

Elastos DMA Project

Decentralized digital marketing and commerce platform
powered by Elastos

V0.85

2018.10

Table of Content

Abstract.....	1
System Architecture.....	1
Use Cases.....	5
Technology.....	6
Key Application.....	7
Roadmap.....	8
Legal Entity.....	10
Team.....	10
Notes.....	11

Revision history

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2018.10 v0.85, added DMA phase I system chart, updated DApp chart, Brian Xin

Abstract

The most important concept of Elastos, the SmartWeb network computer, is "you own your data". The confirmation of personal data ownership, and then turn personal data into personal fortune is clearly defined in Elastos vision and strategy. As Elastos Alpha release is around the corner, this is the right timing to move into the next level - engage decentralized applications into the plan. The best way to educate end-user, which is our precious community, is through commercially operated DApps. Building commercially viable DApp is the only and best way to engage with the community and enlarge it.

As one of the many steps to turn Elastos great vision into reality, we defined Elastos Decentralized Marketing Platform (DMA). DMA is an important part of the whole Elastos decentralized services strategy. As one of the Elastos services, DMA provides all kind of support to help DApp developer build DApp through simple steps.

DMA is the decentralized marketing and commerce framework on top of Elastos infrastructure. It utilizes the Elastos public resources and services, such as Main Chain as ledger, SideChain DID, distributed storage, Carrier's P2P capability, to build the digital marketing layer, packed with various business logical modules. The basic DMA service modules include, but are not limited to `elastos.pulse`, `elastos.profile`, `elastos.store`, `elastos.exchange`. Along with Elastos Runtime and SDKs, DMA helps developer quickly develop and deploy DApps into Elastos platform.

The use cases of DMA cover all kind of decentralizd marketing and commerce scenarios, such as digital asset management and exchange, digital copyrighted content marketplace, service-base and goods-based e-commerce platform, and marketing tools. It is grouped into three domains:

- Digital asset
- Personal data
- Tools and utilities

DMA project will be divided into several development phases. The source code will be distributed into Elastos open source community.

System Architecture

There are three types of Elastos application in the system - The DApps in Elastos VM, Native Apps on local OS, and Web Apps in Elastos browser.

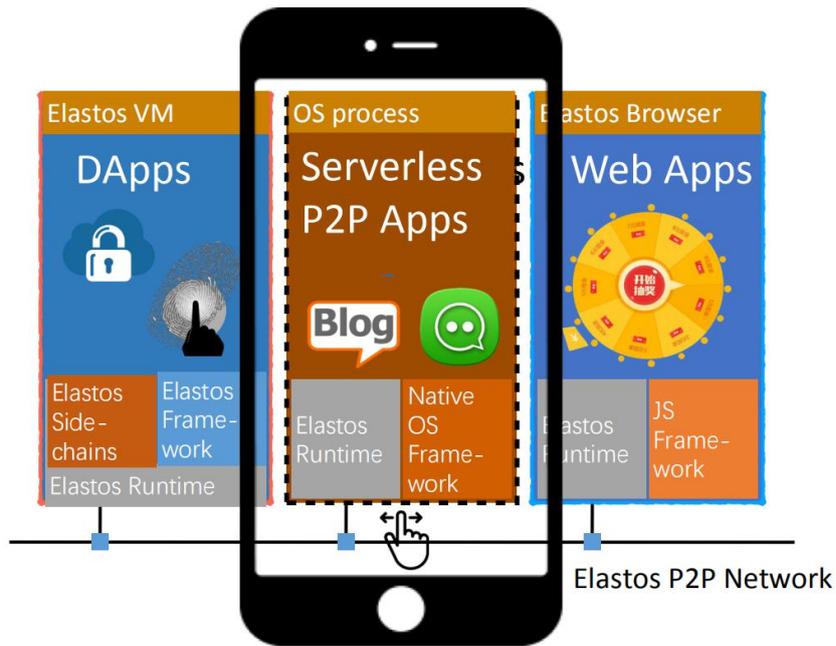


Figure 1 Elastos DApps

Based on Elastos infrastructure, DMA is positioned as a vertical domain application framework specialized in decentralized marketing and commerce. DMA utilizes Elastos system resources, such as DID side chain and other functional side chain, P2P Carrier, and decentralized storage, to pack the DMA business logic.

