**Attachment V – Architecture Mapping of EOS**

**Section 1 Summary**

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| Platform summary | |
| Platform ID: | *EOS* |
| Status/Revision: | 1.8.0 |
| Type: | *Public* |
| Domain: | Infrastructure |

**Section 2 Governance & Compliance Functions**

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| Platform governance | |
| Governance Type: | *Permissionless* |
| Chain Network Admin: | *BP (Block producer)* |
| Pledge (cost of malicious action): | ***Stake*** |
| Description: | *Delegate stake to BPs, BP as block producer* |

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| Platform trust endorsement policy | |
| Type: | *Tokenomics* |
| Tool: | EOS |
| Policy: | *EOS stake owner can delegate EOS and get EOS RAM, EOS RAM as gas to use blockchain resources* |

**Section 3 Application**

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| Platform smart contract mechanism | |
| Language | *WASM compiler supported languages[[1]](#footnote-1): C/C++* |
| Turing Complete? | *yes* |
| Compiler: | *WASM compiler with page protection[[2]](#footnote-2)* |
| Runtime VM: | *WASM VM* |
| DevTools | *Contract development toolkit[[3]](#footnote-3)* |
| Extra Tool(s): | *Explorer[[4]](#footnote-4)* |
| Lifecycle | *Live per app call / api call* |

**Section 4 Protocol**

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| Platform AAA Management | |
| Account type: | *address* |
| Distributed ID: | *N/A* |
| AAA support: | *Membership Service Providers* |
| Description: | *Governance section in EOS whitepaper [[5]](#footnote-5)* |

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| Platform consensus mechanism | |
| Algorithm: | *DPoS + asynchronized BFTN/A* |
| Consensus mode: | *Event* |
| Management solution: | *Internal* |
| Description: | *Delegate on stake, single block producer keep generating blocks, with verifiers’ signatures* |

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| Platform ledger management | |
| Model: | *balance* |
| Extra: | *N/A* |
| Description: | *-* |

**Section 5 Resources**

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| Node Management | |
| Node Role | *Sync node; BP* |
| Joining | *Any entity can run a sync node, and call for stake delegation from stakeholders; nodes with delegated stake reaches rank of top 21 will be block producer (BP)* |
| Leaving | *So far, no BP is leaving the network. Technically, BP(s) give away their stake and stop the node instances will quit the network* |
| Role changing | *When stake rank lower than 21, BP will downgrade to common sync node* |
| Description | *Each token holder determines the accounting right of the blockchain by voting, similar to the election of the board of directors. All nodes whose votes exceed the agreed votes become system trustees, forming a “board of directors” and alternately signing blocks. If a director missed the chance to sign a block, the nodes would vote for the others. Those boards that miss the chance to sign are disqualified and others can join the board.* |

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| Platform data protection - core | |
| Mass storage mitigation[[6]](#footnote-6) | *On-chain storage with consume of EOS RAM* |
| Decentralized Data Storage Support | *N/A* |
| Data Privacy Solution | *N/A* |
| Tamper Proof (tamper cost): | *stop service, average PoS \* 1/3 network scale (nodes)*  *tamper* |
| Description: | *Can be rollback on vote result by stake*  *Off-chain punishment on BP node(s)* |

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| Platform Network Management | |
| Node Scalability: | *1 continuous block generation +21 asynchronized BFT* |
| Byzantine Node Accepted? : | *Partially* |
| Network Structure | *Flexible* |
| P2P? : | *Yes* |
| Network Discovery Protocol | *Kademlia-like* |
| Data Exchange Protocol | *Gossip* |
| Description | *DPoS, with aBFT, the cost of BFT is very high, comparing with the performance of block generation, BPs are able to rollback before the block reaches its finality.*  *The BP node is not changing rapidly, the network is stable, and connect directly.*  *EOS community provides some P2P solutions for sync node.* |

**Section 6 Utils**

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| Platform Messaging Mechanism | |
| Protocol Type | *RPC* |
| Description: | *-* |

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| Platform Crypto Libraries | |
| Secure Network Connection Type | *SSL; TLS; …* |
| Cipher Suites | *ECDSA; EECDH; AESGCM; aRSA; EECDH; SHA; AES* |
| Description: | *-* |

**Section 7 Operation & Maintenance**

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| Platform system management – Node | |
| Log: | *Yes* |
| Monitoring: | *-* |
| Recommend Operation: | *-* |
| Description: | *[Operation and Maintenance] there are many system management tool from EOS community, this doc is based on EOSIO github solution. For the rest, not list the detail* |

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| Platform system management – Chain Network | |
| Permission Control: | *Yes* |
| Auditing: | *N/A* |
| Supervisory Support: | *N/A* |
| Description: | *[Operation and Maintenance] -* |

**Section 8 External Resource Management**

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| Platform External Resource Management | |
| L2 solution: | *N/A* |
| Non-DLT system interoperation solution: | *N/A* |
| Description: | *-* |

**Section 9 Extensions**

**\*** *There are many extensions built from EOS community, this doc is based on EOSIO github solution. For the rest, not list the detail.*

1. <https://github.com/appcypher/awesome-wasm-langs> [↑](#footnote-ref-1)
2. see footnote 1. [↑](#footnote-ref-2)
3. <https://github.com/EOSIO/eosio.cdt> [↑](#footnote-ref-3)
4. <https://bloks.io/> [↑](#footnote-ref-4)
5. <https://github.com/EOSIO/Documentation/blob/master/TechnicalWhitePaper.md#governance> [↑](#footnote-ref-5)
6. On chain storage cost much, solution/mechanism to resolve the problem of large cost of mass storage from node perspective. E.g., data maintenance, data storage and data cleaning. [↑](#footnote-ref-6)