ABSTRACT

Manestreem is a decentralized E-Commerce platform which provides wellness solutions on demand by utilizing blockchain technology at its core. It does this by integrating several facets of decentralized technology including atomic swap and smart contracts over its platform to provide a seamless delivery to end users. The blockchain technology allows for 'Mane', the fuel which runs Manestreem decentralized platform. It also uses several different mechanism tied together into a single architecture including Revenue Optimization Engine (RoE), Price Optimization Engine (PoE), Ethereum Blockchain, Catapult, Inventory Management System (IVS), Order Management System (OMS), Customer Relations Management System (CRM) and, Marketing and Analytics System (MAS), Software Development Kit (SDK) to provide an end to end secure solution utilizing the blockchain to provide a powerful decentralized application.

EXECUTIVE SUMMARY

Manestreem is a decentralized platform built to deliver beauty and wellness on demand. Central to its ability to provide services is an integrated E-Commerce framework for various media devices including web, tablet and mobile.

Manestreem platform utilizes the blockchain to facilitate transactions through its fuel called 'Mane' which powers all of the services and products on offer on the site. Manestreem utilizes various systems which are integrated to the blockchain services for Analytics and Reporting, Customer Support, Order and Inventory Management, Procurement, Content Management, Marketing, Pricing and Promotions allowing the entire platform to work seamlessly to provide users the ability to order products and services across all devices.

Any viable E-Commerce platform will enable customers to buy products and services from the online store, where solutions differ is the degree and ability to unify and leverage both front and back end applications to work seamlessly with shared data. Manestreem does this through the use of blockchain to maintain consistency throughout the application platform while delivering the quality required of the platform.

The key objectives of Manestreem decentralized E-Commerce platform which governs its technical architecture is:

- **Run on a single, unified platform.** Eliminating integrations between separate systems with natively unified E-Commerce, accounting, POS, inventory and order management, marketing, merchandizing, customer service and financials through the use of blockchain.
- **Provide a 360˚ customer view.** Deliver consistent and personalized cross-channel experiences, targeted marketing and superior customer service with a single view of all customer interactions and transactions across all touch points and channels.
- **Intelligently managing orders.** Exceed and set new customer expectations for buying, fulfilling, and returning purchases, both online and in stores. Maximize profitability by decentralizing aspects of order management and having single view inventory across all channels and supply chain business units.
- **Support unlimited expansion.** Quickly deploy sites for multiple business models, channels, brands countries, currencies and languages on the same platform through the use of blockchain.

ARCHITECTURE

The Manestreem platform consists of various modules which are integrated to work seamlessly with the blockchain architecture in order to provide maximum customer satisfaction. At its core Manestreem uses the blockchain and smart contract system to manage transactions of services and products across two different parties. The rewards engine mechanism is built into Manestreem core platform to incentivize developers, marketers and vendors to utilize on platform marketing or development activities. Other support systems which Manestreem is built on includes various support systems including order and inventory management systems (OMS) - which handles are checkout and cart facilities on the platform, pricing and promotions - which allows for customized pricing based on various factors and promotion rates including discounts, content management - the users interactive and experience interface, procurement – which helps merchants plan out inventory purchases, customer support – allowing for improved customer satisfaction by helping the customer make improved decisions or resolve conflicts, and analytics and reporting – allows for targeted marketing and customized ads for certain products and services.

