Putting the DOT in Polkadot
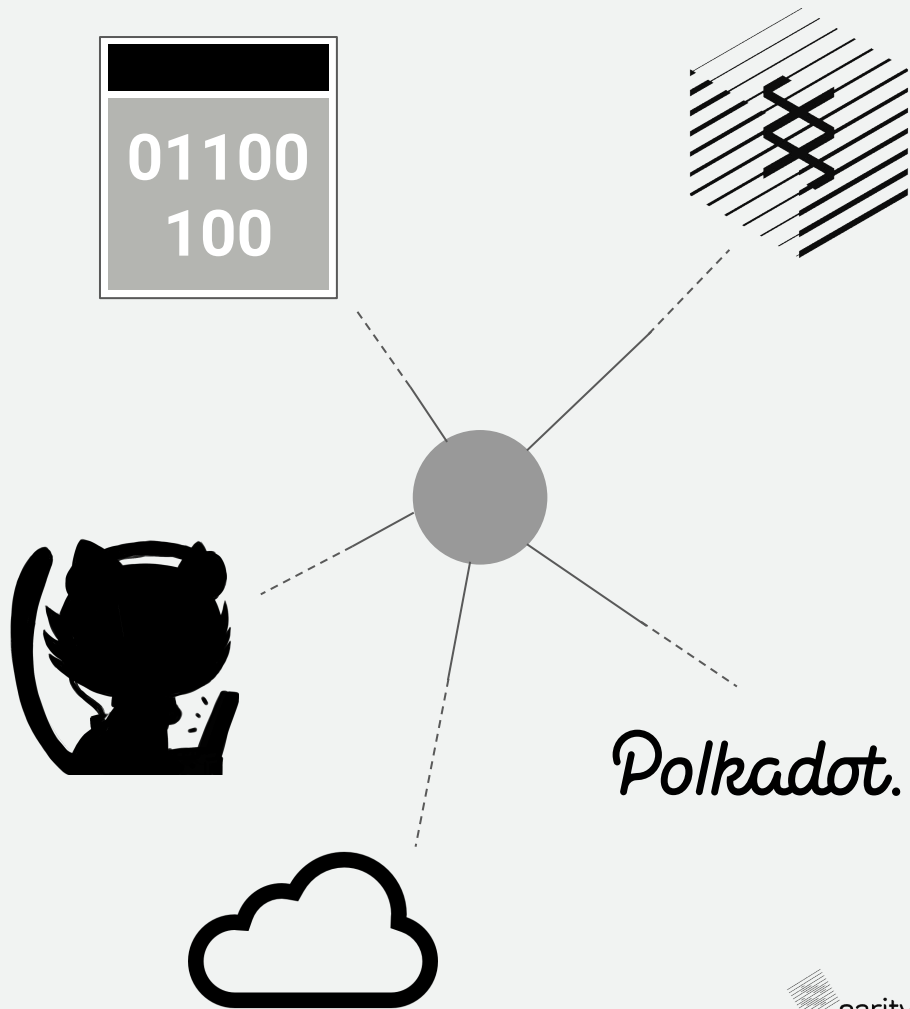
Julien Eluard
Runtime Engineer @ Parity Technologies Ltd.

julien@parity.io | @jeluard

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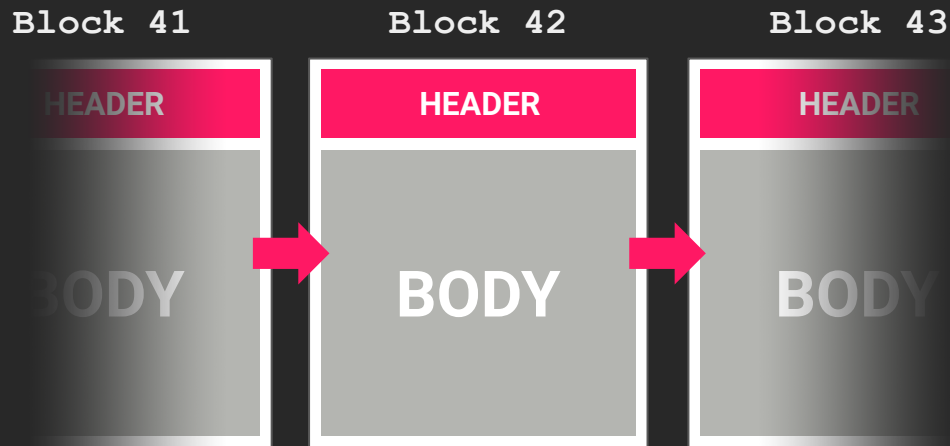# We will talk about:

