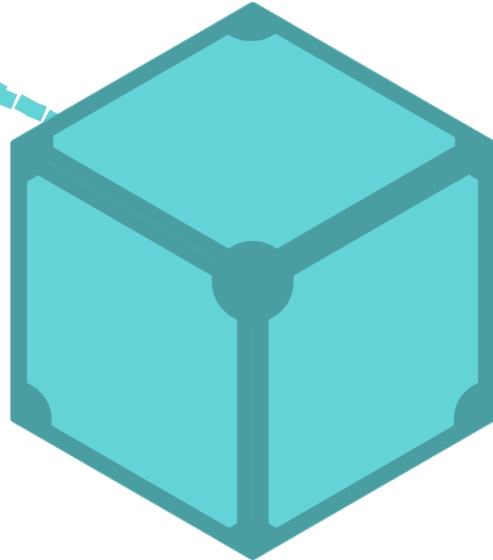
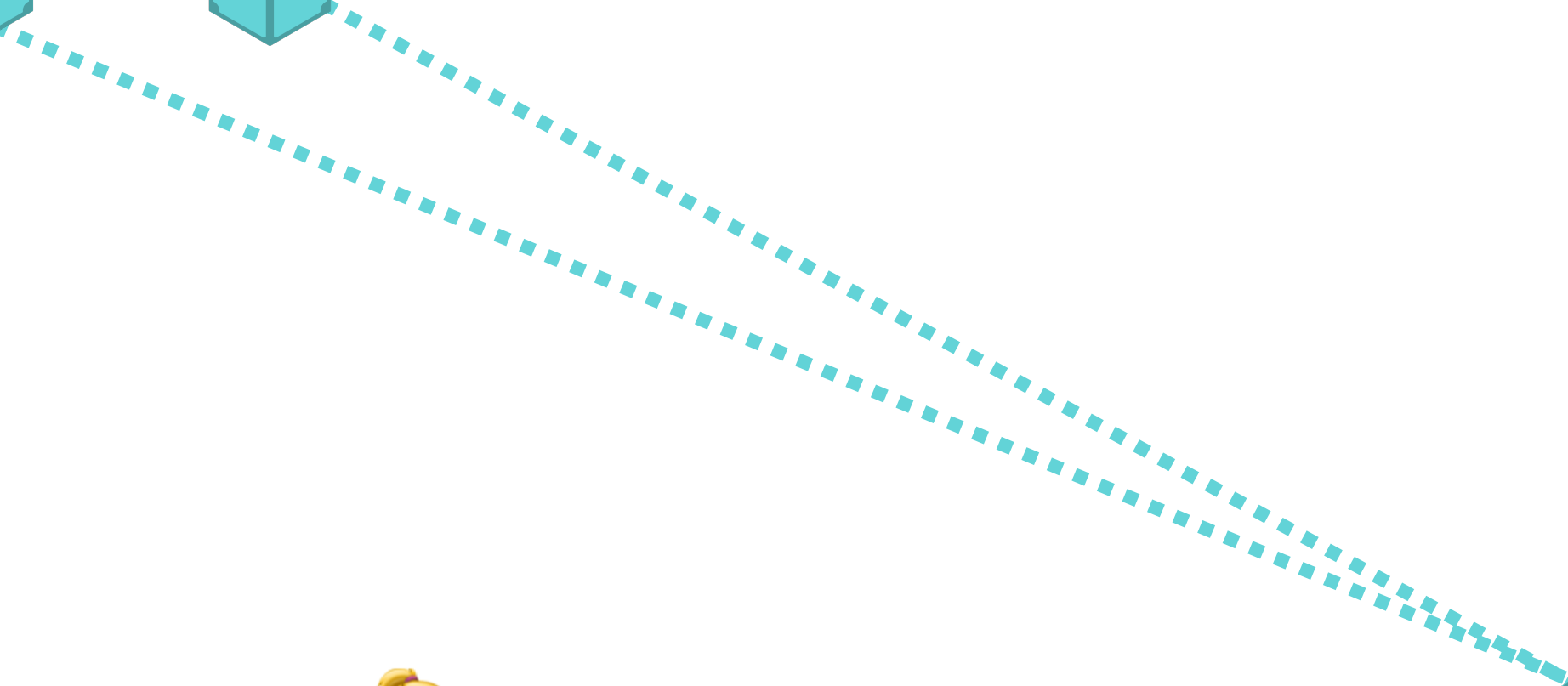




