Challenge Notes

This is a Blockchain Hackathon where Blockchain distributed technologies will be at the centre of any solution design and development over two days of competition.

Blockchain’s emerging standards support a flexible technology stack delivering and opportunity to adjust Consensus, Propagation, Mining, Semantic (middleware and APIs) and create entirely new Application layers. It is this modular flexibility that makes this opportunity to good to miss.

This Hackathon is Sponsored by Future World, during the event you will learn more about the company and their Blockchain plans.

**Blockchain Scope Definition:**

Blockchain relates to and has a definition in the context of this Hackathon that means – Distributed Ledger Technologies, Financial Systems like Bitcoin, State Machines e.g. Ethereum and the various derivation of original source code forked since 2008.

Welcome to the “Hack the Future” Hackathon and word of endless possibilities and a desire to change the world – for Social Good…

This Hack has two primary themes. To enable people to have better control over their Identity and information sovereignty and the rights to consume and ownership of Digital Objects.

There are two primary Challenges each with three tracks. Each team can nominated to be involved in a Challenge and may want to tackle more than one Track. Each Track should be handled separately as a solution.

Each Track has been designed to have a close association with the others in the Challenge and in some cases there could be overlap. This is intentional. Hack Teams may be able to address all three Tracks in any one Challenge during the time we have. Each team should offer a separate solution for each Track if they have time come up with a fourth solution that links everything together.

**Challenges & Tracks**

**Challenge #1 - Global Citizenship**

* **Encrypted Key Re-connection**
* **BIO Identity ‘Access Recognition’**
* **Data Sovereignty**

**Challenge Description:** in today’s economies Identity remains the most precious thing for the people and yet it is the most abused and tampered with assets that we own. Government, Rating Agencies, Banks and participants in all Industry layers hold various versions of us as **‘avatars’**; comprising our partial, incomplete and often wrong information linked to our Identity, from which they to tell us what we can and cannot do. Governments with the help of Banks use ID as a surveillance mechanism and the vulnerability of Internet now means that everyone’s Identity is at risk. We no longer have sovereignty over out data, our information, our identity.

**Compelling Reason:**

ID cards and passports no longer work as a reliable form of identity. There 1.5 billion unbanked with an Internet connection without any formal ID and often difficulty reading and writing. These 1.5 billion people that are not of any grid as they coexist in a parallel world untouched by western economies ideals of service models and denied access due to economic circumstances. It is estimated in India alone there are 500m people unaccounted for. The next generation cryptographic keys used on the Blockchain have proven there is another way, and yet loss of any Key also removes access to your Wallet containing your ‘value’. There is no reboot or password reset.

Current systems of commerce require ‘full disclosure’ that is repeated for every transaction because the information held is often **not trusted** requiring new Identity checks (involving KYC, AML). What are the minimum attributes required to confirm Identity as transactions have different importance and risks? What is the least disclosure for efficiency but also security? The current systems for Identity based on a System of Recor d computing model remains inefficient, unreliable and expensive and often hurts and disadvantages the people they are meant to help.

**Challenge Prompt:**

Blockchain technologies now offer extraordinary opportunities to do things differently, a different starting point to design commerce, redefine industries and create new user experiences. Helping to return Trust to commerce, delivering Transparency and Reach for all people to trade what value they have.

Solutions shall have Blockchain technologies at their core, a Distributed Database with or without the use of native Tokens, although for some challenges Tokens will probably be required. The association with other technologies in encouraged (e.g. Artificial Intelligence, Deep Learning, Sensors and Devices); provided the link integration with Blockchain is not lost and fully explained. Submissions will be scored down if Blockchain is not part of the primary solution.

**Challenge Description:**

**Track #1 – Encrypted Key Re-connection**

The use of crypto keys and passphrases is fraught with challenges. Where the Key information is held matters, delivering access to the device and Wallet where ‘value’ in native tokens are stored.

# Design a solution for storing Keys and Passphrases, capable of offering the opportunity to reconnect the owner with the Wallet and contents should the link be severed.

**Track #2 - BIO Identity Access Recognition**

Identifying who people are matters, being recognised matters but what information should be used to confirm someone is who they claim to be. With the vulnerability of the Internet where Identity can be bought and sold in minutes what is the level of disclosure required and what form should it take? What Attributes are required to complete, confirm Identity and thus a transaction? What does this information look like – a sensory input for human recognition? Creating the conditions for trade.

# Design a solution for Identity that does not rely on traditional means of Passports, ID cards using BIO Metric and other means that delivers real time authentication.

**Track #3 – Global Who**

Everyone should be able to be identified on their terms and not someone else’s. Having the ability to share personal information about them on several levels and decide what information shall be shared. Owning and maintaining personal information and controlling data sovereignty should be everyone’s right. How can this precious information be stored and recalled, what is the definitive version of YOU, as there are so many avatars already, and how is Access enabled that allows Real Time authentication.