- Blockchain Development

- Substrate

- Polkadot

- Cumulus
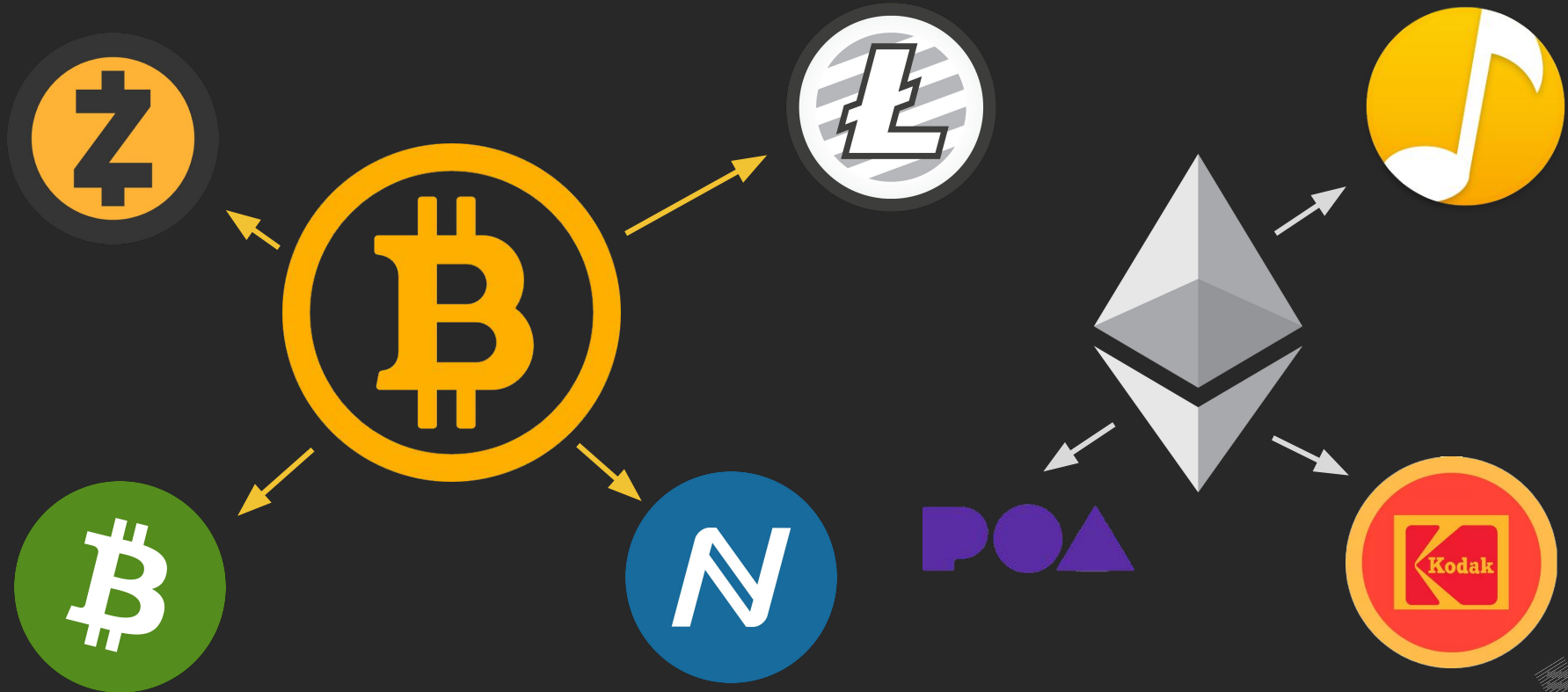
- Getting Started

01100
100
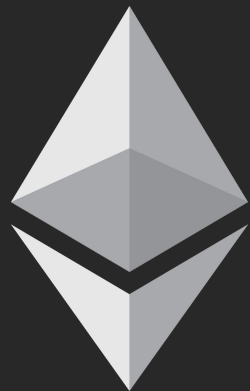
Polkadot.

