

## Chapter 1 : iExec - Blockchain-Based Decentralized Cloud Computing

*Oct 06, Â· So, in such a decentralized software market, a buyer of applications enters into a direct deal via smart contracts, which coordinate a diverse network of software development teams, cloud hosting.*

Known as a Decentralized Application Marketplace DAM , the system is an Ethereum-powered alternative to existing software marketplaces. Ecommerce and Global Economy Over the last years, internet has played a major role in globalization, breaking down borders and connecting people all around the world. It is in this area of connecting both ends of merchandising that ecommerce has grown into one of the largest industries in the global economy. Ecommerce has changed the way businesses operate, affecting product availability, transportation patterns, pricing, and consumer behavior. It allows new technologies and business models to eliminate barriers that used to separate one industry from another. This, in turn, drives competition and innovation, thus facilitating economic growth. A Lopsided Market Although the blockchain technology has brought certain improvements to the global economic development, it also revealed some major problems within the current ecommerce ecosystem. Those who decide to distribute their software on their own, have to pay fees charges by payment processing companies like PayPal. Additional expenses include hosting, web development, marketing and SEO. In both cases, developers must form a legal entity to be able to operate and receive payments. This is an additional resource-consuming process, which discourage people from starting commercial software development. A Significantly Growing Market Software applications are essential vehicles of applied technology. The global software market will likely keep rising in value, given the growing adoption of hardware and software. Besides, developers pool will continue to expand, increasing overall competition in the market. This requires a more rewarding ecosystem for the main players within the industry. The platform will eliminate the need for third party entities by: Providing a decentralized marketplace where no single entity holds the power, and a transparent platform that discourages fraudulent trades. Also, there are no restrictions on who can participate. Being an open source platform where the blockchain acts as a ledger, keeping records publicly for anyone to verify, trust between two parties becomes irrelevant, since the system is designed to work by verification without you relying on the other party. Blockchain platform allows users to determine and control their level of anonymity, allowing them to decide if they want to be seen or not. This Decentralized Application Marketplace is comprised of five components that form the whole of Spheris platform. This is a database of registered developers and applications which enables easy navigation and search through the platform for specific services and products. The DAM interface permits entry and interactions on the platform. This is an enhanced crypto wallet for managing subscriptions and payments via a P2P payment system. An anti-piracy subscription validator component. A storage integration framework for fast and easy remote content distribution. Such platforms, for instance, can restrict apps that they perceive as competitors or the ones they consider controversial. The Spheris platform is based on the Ethereum blockchain due to the robustness and flexibility that it offers, which enables the achievement of the company goals. Ethereum offers blockchain storage protocols such as Swarm<sup>9</sup> or IPFS<sup>10</sup> provide decentralized storage solutions, giving developers and consumers another optional layer of decentralization. The Spheris team is now in the process of raising finances through the ICO that began on September 19, Unlike many other blockchain projects, the startup already has a pre-alpha software, which they plan to continue to developing into a finished platform. You May Also Like.

## Chapter 2 : Building a Fairer App and dApp Market Through Decentralization | Smartereum

*It's like a "decentralized appstore" where anyone can publish their unstoppable apps (dapps), which unlike today's apps (think Gmail or Uber) don't require a middleman to function or to manage a.*

