DIDO RA 3.0 (Compact Version)

- Reference Architecture (RA)
- Front Matter
- a. Cover Page
- OMG Discussion Paper Disclaimer
- b. Change Log
- c. Abstract
- d. Copyright Notice
- f. Preface
- 1 Introduction
- 1.1 Problem
- 1.2 Purpose
- 1.3 Content Organization
- 2 Architectural Views
- 2.1 Stakeholder Views
- 2.1.1 Platform View
- 2.1.2 Domain View
- 2.1.3 Ecosystem View
- 2.1.4 Ecosphere View
- 2.1.5 Exchange View
- 2.1.6 Enterprise View
- 2.1.7 Relevant Community Standards
- 2.2 Technical Views
- 2.2.1 Fundamental Views
- 2.2.1.1 Interfaces
- 2.2.1.1.1 Platform Interface
- 2.2.1.1.2 Software Interfaces
- 2.2.1.1.3 Human Interfaces
- 2.2.1.2 Tools
- 2.2.1.2.1 Logging
- 2.2.1.2.2 Semantic Web
- 2.2.1.2.3 Open Source Communities
- 2.2.1.3 Case Management
- 2.2.1.4 System of Systems (SoS)
- 2.2.1.5 Quality
- 2.2.1.6 Open Source Paradigm
- 2.2.1.7 Assurance
- 2.2.2 Node Network View
- 2.2.2.1 Network View
- 2.2.2.1.1 Secure Messaging
- 2.2.2.1.2 Transport
- 2.2.2.1.3 Security
- 2.2.2.1.4 Protocol
- 2.2.2.1.5 Distribution Software
- 2.2.2.2 Node View

- 2.2.2.2.1 Operating System (OS)
- 2.2.2.2.2 Operating Environment
- 2.2.2.2.3 DIDO Platform
- 2.2.2.2.4 Distributed Applications
- 2.2.2.3 Node Architecture
- 2.2.2.3.1 Immutable Data Objects
- 2.2.2.3.1.1 Ledger
- 2.2.2.3.1.2 Transactions
- 2.2.2.3.1.3 Identities
- 2.2.2.3.1.4 Wallets
- 2.2.2.3.2 Ancillary Data
- 2.2.2.3.2.1 Journal
- 2.2.2.3.2.2 Transforms
- 2.2.2.3.2.3 Distributed Applications
- 2.2.2.3.2.4 Web Applications
- 2.2.2.3.2.5 Exchanges
- 2.2.2.3.3 Semantic Web
- 2.2.2.3.4 Software
- 2.2.2.4 Messaging View
- 2.2.3 Decentralized Finance (DeFi) Layers
- 2.3 Taxonomic Views
- 2.3.1 Network Topology Taxonomy
- 2.3.1.1 Centralized Network Topology
- 2.3.1.2 Decentralized Network Topology
- 2.3.1.3 Distributed Network Topology
- 2.3.1.4 Relevant Networking Standards
- 2.3.2 Network Access Control Taxonomy
- 2.3.2.1 Permissionless Networks
- 2.3.2.2 Permissioned Networks
- 2.3.2.3 Public Networks
- 2.3.2.4 Private Networks
- 2.3.2.5 Hybrid Networks
- 2.3.3 Node Taxonomy
- 2.3.3.1 Full Node
- 2.3.3.1.1 Pruned Node
- 2.3.3.1.2 Archival Node
- 2.3.3.1.2.1 Authority Node
- 2.3.3.1.2.2 Staking Node
- 2.3.3.1.2.3 Mining Node
- 2.3.3.1.2.4 Masternode
- 2.3.3.2 Lightweight Node (Wallet)
- 2.3.3.3 Lightning Node
- 2.3.3.4 Permanode
- 2.3.4 Data Taxonomy
- 2.3.4.3.1 Ledger Data
- 2.3.4.3.2 Ancillary Data