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A quick review of blockchains

Blockchain nodes need:

- Database
- P2P Network
- Consensus Algorithm
- Transaction Handling
- State Transition Function (Runtime)

Block 41 — HEADER / BODY → Block 42 — HEADER / BODY → Block 43 — HEADER / BODY

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How does blockchain development happen today?

Parity has a lot of blockchain building experience...

github.com/paritytech/
parity-ethereum

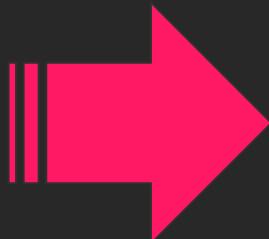github.com/paritytech/
parity-bitcoin

github.com/paritytech/
polkadot

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From Polkadot, came Substrate.

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What is Substrate?

Substrate is an **open source**, **modular**, and **extensible** framework for building blockchains.

What is Substrate?

Substrate provides all the core components of a Blockchain:

- Database Layer
- Networking Layer
- Transaction Queue
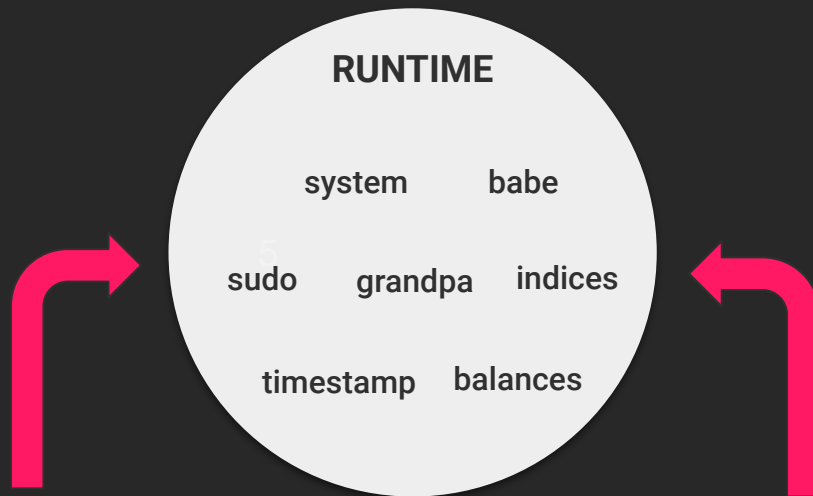- Consensus Engine
- Library of Runtime Modules

Each of which can be customized and extended.

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The Substrate Runtime

The runtime is the **block execution logic** of the blockchain, a.k.a. the State Transition Function.

It is composed of **Runtime Modules**.

RUNTIME

system   babe

sudo   grandpa   indices

timestamp   balances

Substrate Runtime Module Library (SRML)			
assets	babe	balances	collective
contract	democracy	elections	grandpa
indices	grandpa	indices	membership
offences	session	staking	sudo
system	timestamp	treasury	and more...

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What is Polkadot?

Polkadot is a network that **connects blockchains**.

A **vision** toward a multi-chain future.