Alexis de Tocqueville , French historian The word "centralization" came into use in France in as the post-French Revolution French Directory leadership created a new government structure. The word "decentralization" came into usage in the s. In the mids Tocqueville would write that the French Revolution began with "a push towards decentralization Tocqueville was an advocate, writing: And from the accumulation of these local, active, persnickety freedoms, is born the most efficient counterweight against the claims of the central government, even if it were supported by an impersonal, collective will. All my political ideas boil down to a similar formula: It blamed large-scale industrial production for destroying middle class shop keepers and small manufacturers and promoted increased property ownership and a return to small scale living. Hatfield , [14] Mildred J. Loomis [15] and Bill Kauffman. Schumacher , author of the bestseller Small is Beautiful: Economics As If People Mattered. Towards a Post-Welfare Agenda describes how after World War II governments pursued a centralized "welfarist" policy of entitlements which now has become a "post-welfare" policy of intergovernmental and market-based decentralization. According to a United Nations Development Programme report: This trend is coupled with a growing interest in the role of civil society and the private sector as partners to governments in seeking new ways of service delivery Decentralization of governance and the strengthening of local governing capacity is in part also a function of broader societal trends. These include, for example, the growing distrust of government generally, the spectacular demise of some of the most centralized regimes in the world especially the Soviet Union and the emerging separatist demands that seem to routinely pop up in one or another part of the world. Rather, these developments, as we have already noted, are principally being driven by a strong desire for greater participation of citizens and private sector organizations in governance. Those studying the goals and processes of implementing decentralization often use a systems theory approach. The United Nations Development Programme report applies to the topic of decentralization "a whole systems perspective, including levels, spheres, sectors and functions and seeing the community level as the entry point at which holistic definitions of development goals are most likely to emerge from the people themselves and where it is most practical to support them. It involves seeing multi-level frameworks and continuous, synergistic processes of interaction and iteration of cycles as critical for achieving wholeness in a decentralized system and for sustaining its development. An important property of agent systems is the degree of connectivity or connectedness between the agents, a measure global flow of information or influence. If each agent is connected exchange states or influence to all other agents, then the system is highly connected. In such a decentralized system, there is no single centralized authority that makes decisions on behalf of all the parties. Instead each party, also called a peer, makes local autonomous decisions towards its individual goals which may possibly conflict with those of other peers. Peers directly interact with each other and share information or provide service to other peers. An open decentralized system is one in which the entry of peers is not regulated. Any peer can enter or leave the system at any time Decentralization in government, the topic most studied, has been seen as a solution to problems like economic decline, government inability to fund services and their general decline in performance of overloaded services, the demands of minorities for a greater say in local governance, the general weakening legitimacy of the public sector and global and international pressure on countries with inefficient, undemocratic, overly centralized systems. Participation In decentralization the principle of subsidiarity is often invoked. It holds that the lowest or least centralized authority which is capable of addressing an issue effectively should do so. According to one definition: Decentralization brings decision-making back to the sub-national levels. Decentralization strategies must account for the interrelations of global, regional, national, sub-national, and local levels. Johnson writes that diversity plays an important role in decentralized systems like ecosystems , social groups , large organizations, political systems. Decentralized is defined as a property of a system where the agents have some ability to operate "locally. Decentralization promises to enhance

