

LN  play

HOW CAN I THANK YOU, LNPLAY,
YOU MADE ME A LIGHTNING USER TODAY.
WITH MY PHONE, I SCAN A CODE,
DISCREET AND QUIET, YOU SPUN UP A NODE.
A PLAYGROUND THAT YOU EXPERTLY CRAFT
TO TEST AND EXPAND THE KNOWLEDGE I GRASP.
AND FOR MY FRIENDS YOU WORKED YOUR MAGIC,
NOW THIS ROOM OF BITCOINERS WILL SAFELY DEPOSIT
THE SATS I EARN, THE SATS I SEEK.
FUTURE'S MONEY CAN'T BE BEAT.

- PLEBPOET



Derek Smith

LNPlay at Bitcoin++ Buenos Aires
Feb 22th, 2024

farscapien.com/contact





Open Source Projects

- Sovereign Stack – Create Value4Value websites
 - sovereign-stack.org
- BOLT12 Prisms – payment split implementation
 - roygbiv.guide
- LNPlay
 - lnplay.guide / lnplay.live / lnwidget.guide



What is LNPlay?

- LNPlay is a “Lightning Network Playground” / Lightning Network Simulator
- Creates “Private Lightning Networks” – regtest
 - Similar to `startup_regtest.sh`, but shared with TLS + extra features.
- Open Source with no licensing
- LNPlay is 100% Backend Software
 - Clams Remote is used as user Interface to LNPlay lightning nodes.
- Docker Engine application
- Generates QR codes that allows Simulation Users to control a dedicated lightning Node.

Use Cases & Users

- Education
 - Meetups
 - Conferences
 - Corporate Events
- CLN Plugin Development
- Integration/Staging Environment
- User Groups
 - System Owner
 - Simulation User
 - Hackathoner

LNPlay Origin Story

- Old City Bitcoiners + Clams Remote
- Bitcoin++ Austin TX 2023
 - BOLT12 Prisms - roygbiv.guide/demo
- BitBlockBoom 2023 - D++ Lightning LARP
- Meetups: North Houston/Miami/Old City Bitcoiners
- Tabconf 2023 – LNPlay.live
- Unconfiscatable – D++ Lightning LARP
- Top Builder 2024
- **Bitcoin++ Buenos Aires,**
- **Bitcoin Atlantis for D++ Lightning LARP**



[Inplay.guide/showcase/](https://inplay.guide/showcase/)

PlebLab - Top Builder

- LNPlay is a Top Builder team.
- Shout out to PlebLab and all the other teams.
- Jan 10th 2024 – March 14th 2024
- Teams:
 - **Clams**, Plebwork, Shopstr, Bitcoin Mastermind*, Cascadr, Jippi, GetLunchMoney.com, Yopaki, Branta, Coracle, Resolvr.io



Features

- LNPlay operates on regtest, signet, mainnet
- 5 second block times by default (regtest only; configurable)
- CLN Plugins
 - BOLT12 Prism Plugin
 - Cln-reckless-wrapper
 - CLBOSS
- Tor for mainnet CLN channels
- Deploys Clams Remote (self-host)
- Custom node aliases/colors
- Creates Clams Connect QR Codes

LNPlay.guide

- Origin Story + Showcase
- Hosting, Installation, Deployment Guide
- Monitoring your instance
- Functional Test Plan
- Getting started guide

roygbiv.guide

- ROYGBIV.guide was developed after the BOLT12 Prism from Bitcoin++ 2023 in Austin
- LNPlay is used for roygbiv.guide/demo
- LNPlay is used as a dev environment for BOLT12 Prism development
 - Bash scripts used for reloading plugins and automating tests.

