

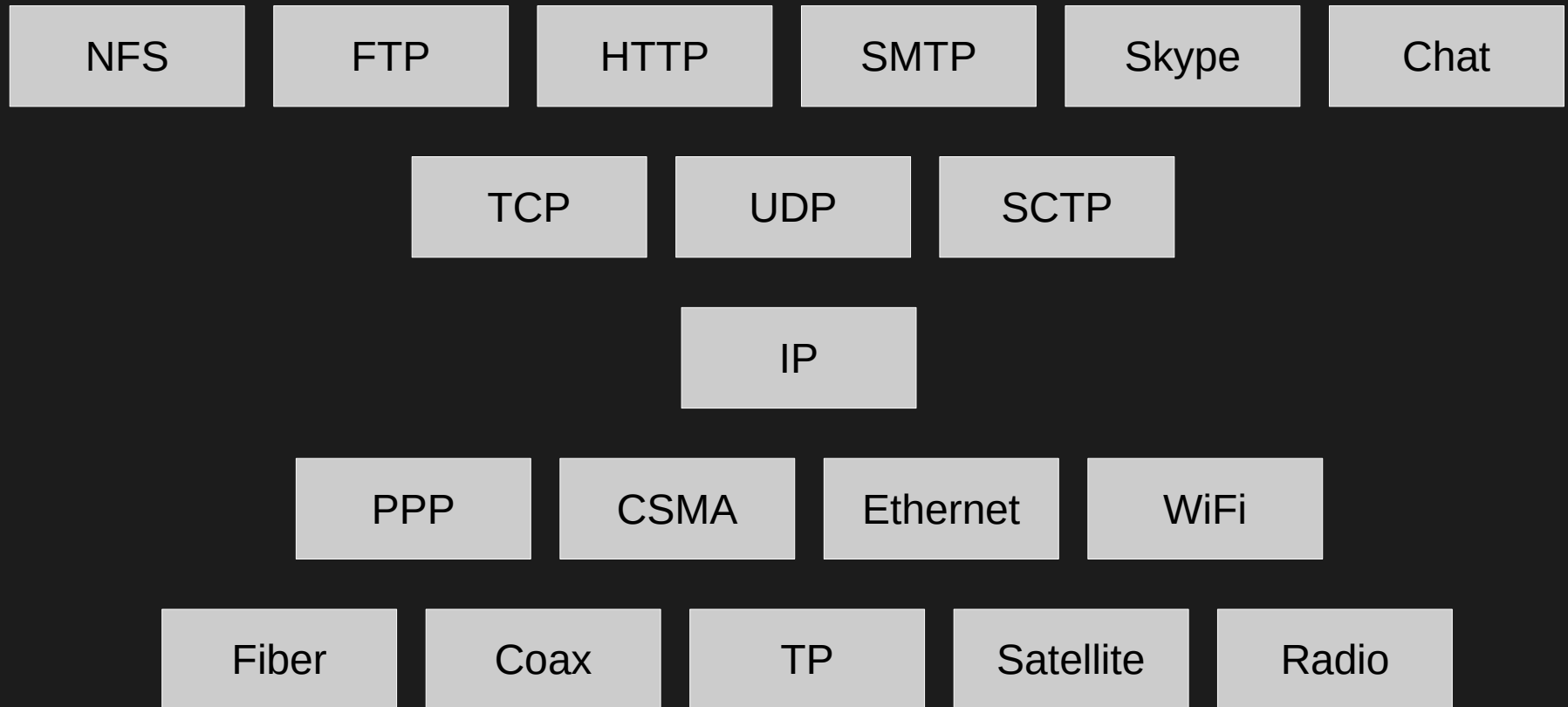


the InterPlanetary File System
“the Permanent Web”

IPFS

- Many names
 - The permanent web
 - The Merkle web
 - The distributed web
- Intent
 - Protocol upgrade to Internet and WWW
 - Decentralization, resilience, versioning, zero-duplication, speed

