FOCAFET

REAL TIME OMNIPRESENT INTERACTION

The promise of distributed ledgers, UETP and DENARS

Real-time-omnipresence will facilitate yet another breakthrough in the course of our economic evolution. During our evolutionary travels, we have become increasingly interdependent, creating ever more synergies. As we moved through the hunter-gatherer phase, the rise of agriculture, the industrial revolution, we became increasingly interconnected. Now in the information age, we are interconnected and interdependent on a truly global scale. Our economic evolution continues, as we discover new synergies and new ways of working together to improve things for everyone.

From being globally connected, new technologies are facilitating us to enter into the age of being omnipresently connected. Fundamental in these developments are distributed ledger technology as new data technology, UETP as a new internet protocol and DENARS as a new telephone book for the omnipresent world.

Essential for creating synergies, is the way we communicate with each other. In fact, economic evolution, is facilitated by improvements in the way we communicate. With the arrival of the virtual age and distributed ledgers we are yet to make another breakthrough in the way we communicate and live and work together. New technologies enable us to communicate in an omnipresent way. Because in the virtual world, everyone and everything is together at once in Europe, Africa, Asia, the Americas and everywhere else.
This virtual world potentially allows everyone and everything to come together in the 'here and now'.

Main economic theme	Time in years	Relevant economic space	Predominant communication form	Ecosystem Interdependency
Virtual	?	Omnipresent in the here and now	Interoperable data (distributed ledgers, smart contracts, UETP, DENARS)	Everyone and everything (Controlled and voluntary)
Information	'40'	Global	Non-interoperable data (siloed in applications and databases)	Global actors and things
Industry	'400'	Nation state	Machine written texts and telephone	Many actors and things
Farming	'4.000'	Village / City	Handwritten texts	Few actors and things
Hunting and gathering	'40.000'	Family / tribal	Verbal	Very few actors and things

The process of increased interdependency continues to accelerate

Just imagine, in 1491, societies on different continents were not even aware of each other's existence. Today, minor economic actions in one place can have global repercussions. In a sense, we evolved from hunter-gatherer sharks to collectively operating schools of fish.

What if everyone and everything could literally connect and interact with each other in (near) real time? What synergies would we be able to achieve?

We are still some way though from realizing this full omnipresent potential… and this is where distributed ledgers, the UETP internet protocol and DENARS registry technologies come in.

The road to omnipresent connectivity and interaction

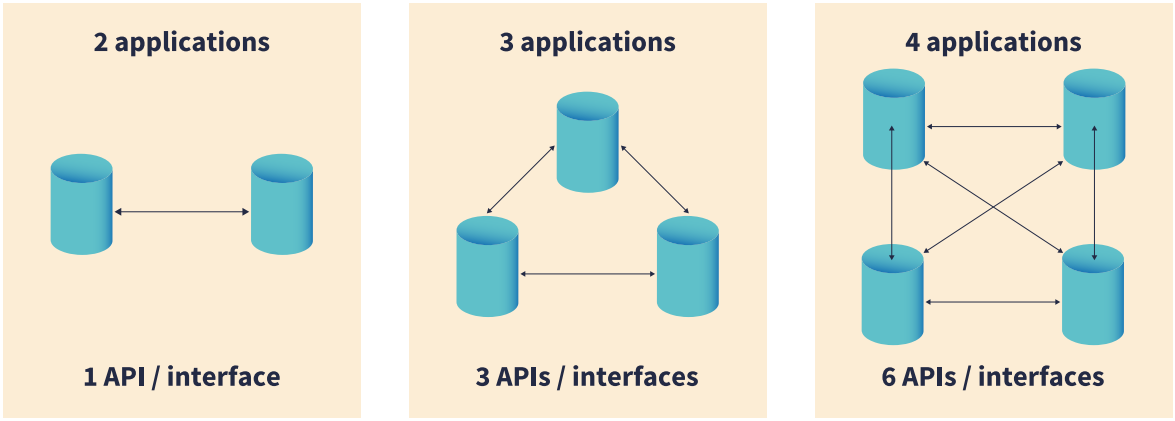
Omnipresent connectivity and interaction sounds nice in theory. But how far have we actually come? Let's take a look.

Microsoft Word and Adobe PDF file formats helped us in sharing documents electronically. They allowed us to exchange documents effortlessly across systems and between organisations. Still, document sharing was not done in a real-time omnipresent way.