DMA project produces a list of public service modules. They will first be used in DMA framework, and later can be integrated into Elastos system level infrastructure as the generic purpose services if necessary.

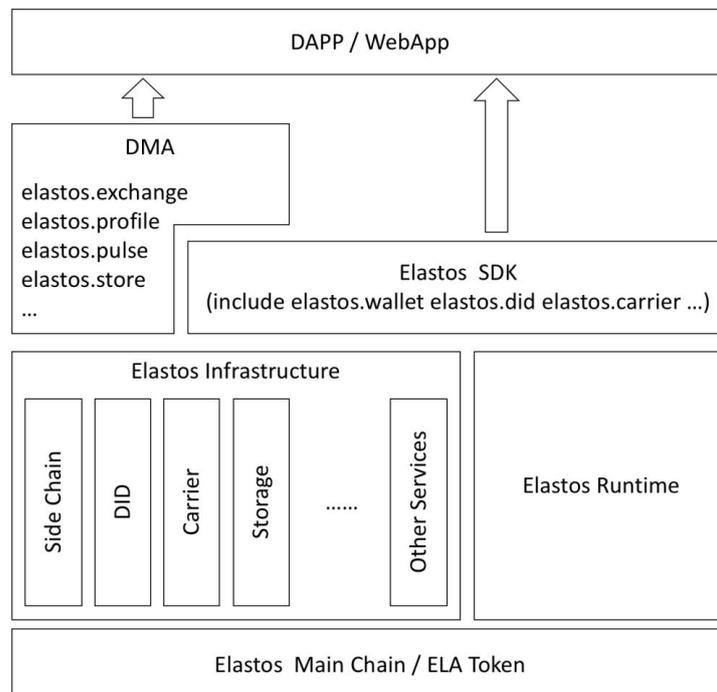


Figure 2 System Architecture

Figure 2 shows DMA framework inside Elastos architecture. The modules in DMA form the decentralized marketing and commerce services. These modules can be divided into two categories - digital asset related and personal data related.

Anything that is capable of being owned or controlled to produce value, is considered an asset. For example, goods, services, securities, warehouse receipts, purchase agreements, licenses, copyrights, music, videos, games, loyalty program points, game equipment, event tickets, collectibles and other physical assets and digital assets. DMA provides a range of services for buying, selling, exchanging, redeeming, and managing the assets, such as `elastos.store`, `elastos.tokenizer`, `elastos.exchange`, etc.

Here we elaborate the philosophy and design of personal data modules.

As we mentioned earlier, the “you own your data” and “turn your own data into your fortune” are the key concepts of Elastos system. Therefore, it is essential for DMA to manage data collection, ownership confirmation, and usage authorization well. The collection, analysis, usage of personal data requires owner’s permission with respect to privacy rules. At the same time, personal data is stored in the personal space of cloud disk or other decentralized storage system with encryption. No one can get access to such data without the owner’s permission. Based on this dual-protection mechanism, personal data is properly collected and used through DApps. We name this service as “`elastos.pulse`”. This service takes its roots in traditional Chinese medicine and the role of the pulse within it. Nobody can collect and analyze your pulse information unless you authorize the doctor to put his fingers on your wrist.

Through pulse service, personal data can be dynamically collected, analyzed, structured, and maintained, and then turn into the digital portrait - `elastos.profile`. Profile has open data structure, including the basic user portrait profile, and the extended profiles for special scenarios. It’s expandable. With owner’s permission, applications can use profile data to perform business purpose and make profit. Some portion of profit is distributed to the profile owner based on the binding smart contracts. Based upon this mechanism, the Elastos decentralized marketing and commerce vision, “you own your data” and “turn your own data into your fortune”, can be achieved.