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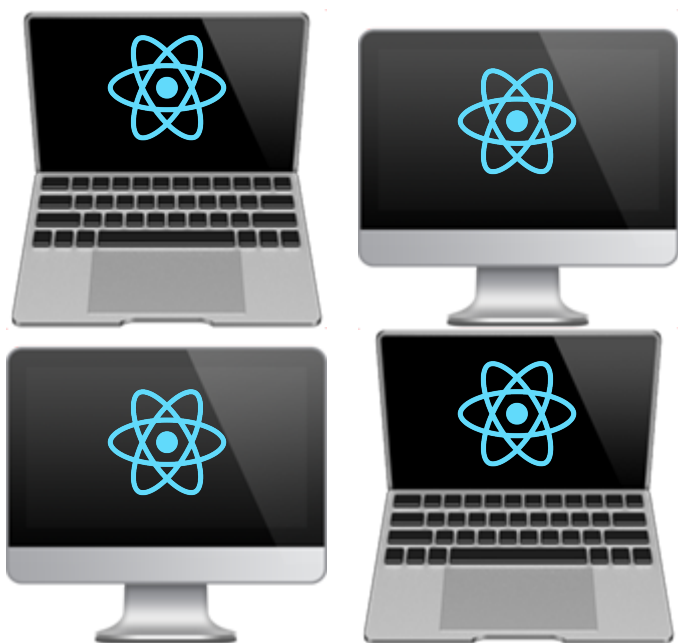


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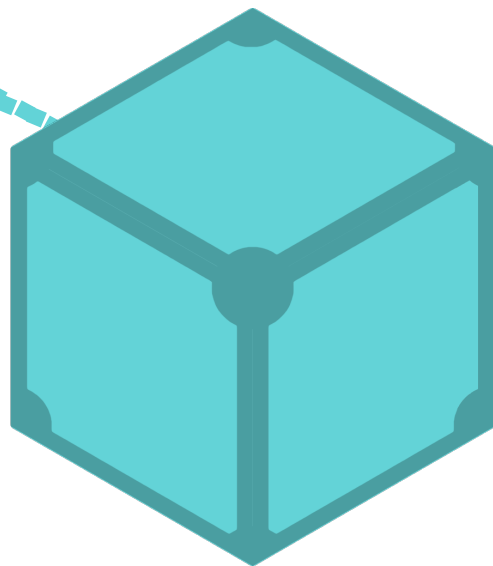




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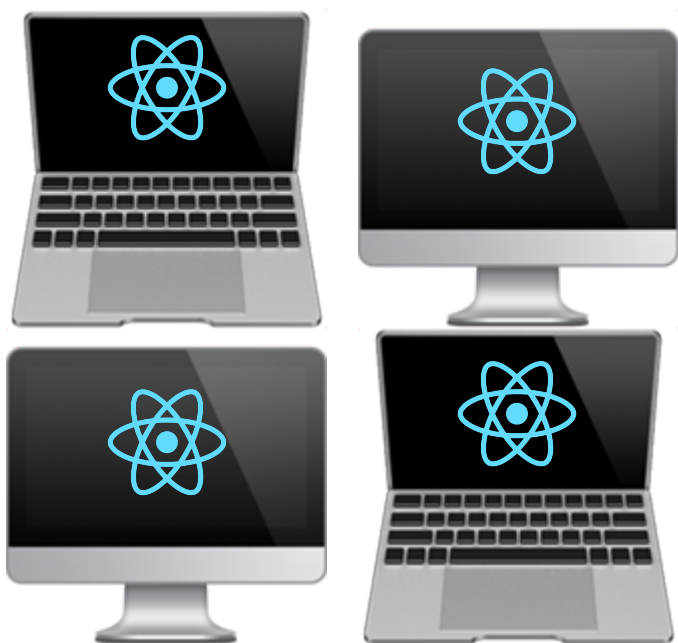