- 2.3.4.3.3 External Data
- 3 Governance
- 3.1 DIDO Communities
- 3.1.1 Stakeholder Communities
- 3.1.2 Software Communities
- 3.2 Legal Documents
- 3.2.1 Charter
- 3.2.2 Bylaws
- 3.2.3 Policies and Procedures (P&P)
- 3.3 Guides
- 4 Requirements
- 4.1 About Requirements
- 4.1.1 Governance Requirements Model
- 4.1.2 Cognitive Requirements Model
- 4.1.3 Governing Roles - Combined Requirements Model
- 4.1.4 Example of a Using the Combined Requirements Model
- 4.1.5 The Current State of DIDO Requirements
- 4.1.6 One Degree of Freedom Rule
- 4.1.7 Specifying Requirements
- 4.2 Functional Requirements
- 4.2.1 Platforms
- 4.2.1.1 Hardware Platform
- 4.2.1.2 Operating System Platform
- 4.2.1.3 Runtime Platforms
- 4.2.1.4 Network Platforms
- 4.2.1.5 Virtualized Nodes
- 4.2.2 Access Control
- 4.3 Non-Functional Requirements
- 4.3.1 Portability
- 4.3.1.1 Adaptability
- 4.3.1.2 Installability
- 4.3.1.3 Replaceability
- 4.3.2 Reliability
- 4.3.2.1 Maturity
- 4.3.2.2 Availability
- 4.3.2.3 Fault Tolerance
- 4.3.2.4 Recoverability
- 4.3.3 Maintainability
- 4.3.3.1 Modularity
- 4.3.3.2 Reusability
- 4.3.3.3 Analysability
- 4.3.3.4 Modifiability
- 4.3.3.5 Testability
- 4.3.4 Securability
- 4.3.4.1 Confidentiality
- 4.3.4.2 Data Integrity
- 4.3.4.3 Non-Repudiation
- 4.3.4.4 Authenticity

- 4.3.4.5 Accountability
- 4.3.5 Manageability
- 4.3.5.1 Types of Manageability Functions
- 4.3.5.2 Manageability Costs
- 4.3.5.3 System Manageability Issues
- 4.3.5.4 Software Manageability Issues
- 4.3.6 Usability
- 4.3.6.1 Effectiveness Metrics
- 4.3.6.2 Efficiency Metrics
- 4.3.6.3 Attitude / Satisfaction Metrics
- 4.3.7 Performance
- 4.3.7.1 Platform Performance
- 4.3.7.2 Application Performance
- 4.3.7.3 Network Performance
- 4.3.8 Interoperability
- 4.3.9 Elasticity
- 4.3.10 Scalability
- 4.4 Assessing Requirements
- 4.4.2 Non-functional Requirements Assessment
- Appendices
- Appendix A: Glossary of Terms Related to DIDO
- Glossary !-* Terms
- Glossary 0-9 Terms
- 16-Bit
- 32-Bit
- 64-Bit
- Glossary A Terms
- Acceptance Testing
- Access Control
- Access Control Function
- Access Control List (ACL)
- Accessibility
- Accountability
- Adaptability
- Address Resolution Protocol (ARP)
- Address Resolution Protocol (ARP) Spoofing
- After Action Review (AAR)
- Aggregation Layer
- Agile Model
- American National Standards Institute (ANSI)
- American Standard for Information Interchange (ASCII)
- Analysability
- Application
- Application Container
- Application Layer
- Application Performance

- Application Programming Interface (API)
- Application Security
- Application Specific Integrated Circuit (ASIC)
- Appropriateness Recognizability
- Architecture Adaptability
- Argument
- Assurance
- Authentication
- Authenticity
- Authorization
- Automation Pyramid
- Availability
- Glossary B Terms
- Backus–Naur Form (BNF)
- Bandwidth
- Big-Endian
- Bill of Lading (BL or BoL)
- Biometrics
- Bitcoin Wallet
- Bit Error
- Black Box Testing
- blkchn
- Blockchain Network
- Block Producers
- Block Validators
- Bluetooth
- Bootstrap
- Bridge
- Brownfield
- Bylaws
- Byzantine Fault Tolerance (BFT)
- Byzantine Generals Problem
- Glossary C Terms
- Cable Subscriber Protection
- California Consumer Privacy Act (CCPA)
- Capability Maturity Model Integration (CMMI)
- Category 5 (Cat-5)
- Category 6 (Cat-6)
- Category 7 (Cat-7)
- Category 8 (Cat-8)
- Central Processing Unit (CPU)
- Charter
- Children's Online Privacy Protection Act (COPPA)
- Claim
- Class
- Client
- Client-Server
- Cloud Elasticity

