



METaverse

Bridging the divide between Reality and Virtuality, for human and machines.

“The metaverse is a shared virtual 3D world, or worlds, that are interactive, immersive, and collaborative.”
NVIDIA blog. Aug 2021

“Metaverse, typically, describes the concept of a future iteration of the internet, made up of persistent, shared, 3D virtual spaces linked into a perceived virtual universe.”
Wikipedia Sep 2021

What is Metaverse? As we can learn, it varies subtly between tech giants. For us, we define it as a persistent layer of linked universe working as a common ground for human and machine to extend the function, collaboration and existence. Metaverse is supposed to bring the complexities of digitization and internet protocols, way down to basic movement and living necessity of every human of common skill and literacy. It is actually this simple direction of Metaverse that will break the internet.

Our use of electronic and IT culminates in Industrial Revolution (IR4.0) whereby cyber-physical automation system is enhanced by rapid data exchange. Internet plays a major role in bridging the exchange and the interaction is essentially user↔server↔things/data. As we can see, if the data is relatively small in size and only a few concurrent events are being streamed, i.e. individuals and smart homes IOT appliances, the conventional offering of data bandwidth and online data storage may be sufficient. This similar architecture is upscaled for industrial application. Some high-tech manufacturers have digitized some aspects of their manufacturing process and have deployed Artificial Intelligence (Ai) to facilitate some operations. This requires larger faster bandwidth, larger data storage and cloud computing.

The deployment of the same architecture for smart city is less effective as it is intensive on capital cost and maintenance cost. There is also severe disjoint of relevance between cyber-physical systems and the citizen.

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Dependent on processing capability
It depends on universality of device on transferring snippet of data across realms, not the brands.



Sustainable value for money
Lower capital cost for advance technology to recycle the economical value the digital asset.



Multiple levels of security
Unique synchronization & authentication. AES125, FIPS 140-2 validation, Levels 1 and 2 and meets AAL3.



Intelligence that grows
Ai that resides within the realms can potentially evolve with more data and interaction.



Retrofit into existing infrastructure
Retrofit into existing infrastructure to reduce wastage. Additional layer of conversion may be needed at the field side if legacy system is too old.



Locality vs Global
Metaverse separates the authenticity of self and asset from the virtual universe. It can be built like a global chain of local cities.

The change to Metaverse is unavoidable.
The most pertinent question.
Will the Metaverse be the domain controlled by brands and megacorporates, or the freedom that unites us all?



We believe that Metaverse can correlate these relationships better. Industrial IOT, Ai, AR/VR and digital twins technology can be fused and actively engaged within Metaverse. In fact, we deeply believe that Metaverse is the ideal operating system (OS) for a lot of city operations, machines and Ai.

Within the realm of purpose built Metaverse, the machines and Ai operates within the bound of virtual surfaces and physics as in our physical world. The virtual realm has to be precise as in Digital Twin to the city, and it can be boundlessly large or smaller size with well defined scope. All Metaverses are synchronized and linked to a central nexus and the transfer of asset and token can be registered and controlled. The snippet of data describing the asset is one of the key for universality.

Additionally, it is often mistaken that VR goggle is a necessity for Metaverse. The truth is that 3 dimensional environment with objects within the Metaverse is easier with immersive technology for human operator to walk, see, touch and manipulate, but it is not the only mean. Multiple levels of experience and control can be shared among different devices and platform..

The other major issue with Metaverse is the current internet protocol that limits concurrent events and the speed of transmission. Current strategy is to divide the participants to a smaller cluster assigned to different servers, while LTE/5G may alleviate some of the connectivity speed. The alternative strategy is to build specialized hardware. We have built the latter as a 10m suit at the data edge, codenamed "FCC". This approach instills "self centered world view" to every controlled automations within the city to govern the action of all machines and the participating avatars. The Metaverse built so near the action reflects real time data, and the decision of avatars can be translated and transmitted wirelessly to the machines in real world. Human operator is almost "brain plugged" into this digital realm within FCC, observes and controls the flow of data.

Metaverse emphasizes the constructed virtual realm and its automations, that are not bound to the brand of computing and telecommunication hardware, 3G/4G/LTE/5G wireless broadband carrier or service provider, and ever burgeoning online data storage. It can be retrofitted into existing decades old controller. The digital asset can be improved with software technology and the Ai within.

Trail of money

The latest market trend

Metaverse market is forecasted to reach US\$800bil (RM3.33 trillion) by 2024. Bloomberg Bloomberg Intelligence report Aug 2021

Korea Science and ICT Ministry is putting in a budget of KRW9.3T (USD 7.89B) for developing Metaverse at 2022

Facebook (Market cap USD 995.14B) has been renamed VERGE to wholeheartedly plunge into Metaverse

Acquisition

ByteDance (TikTok) acquired Pico (VR company) at USD 772M (South China Morning Post)

Yunfeng Capital, created by Alibaba founder Jack Ma, proposed a USD 100M collaborative investment for Nreal (AR company)



Building cities that dream

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**Metaverse will be the greatest wealth generating machine we have ever built in history.
Where is your seat?**