Attachment V – Architecture Mapping of EOS

Section 1 Summary

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

Section 2 Governance & Compliance Functions

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*

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

Platform smart contract mechanism	
Language	*WASM compiler supported languages[1]: C/C++*
Turing Complete?	*yes*
Compiler:	*WASM compiler with page protection[2]*

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[1] https://github.com/appcypher/awesome-wasm-langs

[2] see footnote 1.

Runtime VM:	WASM VM
DevTools	Contract development toolkit[3]
Extra Tool(s):	Explorer[4]
Lifecycle	Live per app call / api call

Section 4 Protocol

Platform AAA Management	
Account type:	address
Distributed ID:	N/A
AAA support:	Membership Service Providers
Description:	Governance section in EOS whitepaper [5]

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

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

Section 5 Resources

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[3] https://github.com/EOSIO/eosio.cdt

[4] https://bloks.io/

[5] https://github.com/EOSIO/Documentation/blob/master/TechnicalWhitePaper.md#governance

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.*

Platform data protection - core	
Mass storage mitigation[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)*

Platform Network Management	
Node Scalability:	*1 continuous block generation +21 asynchronized BFT*
Byzantine Node Accepted? :	*Partially*
Network Structure	*Flexible*

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[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.

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

Platform Messaging Mechanism	
Protocol Type	*RPC*
Description:	-

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

Section 7 Operation & Maintenance

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*

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

Section 8 External Resource Management

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.*