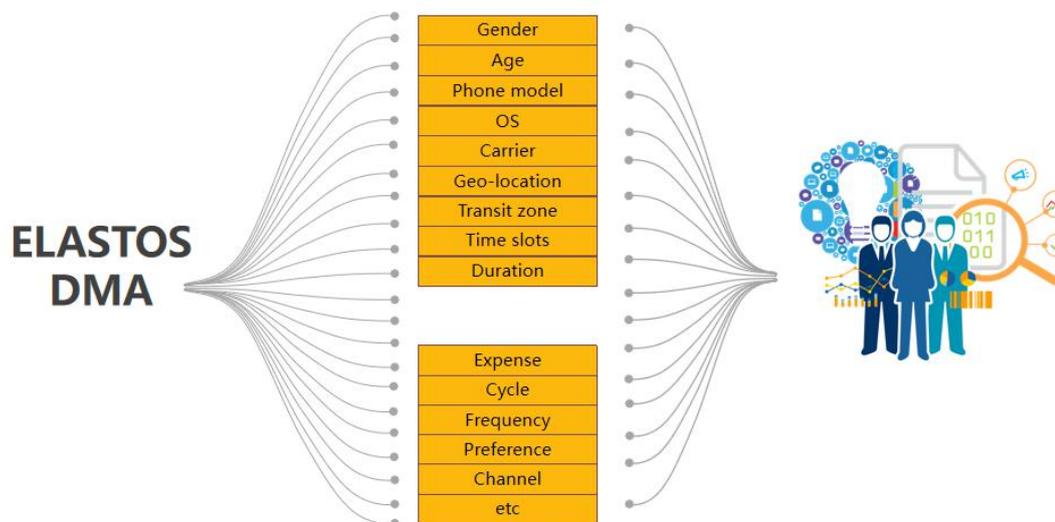


Figure 3 Pulse and Profile

Through pulse and profile services, we are to be able to collect data and make it ready for monetization. Typically, there are two ways to monetize our data. We can use it for target marketing and recommendation of services and goods. Not only the merchant, but also the data owner can all benefit from it. The second channel is for the authorized third party to use data as data services, such as marketing research, commercial data, statistics and analytics etc...

However, personal data is stored in encrypted storage, such as cloud, IOT box, IPFS-like service. Without owner's permission, no one is suppose to get access and use data. The data usage party is the program running on the network computer, while data itself is stored elsewhere. The application and data are separated in the cyberspace. Consequently, until the owner knows the value of the upcoming data usage request, he's free to refuse it.

Elastos appraiser is a data value assessment service. It acts as a clean hand to assess data value by accessing the owner's data space. By analyzing the matching ratio between owner's data and application's requirement, it provides the data owner with the information required to make the right decision regarding the use of his data. If it meets the value expectation of data owner, the permission is granted. This assessor service is handed by the code in DMA framework. Data security, permission, and value are compromised and balanced for all parties' advantage.

Pulse, Profile, and Assessor form the DMA personal data management and utilization framework. It is the bridge to turn "you own your data" into reality.

