

INTRODUCTION TO CABLE

SUPERCHARGED CABAL FOR ME AND YOU

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PRESENTED FOR WIZARDAMIG@S

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INTRODUCTION

- '90 kid. Grew up in Hamburg, Germany
- Studied CompSci & Engineering for far to long
- Politized through the self-organized cafee there
- Was looking with friends for ways to do *social p2p*
- Got enchanted by Go and later found IPFS¹
- Got involved in Secure-Scuttlebutt² 2016
- Made a lot of friends through it. cblgh being one of them
- First non-JS re-implementation, go-ssb³
- Helped a bit with cable spec 2yrs ago
but just got involved with cabal again recently

¹<https://ipfs.io>

²<https://scuttlebutt.nz>

³<https://github.com/ssbc/go-ssb>

SCREENSHOT

```
CABAL@5.2.3
cabal://14bc77d788fdaf07b89b28e9d276e47f2e44011f4adb981921056e1b3b40e99e

7rnx           ▶ WELCOME TO THE CABAL CLUB | D3KR
WaterOx       day changed to 11 Apr 2019 | Lykakpsars
cabal-desktop 00:12:03 <noffle> ping | bio
cblgh         02:58:45 <nikolaiwarner> noffle: o/ | cblgh
>default      03:08:04 <fleeky> picking a handle tends to be extremely arbitrary | fleeky
fun           03:08:06 <fleeky> for myself | mark
hello         03:08:17 <fleeky> hmm no tab completion of names? or how to ? | misschienaasapp
mini         03:11:31 <nikolaiwarner> fleeky: on cli it'll tab complete if the message st | todrobbins (2)
music        05:47:03 <todrobbins-mini> I like it. Makes sense nikolaiwarner | todrobbins-mini
random       06:15:35 <fleeky> weird i guess the person i was tab completing wasnt connec | 01d1f7e1
test         day changed to 12 Apr 2019 | c93b5e99
| micro      11:20:50 <fleeky> matrix.org hack aftermath , some cringe | 80sfreak
            13:32:50 <nikolaiwarner> fleeky: it does seem to be case sensitive though to | 88
            17:34:09 <todrobbins> nikolaiwarner: did you see my messages in #mini? | April
            17:34:22 <todrobbins> I also submitted an issue on GitHub ▶ | Cudd
            day changed to 13 Apr 2019 | Databaxze
            01:21:05 <cblgh> misschienaasappel: hello! | H E
            day changed to 15 Apr 2019 | Hony
            21:34:47 <cblgh> * sets the topic to WELCOME TO THE CABAL CLUB | Jack (2)
            | Michael Mitnick
            | Nanciscor

[cblgh:default] _
```

4

⁴<https://github.com/cabal-club/cabal-cli>

SCREENSHOT

The screenshot displays the Cabal Desktop 5.0.6 application interface. The main window is titled 'cabal-dev' and shows a chat conversation. The left sidebar contains a navigation menu with options like 'STARRED', 'CHANNELS', and 'PEERS - 5 ONLINE'. The right sidebar shows 'Channel Details' and 'Channel Members'. The chat area shows messages from users like okdistribute, szgy, yutyo, flecky, and nettle, along with a link shared by nickwarner.

Cabal Club
nickwarner

cabal-dev ★
36 dialogue around cabal's development

Channel Details ✕

Channel Members

- nickwarner
- substack
- autocad
- cbigh
- christianbundy
- cinnamon
- decentral1se
- epmills
- fabian
- flecky
- fwip
- fwip
- happy0
- HistoricGlint
- khubo
- neftaly
- nettle

Messages:

- okdistribute** 6:39 PM
yeah, you won't need channels for example.
although i guess you could imagine scenarios (200+ people in a conference setting) where that would be useful?
- szgy** 6:55 PM
yeah thats true. for the moment i wanna grow it slowly at the pace i'm learning the tech; and also since its the browser i wanna be careful with any dependencies that i add
May 30, 2020 (6 days ago)
- yutyo** 9:00 AM
Cool.
June 1, 2020 (4 days ago)
- flecky** 1:12 AM
damn
i have the bug again where i need to restart cabal to get any updates
wonder if its just my crappy connect
cabal-cli
maybe i was crazy tho and upon restarting it just showed me some highlighted rooms with what i thought were unread messages
is there anyway to view connection info in cabal-cli
- nettle** 11:50 AM
flecky: not currently
June 5, 2020 (3 minutes ago)
- nickwarner** @ 10:09 AM
<http://nickwarner-public-s3.amazonaws.com/Screen%20Shot%202020-06-05%20at%2010.08.25%20AM.png>

Write a message

5 _____
⁵<https://github.com/cabal-club/cabal-desktop>

- No servers are needed to join or start a *cabal*
- Offline first: Everything is stored and runs locally
- A cabal can never go down or be taken away
- A cabal is identified by its secret key (`cabal://7d99b453506b974...`)
- Sharing it with your friends lets them find other members

- *Cabal: experimental p2p community chat platform*
- First version of cabal-desktop-mini in Feb 2019
- First version of npm cabal-client Sept 2019
- Initial crew around cblgh, Kira and Okdistribute
- Kira was working on kappachat⁶ at the time
- cblgh was inspired by Substack's chatmesh⁷
... which didnt have channels