efficiency through both inter-governmental competition with market features and fiscal discipline which assigns tax and expenditure authority to the lowest level of government possible. It works best where members of subnational government have strong traditions of democracy, accountability and professionalism. Brancati holds that decentralization can promote peace if it encourages statewide parties to incorporate regional demands and limit the power of regional parties. According to the United Nations Development Programme, it is "more than a process, it is a way of life and a state of mind. They can be initiated from the centers of authority " top-down " or from individuals, localities or regions " bottom-up " , [46] or from a "mutually desired" combination of authorities and localities working together. Governments deciding to privatize functions must decide which are best privatized. Existing types of decentralization must be studied. The appropriate balance of centralization and decentralization should be studied. Training for both national and local managers and officials is necessary, as well as technical assistance in the planning, financing, and management of decentralized functions. While in earlier years small towns were considered appropriate, by the s, 60, inhabitants was considered the size necessary to support a diversified job market and an adequate shopping center and array of services and entertainment. Appropriate size of governmental units for revenue raising also is a consideration. The unit may be larger than many decentralist bioregionalists prefer. Even when it happens slowly, there is a need for experimentation, testing, adjusting, and replicating successful experiments in other contexts. There is no one blueprint for decentralization since it depends on the initial state of a country and the power and views of political interests and whether they support or oppose decentralization. However, it may occur as "silent decentralization" in the absence of reforms as changes in networks, policy emphasize and resource availability lead inevitably to a more decentralized system. In both China and Russia, lower level authorities attained greater powers than intended by central authorities. In many countries, political, economic and administrative responsibilities may be decentralized to the larger urban areas, while rural areas are administered by the central government. Decentralization of responsibilities to provinces may be limited only to those provinces or states which want or are capable of handling responsibility. Some privatization may be more appropriate to an urban than a rural area; some types of privatization may be more appropriate for some states and provinces but not others. In his *The History of Nations* Henry Cabot Lodge wrote that Persian king Darius I BC was a master of organization and "for the first time in history centralization becomes a political fact. Sanderson wrote that over the last years chiefdoms and actual states have gone through sequences of centralization and decentralization of economic, political and social power. Chase-Dunn and Thomas D. Hall review other works that detail these cycles, including works which analyze the concept of core elites which compete with state accumulation of wealth and how their "intra-ruling-class competition accounts for the rise and fall of states" and of their phases of centralization and decentralization. Government decentralization has both political and administrative aspects. Its decentralization may be territorial, moving power from a central city to other localities, and it may be functional, moving decision-making from the top administrator of any branch of government to lower level officials, or divesting of the function entirely through privatization. It may be associated with pluralistic politics and representative government , but it also means giving citizens , or their representatives, more influence in the formulation and implementation of laws and policies. This process is accomplished by the institution of reforms that either delegate a certain degree of meaningful decision-making autonomy to subnational tiers of government, [71] or grant citizens the right to elect lower-level officials, like local or regional representatives.

**Chapter 3 : eXeBlock Technology Corpâ€™Leading the Blockchain Market in Decentralized Application Tec**

*Decentralized markets are an emerging technology which give people the ability to participate in online commerce that is completely different from the traditional centralized model. Instead of having a company with a website offer a central meeting place for buyers and sellers, decentralized markets.*