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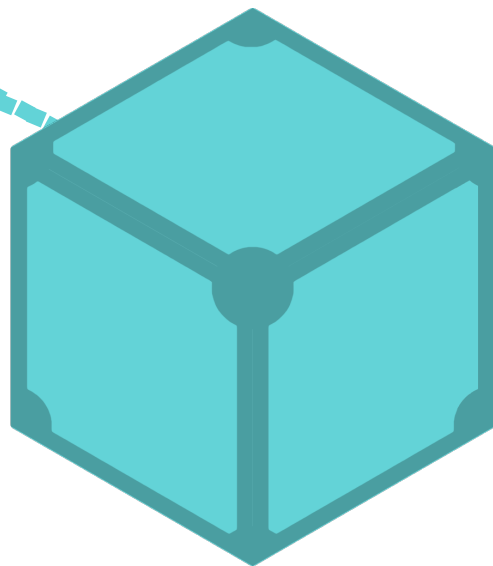


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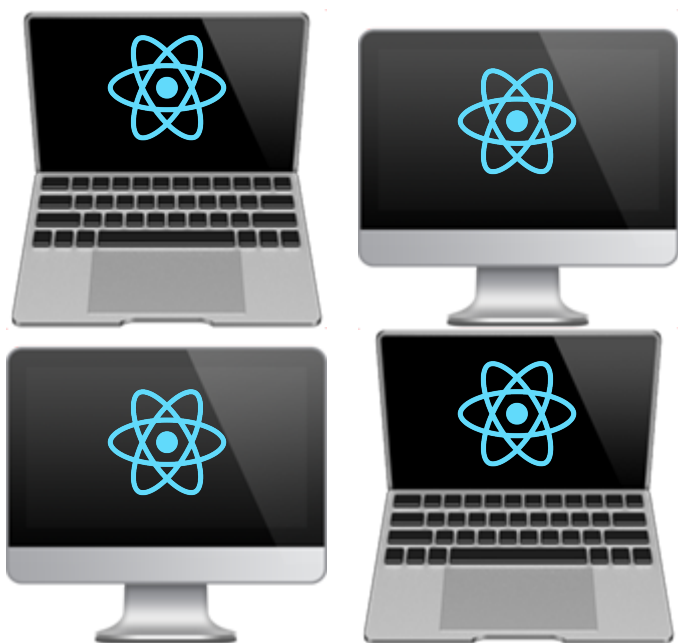
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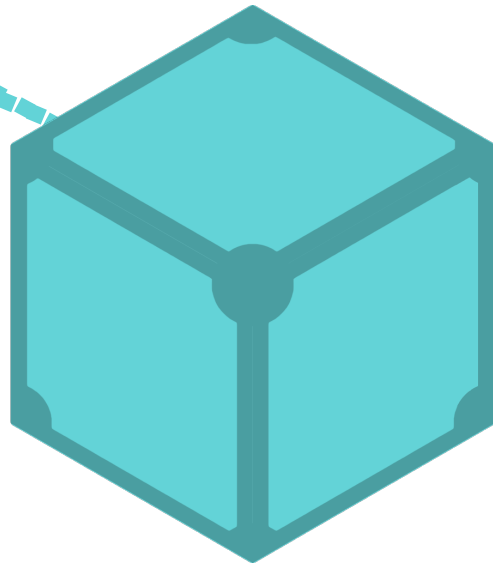
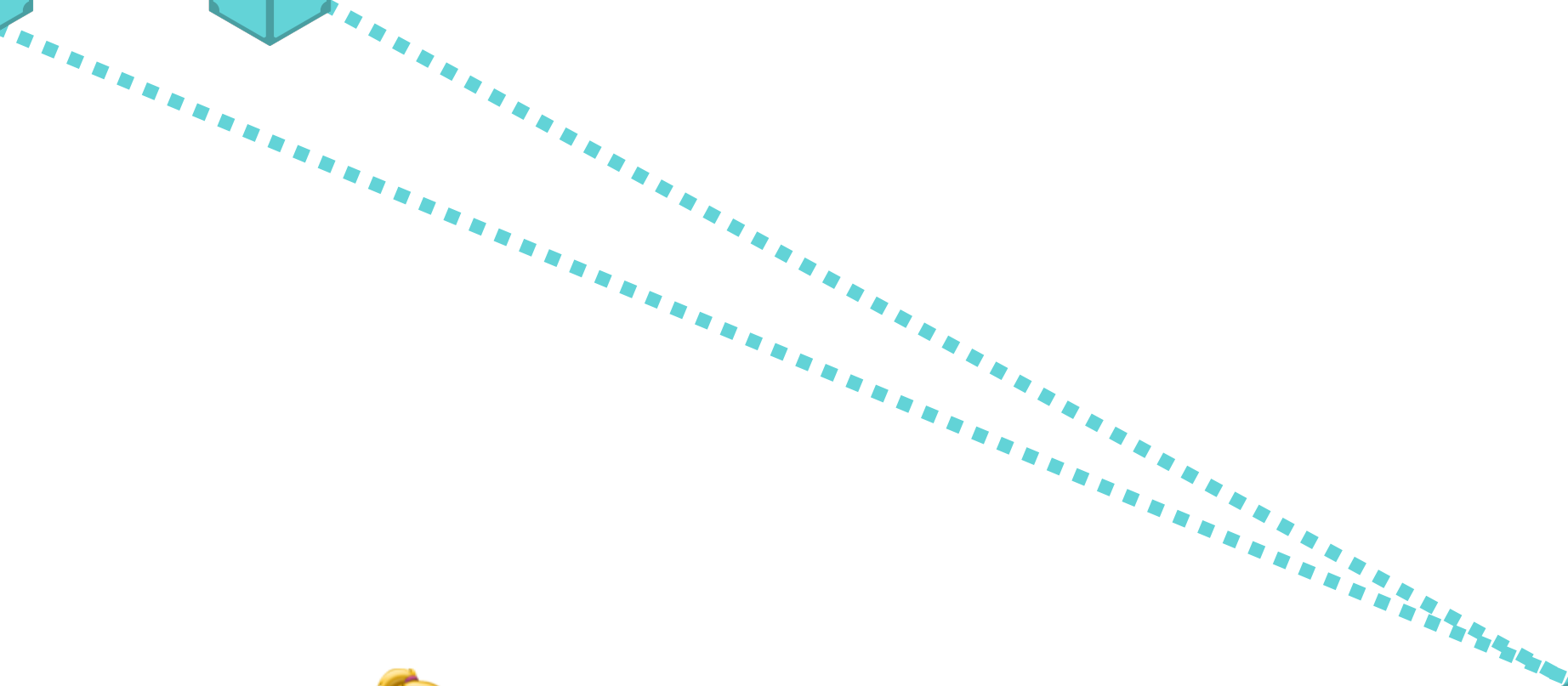