Current State of Internet



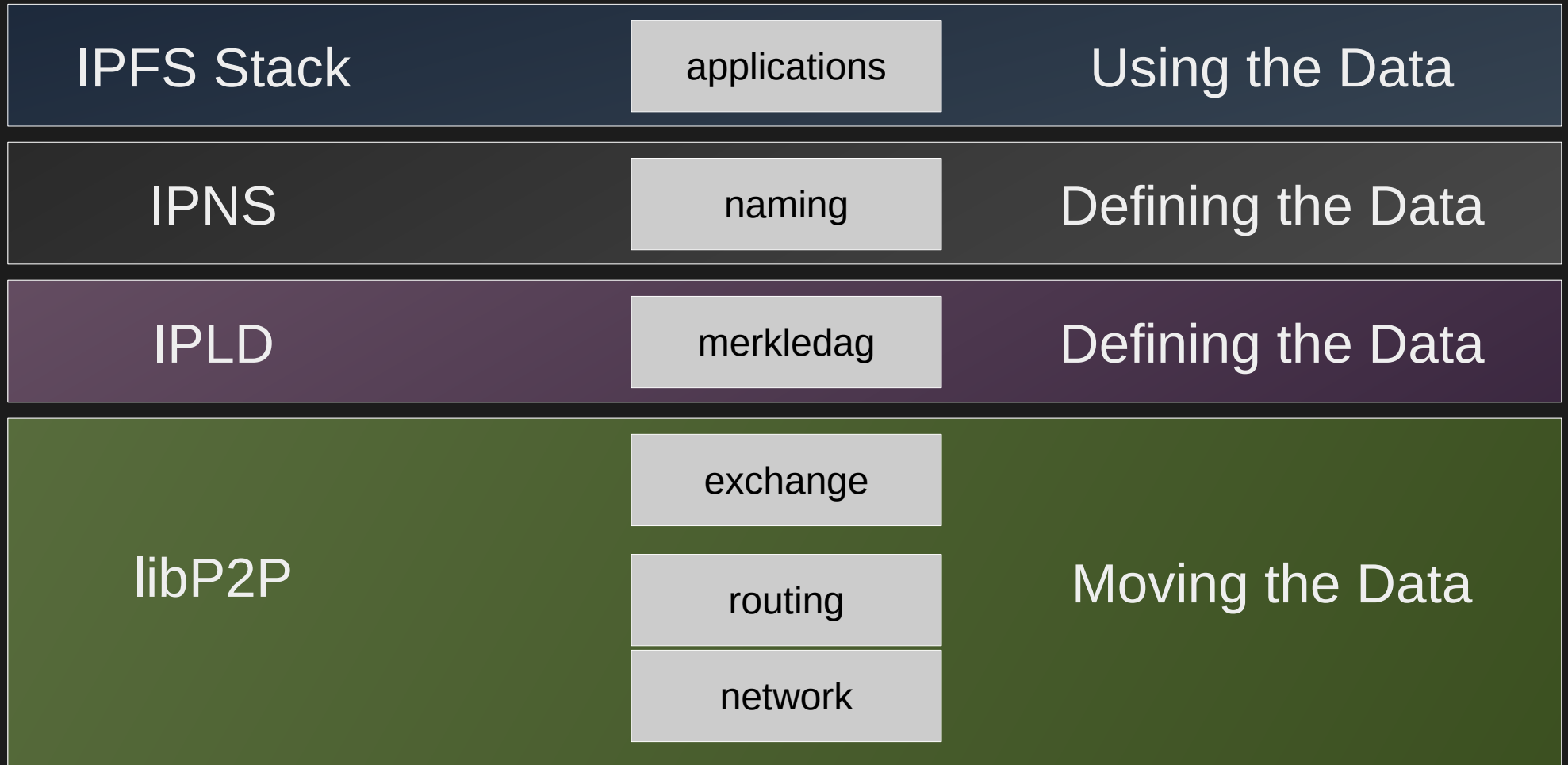
IPFS

- Combines
 - WWW
 - SFS
 - Git
 - BitTorrent
 - DHT
 - Other protocols



- Applications
- Naming
- Merkle DAG
- Exchange
- Routing
- Network

IPFS

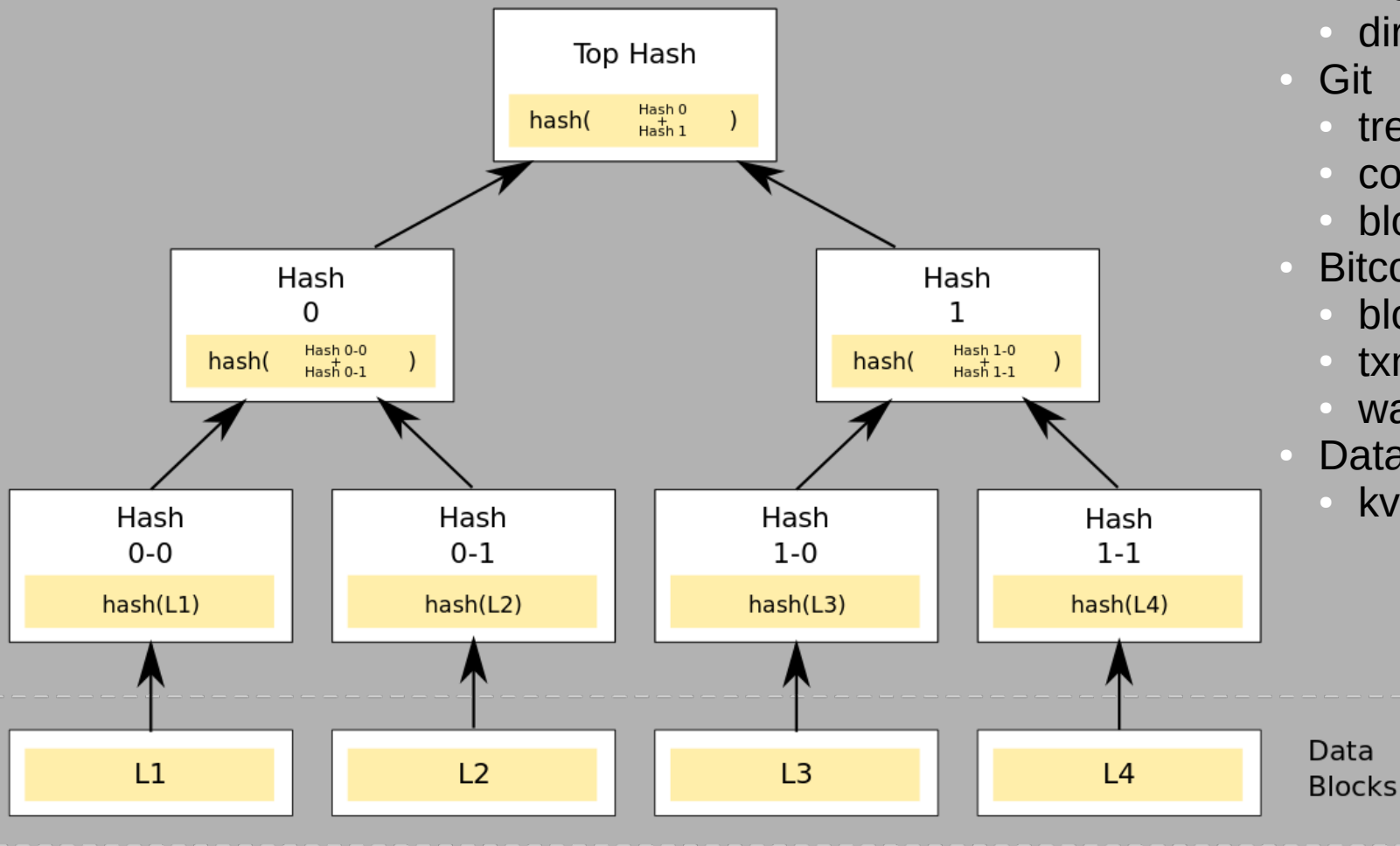


IPFS

Framework designed to be modular



Merkle Tree



- Unix
 - files (dag nodes)
 - dirs (dag nodes)
- Git
 - tree
 - commit
 - blob
- Bitcoin
 - blocks
 - txns
 - wallets
- Data
 - kv-stores

IPFS

http://example.com/foo/bar/baz.png



http://10.20.30.40/foo/bar/baz.png

location

path

Using multi-hash to
update pointers
over time

Can also use
external keys

Resolve paths
via hash

Mount entire
system

ipns/example.com/foo/bar/baz.png



ipns/QmYJPtosPTfoC/foo/bar/baz.png



ipns/QmW98pJrc6FZ6/foo/bar/baz.png

key pair w/
pub as
reference

pointer
signed w/
private key

content

path

IPFS

- HTML5 + CSS3 + JS
 - Go and JS installs available
 - Python under development
- Each file has unique hash
- Remove duplicates & versions every file
- Nodes only store the content it wants
- Find/Search files by their hash
- Human readable via IPNS
 - InterPlanetary Naming System

IPFS

- Uses
 - Archiving (versioning, persistence)
 - Services (e.g., DaaS)
 - Research (censorship-resistance)
 - Austere Utility (offline usage)
 - Blockchains compatible

IPFS

- Resources
 - ipfs.io
 - <https://github.com/ipfs/ipfs>
 - Build Raspberry Pi node (super simple and cheap)
 - <http://www.siliconian.com/blog/16-bitcoin-blockchain/23-beginner-s-guide-to-installing-ipfs-on-a-raspberry-pi-2>

IPFS

Please Contribute to / Use the Project!

Thanks!