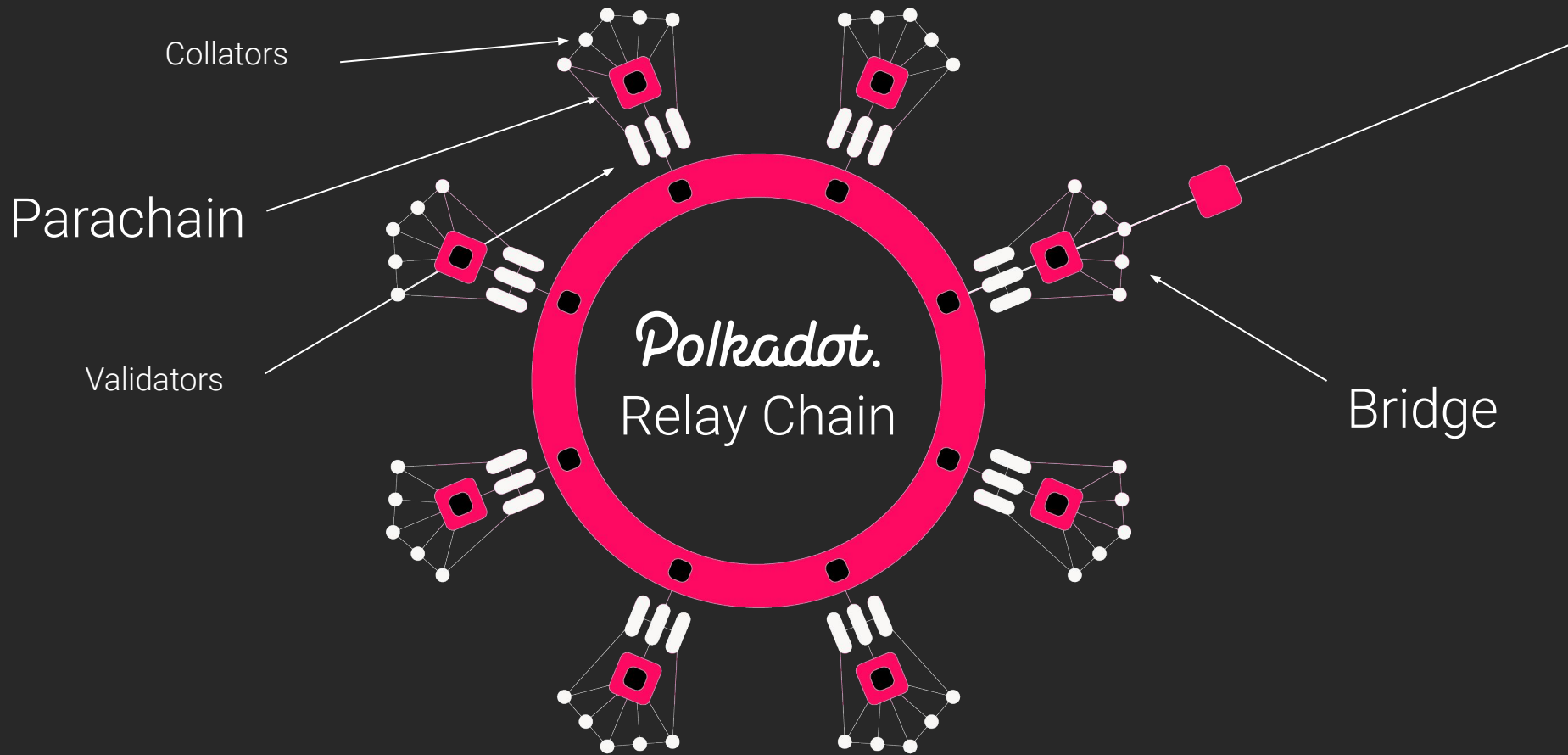# What is Polkadot?

Polkadot attempts to solve three problems:

1. **Interoperability**
2. **Scalability**
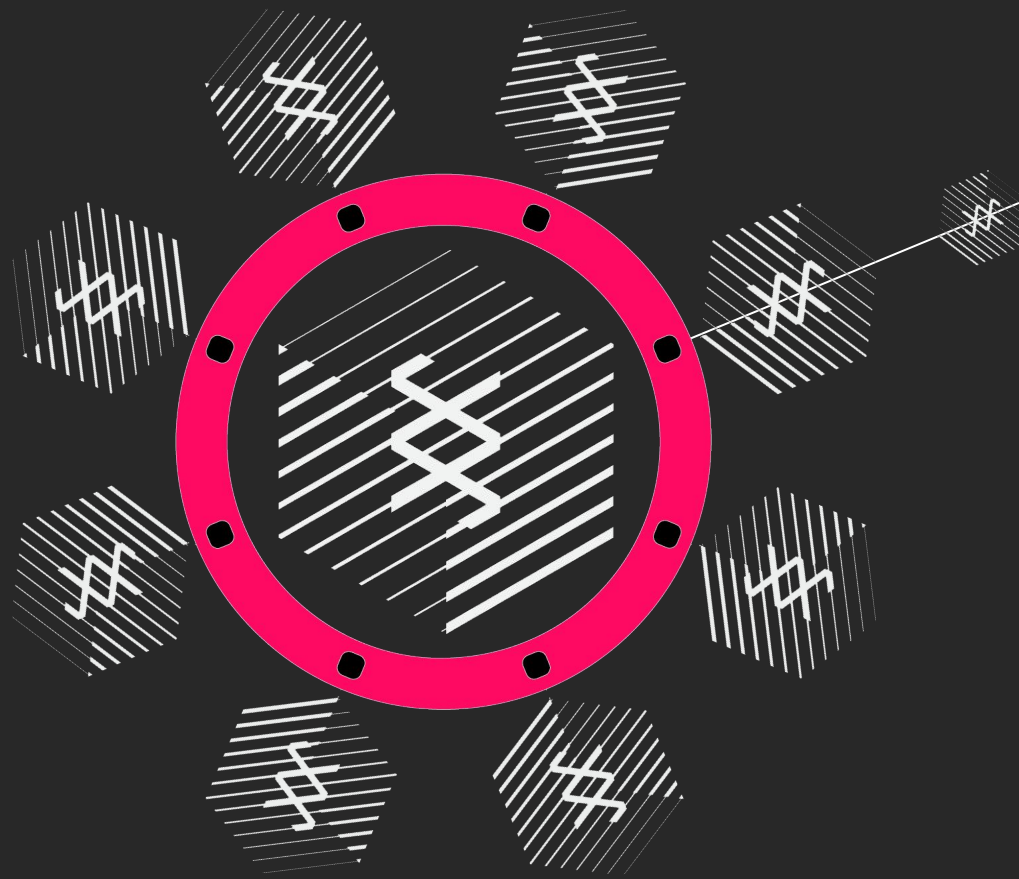3. **Shared Security.**

Why a multi-chain future?

- **Blockchains** can help solve trust problems.

- **Specialization** can help solve scalability issues.

- **Interoperability** can help add real world value.

Collators

Parachain

Validators

Polkadot. Relay Chain
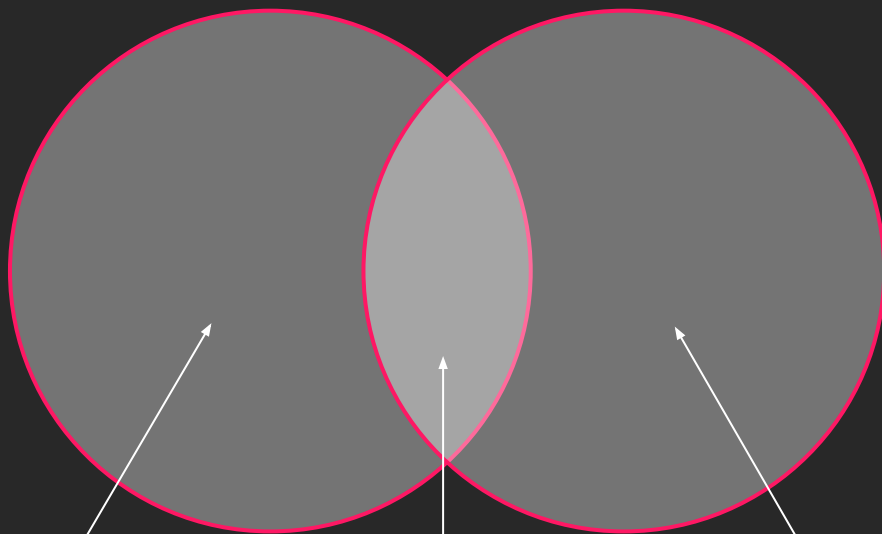
Bridge

Components of Polkadot

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The Potential of Substrate

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Polkadot Parachains

Substrate Chains

Parachains not built on Substrate

Parachains built with Substrate

Solo Substrate chains not on Polkadot

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Substrate **vs** Polkadot

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What does Substrate provide to Polkadot?