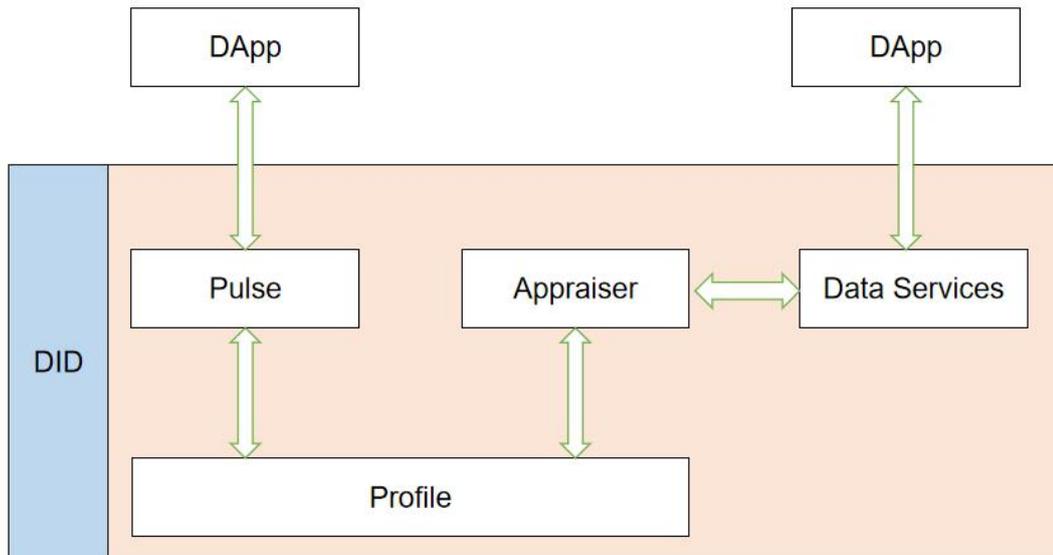


Figure 4 DMA personal data management and utilization

Use Cases

DMA supports broad range of scenarios, enabling DApps in decentralized digital marketing and commerce domain. DMA will evolve in parallel with the broader ecosystem to keep supporting new applications, and add real value to its users. The following are the typical scenarios that DMA can support in near future.

E-Ticket

This use case includes performances, live shows, sporting events, ticket management for various gatherings. DMA can help the event ticketing platform to tokenize the tickets, making it easy for selling in the online ticketing platform. The e-ticket can also be easily sent, transferred, sold/bought among people in secondary market. The original ticket issuer can put restrictions on the e-ticket, such as the frequency, liquidity, price range of the ticket. This kind of asset should follow non-fungible Token Standard.

Digital copyright-ed content

The digital copyright-ed content trading is an important area of Elastos. The digital content, such as e-book, music, pictures, documents, can be managed by DMA framework's digital asset controller. The controller features several smart contracts defining the rights and duties as well as profit distribution mechanisms. When buyer pays for the content, the profit is automatically distributed to the owner, platform, marketing service provider, and utility service providers (such as storage). The buyer can also buy out the ownership of the content, and put it into the market for future profit. DMA is the trusted party who manages the asset and profit distribution for all

parties.

Digital Advertisement Service

Advertisers look for good quality data source to push accurate and relevant commercials. Meanwhile, customers with dynamical personal portrait data like to share with the right ad agent or direct channel who offers the right price for usage. DMA data management and utilization services make the match-making job easier. It helps maximizing the ad efficiency and accuracy, and automatically distribute expense, commission and profit, with minimum intermediary agent involvement.

Social Commerce

Elastos uses DID sidechain to provide ID management features. Every user, device, entity uses the Elastos DID sidechain. In decentralized commerce domain, DID is used to manage users as well as the relationship between DIDs via various marketing activities. Such relationship generates dynamic social graph. Social graph brings the most efficient way to target marketing and e-commerce. In DMA, the combination of DID, Social graph, recommendation engine, search and aggregation engine, incentive program powered by smart contract, dashboard and intelligent data service, and store front make decentralized marketing and commerce shine.

There are more DMA supported use cases that can be considered. We believe the power of developer community will help push fast iteration of the open DMA framework. There will be more and more innovative applications as we move forward.

Technology

The Elastos MainChain manages ELA token and side chains. As the decentralized marketing framework, DMA provides support to marketing related consensus and packed smart contracts. DMA issues DMA token as marketing token based on ELA, through DMA side chain component.

The whole DMA platform can be considered as the protocol layer of token economy. DMA set includes digital asset management, personal data management, business logic with smart contracts, and toolkit. Developers get access to DMA via SDK. DMA acts as a BaaS for decentralized marketing applications. Developers just need to focus on porting regular application into DMA, without knowledge to lower level blockchain and operating system.

DMA framework is built on top of Elastos MainChain, Elastos OS infrastructure, and Runtime. With this middleware-like DMA layer, application gets flexibility, performance, and scalability. The relation between DApp and DMA is the thin App vs thick protocol layer. This makes DApp development as easy as building regular App.