Leading the Blockchain Market in Decentralized Application Technology This profile is part of a paid investor education campaign. XBLK is a Canadian tech firm that designs custom, scalable blockchain based software applications for businesses and organizations in global markets who want to leverage blockchain technology to improve performance, ensure security and generate profits. The company expects to earn transaction fees from multiple DApps over time. The PPY universally accessible tournament and wagering platform uses the Graphene Blockchain Frameworkâ€™one of the three top blockchain ecosystemsâ€™to solve many online gaming industry problems by offering security, speed and flexibility to end users. With each ticket sold a portion of the transaction value will go back to the Peerplays network and in turn, eXeBlock will earn transactional fees based on the number of PeerPlays tokens it holds. The company currently holds , of the outstanding tokens in the decentralized blockchain platform PeerPlays. The company also provided an update on Freedom Ledger stating that the DApp fell into a similar transactional fee revenue model. Freedom Ledger is a blockchain technology that will facilitate transactions for users that do not hold a cryptocurrency account. The technology will enable consumers with traditional currency accounts to utilize various DApps. Freedom Ledger will significantly expand the consumer base for blockchain based DApps and will be marketed to DApps developers worldwide. Freedom Ledger does not act as a cryptocurrency custodian but rather will enable the automatic swap from one blockchain to another keeping all blockchain tokens and cryptocurrencies secure. On March 1, the Company also confirmed that it was pursuing an aggressive personnel plan targeted at building a critical mass of blockchain talent. By completing this form, you are giving consent to receive email from eXeBlock Technology Corp.. And remember you can unsubscribe at any time. The Future of Blockchain is Now Blockchain technology is quickly moving beyond digital currency transactions and into a wide-range of real-world business and peer-to-peer applications. Blockchain-based Distributed Ledger Technology DLT enables institutions to transfer and record assetsâ€™even non digital currencyâ€™without an intermediary, and is by design immune to many of the security problems associated with centralized and cloud-based networks. Blockchain decentralized applications are on the road to replacing manual and central database services by providing more accurate and verifiable tracking services, especially in the banking and financial sector. By , an estimated 66 percent of all banks will be using blockchain software, according to a IBM report. DApps are open-sourced software programs which run on a peer-to-peer network of computers rather than being controlled by a single centralized system. Blockchain-based DApps control and distribute blocks of encrypted information around the blockchain network. DApps can change protocol in response to market feedback provided all changes are agreed upon by its users. Freedom Ledger now under development. Scalability has been the elephant in the room for blockchain technology, especially in regards to Bitcoin. Prior to commercial release, each DApp will first be released in Beta form on TestNet to gather functional and operational feedback from users. The company will receive income based on a percentage of each completed transaction. Additional revenue may also be generated through consulting fees and maintenance fees. The end users and the founders who created the application are equally aligned with its success. Davison brings extensive operating and executive leadership experience to the team, highlighted by his strong track record of value creation and his depth of knowledge in commercializing innovation technology. As an entrepreneur, Jonathan is identifying future trends in technology and has formed technology based companies designed to solve business data needs. After graduating with a Masters in Computer Science from Belarusian State University of Informatics and Radioelectronics in , he quickly went on to become a lead programmer for the companies he worked at. Roman Bystrimovichâ€™Blockchain Developer Senior software engineer with 6 years of experience in web application and service architecture, functional design, development, integration, implementation and deployment. Solid blockchain background experience in: Sci develops customized