- Coins
- Comma Separated Values (CSV)
- Command Line Interface (CLI)
- Command Shell
- Commercial Off-The-Shelf (COTS)
- Common Intermediate Language (CIL)
- Common Language Runtime (CLR)
- Common Object Request Broker Architecture (CORBA)
- Communication Protocol
- Communications Model
- Community of Interest (CoI)
- Compiler
- Complex Instruction Set Computer (CISC)
- Computer Architecture
- Computing Platform
- Conceptual Schema
- Condition
- Confidentiality
- Confidentiality Agreement
- Configuration Management (CM)
- Conformance Specification
- Consensus Algorithm
- Container
- Container Engine
- Container Host
- Container OS
- Control Level
- Copyleft
- Copyright
- Cryptocurrency
- CyberSecurity Culture (CSC)
- Glossary D Terms
- Daemon
- Data-Centric
- Data-Centric Publish-Subscribe (DCPS)
- Data as a Service (DaaS)
- Data-at-Rest
- Database Driver
- DataBase Management System (DBMS)
- Data Definition Language (DDL)
- Data Distribution Service (DDS)
- Data-in-Motion
- Data Integrity
- Data-in-Use
- Data Link Layer (DLL)
- Data Logging

- Data Manipulation Language (DML)
- Data Model (DM)
- Data Object (DO)
- Data Protection
- Data Protection Act 2018
- Data Quality
- Data Reader
- Data Security
- Datastore
- Data Structure
- Data Writer
- DDS Domain
- Decentralized Finance (DeFi)
- de facto Standard
- Delegated Byzantine Fault Tolerant (dBFT)
- Delegated Proof of Stake (DPoS)
- Department of Defense (DoD)
- Dependent Event
- DevOps
- DIDO Domain Community
- DIDO Ecosphere Community
- DIDO Ecosystem Community
- DIDO Platform
- Digital Rights
- Digital Rights Management (DRM)
- Directed Acyclic Graph (DAG)
- Disconnected, Intermittent and Limited (DIL)
- Discovery
- Disk Image
- Distributed Application (ĐApp or DApp)
- Distributed Denial-of-Service (DDoS)
- Distributed Immutable Data Objects (DIDO)
- Distributed Ledger Technology (DLT)
- Distributed System
- Docker
- Domain Integrity
- Domain Knowledge
- Domain Name System (DNS)
- Domain Participant
- Download Speed
- Downtime
- Driver's Privacy Protection Act of 1994 (DPPA)
- Duck Typing
- Durability
- Dynamic Host Configuration Protocol (DHCP)
- Dynamic Link Library (.dll)
- Glossary E Terms
- Economies of Scale

- Elastic Compute Cloud (EC2)
- Encryption
- End-of-life (EoL)
- End-to-End Solution (E2ES)
- End-to-End Testing (E2E Testing)
- Endianness
- Endpoint
- Enterprise Resource Planning (ERP)
- Entity
- Entity Integrity
- Environment Variables
- Ethereum Improvement Proposal (EIP)
- Ethereum Request for Comment (ERC)
- Ethernet
- Evidence
- Executable File
- Glossary F Terms
- Failover
- Fault Tolerance
- Federal Deposit Insurance Corporation (FDIC)
- Field Level
- Fifty-One Percent (51% Attack)
- FIGI Symbology
- Figure of Merit (FoM)
- File Transfer Protocol (FTP)
- Financial Instrument Global Identifier (FIGI)
- Firewall
- Five Nines
- Flowchart
- Full-Disk Encryption (FDE)
- Full Node
- Functional Language
- Functional Programming
- Functional Requirements
- Fungible
- Glossary G Terms
- Gateway
- General-Purpose Graphics Processing Unit (GPGPU)
- General Data Protection Regulation (GDPR)
- Goal
- Google Mobile Services (GMS)
- Government Off-The-Shelf (GOTS)
- Graphical User Interface (GUI)
- Graphics Processing Unit (GPU)
- Greenfield
- Glossary H Terms