The scope of DMA includes but is not limited to the following

1. Tokenized asset management
2. Decentralized store and marketplace
3. Data management and monetization based on ownership
4. Multiple templates of incentive plans powered by smart contract
5. Social commerce and business alliance based on DID and DID social graph

The associated toolkit includes

1. DMA platform asset browser
2. Digital asset wallet
3. Search and aggregation
4. Data analytic and recommendation

We will dive into more details when step into next design spec stage.

Key Application

DMA project is not a small one. We believe the convincing strategy is to move both feet forward through fast iteration and evolution - one foot is DMA layer, the other is the DApps on top of DMA.

The goal of DMA 1.0 is to build the basic framework of Elastos decentralized marketing and commerce platform, the associated tools, and the best-fit key applications.

The key application we picked is Elastos Ticket. It is a decentralized e-ticket platform, utilizing blockchain technology to tokenize e-tickets and put into marketplace. The tokenized ticket has natural trust attribute. It is traceable and exchangeable under the terms define by smart contract, visible to public, including the risks of forgery and manipulation from either the issuer or the middleman, and the risks of unfair transactions emerging from asymmetrical information or lack of trust. In other words, with Elastos Ticket platform, everyone can be a happy trader without agent.

Elastos Ticket platform manages two major pieces - tokenized asset and personal data. The embedded digital wallet carries all kind of e-ticket related digital assets. The ticket issuer can use one-click tokenization method to issue asset tokens. The store is the marketing and commerce place for people to buy and sell tickets, and participating various campaigns . The marketplace is the place for people to resell, trade, exchange the ticket without middleman. The wallet is the decentralized exchange behind the marketplace and store front end.

In the long run, Elastos Ticket platform, powered by DMA, will be able to manage

tokenized asset with all kinds, such as goods, services, securities, warehouse receipts, purchase agreements, licenses, copyrights, music, videos, games, loyalty program points, game equipment, event tickets, collectibles and other physical assets and digital assets. Currently, tokenized asset is ERC20 or ERC721 compatible. The tokenization is through either the ongoing Elastos Token sidechain project, or DMA native tokenization module, whichever is ready first.

The other reason we pick Elastos Ticket as key application is the strong demand from current market. People are not happy with the huge middleman cost. The operation cost of traditional agent company increases quickly. Event ticket or voucher are very close to people's daily life. Thus, we are hopeful this is the right opportunity to foster a strong community engagement in this 0-ti-1 stage.

Roadmap

We use Elastos Ticket as a pilot application to build DMA 1.0 framework. At the same time, the DMA developer community will be built in parallel. We believe in the wisdom from community believer and supporters.

As we mentioned earlier, DMA 1.0 has two major parts - marketplace for tokenized asset, and data service to turn personal data into fortune. We divide DMA 1.0 into two phases:

- Phase I - marketplace and related services for tokenized asset
- Phase II - service for monetizing personal data

