Role of ecosystems and bootstrapping new ecosystem in blockchain technology

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Abstract- Man is a social animal. He understood the importance of connecting or collaborating with other men to sustain and evolve over the years. Ecosystems play a huge role in digital environment as well, in interconnecting with others and thereby getting positive network effects to achieve their end goals. The networks help in reducing the friction by facilitating exchange of value between two or more independent groups. It is the platform that facilitates the network to interact between different parties. The parties/groups in the network could be either customers or partners. For an ecosystem to thrive, it needs both customers and partners. Blockchain is one such platform which facilitates peer to peer interactions without 3rd party arbiter of truth. It's a platform for value transfer. There are two aspects to bootstrap the network, they are (a) "Delivering the minimum viable happiness" which focuses on how it can deliver the customer product experience when there are multiple parties interacting while exchanging the value and second aspect is (b) "Getting the right mix" of participants which can match network. The bootstrapping of an ecosystem should result in creating an excellent participant experience that maximizes happiness. Happiness is the key.

Index Terms- Blockchain, Ecosystem, Platform, Customer experience, network effect, Starknet, bootstrap

I. Introduction

To define an ecosystem from an academic perspective is "A complex interconnected systems of various networks and participants within an environment". The successful ecosystems become the platform for the platforms. The examples of such successful ecosystems are:

Amazon ($1.3t)
Facebook ($680 b)
Visa ($ 409 b)
Bitcoin ($169 b)

We could build our own platform on those successful ecosystems and get the positive network effect. **Network effect** can be thought of as "A phenomenon whereby a product or service gains additional value as more people use it". Businesses with network effect capabilities can be of incredible value and one way of calculating this value is through **Metcalfe's law**. It states that "A network value is proportional to the square of the number of nodes in the network".

An analogy to understand this is the earlier years of telephone invention by Thomas Alva Edison. Selling the first phone was hard as there was no one on the other side and has carried no value in buying. This is the hurdle in bootstrapping the sales of a telephone. The next point in the tipping hurdle. When things become substantially more valuable after having 'N' number of customers and when certain number of interactions takes place, this is called tipping point of the network and needs a different type of strategy than just kickstarting. Finally, when large number of people join the network and large number of interactions between them you get into domination stage where the winner takes it all and leads to creation on monopoly. When the marketplace gets it right, some research has shown that "Over the past 23 years, network effects have accounted for approximately 70 % of the value creation in technology". Technology success in terms of financial perspective where a lot of it is not driven by great user experience which the product managers care a lot about and focus on, but these businesses and ecosystem network models allow users to benefit from interacting with other users directly.

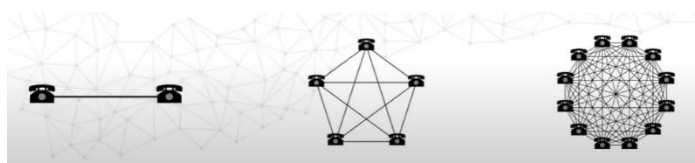

Figure 1: Telephone analogy to understand network effect.

A. Building a network.

The primary objective of a network is "reducing friction by facilitating exchange of value/information between two or more independent groups". The way to look at this as shown in the Fig (2), at its simplest level connect participant A with participant B. The green line shows how you connect these participants, and it is what is built into product and built into platform scale to achieve the network effect. When designing a platform that aims to reduce the friction at scale, needs a focus on the mix of participants using the platform and it is like N Square problem and getting it right at the first time has a huge advantage.

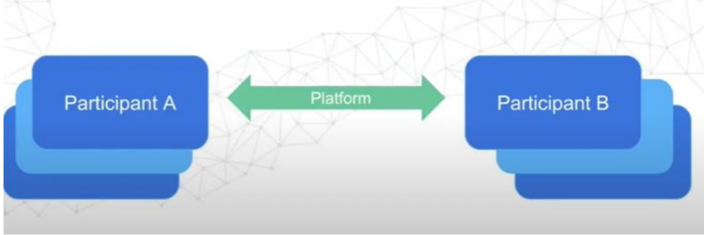

Figure 2: Participants and Platform

Platform can be described as "Enabling participants at scale by facilitating interactions between 2 or more types of participants". A few things to be taken into consideration while building the platform:

Attract different types of customers by enabling them to interact with each other on attractive terms. The important thing to note when building a network is that the customer might not necessarily interacting with the platform, but they are using the platform as a conduit to work with each other either to exchange information or value.