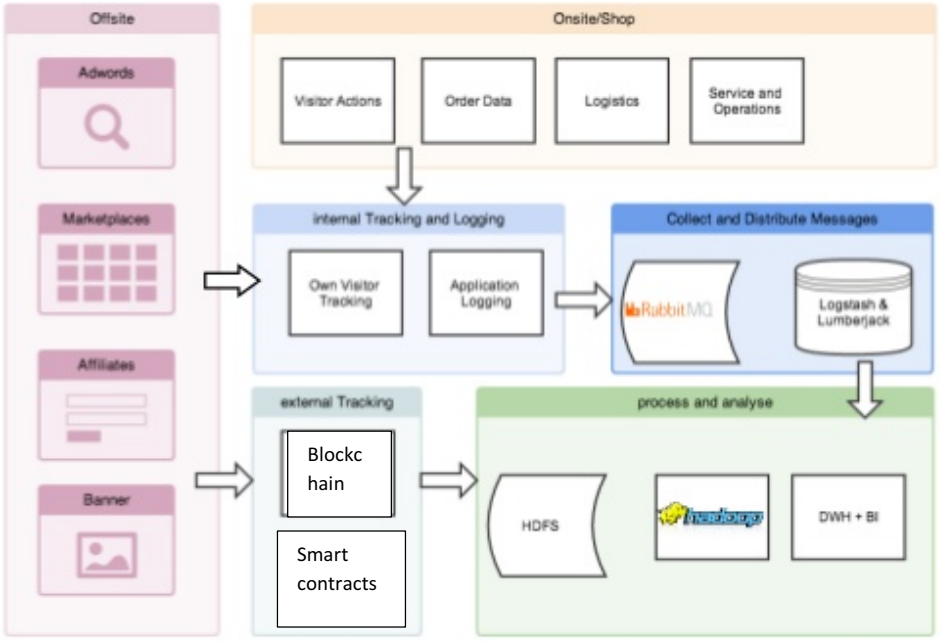

Figure 1: ManeStreem System Architecture

By using smart contracts and blockchain technology, Manesteem is able to scale larger than other E-Commerce sites using the model defined in Figure 2. Its use of immutability and exponential increase of data usage with the increase of traffic, transactions and product-rage, allows it to significantly improve its overall efficiency in terms of the system where scalability is an issue. ManeStreem use a method known as Service Oriented Architecture which is non-blocking and asynchronous which allows it to handle increase demand while at the same time allowing for more elastic search capacity and faster data aggregation and processing.