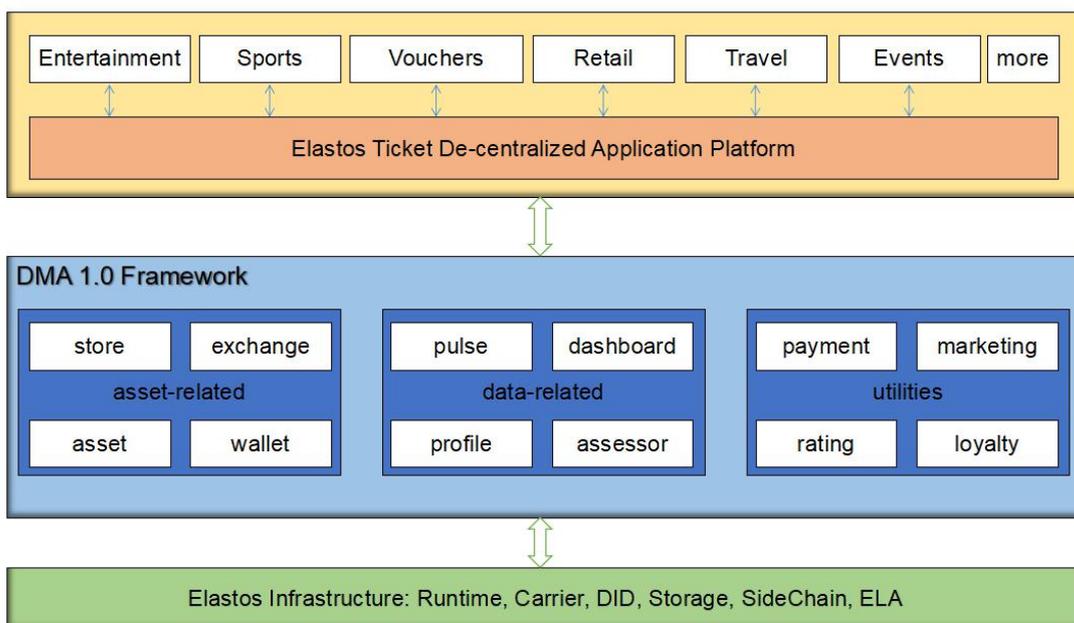


Figure 5 DMA 1.0 Framework

The blue block in figure 5 is DMA 1.0 framework. DMA1.0 framework has open architecture and is modularized. Figure 6 shows the phase I structure.

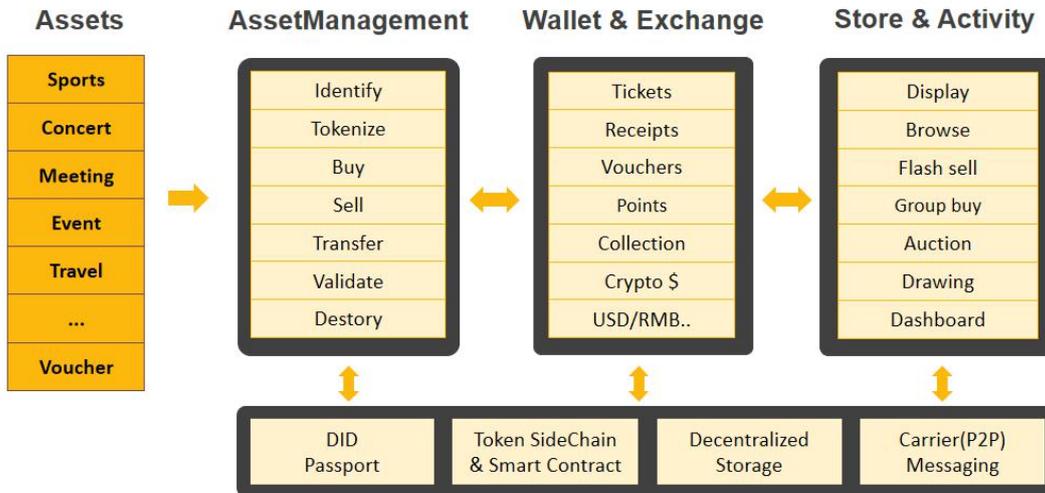


Figure 5 DMA 1.0 Phase I

1. DMA 1.0 Application - Elastos Ticket (Phase I)
Elastos Ticket is the decentralized e-ticket platform. With this MVP, we will work with vendors to build commercial DApps in vertical domains, such as entertainment and sport event ticket, vouchers, travel and site seeing ticket, etc.
2. DMA 1.0 application support layer
 - (1) elastos.store - the store and marketplace with product management, payment management, inventory management, campaign management, order management, and customer service management.(Phase I)
 - (2) elastos.marketing - personalized target marketing service, marketing campaign templates, ad management, and search. (Phase I)
 - (3) Basic data related services, such as dashboard, store rating, consumer loyalty, campaign performance evaluation, etc. (Phase I)
3. DMA 1.0 basic service layer
 - (1) Linker to Elastos system level services, such as DID sidechain, Carrier, Storage, token sidechain(if available) (Phase I)
 - (2) Permission based personal data collection engine - elastos.pulse (Phase II)
 - (3) Personalized data container - elastos.profile (Phase II)
 - (4) Personal data assessment engine for elastos.profile - elastos.assessor (Phase II)
 - (5) Universal asset management engine - elastos.asset (Phase I)
 - (4) Universal asset wallet service - elastos.wallet (Phase I)
 - (6) Universal digital asset exchange service - elastos.exchange (Phase I)
 - (7) DMA framework messaging service - elastos.message (Phase I)

4. DMA1.0 documentation and community development

The DMA specs, development document, application white paper, technical support, community service, are all important parts for the success deployment of DMA 1.0.

