Pitch Night Script / Flow

Introduction

Noel:

Good afternoon everyone. We are Arkchain, a group of passionate researchers taking on challenge 2 who specialize in Cryptography, Data Science and Product Design. Arkchain aims to empower the trust of data through decentralised validation.

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Our team consists of Alfred, Lucas, Harry, Rezwan and myself Noel. Most of our team members found out about the Hackathon through applying for new Jobs and opportunities online to expand our individual fields of expertise. Surprisingly Rezwan here, was actually given a flyer at university to apply for open roles and participate in the hackathon. Our team was formed on the Openmesh orientation day last Saturday.

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Let's be honest, are you tired of digging for resources online and the only source of trust is simply just "trust me bro"? We at ArkChain have developed an infrastructure that allows you to confirm that the data is verified and validated. Now Alfred, our UX designer, will discuss the problems which we overcame when working on the project.

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Problem Statement

Thank you Noel, in our data-driven world, trust is everything. Let me introduce Rick, the persona of our users. Rick often relies on third parties, sharing data without a second thought. He finds himself frustrated, uncertain about the transparency and security of his data.

Rick aims to determine which data to share, and he only wants to share the data with trusted collaborators,
So here we are, ArkChain, providing a decentralized solution for Rick to solve his problem. (segway to lucas)

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Solution overview

Arkchain, a peer-to-peer network that revolutionizes how we handle and verify data. Arkchain stands out as it's not just any network; it's a platform where metadata is shared among nodes to verify diverse data formats. Imagine a network where every piece of data, regardless of its type, can be authenticated and validated through a distributed ledger, ensuring integrity and trustworthiness.

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Our system is unique because it is completely decentralized. This means it's managed not by a single entity but by its users, fostering a collaborative and secure environment. What powers Arkchain is the Arkchain Consensus Protocol. Each node in the network has the autonomy to decide which other nodes it trusts. By allowing nodes to choose their trust connections, we ensure that the network remains robust against centralized failures and flexible in the face of diverse network requirements.

ArkChain is not just a network; it is a leap towards a more secure, decentralized, and user-empowered digital world. (segway to harry)

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Technical breakdown

Harry:

Our project uses a SHA256 hash to create a unique encoding of any given piece of data to be used as an identifier, for testing purposes we used a pokemon dataset of 800 images. Any user can run a node to interact with the network and each node has an ‘ArkBlock’ containing their set of data hashes and signatures as a resource to the network.

User’s can request a verification by filehash and if a node has a signed hash relating the request it will respond with its proof. The proof will allow the requester to verify their data using the other node’s public key. That public key is ideally linked through external channels to the expected source or to a third party whose claim is trusted by consensus. (segway to rezwan).

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Rezwan:

Architecture Highlights: We are using a peer-to-peer architecture, so all users in the network are interconnected with one another.The network is a complete and connected graph. Users can broadcast a request to their peers in the network to verify and validate data. Every user can create ArkBlocks to store their verifications.

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ArkBlocks are stored in a Data Tree, which is structurally just a balanced binary Tree. During the testing phase, ArkBlocks were sorted by timestamp (can be changed as needed). Every user has their own Data Tree (which is equivalent to users keeping a copy of their and others' ArkBlocks locally). Now, Alfred will discuss our visual showcase.

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Visual Showcase

Alfred:

Thanks Rezwan. ArkChain leverages Lean UX principles, ensuring a cost-effective design system for a streamlined and user-friendly experience.

[NEXT SLIDE] (and play video)

Here is a demo of How to use our ArkChain Platform.

Firstly, you can enter the hash of your data or generate locally using our platform.

Click search, and select your trusted verifiers to verify your data or Invite your verifiers.

After submission, Check your verification process in "Tasks". You can send the result directly or download the report.

[NEXT SLIDE] (and play video)

Harry: So in the short term we created this prototype to demonstrate the actions taken by each party in the network. The process that's taking a while there is the hashing and signing process which in a fully networked implementation would be done independently

on separate machines. After that's done the network communication is completed very quickly since it is only being simulated locally,

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Harry: **Future Plans**.

In the case that the original source of the data can't sign the hashes, one solution would be to trust a group of third parties to reach consensus in the network and issue a multi-signature. A multi-signature could be generated for an ArkBlock when all nodes are in agreement about the given data hash as it relates to an external source.

Oracles in the network that can collectively fetch and verify content from a web domain, these would be run as high-storage capacity nodes which would be essential for verifying through consensus.

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FAQ

Q: Relating to trusting third parties or incompatibility with web 2.0
"which is ideally linked through external channels to the expected source."
In the future, the project would require oracles and multi-sigs in order to be relevant or useful.

Q: What would User Interface look like for this product?
A: We had a UI designer in our team who was able to develop some mockups to show off how it might look.

Slides at end of presentation with Alfred's work.

Harry: Practical Real-World Example

Open data that has multiple sources can be verified through consensus, this could be applied to ebooks or publicly funded datasets.

ArkChain could also help the battle against misinformation by assigning an identity and signature to new articles or quotes. Since AI-generated misinformation is a concern now we need to think about how technology can be used to combat that.

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