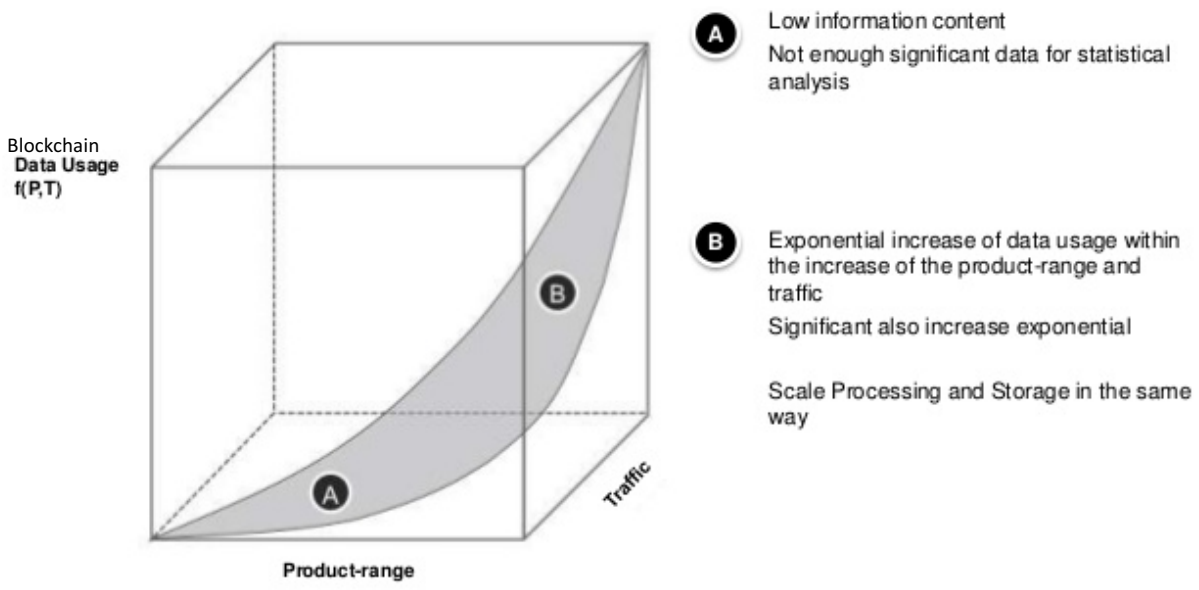

Figure 2: Scalability Scale for Increasing Traffic on Platform

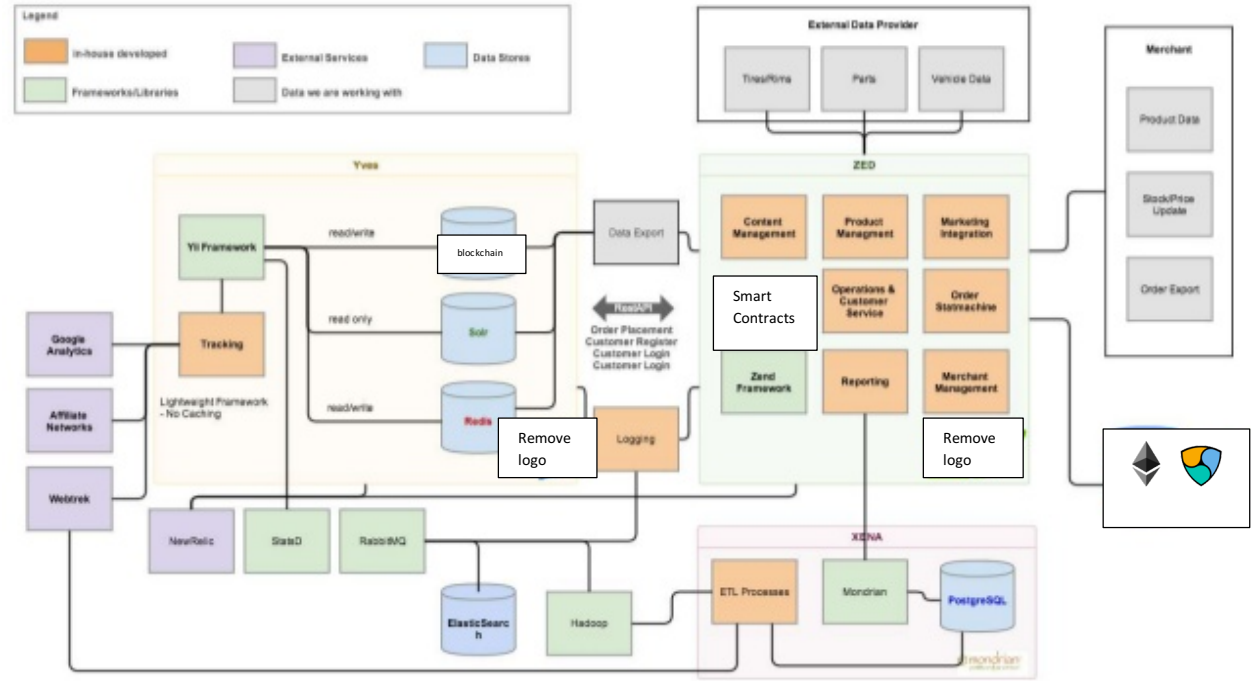

Figure 3: Manestreem System Architecture (if unviewable please zoom into pic)

The complexity of the ManeStreem system architecture allows it to provide optimum performance to end users by harnessing the technology of various systems which are integrated to work seamlessly into one single working platform while delivery optimum performance.

SMART CONTRACT

Smart contract, also known as a cryptocontract, is a computer program that directly controls the transfer of digital currencies or assets between parties under certain conditions. A smart contract not only defines the rules and penalties around an agreement in the same way that a traditional contract does, but it can also automatically enforce those obligations. It does this by taking in information as input, assigning value to that input through the rules set out in the contract, and executing the actions required by those contractual clauses – for example, determining whether an asset should go to one person or returned to the other person from whom the asset originated. These contracts are stored on blockchain technology, a decentralized ledger that also underpins bitcoin and other cryptocurrencies. Blockchain is ideal for storing smart contracts because of the technology's security and immutability.

Smart contracts are complex and their potential goes beyond the simple transfer of assets, being able to execute transactions in a wide range of fields, from legal processes to insurance premiums to crowdfunding agreements to financial derivatives. Smart contracts have the potential to disintermediate the legal and financial fields, in particular, simplifying and automating routine and repetitive processes for which people currently pay lawyers and banks sizable fees to perform. The role of lawyers could also shift in the future as smart contracts gain traction, for example from adjudicating traditional contracts to producing customizable smart contract templates. Additionally, smart contracts' ability not only to automate processes but also to control behavior, as well as their potential in real-time auditing and risk assessments, can be beneficial to compliance.