Core Blockchain System	Basic Blockchain Logic	Networking	Consensus	Governance

- Database
- Transaction Queue
- CLI
- Keyring
- RPC

- Primitives
- Balances
- Timestamp

- Peer-Set Management
- Gossip Protocol Aggregator
- Distributed Hash Table

- Staking
- Babe
- Grandpa
- Finality Tracking

- Democracy
- Elections
- Collectives
- Treasury

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What does Polkadot add on top of Substrate?

Parachains	Collators	Inter Chain Message Passing	Gossip Protocol	Persistent Availability Store
Parathreads	Crowd Funding	Claims	Auctions	Registrar

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Cumulus: Write Parachains on Substrate

A library which allows you to **easily** convert your Substrate codebase into a compatible Polkadot Parachain.

- Cumulus Consensus
- Cumulus Runtime
- Cumulus Collator

In progress…

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An Ecosystem of Tools

Front End Libraries	Light Client	Hardware Wallet	Smart Contracts
polkadot{.js}	light-ui	parity-signer	ink!

A Hub for Developers

https://substrate.dev

Tutorials

Videos

Recipes

Docs

Playground

Samples

Community
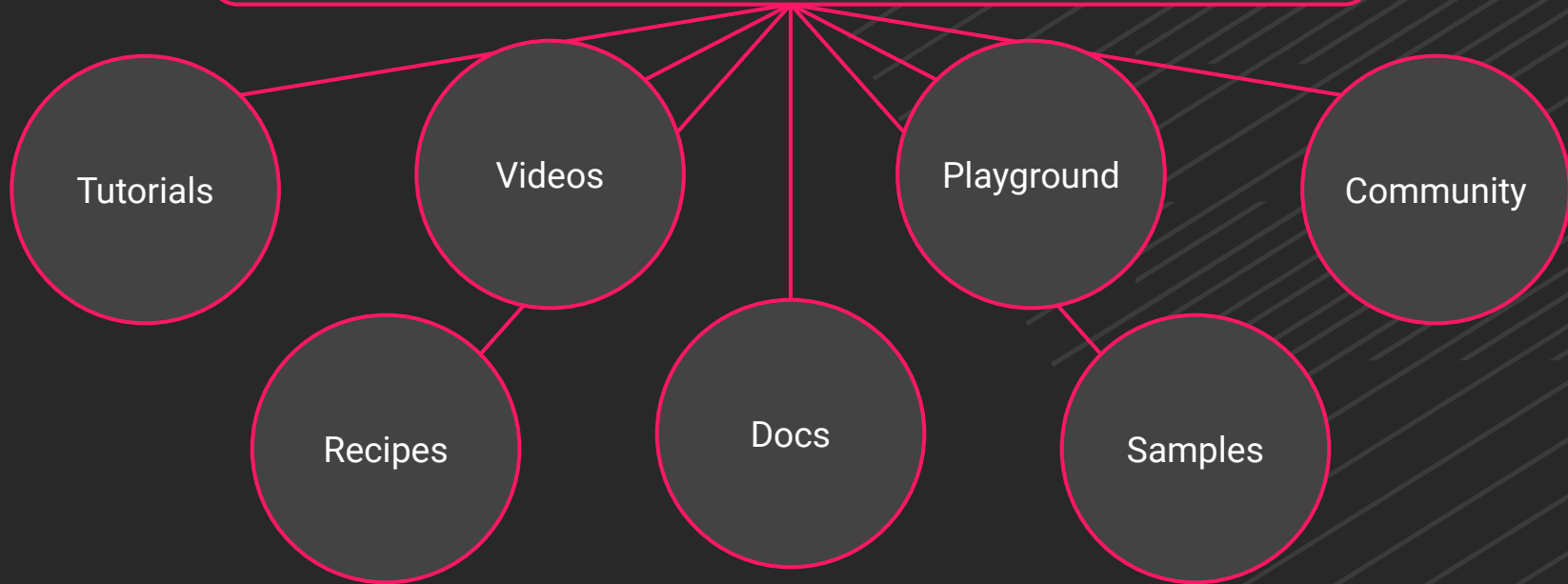
We're hiring!

---

parity.io/jobs

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Parity events and updates

parity.io/newsletter

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Get started today:

https://substrate.dev

julien@parity.io

@jeluard

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