web-based software for project owners, operators, contractors and consultants. The software is currently being used to monitor industrial activity by some of the largest oil, utility and mining companies operating in Canada. Ian Klassen is Director Ian Klassen has 25 years of experience in public company management, public relations, government affairs and entrepreneurialism. He is the president of a North American mineral exploration company and sits on the board of directors of several private and public companies. The profile provides information which was sourced and approved by eXeBlock Technology Corp in order to help investors learn more about the company. The company description, investment highlights and catalysts were sourced by INN and approved by the company. INN does not guarantee the accuracy or thoroughness of the information contained on this page. INN does not provide investment advice and the information on Investingnews. INN does not endorse or recommend the business, products, services or securities of any company profiled. Readers should conduct their own research for all information publicly available concerning the company. Request an Investor Kit:

## Chapter 4 : What is Decentralization in terms of Blockchain technology?

*Decentralization continues throughout the industry, for example as the decentralized architecture of wireless routers installed in homes and offices supplement and even replace phone companies relatively centralized long-range cell towers.*

The concept of a decentralized network was first introduced by researcher Paul Baran in , regarding how telephone communications could be improved. This way, if one part of the network was damaged, the undamaged sections would continue working properly. This organizational redundancy is, today, a primary reason why companies choose to decentralize IT. Decentralization is a practical approach when different departments in a company have different IT needs and strategies. It allows each business unit to choose hardware and software based on its particular needs. Decentralized IT Organizational Structure Decentralized IT structure with three different servers in three different locations In the example above, the sales unit maintains its own server, running a specialized sales automation product on it. The customer service unit is running a specialized customer service platform on its local network, which has been optimized to handle the VoIP phone traffic of its agents. Decentralized IT organizational structures, such as the one in this example, provide several benefits, including: The ability to tailor IT selection and configuration. When individual departments have IT decision-making power, they can choose and configure IT resources based on their own specific needs. In the example above, each department has its own server optimized to run its own software platforms. More fail-safes and organizational redundancy. Decentralizing makes telephone networks more resilient”and it can do the same for IT networks, too. Following our example, if each department maintains its own server, one can function as the backup server in case another server fails. Of course, this type of redundancy would need to be properly configured in advance. Respond faster to new IT trends. For example, say your customer service department wants to improve service with online live chat. In a decentralized model, it can do so independently. A slow response to emerging technology trends can be a competitive disadvantage. This is an alternative way of structuring the same departments shown above: Centralized IT Organizational Structure This centralized IT structure has all its servers in a single location There are many benefits of adopting this type of structure. A centralized IT organization can: Most companies can reduce hardware costs when their servers and other networking equipment are in one location. When distributed across several locations, extra or duplicate equipment is often needed. Increasing redundancy also increases costs. Improve productivity for IT staff. A centralized structure gives IT staff better oversight and can make routine tasks easier. For example, new software installations, updates and security patches can all be addressed from one location. In companies with decentralized IT structures, completing these types of tasks may require staff to manage each separate location, which can drive up costs and decrease productivity. Negotiating software licenses and support contracts for an entire company gives the purchaser more power than buying for each department individually. This can lead to better contract terms and can offer additional integrations or support services. Help meet industry regulations. Industry-specific regulations, such as HIPAA for healthcare providers and the Sarbanes-Oxley Act for financial services, require varying degrees of IT and database centralization usually for data-security reasons. Companies that store and process credit card information also tend to find it easier to meet legal requirements for data security with centralized IT systems. Improve the flow of information. Decentralized IT structures often lead to information silos: Centralized IT structures help prevent these silos, leading to better knowledge-sharing and cooperation between departments. For example, using one central, cloud-based CRM system makes it possible for any employee in a company to access customer information from anywhere. How to Determine the Best Degree of Centralization for Your Company As we see above, there are many reasons an organization might be tempted to move toward or away from a centralized IT organizational structure. Decentralized IT organizational structures are typically best for companies that rely on technical agility to remain competitive. These include newer, smaller companies e. Decentralized IT organizational structures can be difficult to effectively scale. Organizations that organically develop decentralized IT structures as a result of having no oversight in place might have difficulty scaling. It