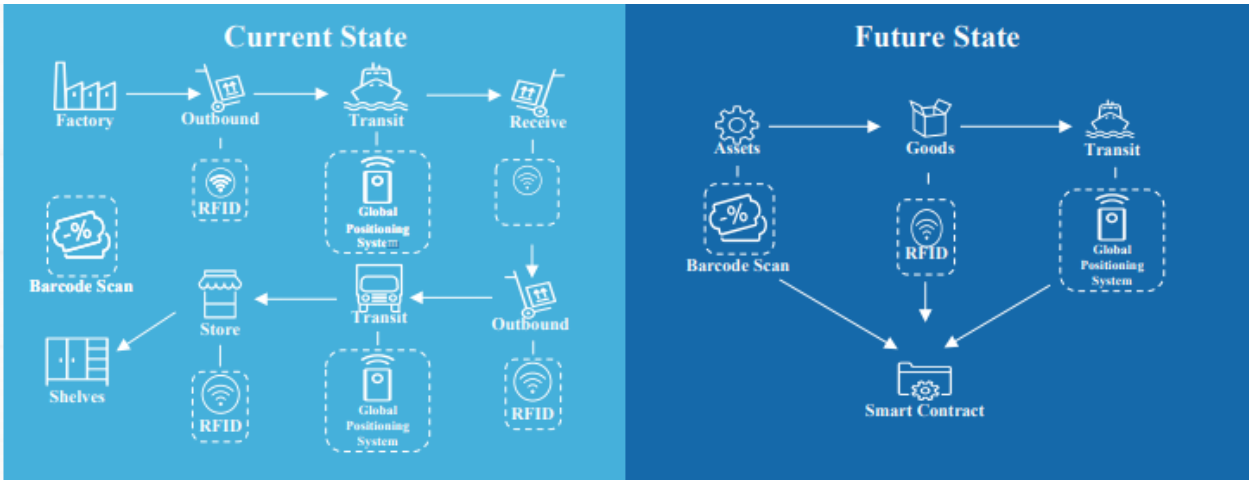

Figure 4: Smart Contracts for Supply Chain

Manestreem utilizes smart contracts to process its transaction on the platform allowing it to leverage on the public blockchain to create a transparent system. A typical smart contract is initiated through three different types of mechanism which are permissioned, permissionless and consensus. A blockchain is permissioned when its participants are pre-selected or subject to gated entry based on satisfaction of certain requirements or on approval by an administrator. A permissioned blockchain may use a consensus protocol for determining what the current state of a ledger should be, or it may use an administrator or sub-group of participants to do so. A blockchain is permissionless when anyone is free to submit messages for processing and/or be involved in the process of reaching consensus (for example, the Bitcoin blockchain). While a permissionless blockchain will typically use a consensus protocol to determine what

the current state of the blockchain should be, a blockchain could equally use some other process (such as using an administrator or sub-group of participants) to update the ledger. A consensus protocol is computer protocol in the form of an algorithm constituting a set of rules for how each participant in a blockchain should process messages (say, a transaction of some sort) and how those participants should accept the processing done by other participants. The purpose of a consensus protocol is to achieve consensus between participants as to what a blockchain should contain at a given time. Terms used to describe consensus protocols in the context of blockchain technologies may include “proof of work” or “proof of stake.”

ATOMIC SWAP

Manestreem platform uses atomic swap and built in integration to handle swaps between its ERC20 token and other relevant cryptocurrencies. It utilizes a form of asynchronous, hash-time locked contract (HTLC) to facilitate the transaction between the different currencies.

Atomic swaps, or atomic cross-chain trading, is the exchange of one cryptocurrency to another cryptocurrency, without the need to trust a third-party. A relatively new piece of technology, atomic cross-chain trading is looking to revolutionize the way in which users transact with each other. For example, if Alice owned 5 Bitcoins but instead wanted 100 Litecoins, she would have to go through an exchange, i.e. a third-party. However, with atomic swaps, if Bob owned 100 Litecoins but instead wanted 5 Bitcoins, then Bob and Alice could make a trade. In order to prevent, for example, Alice accepting Bob’s 100 Litecoins but then failing to send over her 5 Bitcoins, atomic swaps utilizes what is known as hash time-locked contracts (HTLCs).

Hash time-locked contracts ensure that the atomic swap process is completely trustless by ensuring both fulfill the requirements of the trade. HTLCs require the recipient of a payment to acknowledge receiving payment prior to a deadline by generating a cryptographic proof of payment. Or the recipient risks losing the right to the claim the payment, therefore returning the funds back to the sender.

Therefore, for a trade between Alice and Bob to take place, both must submit their transaction to their respective blockchain, Alice on the Bitcoin blockchain and Bob on the Litecoin blockchain. In order for Alice to claim the 100 Litecoins sent from Bob, she must produce a number that only she knows, used to generate a cryptographic hash, therefore providing proof of payment. Similarly, in order for Bob to claim the 5 Bitcoins that was sent from Alice, he must also provide the same number, that was used to generate the cryptographic hash.

