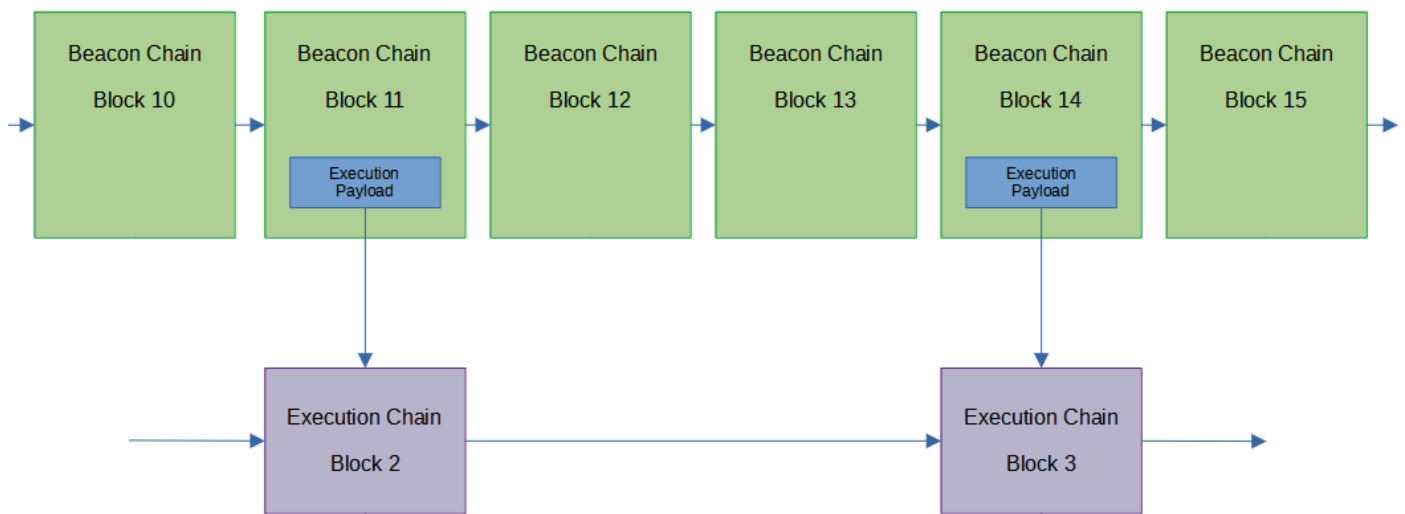# Beacon and Execution Chain

BPX comprises two distinct blockchains: the **Beacon Chain** and the **Execution Chain**, each responsible for specific tasks, with unique block structures and differing block production intervals. As a result, the peak heights of the Beacon Chain and Execution Chain diverge.

Certain blocks on the Beacon Chain, known as **transactional blocks**, include an **execution payload** - the data structure that enables the local reconstruction of a full Execution Chain block.

Both chains require separate client applications, called the **Beacon Client** and **Execution Client**, respectively.

Synchronization with Execution Chain without synchronization with Beacon Chain is not possible because Execution Chain does not have any built-in consensus algorithm but relies on data received from Beacon Chain.

Synchronization with Beacon Chain without synchronization with Execution Chain is not possible because execution payloads in some beacon blocks must be validated by the execution client.

Such a mechanism naturally forces following both chains by each BPX full node.

Beacon Chain

Beacon Chain manages the Proof of Space and Time consensus. The beacon chain blocks contain proofs of space, VDF outputs, addresses to which the block reward should be paid, and execution payloads that allow you to recreate the full execution block locally.

Execution Chain

Execution Chain is an EVM compatible chain. Execution blocks contains user transactions, smart contracts and logs.

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