The next important point to consider is "Not only do members see enough value to join, but "enough" members of each group see enough value to join. This can be understood through job portal analogy. For example, you can have the best user experience while using the jobs portal but when you have bunch of job seekers but no jobs on the portal then that is really an inefficient marketplace an ineffective platform to build upon despite getting the technology part right.

Always think of getting the right mix of participants as part of a product to overcome the N Square problem. One way of getting the right mix is usually divided into two groups.

- **Customers**: Paying to receive direct value from the service
- **Partners**: Subsidized users delivering value to service.

Platforms monetize customers for receiving the direct value or service from the platform in various ways. For eg., YouTube serving the ads on their videos.

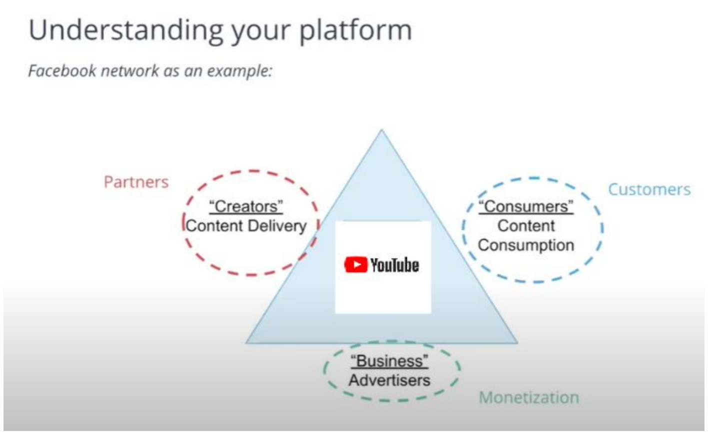

Figure 3: YouTube as a platform

Partners are those who get subsidized by the platform to deliver value or service to the platform so that it can attract the customers and get revenue out of it.

B. Understanding the Platform

YouTube is a highly successful **multisided** platform. On one side of the Multisided marketplace platform triangle as shown in the Fig (3) they have creators who create unique content and deliver value to the platform which drives others to see that. On the other side of the marketplace are the consumers who consume the content created by the creators. In this platform, what the YouTube has done is that it created a platform that brought creators and consumers together and the way it monetized that interaction is through surface ads on the videos. Monetization of the interaction between the creators and customers is the third aspect of the multisided marketplace.

Creators are the partners who gets subsidized by the platform by sharing the ads revenue with them. Consumers are the customers and ads are their way of monetization.
The segmentation of participants into these three groups helps in building out experiences, aligning the business with the product roadmap and strategy.

II. BLOCKCHAIN

To start with the cocktail party definition of blockchain "A technology that allows truth without a central authority". Blockchain allows the peer-to-peer interactions without 3rd party arbiter of truth. The interaction between the peers is cheaper as we do not have the middlemen.
The known drawbacks of the blockchain are it is relatively inefficient database in terms of cost and speed. The other one is it is difficult to scale on-chain functionality.
The recent technological advancements in the blockchain have progressed a lot to the scalability issue through building layer 2 blockchains. There are two types of layer 2 blockchains each choosing a different primitives to solve the scalability.
A few blockchains chose optimistic route where the transaction is considered valid unless someone claims otherwise. It has a window period of 7 days to submit the fraud proof.
The other blockchains chose cryptography as their strongpoint and built zero knowledge-based rollups. For e.g., Starknet which is a layer 2 ZK based validity rollup chose STARKs as its cryptographic primitive to solve the scalability issue.

The core value proposition of any blockchain is, it is a platform for value transfer. You can move value from Party A to Party B in a truly cost-efficient manner and in an instantaneous way at a global scale and at much lower cost through micropayments which was not possible with earlier technology.

B. Blockchain Ecosystem

Some of the blockchains that exist today as platform are Bitcoin, Ethereum, Starknet and ripple to quote some. They serve as an excellent payment network on a global scale from day one.

Thinking of blockchains as the platform which powers the value transfer also caters to build applications that has some value-added experiences between the network participants.