Our documents first became real-time omnipresent, when our documents became webpages. The internet effectively demolished barriers of applications, organisations and jurisdictions in sharing texts and images. Webpages could connect and interact with each other in real time in an omnipresent way.

So documents and images have become omnipresent and interactionable. This is not yet true for data. What is still needed?

We need a truly global internet style network of databases, so that data is universally accessible, interpretable and connectable, just like what we have today with webpages, but than for data.
Today's internet in terms of transactions and entities is a mishmash of only partially compatible applications and an ever-increasing number of APIs, of which the cost of maintaining is growing exponentially. The current system is neither scalable nor sustainable.
Just imagine. If you have to connect two applications, you need one 'translation solution' or interface.
With three applications, you need three translation solutions and with four applications you need six and so on.



Growing more complex connected ecosystems comes at exponential costs

To succeed, the internet network of databases will, just like the internet, need to be based on successful proven practices:

- **Available to all**
- **Based on free and open protocols**
- **Fully scalable**
- **Cost efficient**
- **Have (near) real time interaction abilities**
- **A neutral, acceptable and distributed governance structure and**
- **A viable model to cover costs**

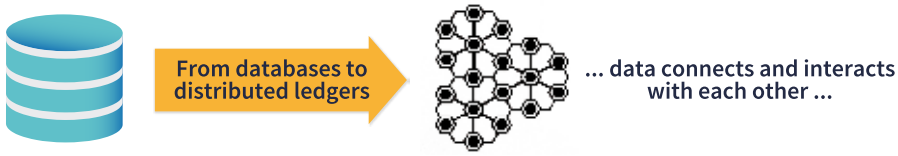
In addition, the internet network of databases will need to have new technical solutions to ensure:

- **Universal access to trusted data (no single party or minority manipulation of data)**
- **Universal unique identification**
- **A rich uniform vocabulary of entities, relations and transactions**

The good news is that recent technological and cultural developments are rapidly expanding our abilities to achieve this.

1. Distributed ledger technology

What webpages did to make documents omnipresent, is exactly what distributed ledger technologies will do to make all data omnipresent.



As distributed ledgers are founded on immutable, unstoppable, and irrefutable computer code, they also provide the necessary trust functions to ensure the integrity in an internet of data. There is no reliance on database administrators with editor rights that can change the underlying data. The data cannot be manipulated by parties individually, this can only be done by (context sufficient) consensus. Distributed ledgers as such provide us with a substantial part of the governance that is needed to create an internet-database that is truly for, from and of everyone and everything.

2. DENARS, for universal unique identification

Just like in normal databases, we need to be able to identify data uniquely, to tell that Marc is different from Mary, the table different from the chair and this table to be different from that table. Everything needs to be uniquely identified. In case we connect distributed ledgers, databases, data stores and registries with each other in an internet of data, or internet of entities, all those entities need to be universally, uniquely identified, no matter what source they come from. For this purpose, DENARS is being established. DENARS is like a big distributed telephone book and can universally uniquely identify everyone and everything, people, organisations, products, goods, services, assets, devices, rules, information, transactions, literally everything. We call these virtual representations of everything and everyone, entities.

Just like we already use universally unique telephone numbers to call each other by phone, or use IP addresses to uniquely identify devices or server ports on the internet, so we will use unique U3ID numbers in DENARS. These universally unique numbers also help us to protect and manage our data and privacy. Even more than with telephone numbers and IP addresses we can more exactly determine and manage who can have access to our entities and their information. Good privacy and data management is very much required in a context where everyone and everything can interact in the here and now together.

The DENARS telephone book is managed by a federation of not-for-profit continental DENARS foundations. None of these federated entities has a key to access data, data can only be accessed by a majority quorum. This means that surveillance at this public DENARS infrastructure also becomes a process that is – internet style – of everyone and everything and far more democratic and transparent across continents, than it is today. Countries, governments, markets and organisations can still deviate from practices, in privately run DENARS, distributed ledger or database applications, but their choice to do so will be a very transparent choice towards alternative solutions.

3. UETP, a rich uniform vocabulary for entities, and protocol for relations and transactions

While data itself can be universally uniquely identified through DENARS, just having a universal unique number alone is not enough. For entities to connect, understand and interact with each other, the architecture of the 'Internet of Entities' prescribes a three step process, which is facilitated by the Uniform Entity and Transaction Protocol (UETP).