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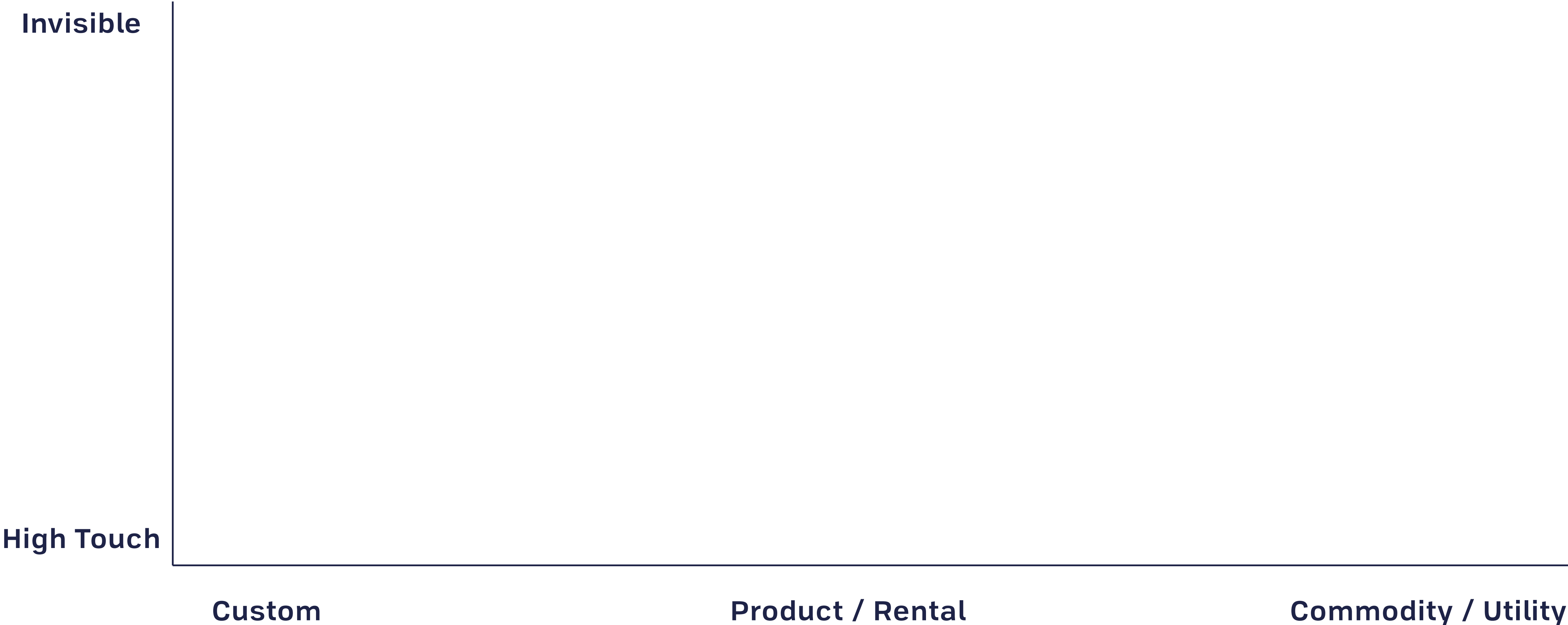