Going back to the YouTube example, YouTube is serving ads on their videos as part of their monetization, but there are some issues with this like subtracting the user experience.
In this case what blockchain can enable is it removes the aspects of monetization that are detrimental to the user experience and helps build a platform that allow peer to peer micro payments between the consumers and creators and in a way, YouTube is able to monetize that exchange through fees. In this scenario consumers could pay creators directly for seeing their content in fractions of payments. Like there are some applications which accept the digital payments which is less than cent which is not possible in fiat environment.

C. Blockchain Based payments.

Blockchain are well suited for low value, high volume value exchanges. Blockchains with payments as a network is well poised to tackle use cases such as cross border micro payments which are not well served by today's infrastructure.

III. Hierarchy of Marketplaces

The first step of the marketplace is to kickstart which is bit hard compared to next steps in hierarchy of marketplace.

Figure 4: Hierarchy of Marketplaces

There are two steps in bootstrapping the network.

A. Deliver "Minimum Viable Happiness".
B. Get your mix right.

A lot of people think in terms of MVP (minimum viable product) but when you have a network of participants we need to think bigger in terms of minimum viable happiness.

Always make sure you get the right mix of participants to match your network.

Marketplace as quoted by Sara Tavel "The marketplace that wins is the marketplace that figures out how to make their buyers and sellers meaningfully happier than any substitute".

A. How to deliver the minimum viable happiness.

The first to note is don't boil the ocean, A lot of blockchain networks claim to cater thousands of use cases and over a period they only fail to deliver none. Instead, just focus on just one-use case which you think you can win. This helps you build highly optimized experiences for a specific niche.

A. Measuring the minimum viable happiness.

Product managers should focus on retention of users as a proxy for happiness. If the users are bouncing after the first interaction with the product, then it is a sign that you do not yet have the minimum viable happiness.

B. Igniting the network.

The rocket engines are all about the "mix", getting the right mix helps to build thrust to take liftoff. The same applies to the digital environments or networks.

Identify your customers and partners. Be sure you know who your customers are who you are partners. When building the network, customers and partners are usually thought of chicken and egg problem. What comes first, customers or partners?

C. Network Ignition.

The inflection point of network development is where positive network externalities reach a critical mass for sustainable growth.

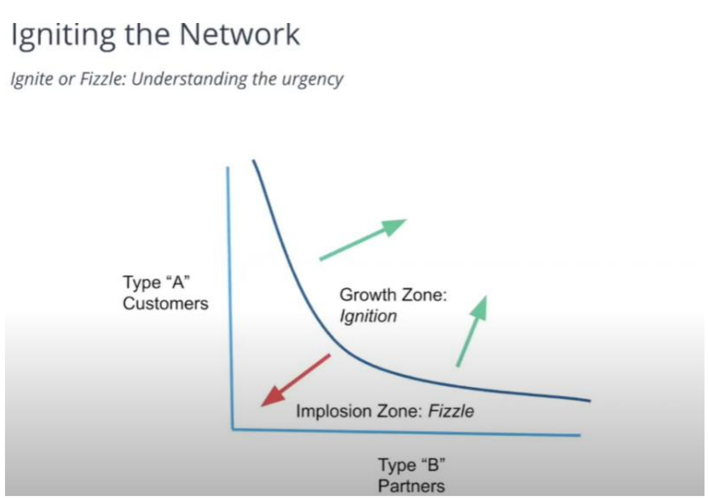

Figure 5: Igniting the network.

There is principle between the types of customers and partners and getting this wrong is detrimental to the network growth.
As shown in the fig (5), there is a minimum required ratio of customers to partners for network effects so participants can experience value from the platform.
If you are above that ratio and able to pull and incentivize the correct set of customers, then you are in the growth zone.
If you are under that ratio then you are in an implosion/fizzle zone, which is a sign of danger for your product.

IV. CONCLUSION

Create an excellent participant experience that maximizes happiness.

Start with the partners than drive customers.

Partners add value to your infrastructure and "product experience".

Networks are complex, difficult to build and massively valuable.

Blockchains is best suited as platform for value exchange for global marketplaces.

The recent technological advancements made other use cases feasible on the blockchain which are yet to see the adoption and necessity.

Focus on happiness and participant mix when bootstrapping.

APPENDIX

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