

BOLT12 Prisms

Presented by farscapien



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Projects by farscapien

- **Sovereign Stack – sovereign-stack.org** – create and self-host one or more Lightning-native Value4Value Websites
- **BOLT12-Prisms / roygbiv.guide** – Payment Split implementation for Core Lightning + V4V Website featuring BOLT12-prisms
- **LNPlay / Inplay.guide** – Lightning Network Simulator with Prism Support

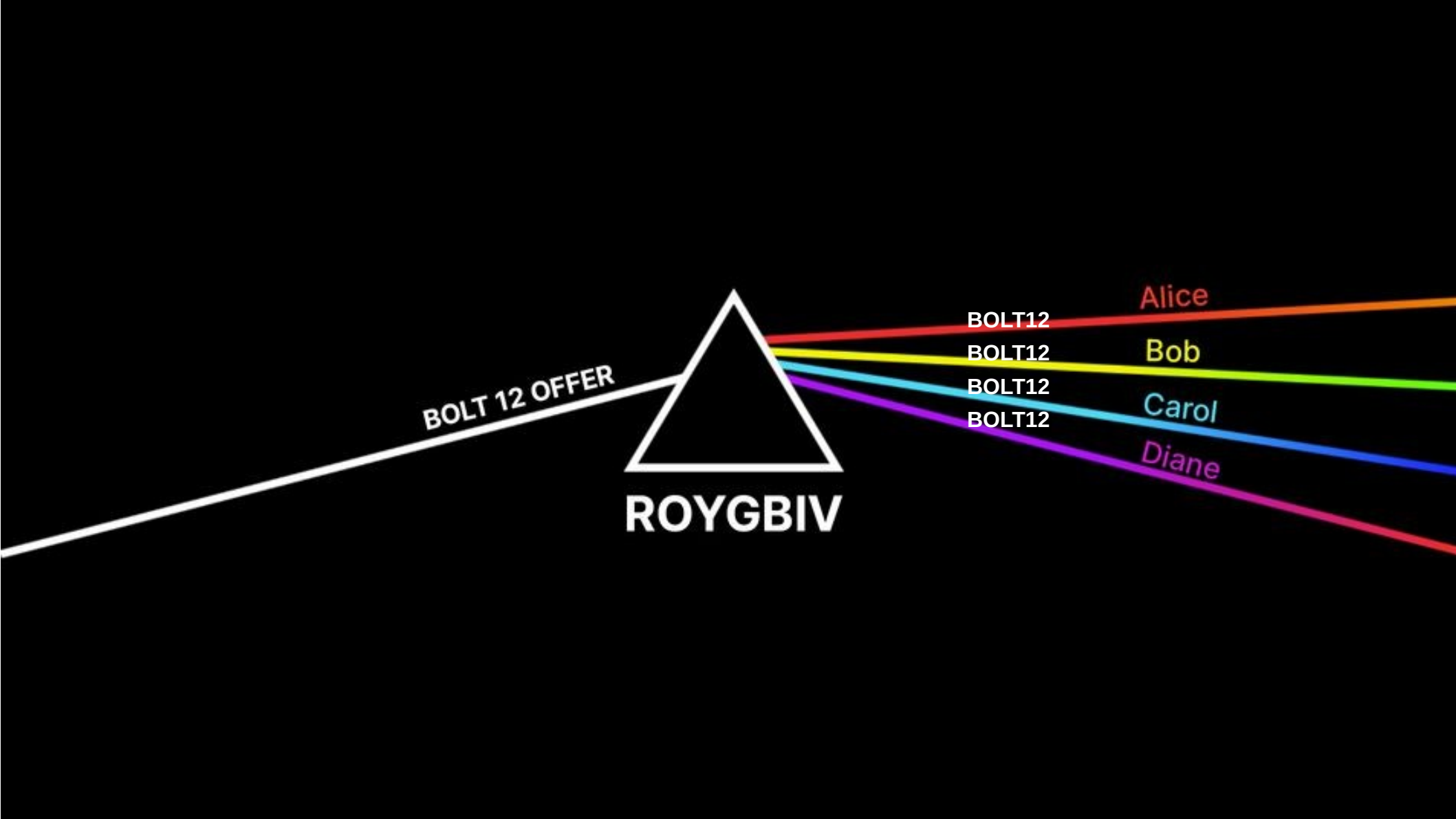
What is a Lightning Prism?