can be hard or impossible to bring disparate systems together without proper planning. If you expect company growth, you may want to consider a centralized IT structure. Centralized IT structures typically offer larger cost-savings—especially for larger organizations. Centralization makes it possible for entire organizations to act in unison. All departments can migrate to new and cheaper technologies, and can negotiate contracts with more leverage. One good example of this benefit in action: Centralized IT organizational structures offer better IT and data security. Organizations and agencies in the healthcare and financial services sectors commonly use centralized IT for these reasons. No matter which direction your department, agency or corporation is headed, our team of Software Advisors can help you choose the best IT support software to get there. Call today for a free phone consultation, which includes pricing information and a no-obligation short list of solutions to meet your needs. Compare Help Desk Products.

**Chapter 5 : Pharmacy Inventory Management Software Solutions and Cabinets Market Report,**

*Create your own market Through the Prediction Invest System you are able to create your own markets, portfolio or set automatic mode. The combination of Augur Decentralized Prediction Software.*

Technological advancements, increase in number of prescriptions, and rising adoption of pharmacy automation solutions are among key factors driving the market. According to various sources, about 4. Increasing pressure on healthcare professionals to reduce healthcare costs is a major factor that has spurred the adoption of inventory management software and cabinets by pharmacies. For instance, Intermountain Healthcare, a non-profit healthcare system in U. These systems are effectively involved in reducing cost of excess inventory, thereby propelling demand for the same. Rising incidence of medication errors, particularly dispensing errors in hospital and retail pharmacies, drives demand for these systems. According to WHO, automated dispensing systems minimize the risk of medication errors. In addition, growing government concerns over patient safety contributes to market growth. For instance, in , the Australian Commission on Safety and Quality in Health Care released a report focusing on barcode and other scanning technologies used in dispensing software to improve patient safety in hospitals. Rising number of retail, mail order, and long-term care pharmacies requires effective systems and solutions for high volume dispensing of medications, which in turn increases their demand. For instance, as of January , nearly 10, licensed pharmacies were present in Canada. Moreover, the trend of using barcode and RFID technology in dispensing processes may propel demand for barcode- or RFID-assisted software and cabinets in the market. For instance in , NSW Health released an information bulletin in which it strongly recommended public hospital pharmacies to use barcode verification in dispensing processes. Technological advancements in designs of dispensing cabinets is expected to boost the market. A case in point would be ExpressRx Track, a pharmacy automation system manufactured by McKesson Corporation, which includes a barcode and RFID scanner, counting and imaging technologies, and tote or puck conveyance solutions. This is an update to its existing portfolio in solutions for managing high volume inventory. The system helps reduce overall dispensing costs, enhances patient care, and increases overall efficiency of pharmacies. Mode of Operations Insights In , decentralized systems accounted for the largest revenue share owing to growing demand for point-of-use dispensing of medications. Increasing savings on inventory costs and faster prescription processing are major factors driving demand for these systems. Rising trend of using decentralized software in dispensing medications in long-term care centers may further boost demand. These systems have been preferred over centralized ones to minimize the risk of medication errors and management of controlled substance inventory. Decentralized cabinets allow nurses to enhance hospital workflows and increase prescription processing for inpatient medication dispensing in hospitals. These help pharmacists reduce time spent on non-core activities and improve time spent on effective patient care. Decentralized software solutions are projected to exhibit a lucrative CAGR of Increase in number of hospital consolidation tends to propel demand for these systems for effective inventory management. Moreover, growing number of advanced software applications and reduction in patient waiting time will contribute toward the growth of this segment. End-use Insights In , the retail or independent pharmacies segment accounted for the largest revenue share in the pharmacy inventory management software solutions and cabinets market. Rising number of retail pharmacies and increasing demand for reducing overall operational costs are among few important factors that may propel demand. In addition, increasing workload on pharmacists and demand for effective patient counselling drives adoption of these solutions. Rising usage for high volume dispensing of medications is also expected to contribute toward segment growth. Increasing government regulations for storage and dispensing of controlled substances also increases demand for automated dispensing cabinets. Moreover, growing burden of non-communicable diseases and increasing number of prescription volume tend to impel demand. Pharmacy inventory management software in long-term care centers is projected to register the highest CAGR of Rise in investments in long-term care by pharmacies and increasing number of long-term care facilities is expected to boost demand over the forecast period. Regional Insights North America held the largest revenue share in Presence of large number of market players

in the region increases the availability of these systems and solutions and this is expected to enable the region to retain its lead throughout the forecast period. Increasing developments in healthcare IT infrastructure and technological advancements in cabinets are among other factors that are likely to contribute toward the adoption of these systems in this region. Rising government pressure to curb healthcare costs is also one of the significant factors driving the market. Pharmacy inventory management enables reduction in wastage and inventory costs owing to which, demand for the same is expected to rise. For instance, Great River Medical Center had reported a reduction in dispensing time from 1. Rising number of retail pharmacies, increasing number of prescription, and continuous improvement in healthcare infrastructure are among some key factors contributing to market growth in the region. Rising healthcare expenditure and growing disease burden in recent years is expected to spur demand for pharmacy inventory management. This market is currently dominated by multinationals but many small players are increasingly investing in this segment. Increasing geographical presence of players such as Omnicell, Inc. However, high cost of installation and maintenance of these systems may hinder its penetration in developing countries.

**Chapter 6 : Tavalor " The Future of Decentralized Business Finance**

*option more market share and compete with each other. There are a beautiful relationship between centralization, decentralization Through Software 8. Jens.*