- Hard Fork
- Hardware Firewall
- Health Insurance Portability and Accountability Act (HIPAA)
- History QoS
- Horizontal Scaling
- Hub
- Human-machine interface (HMI)
- Hybrid Network
- Hype-Cycle
- Hypertext Transfer Protocol (HTTP)
- Hypertext transfer protocol (HTTP) Request
- Hypertext transfer protocol (HTTP) Response
- Hypertext Transport Protocol Secure (HTTPS)
- Hypervisor
- Glossary I Terms
- Identification
- Identifier (ID)
- Immutable
- Independent Event
- Industrial Internet of Things (IIoT)
- Information Assurance (IA)
- Information Security (IS/InfoSec)
- Information Technology (IT)
- Infrared Wireless Networking
- Infrastructure-as-a-Service (IaaS)
- Initial Coin Offering (ICO)
- Installability
- Instance
- Institute of Electrical and Electronics Engineers (IEEE)
- Integration Testing
- Intellectual Property (IP)
- Interface
- Interface Testing
- International Organization for Standardization (ISO)
- Internet
- Internet of Things (IOT)
- Internet Protocol (IP)
- Internet Protocol Address (IP Address)
- Internet Service Provider (ISP)
- Interoperability
- Interoperability Testing
- ISO 9001
- ISO 15288
- ISO 90003-2018
- Glossary J Terms
- Java Database Connectivity(JDBC)
- JavaScript
- JavaScript Object Notation (JSON)

- Jitter
- Just-In-Time (JIT)
- Glossary K Terms
- Key
- Know Your Customer (KYC)
- Glossary L Terms
- Latency
- Learnability
- Ledger
- License Distribution
- License Linking
- License Modification
- License Patent Grant
- License Private Use
- Licensing Sublicensing
- Licensing Trademark Grant
- Lightning Network
- Light Node
- Listener
- Little-Endian
- liveliness
- Local Area Network (LAN)
- Logical Integrity
- Glossary M Terms
- Maintainability
- Maintainability Measure
- Manageability
- Management Level
- Manufacturing Execution System (MES)
- Massively Parallel Processing (MPP)
- Mean Active Maintenance Down Time (MAMDT)
- Mean Logistics Delay Time (MLDT)
- Mean Time Between Failure (MTBF)
- Mean Time To Failure (MTTF)
- Mean Time To Repair (MTTR)
- Media Access Control (MAC)
- Message-Oriented Middleware (MOM)
- Message Queue(MQ)
- Metadata
- Microcontroller
- Micropayment Channel
- Middleware
- Miner Node
- Mission Assurance (MA)
- Mission Critical System
- Modem

- Modifiability
- Modified Off-The-Shelf (MOTS)
- Modularity
- Module
- Monitoring Software
- Motherboard
- Multi-core Processor
- Multi-Signature (multisig)
- Must (Requirement)
- Glossary N Terms
- N-Tier Architecture
- NATO Off-The-Shelf (NOTS)
- Near-Field-Communication (NFC)
- Network Appliance
- Network Attached Storage (NAS)
- Network Cabling
- Network Device
- Network Interface Card (NIC)
- Network Layer
- Network Node
- Network Performance
- Network Security
- Network Topology
- Network Traffic Analyzer
- Node
- Node Network
- Non-Disclosure Agreement (NDA)
- Non-Functional Requirements
- Non-Repudiation
- Normalization
- NoSQL
- Glossary O Terms
- Object
- Object-Oriented Programming (OOP)
- Objective
- Object Management Group® (OMG®)
- One-Time PIN (OTP)
- Ontology
- Open Database Connectivity (ODBC)
- Open Source Software (OSS)
- Open Systems Interconnection (OSI) Model
- Operability
- Operating System (OS)
- Operational transformation (OT)
- Operator
- Oracle
- Owner
- ownership