BOLT 12 OFFER



ROYGBIV

Alice

Bob

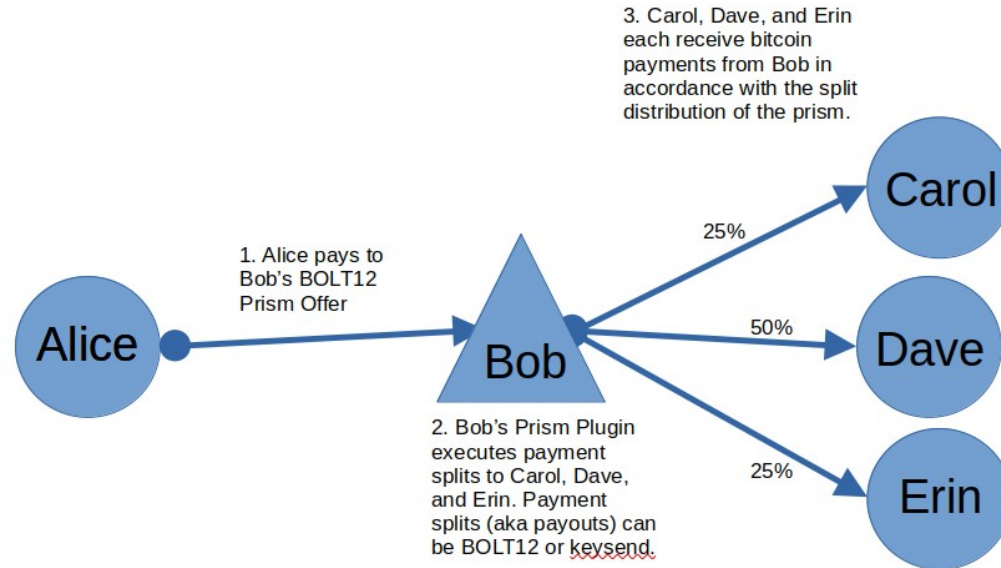
Carol

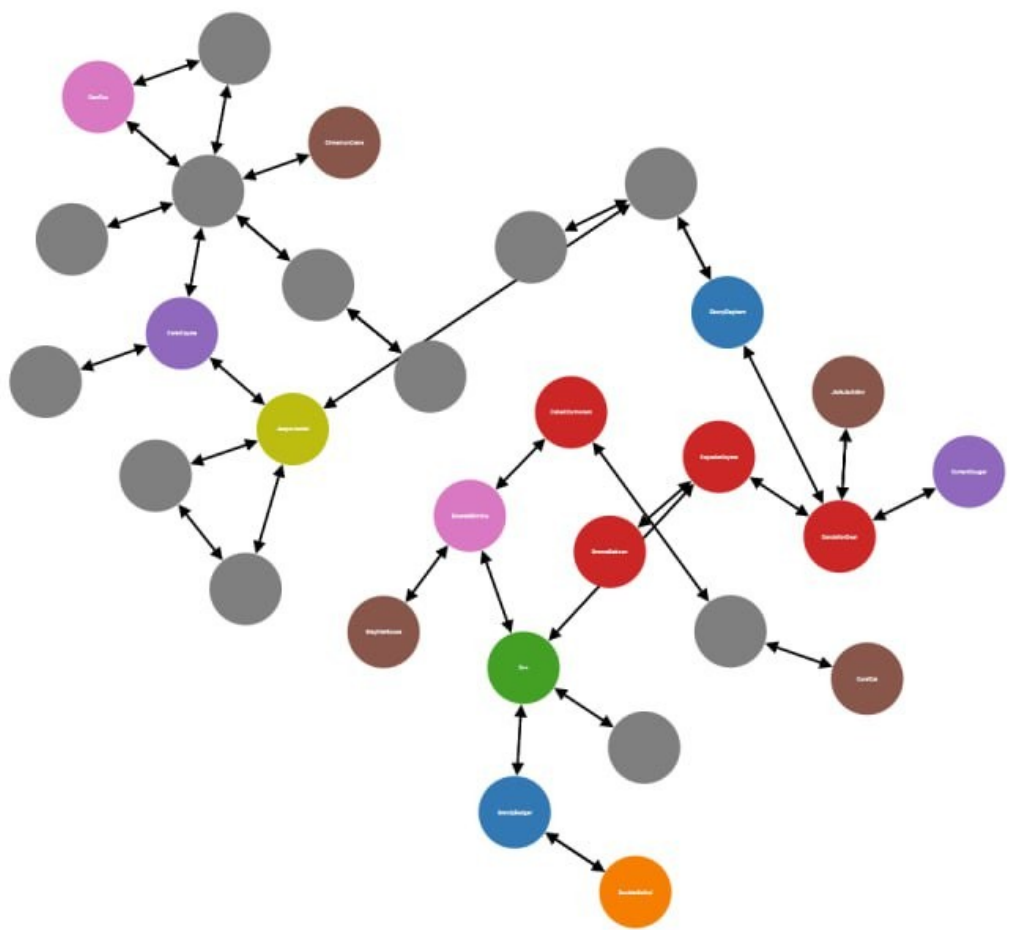
Diane



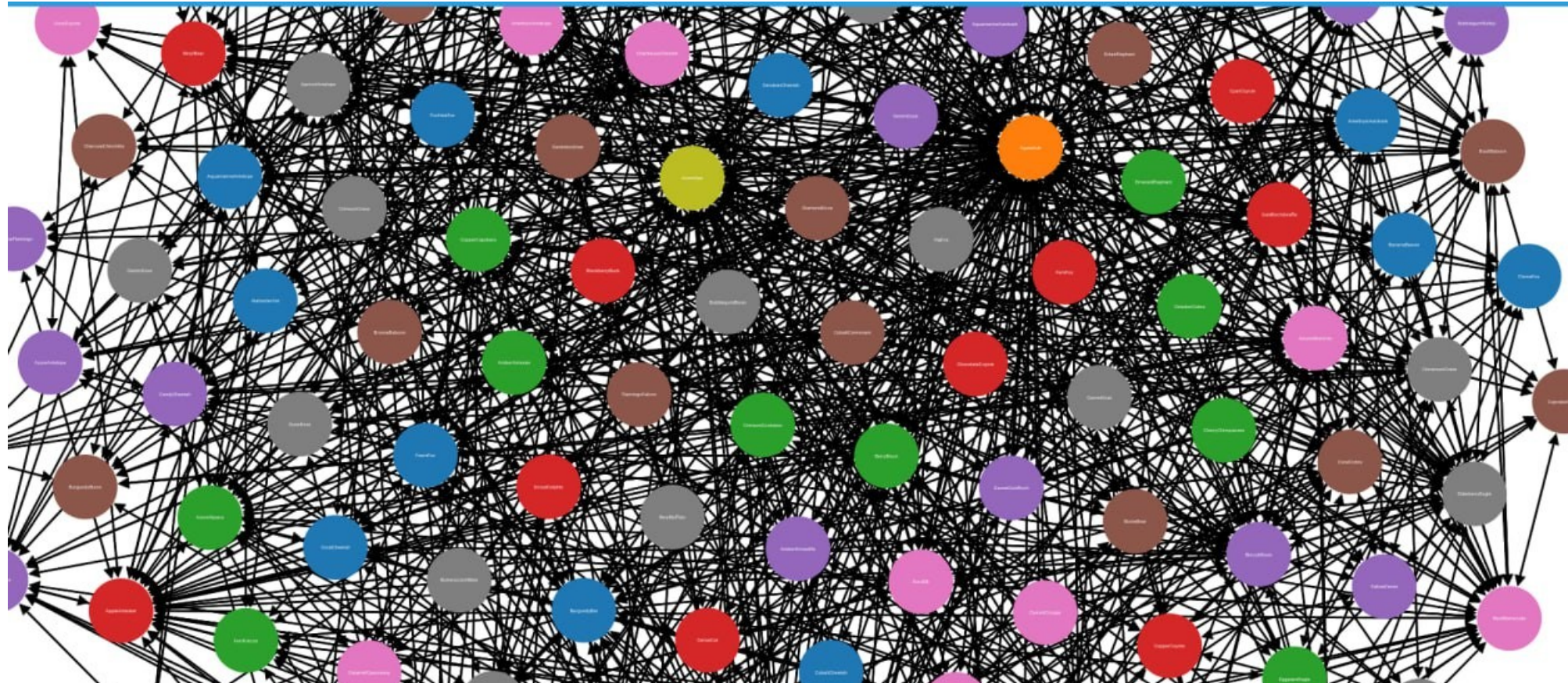
Channel Setup

- Currently there are TWO channel setups
 - None
 - Prism





DRAW



The logo for LNWidget features three interlocking gears of varying sizes. One gear is dark blue, while the other two are yellow. They are arranged in a cluster to the left of the text.