As exciting as this technology is, there are some fundamental requirements for a cryptocurrency before it can successfully support atomic swaps. One such requirement is the implementation of the Lightning network.

If a hash time-locked contract can be thought of as linking two blockchains together, the lightning network can be thought of as linking payment channels together. That is, for Alice and Bob to transact with each other, they must be linked through payment channels. The lightning network allows for that.

In addition, for a transaction to occur between two different blockchains, it is necessary for both blockchains to share the same cryptographic hash function, such as SHA-256. This is to allow for the hash-time locked contract to function properly when it comes to the user providing the number that was generated via the hash function.

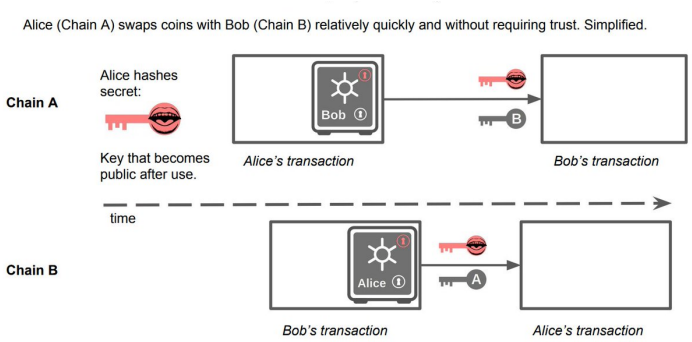

Figure 5: Atomic Cross Chain Swap (ACCS)

ECOMMERCE

E-commerce is a transaction of buying or selling online. Electronic commerce draws on technologies such as mobile commerce, electronic funds transfer, supply chain management, Internet marketing, online transaction processing, electronic data interchange (EDI), inventory management systems, and automated data collection systems. Modern electronic commerce typically uses the World Wide Web for at least one part of the transaction's life cycle although it may also use other technologies such as e-mail.

A revenue optimization engine is an integrated marketing an sales system designed by Manestreem that powers its opportunity funnel. It does this by synchronizing strategy, processes, content, technology, and analytics module to deliver the right message at the right time to the right person at every stage of the buying process. The RoE is reliable is grows flow while nurturing leads on the Manestreem platform.

The price optimization engine determines and sets the on demand prices for products and services offered on Manestreem's platform. It uses advanced mathematical algorithms to predict price behavioral model based upon demand and visualizes digitally the variations in demand with different price points while combining cost, inventory and logistics.

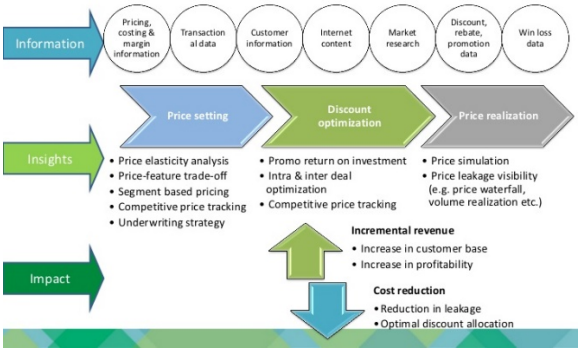

Figure 6: Price Optimization Process Flow

The order management system used on Manestreem platform is crucial because it ties the blockchain model to the entire architecture of the system through various asynchronous algorithms. Integrated OMS encompass multiple models which are automated through codes including product information, inventory, vendors, purchasing and receiving, customers and prospects, marketing, order entry and customer service, financial processing and finally key order processing and logistics.

Manestreem uses advanced OMS configurations including sequential process like Capture, Validation, Fraud Check, Payment Authorization, Sourcing, Backorder management, and shipping in a single communication line throughout its workflow. Security is provided via the blockchain and this allows for workflow management capabilities which oversee this entire process.

An outcome of an OMS successfully communicating to an asset manager's systems is the ease of producing accurate and timely reporting. All data can be seamlessly interpreted to create valuable information about the portfolio's performance and composition, as well as investment activities, fees and cash flows to a granular level. As investors are demanding increasingly detailed and frequent reporting, an asset manager can benefit from the correct set up of an OMS to deliver information whilst focusing on core activities. Increasing financial regulations are also causing for managers to allocate more resources to ensure firstly, they are able to obtain the correct data on their trades and then they are compliant to the new metrics. For example, if a predetermined percent of the portfolio can hold a certain asset class or risk exposure to the asset class or market, the investment manager must be able to report this was satisfied during the reporting period.