The following timeline is based on the scope of DMA 1.0 Phase I. (with the assumption of project kick off on 2018/9/1)

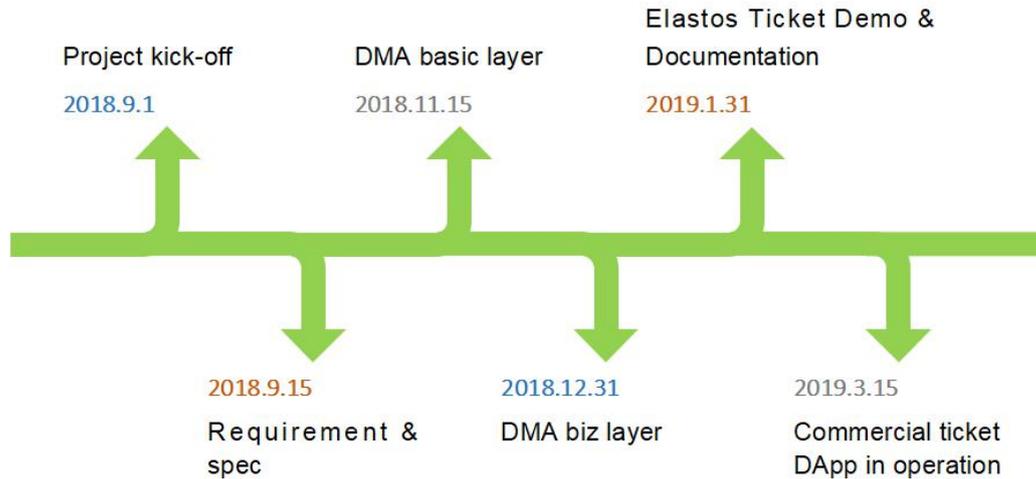


Figure 6 Phase I Timeline

Schedule estimates

2018.9.1	Project kick-off
2018.9.1-9.15	Design spec
2018.9.16-11.15	Phase I basic service layer
2018.11.16-12.31	Phase I application support later
2019.1.1-1.31	Phase I test, documentation, and Elastos Ticket MVP
2019.2.1-3.15	Pilot commercial DApp launched (with partners/vendors)

Legal Entity

Shanghai Xing Han Da Information Technology Co. Ltd. (StarryMedia)
Contact: elastosDMA@gmail.com

Team

StarryMedia has 9-year continuous experience digital marketing and O2O e-commerce business. Our goal is to build decentralized marketing and commerce platform to support the mega-trend of the upcoming token economy revolution. The

team is cutting edge technology orientated, focusing on blockchain technology, digital marketing and e-commerce platform development and operation.

Brian is a serial entrepreneur. Before Brian founded StarryMedia, he played key roles in several companies, such as CTO of MSN China, CTO of iKang, and VP of technology of Linktone. Before went back to China in late 2005, Brian spent 9+ years in the SiliconValley (1996-2005). He co-founded RivalWatch.com in 1999. RivalWatch provided competitive analysis service for e-merchants, was considered as the first generation of Internet BI company.

Brian is the member of TEEC (Tsinghua Entrepreneur and Executive Club) , and the chairman of TEEC Mobile Internet Sub-committee Shanghai chapter. Brian was the president of Tsinghua Alumni Association of Northern California during 2004-2005.

DMA Team structure

- Project manager
- Architect
- Product manager
- Dev manager and developers
- Community manager

Notes

Close communication with Elastos core team and developer community is important for DMA team inline with Elastos roadmap and master schedule.

The details of DMA will be optimized, modified, upgraded based upon Elastos development.

The schedule might be adjusted based on dependencies in Elastos infrastructure, such as Carrier, Token side chain, DID side chain, storage, cloud/box, Runtime, etc.