**💡 DeNS v4: Explanatory paper 🧻**

**General logic**

The system consists of multiple contracts, each of which carries a specific logic:

* **D4Root** – the primary router and coordinator that creates all other contracts and provides resolution services for them;
* **D4User** – a contract that corresponds to another internal wallet or external user by a pubkey (experimental feature!), a “wallet” in TIP3 terms;
* **D4Base** – the immutable contract that is deployed with specific static data to act as a basement for other contracts, therefore address of those other contracts is deterministic no matter their code, a “platform” in DeNS v1 / v2 terms;
* **D4Cert** – contains information about a specific certificate (“domain”);
* **D4Auct** – represents ongoing auction or reservation for a certificate name;

**Storage layout**

Necessary information is stored in those contracts, clarification of which follows:

* **D4Root** contains minimal systemwide information:
  + Images for all contracts (base, cert, auct, user) and their revision nums
  + Owner and pending owner block, also SMV root address
  + Configured auction disabling timeout and admin rights mask
* **D4User** contains useful and required information for a specific user:
  + Funds lock configuration (for auction returns);ssa
  + Arbitrary blackbox user masterkey (client-side encrypted);
  + Book of auctions, their information and placed bids (required by logic);
  + Book of mostly owned certificates for quick access;
* **D4Cert** contains owner block, value block and some time information,
* **D4Auct** contains:
  + Timing information about phases boundary;
  + Some utility and internal information (duration days or expiry base);
  + Number of bids placed and revealed
  + First and second bid runners and their investments

**Some more useful information will follow**

**Generic flow logic**

**// continue**