# Design a solution (system of Identity) that gives individuals the opportunity to set up, provide and maintain, control and deploy information about themselves that is tamper free and censorship free, so they are able to authenticate their Identity in real time, at the point of purchase, consumption or entry access.

**What is needed – Outcome**

Each submission should include the design approach taken, a description of how the solution meets/solves the problem (Track) with any workings, demonstrations, code examples, algorithms and business logic flows shown to the judges.

Please read the Judging Criteria and highlight in your submissions the key attributes and advantages of your solution.

**Resource List**

There is an extensive Resource List and Links can be found on HackathonreserachList.docx

**Challenge #2 Consuming Digital Objects**

         **Digital Ownership Tracking**

         **Consumption - Access Control**

         **Monitoring Digital States**

**Challenge Description:** in the world of Film, TV and Entertainment it is the artists, actors, writers and musicians who often don’t receive what they are due in terms of payment (Royalties) for their talents and creations. Often squeezed by intermediaries, studios, and platforms like Spotify where their share of proceeds (Income from sales) is increasingly reduced resulting in frequent disputes with attribution lost, destroyed or tampered with.

There are several industry solutions that track ownership across a complex supply chain of participants using unique identifiers where the creators’ content is handled as a (“**digital object**”) tagged, labelled and watermarked as a digital asset during the pro pre-production process. However as the content passes through distribution to be consumed, as a movie, TV series or song, the link between the owner **is often broken**, gets lost and disassociated. The distribution platform may also miss out on payments from consumption, where the end Consumer has the potential to infringe copyright by not paying or allowing others free access to the content. e.g. Passing User IDs on Netflix accounts.

The industry has used a combination of hardware (e.g. set top boxes, cards for Direct TV), with encryption of signal, bandwidth protection linking sender and receiver to authenticate so the payload can be de-crypted, and software encoding allowing access to the content and to track its use. And yet efforts to monitor any attempts at infringement (copying or illegal access) where the content is consumed for free have fail for a variety of reasons. The permissions are weak; the conditional acces s rights (Access Control) to consume using Keys, Persistent Handles as Digital Object Identifiers and comparing ownership using Entertainment Identifier Registry is part of an industry that requires a new approach.

**Compelling Reason:** content creators deserve to get paid and receive attribution. They are forced to trust and rely on others to collect proceeds and distribute these as Royalties and ensure their copyright is respected. How ownership of original content is validated is an issue? How is Consumption managed via devices? Who has permission to view the content? How is the link between the Content Owner and the Digital Object maintained? The Internet is full of people taking credit for the work of others and making money from this content. Internet of Piracy where often identical or counterfeit content exists without the legal copyright owners’ knowledge.

The monitoring of the consumption of Content in real time with the ability to withdraw access and permissions if the terms of payment are not met, or there is detection that copyright infringement has not kept pace with the explosion of content where everyone with a smart phone is a creative. Content is king, the creatives amongst us need protecting, a fairer system and deal as they are there to entertain us all, to prevent random people of the Internet from making income from others, without permission.

**Challenge Prompt:**

Blockchain technologies offer an extraordinary opportunity to do things differently, delivering a different starting point to design commerce, re-define industries and user experiences. The ability to time and date stamp and record ownership as a historic immutable records (as a registry) is ideally suited to the management on digital objects where the Token can be used as currency (permissions), representing payment or ownership of copyright where Smart Contracts could ensure the content creators and owners get what they are entitled to. It is also important to consider the legal aspects of copyright and contractual arrangements between creators and other parties.

**Challenge Description:**

**Track #1 – Digital Ownership Tracking**

Maintaining the links between the content creator and owner of the digital asset is vital for the Rights Owners to receive attribution they are due. Who has legal entitlement at the time of consumption, what proofs exist they are the holder of the Copyright? Where content can often be complex comprising with multiple owners - writers, musicians, contributors and production people.

# Design a solution for maintaining links (bi—directional) between the copyright owner and Digital Object that can be maintained through the Pre-production, Distribution and Consumption phases.

**Track #2 – Consumption – Access Control**

With a wide array of devices able to access and consume content the control of who has permission to ‘view’ remains a challenge, with current techniques leaving the content open to infringement from illegal copying and performances. What are conditions of use of the Digital Object – can this be programmed (into an Object or linked to a Token). How should Monitoring of usage, of permissions be handled?

# Design a solution for controlling access to view content through a variety of devices so that it can be monitored, and permissions (certificates) adjusted or withdrawn. Assume the content will be consumed on a laptop, smart phone or smart TV.

**Track #3 – Monitoring Digital States**

Digital Right Management systems and platforms have struggled to keep pace with the explosion of content from all sources and there is often similar or identical content existing on the Internet the original owners and legal rights owner are unaware of.

# Design a solution incorporating Machine Learning or AI that can monitor the state of each ‘digital objects’ and trawl the Internet looking for identical or similar content, to update the Blockchain Registry of any changes and notifying the original content owners of illegal third party ownership and infringement.

**What is needed – Outcome**

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