- Glossary P Terms
- Package Manager
- Packet Loss
- Packet Switched Network (PSN)
- Parallel Processing
- Parliamentary Authority
- Partition
- Payment Channel
- Pedigree
- Peer-to-Peer (P2P)
- Performance
- Performance Efficiency Measure
- Performance or Functional Specifications
- Permissioned Networks
- Permissionless Networks
- Permissive Open Source Software
- Personal Identifiable Information (PII)
- Physical Integrity
- Physical Layer
- Physical Security
- Planning Level
- Platform
- Platform-as-a-Service (PaaS)
- Platform Independent Model (PIM)
- Platform Security
- Platform Specific Model (PSM)
- Plug In
- Point-to-Point
- Policies and Procedures (P&P)
- Policy
- Portability
- Portable Operating System Interface (POSIX)
- Port Number
- Presentation Layer
- Principle
- principles
- Private Network
- Privileges
- Procedural Language
- Procedure
- Processor
- Programming Language
- Project Management Software
- Proof of Authority (PoA)
- Proof of Stake (PoS)
- Proof of Work (PoW)

- Protocol
- Protocol Layer
- Provenance
- Public Key Infrastructure (PKI)
- Public Network
- Publish-Subscribe
- Publisher
- Glossary Q Terms
- Quality of Service (QoS) Policies
- Glossary R Terms
- Radio Frequency Identification (RFID)
- Read-Only Memory (ROM)
- Reboot the World Problem
- reCAPTCHA
- Recoverability
- Reduced Instruction Set Computer (RISC)
- Reference Architecture (RA)
- Referential Integrity
- Registered Agent
- Regression Testing
- Relational DataBase Management System (RDBMS)
- Reliability, Maintainability, and Availability (RAM)
- Reliability Measure
- Relocatable Object
- Repairability
- Repeater
- Replaceability
- Representational State Transfer (REST)
- Request For Comment (RFC)
- Request For Information (RFI)
- Request For Proposal (RFP)
- Requirement
- RESTful API
- Reusability
- Rich Site Summary (RSS)
- Risk
- Roundoff Error
- Router
- Glossary S Terms
- Safety-Critical System (SCS)
- Safety Assurance (SfA)
- Salami Slicing
- Sample
- Sanity Testing
- Sarbanes-Oxley Act (SOX)
- Scalability
- Scaling Out
- Scaling Up

- Script
- Secure Shell (SSH)
- Secure Sockets Layer (SSL)
- Security Measure
- Semantics
- Semantic Web
- Sensor
- Sequence
- Server
- Servicability
- Session Layer
- Settlement Layer
- Shall (Requirement)
- Shared Library
- Shared Object (.so)
- Shielding
- Should (Requirement)
- Sidechain
- Simple Payment Verification (SPV)
- Single-Factor Authentication (SFA)
- Six Sigma (6Sigma)
- Smart Card
- smart_contracts
- Smoke Testing
- Snapshot
- Soft Fork
- Software Adaptability
- Software as a Service (SaaS)
- Software Assurance (SwA)
- Software Firewall
- Software Library
- Software Stack
- Source Code
- Special Interest Group (SIG)
- Special Rules
- Sprint
- Stakeholder
- Standards Developing Organization (SDO)
- Standards Organization
- standards_organization
- Standing Rules
- Static Library
- Statute
- Storage Device
- Straight-through Processing (StP)
- Structured Query Language (SQL)

- Sub-Claim
- Subject Matter Expert (SME)
- Subscriber
- Subscriber Identity Module (SIM)
- Supervisory Control and Data Acquisition (SCADA)
- Supervisory Level
- Supply Chain
- Switch
- Symmetric Multiprocessing (SMP)
- Syntax
- System Assurance (SysA)
- System Lifecycle
- Systems and software Quality Requirements and Evaluation (SQuaRE)
- Glossary T Terms
- Tangle
- Taxonomy
- Technical Standard
- Testability
- Throughput
- Tokens
- Topic
- Total Cost of Ownership (TCO)
- Transmission Control Protocol (TCP)
- Transport Layer
- Transport layer security (TLS)
- Two-Factor Authentication (2FA)
- Glossary U Terms
- Unicode Transformation Format (UTF)
- Unified Modeling Language (UML)
- Uninterruptible Power Supply (UPS)
- Unique Identifier (UID)
- Unit Testing
- Universally Unique IDentifier (UUID)
- Universal Serial Bus (USB)
- UNIX
- Upload Speed
- Usability
- Use-Case
- User Datagram Protocol (UDP)
- User Defined Integrity
- User Error Protection
- User Interface Aesthetics
- User Scenario
- Glossary V Terms
- Validation
- Value Chain
- Vendor Lock-In
- Vertical Scaling