The primary goal of customer relationship management systems is to integrate and automate sales, marketing, and customer support. Therefore, these systems typically have a dashboard that gives an overall view of the three functions on a single customer view, a single page for each customer that a company may have. The dashboard may provide client information, past sales, previous marketing efforts, and more, summarizing all of the relationships between the customer and the firm. Operational CRM is made up of 3 main components: sales force automation, marketing automation, and service automation.

The marketing and analytics system (MAS) provides complete decision support through data warehousing, prediction and data mining, and advanced analysis. The marketing and analytics system on Manestreem platform is divided into three main parts:

- **Data Warehouse**. A combination of a blockchain, OLAP database, and a set of processes that a system administrator uses to import a large amount of operational data about site activity. The Commerce Server Data Warehouse stores and manages data in the database for the purpose of business analytics: prediction and data mining, and analysis reporting.
- **Predictor**. A powerful data-mining tool that provides predictive capabilities for Manestreem platform, for example, to display product recommendations. You also use the Predictor to analyze the characteristics of the users visiting your site, and discover relationships among the characteristics. You can then use this information to target content to users who have similar characteristics.
- **Analysis Reporting.** Provides dozens of reports, enabling analysis of product sales, Web usage, Web site diagnostics, and so on. It includes features that make reporting easier and faster, for example:
    - The drillthrough feature so you can use the pivot controls to expose underlying data.
    - The remote access feature so business managers can access the OLAP database through firewalls or proxy servers and run reports.

SOFTWARE DEVELOPMENT KIT

A software development kit (SDK or devkit) is typically a set of software development tools that allows the creation of applications for a certain software package, software framework, hardware platform, computer system, video game console, operating system, or similar development platform. To enrich applications with advanced functionalities, advertisements, push notifications and more, most app developers implement specific software development kits. Some SDKs are critical for developing a platform-specific app. For example, the development of an Android app on Java platform requires a Java Development Kit, for iOS apps the iOS SDK, and for Universal Windows Platform the .NET Framework SDK. There are also SDKs that are installed in apps to provide analytics and data about activity. Prominent examples include Google, InMobi and Facebook.

Manestreem SDK allows for the implementation of one or more application programming interfaces (APIs) in the form of on-device libraries to interface to a particular programming language, or to include sophisticated hardware that can communicate with a particular embedded system. Common tools include debugging facilities and other utilities, often presented in an integrated development environment (IDE). SDKs also frequently include sample code and supporting technical notes or other supporting documentation to help clarify points made by the primary reference material.

Manestreem's SDK is a form of hybrid between proprietary and GPL-licensed SDK and is generally compatible with free software development and compatible with proprietary software development. LGPL SDKs are typically safe for proprietary development.

The average Android mobile app implements 15.6 separate SDKs, with gaming apps implementing on average 17.5 different SDKs.[1] The most popular SDK categories for Android mobile apps are analytics and advertising.[1]

SDKs can be unsafe (because they are implemented within apps, but yet run separate code). Malicious SDKs (with honest intentions or not) can violate users' data privacy, damage app performance, or even cause apps to be banned from Google Play or iTunes.[2] New technologies allow app developers to control and monitor client SDKs in real time.

Manestreem developers get the SDK from the target system developer. The SDK can be downloaded directly via the Internet or via SDK marketplaces. The SDKs are provided for free to encourage developers to use the system or language. Sometimes this is used as a marketing tool. Freely offered SDKs are often able to monetize, based on user data taken from the apps, which serves the interests of larger players in the ecosystem.

An SDK for an operating system add-on (for instance, QuickTime for classic Mac OS) might include the add-on software itself to be used for development purposes, although not necessarily for redistribution together with the developed product. Between platforms where it is possible to develop applications that can at least start up on a system configuration without the add-on installed, and that use a Gestalt-style run-time *environment query* to determine whether the add-on is present, and ones where the application will simply fail to start, it is possible to build a single binary that will run on configurations with and without the add-on present, although operating with reduced functionality in the latter situation.

Providers of SDKs for specific systems or subsystems sometimes substitute a more specific term instead of *software*. For instance, both Microsoft and Apple provide driver development kits (DDK) for developing device drivers.