⁶<https://github.com/hackergrrl/kappa-chat>

⁷<https://github.com/okdistribute/chatmesh>

CABAL UP UNTIL CABLE

- Hyperswarm⁸ connectivity:
 - find other peers via a distributed hash table (DHT)
- Hyper(Core|Swarm|DHT|Drive|...) is a follow-up to DAT
- Cabal still sync's all the history all the time
- ... even though HyperCore(HC) supports partial sync

⁸<https://docs.holepunch.to/building-blocks/hyperswarm>

THE BAD AND THE UGLY

- Cabal wanted more autonomy and stewardship over its deps
- Syncing everything is bad, especially on mobile/web
- HC stack is very modular but also very complicated
- Not easy to port HC to other languages
- HC comes with much more than what Cabal needs



**FRED, THERE IS AN UNPLUGGED ETHERNET
CABLE**

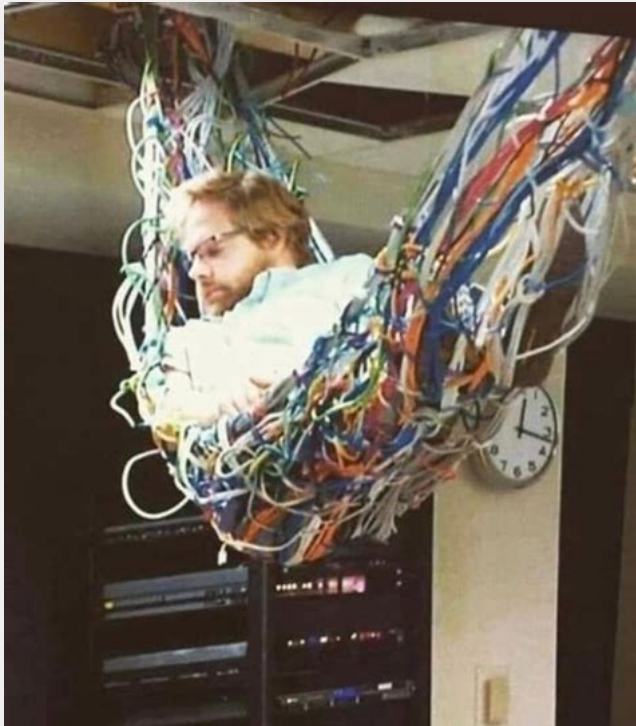
GO FIX IT.

THE CABLE PROTOCOL

GOALS

- *fairly* simple to implement in any language with **minimal dependencies**
- general enough to be used across different network transports
- useful, even if written as a partial implementation
- efficient in its use of network resources, by
 - ▶ syncing only the relevant subsets of the full dataset, and
 - ▶ being compact over the wire
- not specific to any particular kind of database backend

- simpleness and playfulness of implementing IRC
- which, in turn, attracts interesting people
- delete very difficult in append-only log systems
- simpleness also doesn't force too many choices on implementations
 - ▶ subset of requests is enough
 - ▶ complex or dead simple schemes for requesting posts



PROTOCOL OUTLINE

- **BLAKE2b** for hashing
- **Ed25519** for signatures
- Users write different kinds of **Posts** into **Channels**:
text, delete, info, join, leave
- Nodes send out **Request**:
Channel Time Range, Channel State, Channel List
- Their Peers respond with Post or Hash **Responses**

EXAMPLE SESSION

- **Alfi** joins a Cabal and *somehow* connects to **Be**
- She sends a Channel List Request to learn which exist
- They respond back with list like #welcome, #jokes, ...
- **Alfi** likes to be funny and writes a Post/join:#jokes
- As well as sending a Channel State Request:#jokes, future=1

- **Be** happens to like laughing, too.
(The client sends requests for the active channels)
- Thus **Be** also sees **Alfi's** join.
- To not be spamed with the full history, she then creates a request for the last day of activity:
Channel Time Range Request: `start=now-1d`
`end=now limit=9001`
- She get's a bunch of hashes for posts the client may or may not yet have
- A client can decide how to handle requests for posts
- Let the user click more? Spread them out across peers? etc.

WRAPPING UP

- cabal is not yet using cable
- cable-cli exists for the adventures, tho
- while cable can do partial replication already, it's looking for agnostic transport and discovery.
- currently looking into: tor⁹, i2p¹⁰ and veilid¹¹
- cblgh is also thinking about and working on *subjective* moderation

⁹<https://www.torproject.org>

¹⁰<https://geti2p.net>

¹¹<https://veilid.com>

- Website: <https://cabal.chat>
- To get in touch, install Cabal and join:
`cabal://324eee92611cd877841c4de9fd5253e9dba6033329a837ee5f01bebo05dfb2f`
- Fallback: <irc://irc.libera.chat/#cabal.club>
- Specification: <https://github.com/cabal-club/cable>
- (WIP) Implementations: [cable.js](#)¹², [cable.rs](#)¹³, [cabEr1](#)¹⁴
- **Questions?!**

¹²<https://github.com/cabal-club/cable.js>

¹³<https://github.com/cabal-club/cable.rs>

¹⁴<https://git.sr.ht/~cryptix/caber1>