- Video Privacy Protection Act (VPPA)
- Virtual Disk Image (VDI)
- Virtual Machine (VM)
- Virtual Machine Images
- Glossary W Terms
- WaitSet
- Waterfall Model
- Web Application (Web App)
- Weight of Network
- White Box Testing
- Wide Area Network (WAN)
- Will (Requirement)
- Windows Registry
- Wired Network
- Wireless Fidelity (Wi-Fi)
- Wireless Network
- wireproro
- Wizard
- Glossary X Terms
- eXtensible Markup Language (XML)
- XML Information Set (XML Infoset)
- XML Schema Definition (XSD)
- Glossary Y Terms
- Glossary Z Terms
- ZigBee
- Appendix B: Standards Organizations
- Technical Standards Bodies
- de facto Standards Bodies
- Appendix C: Hardware Architectures
- C.1 Embedded Systems
- C.1.1 Embedded Subsystem
- C.1.2 Standalone Embedded Systems
- C.1.3 Networked Embedded Systems
- C.2 Servers
- C.2.1 Software Servers
- C.2.2 Hardware Servers
- C.3 Desktops
- C.4 Handheld Computers
- C.5 Supercomputers
- C.6 Network Devices
- Appendix D: Operating Systems
- Android
- Apstra
- Azure Real Time Operating System (or Azure RTOS)
- Azure Sphere OS
- balenaOS

- Blackberry QNX
- CentOS
- Chromium OS
- Cisco Digital Network Architecture (Cisco DNA)
- Cisco Internetwork Operating System (IOS)
- Cisco IOS XR
- Cisco NX-OS
- ClearOS
- CloudReady
- ExtremeXOS
- FreeBSD
- FreeRTOS
- IBM i
- iOS
- Junos operating system (Junos OS)
- LynxOS RTOS
- Nokia X Software Platform
- Open Network Linux
- OpenServer
- Oracle Linux (OL)
- Oracle Solaris
- Red Hat Enterprise Linux (RHEL)
- SANtricity Software Operating System (OS)
- SCO UnixWare
- SUSE Linux Enterprise Server (SLES)
- TrueNAS
- Ubuntu Linux
- Windows
- Windows IoT
- Windows NT
- Windows Server
- Windows XP
- Appendix E: Tools
- Tools: Archiving and Release Management
- Tools: Bug and Issue Tracking
- Tools: Code Reviews
- Tools: Contributor License Agreements (CLA)
- Tools: GitHub Management at Corporate Scale
- Tools: Logging Tools
- Tools: Network Traffic Analysis
- Tools: Open Source Paradigm
- Tools: Project Quality
- Tools: Source Code Scanning and License Compliance
- Tools: Tracking Project Health
- Appendix F: DDS Quality Of Service
- F.1 User Data
- F.2 Topic Data
- F.3 Group Data

- F.4 Durability
- F.5 Durability Service
- F.6 Presentation
- F.8 Latency Budget
- F.7 Deadline
- F.9 Ownership
- F.10 Ownership Strength
- F.11 Liveliness
- F.12 Time Based Filter
- F.13 Partition
- F.14 Reliability
- F.15 Transport Priority
- F.16 Lifespan
- F.17 Destination Order
- F.18 History
- F.19 Resource Limits
- F.20 Entity Factory
- F.21 Writer Data Lifecycle
- F.22 Reader Data Lifecycle
- Appendix G: Tests
- Appendix H: Acronyms
- Appendix I: Cognitive Model
- Appendix J: Governance Model

From:
https://omgwiki.org/dido/ - **DIDO Wiki**

Permanent link:
https://omgwiki.org/dido/doku.php?id=wiki:ebook:dido_ra_3.0_compact_version&rev=1636496828

Last update: **2021/11/09 17:27**