LNWidget

- LNWidget.guide
 - Getting started guide for developing web apps with LNPlay/CLN
- 5 posts – QR Code → HTMX Widget
- Wrote 2 CLN plugins + 1 bash script
 - Lighting-rest-cli – bash
 - cln-reckless-wrapper – python CLN plugin
 - cln-htmx-getinfo – python CLN plugin

Hosting LNPlay

- Ubuntu/debian-based VM that can run dockerd
- LNPlay.guide/host
 - Vms and VM sizing
 - firewall rules,
 - SSH, sizing



```
git clone -b dev --recurse-submodules https://github.com/farscapian/lnplay
cd lnplay
git submodule update --init --recursive
```

Configure

```
ENABLE_TLS=true  
FRONTEND_FQDN=remote.rocketcitybitcoin.org  
BACKEND_FQDN=lnplay.rocketcitybitcoin.org  
CLN_COUNT=8  
BTC_CHAIN=regtest  
DEPLOY_PRISM_PLUGIN=true  
LNPLAY_SERVER_PATH=/home/ubuntu/lnplay_output  
DIRECT_LINK_FRONTEND_URL_OVERRIDE_FQDN=remote.clams.tech
```

Output Artifacts

- Main Scripts
 - up.sh – brings everything up
 - Down.sh – takes everything down
 - Add '--purge' to reset everything.
 - ./show_cln_uri.sh – get connection strings. Add '--qrcode'.
- .yml for each CLN node
- Lnplay.yml (bitcoind/nginx/clams remote)
- connection_strings - .png and .pdf
- nginx.conf

LNPlay Structure

- All CLN nodes are docker containers residing in a single VM.
- Each CLN websocket and/or REST interface is exposed on distinct port numbers.
 - Websocket starts at 6001, REST at 9001.
- All connections terminate at nginx:
 - TLS certs by certbot.
 - Nginx routes requests based on host header & port

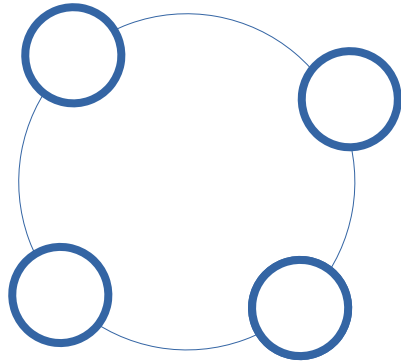
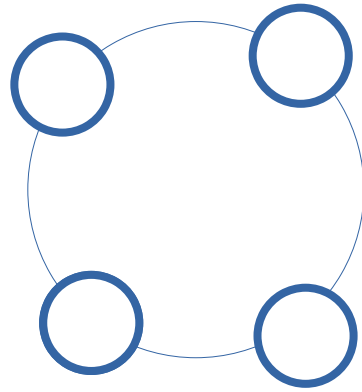
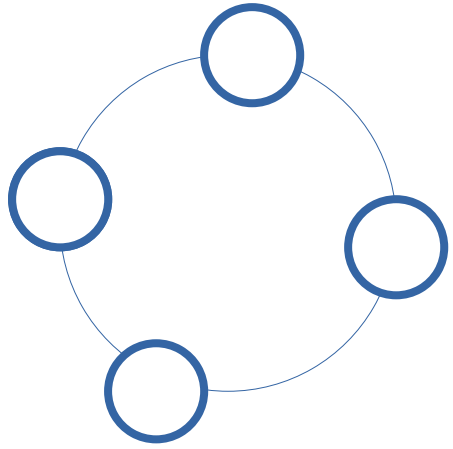
Inplay.live