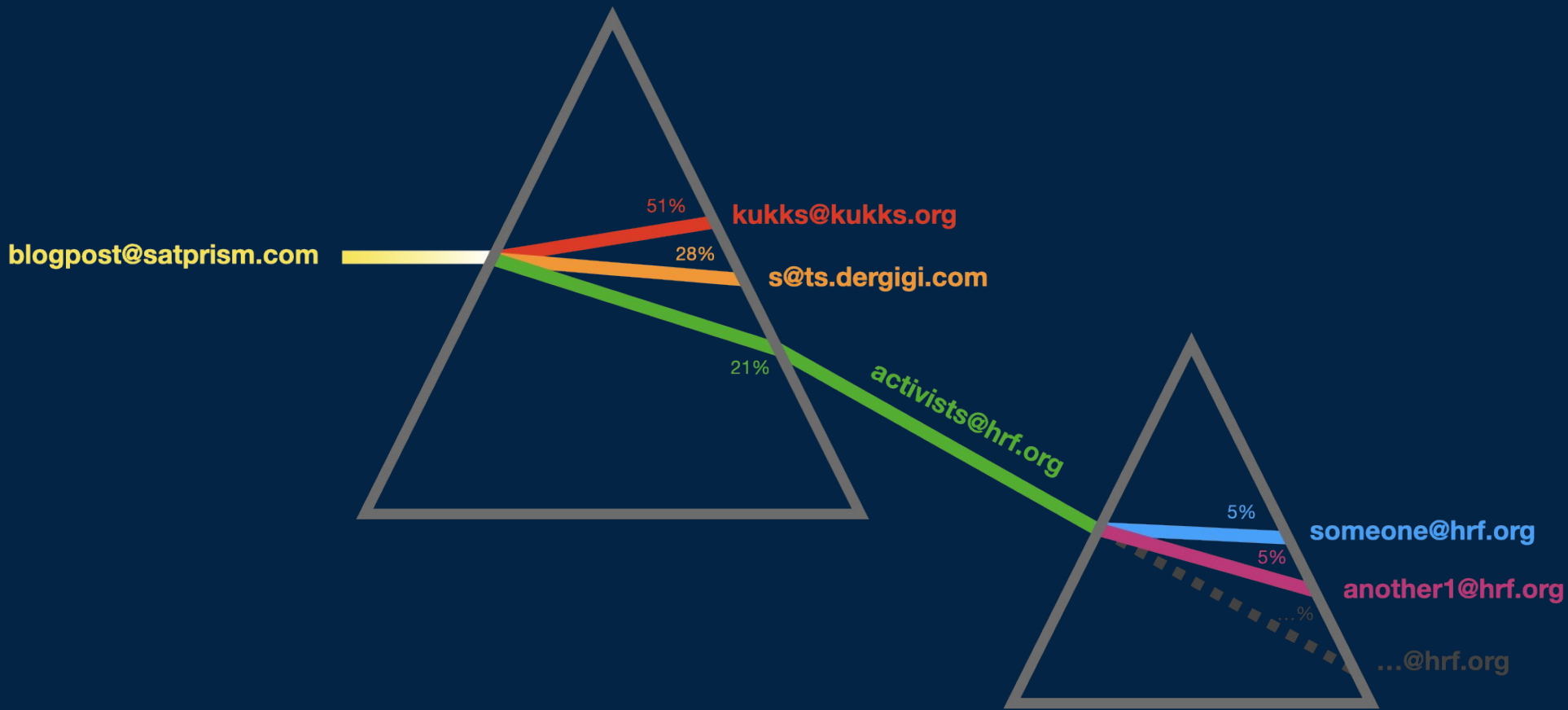
What is a Lightning Prism?