THE END OF HISTORY

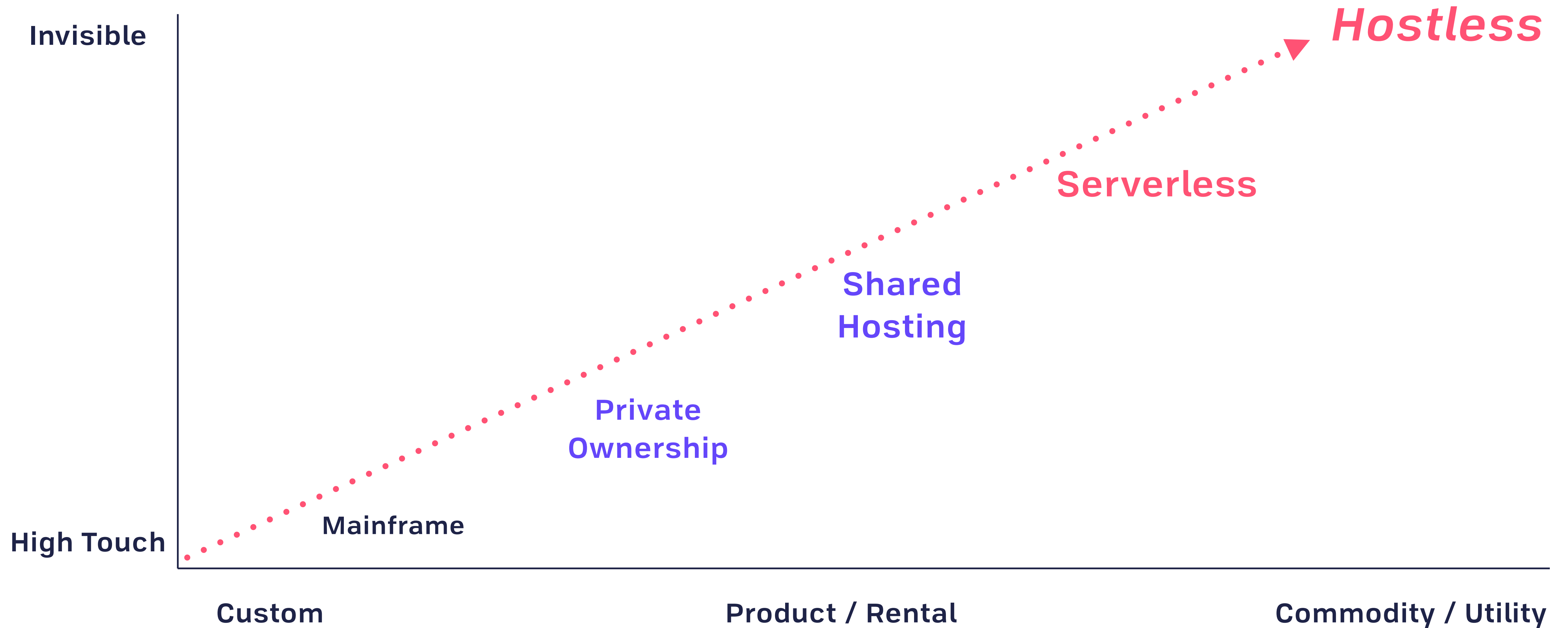


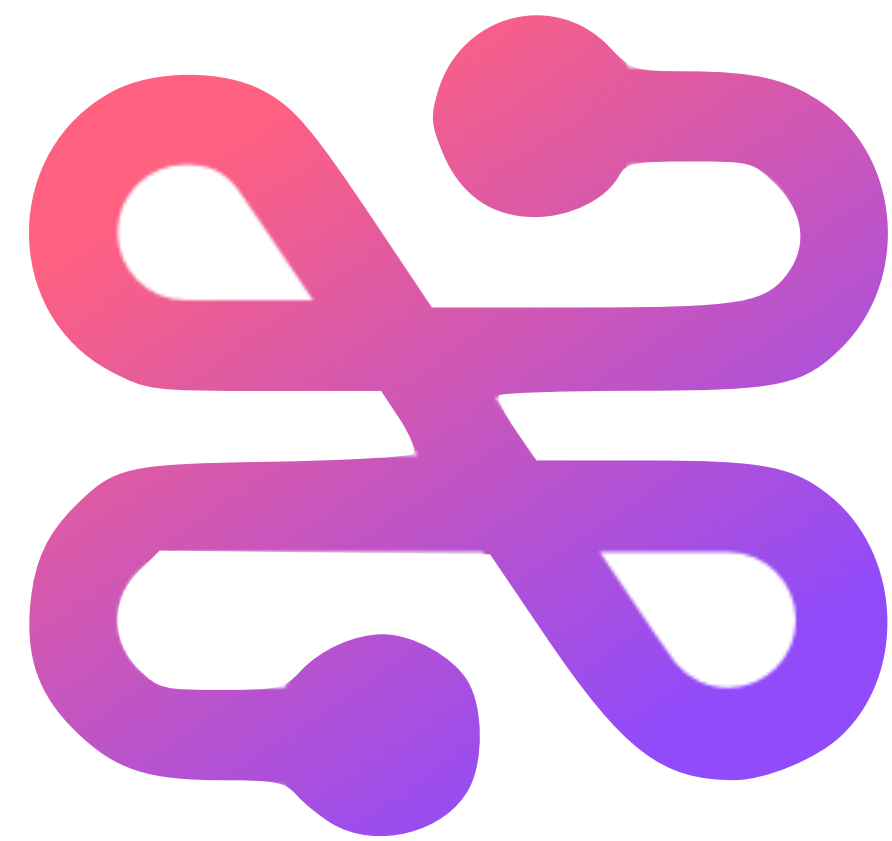
THE END OF HISTORY





THE END OF HISTORY





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DEVELOPER TOOLS TO POWER THE HOSTLESS FUTURE



`https://tools.fission.codes`



`hello@fission.codes`