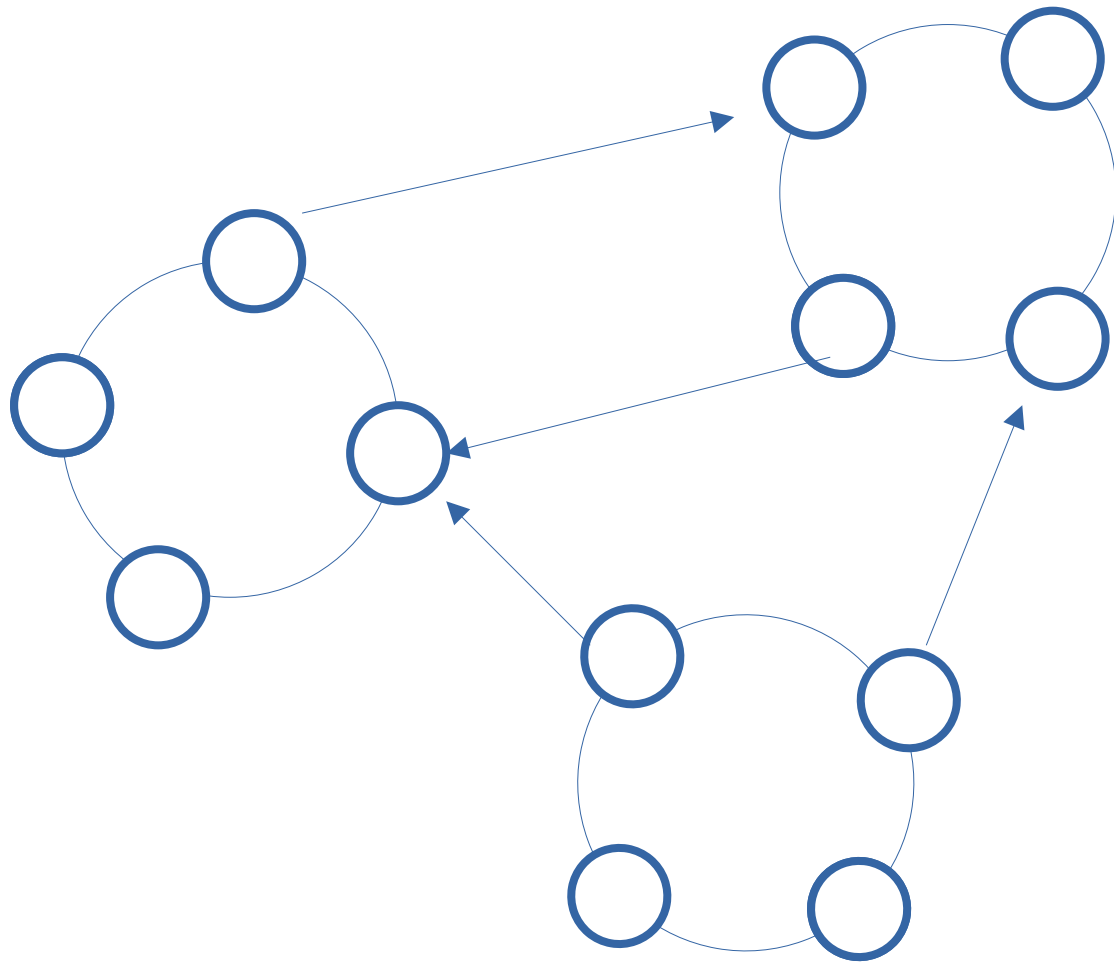
- Buy a hosted LNPlay instance
- Tabconf 2023 in Atlanta – Team LNPlay
- LNPLay.live allows you to purchase a hosted LNPlay instance.
- Perfect for meetups and orange-pilling family members.
- Under Development:
 - CLN plugin (Inplaylive) that uses Sovereign Stack to spin up VMs and deploy LNPlay to Incus cluster

<https://linuxcontainers.org/incus>



- Get in groups of 3-5 people
- Create a "circle" of channels among each other.
- Balance your channels WITHIN the circle by making payments to each other (BOLT11/12)
- Open channels with other groups.
- Balance those channels with BOLT11 or BOLT12 payments.
- Try BOLT12 Withdraw
- Check your routing performance!





Feedback

- Special Thanks to VelasCommerce for providing Feedback/Survey website