- First described by Gigi <https://dergigi.com/2023/03/12/lightning-prisms/>
- A Prism is a construct that allows for “value split workflows”
 - Prism identified by address (LN Address, BOLT12 offer, pubkey for keysend, etc)
 - Has **one or more** members
 - Another prism can be one of the recipients
 - Splits are defined programmatically



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Prism Use Cases

- **Value4Value Websites*** - that split tips among the posts various authors, editors, reviewers, etc.
- **Shopping Carts** – construct an offer backed by a Prism that splits payments to item offers, taxes, fees, profits, etc.
- **Stock Ownership** – split is like shares which entitle you to a percentage of overall profits of sats flows.
- **Employer Matching** – employee contributions to a prism (which can be line-of-accounting) can be matched: e.g., total outlays are 110% of income amount.
- **Communal Tip Jars** – create a Prism Offer that splits tips among serving staff, bar staff, kitchen, etc.
- **Band Prisms*** – Create a prism that splits tips among band members.



farscapian @farscapian · Oct 31, 2024



Hook a BOLT12 prism offer into this. One nug per payment. Attach a prism, split between grower, distributor, vending operation, profit, etc. Profit is another prism offer.



Stoner Tweets @StonerCIips · Oct 31, 2024

Take all of my money



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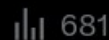
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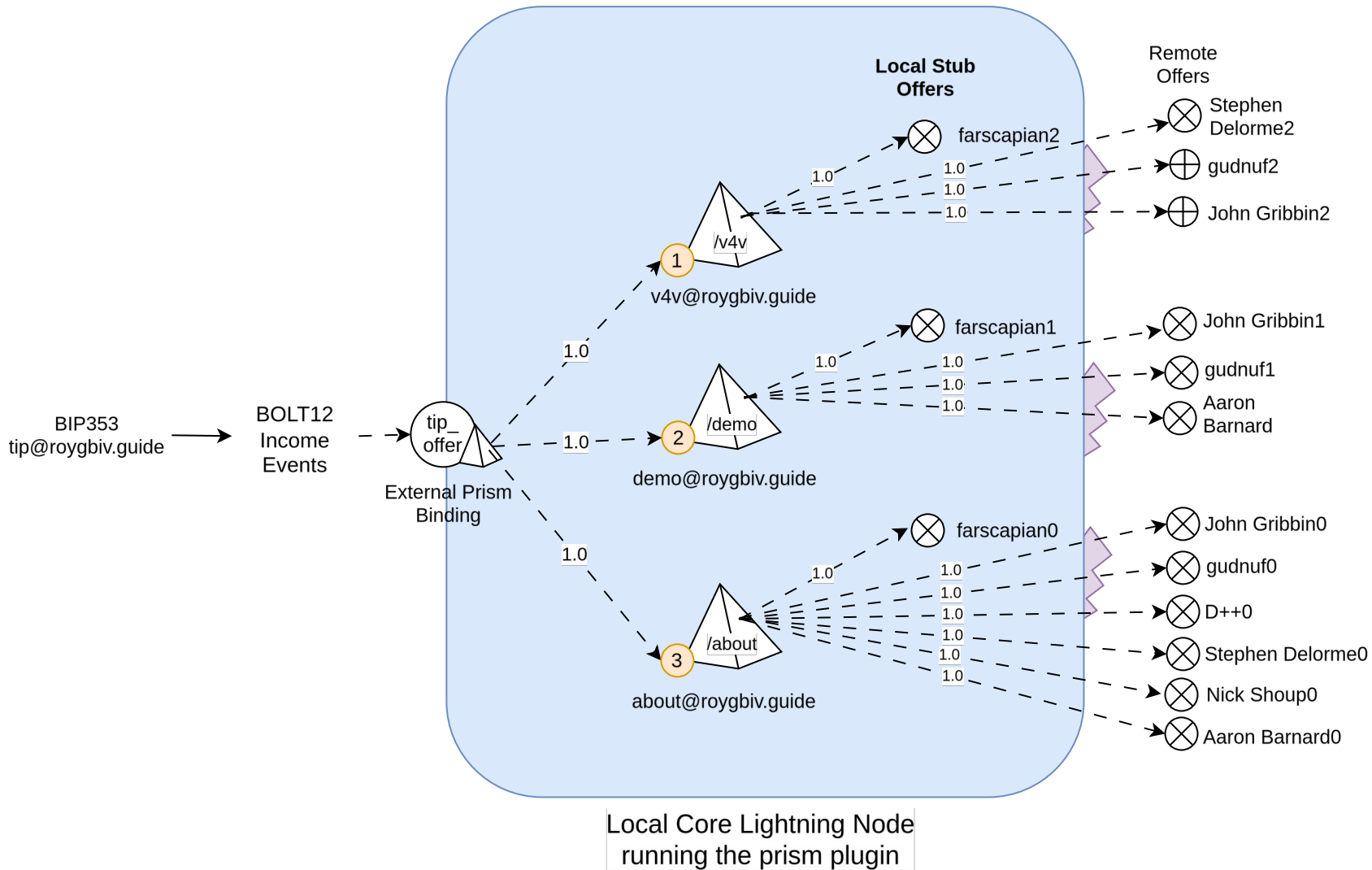