A decentralised system, on the other hand, is one in which complex behaviour emerges through the work of lower level components operating on local information, not the instructions of any commanding influence. This form of control is known as distributed control , or control in which each component of the system is equally responsible for contributing to the global, complex behaviour by acting on local information in the appropriate manner. Self-organisation[ edit ] Decentralised systems are intricately linked to the idea of self-organisation "a phenomenon in which local interactions between components of a system establish order and coordination to achieve global goals without a central commanding influence. The rules specifying these interactions emerge from local information and in the case of biological or biologically-inspired agents, from the closely linked perception and action system of the agents. Examples[ edit ] While decentralised systems can easily be found in nature, they are also evident in aspects of human society such as governmental and economic systems. Insect colonies[ edit ] A large number of Ants eating a piece of fruit. One of the most well known examples of a "natural" decentralized system is one used by certain insect colonies. In these insect colonies, control is distributed among the homogeneous biological agents who act upon local information and local interactions to collectively create complex, global behaviour. While individually exhibiting simple behaviours, these agents achieve global goals such as feeding the colony or raising the brood by using dynamical mechanisms like non-explicit communication and exploiting their closely coupled action and perception systems. Without any form of central control, these insect colonies achieve global goals by performing required tasks, responding to changing conditions in the colony environment in terms of task-activity, and subsequently adjusting the number of workers performing each task to ensure that all tasks are completed. While these interactions consist of both interactions with the environment and each other, ants do not direct the behaviour of other ants and thus never have a "central controller" dictating what is to be done to achieve global goals. Instead, ants use a flexible task-allocation system that allows the colony to respond rapidly to changing needs for achieving these goals. This task-allocation system, similar to a division of labor is flexible in that all tasks rely on either the number of ant encounters which take the form of antennal contact and the sensing of chemical gradients using olfactory sensing for pheromone trails and can thus be applied to the entire ant population. While recent research has shown that certain tasks may have physiologically and age-based response thresholds, [4] all tasks can be completed by "any" ant in the colony. For example, in foraging behaviour, red harvester ants *Pogonomyrmex barbatus* communicate to other ants where food is, how much food there is, and whether or not they should switch tasks to forage based on cuticular hydrocarbon scents and the rate of ant-interaction. By using the combined odors of forager cuticular hydrocarbons and of seeds [5] and interaction rate using brief antennal contact, the colony captures precise information about the current availability of food and thus whether or not they should switch to foraging behaviour "all without being directed by a central controller or even another ant". The rate at which foragers return with seeds sets the rate at which outgoing foragers leave the nest on foraging trips; faster rates of return indicate more food availability and fewer interactions indicate a greater need for foragers. A combination of these two factors, which are solely based on local information from the environment, leads to decisions about switching to the foraging task and ultimately, to achieving the global goal of feeding the colony. In short, the use of a combination of simple cues makes it possible for red harvester ant colonies to make an accurate and rapid adjustment of foraging activity that corresponds to the current availability of food [6] while using positive feedback for regulation of the process: Instead of being directed by other ants or being told as to where the food is, ants rely on their closely coupled action and perception systems to collectively complete the global task. For example, the foraging behaviour of wasps is under the constant regulation and control of the queen. Market economy[ edit ] A market economy is an economy in which decisions on investment and the allocation of producer goods are mainly made through markets and not by a plan of production see planned economy. A

market economy is a decentralised economic system because it does not function via a central, economic plan which is usually headed by a governmental body but instead, acts through the distributed, local interactions in the market e. While certain researchers have begun to design their robots with closely coupled perception and action systems and attempted to embody and situate their agents a la Brooks, other researchers have attempted to simulate multi-agent behaviour and thus further dissect the phenomena of decentralised systems in achieving global goals. For example, in , Minar, Burkhard, Lang-ton and Askenazi created a multi-agent software platform for the stimulation of interacting agents and their emergent collective behaviour called " Swarm ". While the basic unit in Swarm is the "swarm", a collection of agents executing a schedule of actions, agents can be composed of swarms of other agents in nested structures. As the software also provides object-oriented libraries of reusable components for building models and analyzing, displaying and controlling experiments on those models, it ultimately attempts to not only simulate multi-agent behaviour but to serve as a basis for further exploration of how collective groups of agents can achieve global goals through careful, yet implicit, coordination.