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- First Value4Value website based on BOLT12-Prisms
- Each main post gets a unique Prism Offer
- Leverages **Local Prism Composability** for global tips (i.e., tip the entire website)





BOLT12

- **bolt12.org**
- **Payment Protocol with Sender & Receiver Privacy**
- **Reusable Payment Codes** (i.e., Offers) –
 - necessary for prism accounting
 - which views income as a stream (flow) of sats
 - Issue unique BOLT12 offers for each product line
- **Lightning-Native:**
 - No web server required
 - Eliminates unnecessary dependencies

Why are Prisms interesting?

- Prisms are composable
 - Interconnect Prisms to create a larger system (local/remote)
- Prisms can help automate your sats flows
 - Attach prisms to product definitions
 - Set payout criteria
- Prisms can buffer your sats flows
 - Useful for offline nodes or liquidity issues
 - Make payouts more consistent by adding `payout_threshold`

Definitions

- **Prism Policy** – a JSON document that represents prism policy.
- **Member** – each prism has ONE OR MORE members
 - **destination** – a BOLT12 offer (e.g., ‘lno...’) representing the member payee (remote/local).
 - **Split** – a float representing member’s relative percentage of the total outlays.
 - **payout_threshold** – payouts are only triggered when outlays exceed this value .
- **Binding** – bindings are created when you apply a prism to a BOLT12 offer. At this point, we track outlays (state) and treat sats on the offer as a flow.
 - **outlay_msat** – an amount to be spent on the destination of a member.
 - **Payout** – when a prism member outlay clears (i.e., paid)

Plugin Design Goals

- ATOMICITY in Prism payouts are NOT DESIRABLE nor doable (without protocol support).
 - Payout fees (are known only AFTER the payment succeeds)
 - Hard to split 100 sats when fees aren't known ahead of time
- Outlay tracking helps deal with offline nodes or unpayable invoices (e.g., due to liquidity).

LNPlay Prism Simulation

- LNPlay is a Lightning Network Simulator (FOSS)
- Clams Remote just added support for BOLT12-Prisms :)
- Leave feedback send email to feedback@roygbiv.guide

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

feedback@roygbiv.guide