## Chapter 7 : Decentralization - Wikipedia

*The new platform is expected to revolutionize the current software and applications market, offering benefits to both consumers and developers. Spheris is a blockchain development startup working.*

Viber App-building is a huge industry. There are more than a thousand cryptocurrencies and ICOs now, and that number is growing fast, with more new ICOs in the first four months of than the whole of the previous year. But both industries could be better and are held back by a number of issues. While users clearly love apps and similar software, there are several things stopping them from buying all the apps they want. The average user has apps installed, but they use only 30 of these in a month, and only 9 of them in a typical day. It seems like people like to download apps, but tend to regularly use only a fraction of them. So how do we encourage app users to use more apps and reward developers more fairly for their good work? Why people are neglecting many of their apps In the current system, cloud-based apps and decentralized apps are in silos and isolated from one another. When you throw subscriptions into the mix, things get even more complicated. When it comes to decentralized apps, the problem intensifies. As a result, developers lose out and users are forced to get by with less variety in their digital lives. We need to make it easier for users to handle a large fleet of software, and also ensure developers are fairly compensated for their work. Cardstack are building a model that aims to achieve exactly that. It brings ease and convenience to the industry and encourages users to try a range of different products. They can also mix and match the best elements of individual apps without downloading the whole thing. It works based on the CARD token, which is the key to doing anything within the platform. It works as a multi-purpose currency, or credit, which is exchanged for any app or individual app feature within the system. For CARD, the focus is on practical use rather than speculation or trading on crypto exchanges. When users pay for apps and dApps that they like in the platform, the CARD they spend is then distributed to developers of software based on how popular their work is, ensuring they get fairly rewarded for the things they create. This benefits developers because users will be encouraged to adopt new software and keep it, free of the burdens they currently deal with. Developers will also be rewarded for popular features, not just apps as a whole.

## Chapter 8 : Decentralized Applications or dApps Definition | Investopedia

*Leading the Blockchain Market in Decentralized Application Technology. The software is currently being used to monitor industrial activity by some of the largest oil, utility and mining.*

Jan 17 Decentralized or distributed? What is Decentralization in terms of Blockchain technology? I am sure a lot of us have heard about decentralization, blockchain and bitcoin, ethereum and many other cryptos. First of all, decentralization in general is not a new idea. For example looking at the insurance industries, we generally have insurance because of national government program or because we are buying insurance as a product provided by various insurance companies. But the way that insurance companies started in the first place as, a group of people coming together and making a contract of mutual understanding that all have ship and if one of my ship gets captured by pirates or gets damaged we can help each other cover the cost. This decentralized model is something that existed for quite a while. Looking at the software industry, we have some decentralized application for quite a while such as BitTorrent. We have had decentralized network for sending files from one network to another. If we look at email, in some ways its a semi-decentralized protocol. If you want to download some files, BitTorrent is one great way to do that. In fact, its something a lot of software developers use as a primary way of distributing data they produced to the user. And a lot of times they use a means of decentralized network as a way of solving this problem. In Satoshi Nakamoto came up with the idea behind bitcoin. He describes it as a peer to peer electronic cash system. Since then computer scientists and cyber punks have been interested in these idea of decentralization though blockchain for quite a while. But the one major application that they had really hard time is money. They figured how to decentralized messaging, sending decentralized files but currency is the one application that ended up taking a lot time to develop. Ethereum is another project with the goal of bringing the idea behind bitcoin, the blockchain technology and try to make it more generalized. It has come up with a architecture that we can use to build decentralized application in a very general sense. There are a lots of people trying to define decentralization. In my opinion most people that are trying to do this tend not to come up with a good classification. Many people think decentralized and distributed are synonyms and there are people who agree on particular way categorizing it. He categorized Decentralization into 3 types: When people talk about blockchain they actually tend to talk about the benefit of having single database instead of having a local private database that are used by many institutions and banks which have very complex and inefficient process for reconciling between them. This is where logical decentralization plays a important role. Logical decentralization has the zero probability of system failure and can tolerate any accidental faults in the system. A attack aimed at disestablishing the system will have minimal or null effect on it. Lastly, a local system cannot act independently which also maximize the efficiency of the decentralized system as a whole.

## Chapter 9 : Decentralised system - Wikipedia

*"Centralized" and "decentralized" are two ends of a spectrum, and most organizations are somewhere in the middle. By understanding the benefits of both centralization and decentralization, you can determine the degree to which your company should centralize its organizational structure.*