Step 1: The UETP protocol first helps to make a universal unique number, a U3ID. This number by itself is nothing. It is only used for identification purposes.

Step 2: The entity itself has to be created. It can make use of the unique U3ID and add a name and uniform descriptions as provided by the rich vocabulary of the UETP protocol.

Step 3: The context or transaction has to be created in which the entity, together with other entities interacts. You can see this context as a group chat, in which people, products, devices, rules and information interact dynamically with each other.

Symbol	Name	Description	
	**Identifier**	Smallest prime matter. This matter has a unique ID, is unspecified in its characteristics and can become anything.	**Quantum particle**
	**Entity**	Entity, formed by prime matter with its unique ID and with specified characteristics such as a name and attributes.	**Atom**
	**Transaction**	A transaction or action as a result of connection and interaction of economic entities.	**Molecule**

UETP follows basic semantics of everyday language and uses work of existing commonly applied standards. At its core, UETP facilitates expressions for:

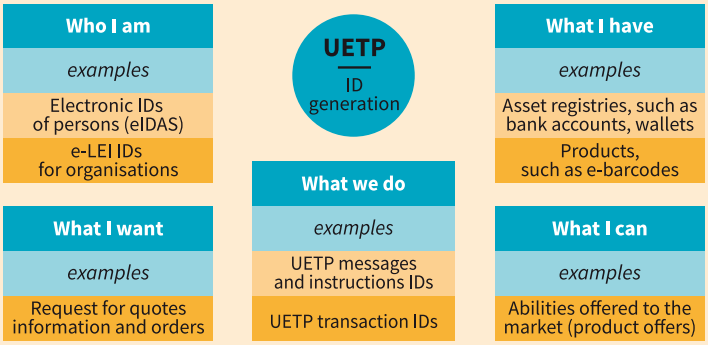
'to be'
(representing people and organisations),

'to have'
(representing products, services, assets, devices and information),

'to want'
(the demand side of the market),

'to can'
(the supply side of the market) and

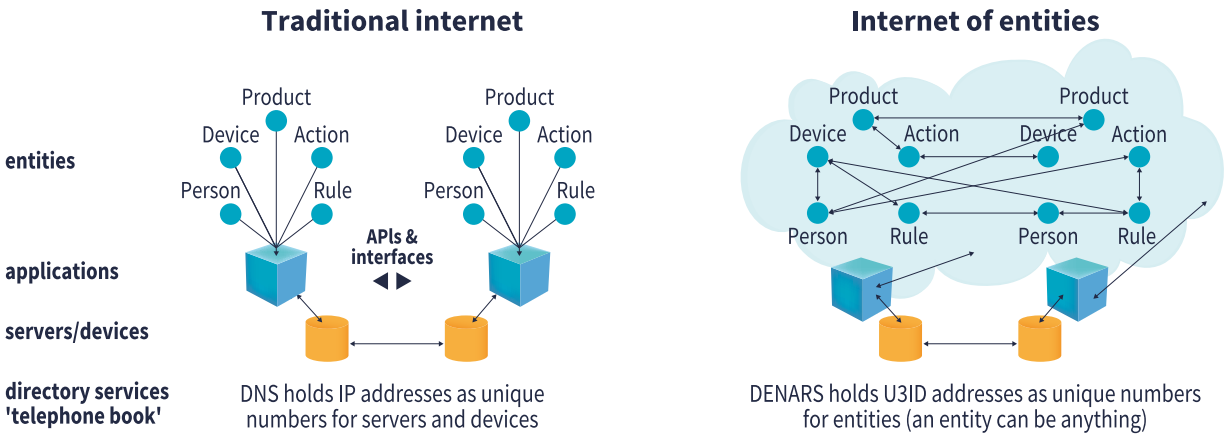
'to do'
(the group chat or transaction context in which everyone and everything comes together)



In addition, UETP facilitates the creation and use of 'how' entities, literally enabling a real-time omnipresent Internet-of-Rules with automated jurisdiction, competent authority and rule detection.
UETP further provides semantics to facilitate communication on questions like who, what, where, when, how and how much.
After one and a half year, its vocabulary supports about 80% of most common economic transaction content.

The transaction context finally, is facilitated as a group chat.
The group chat brings together relevant content and can be shared without translation differences.
Also quite unique is that transaction services such as payments, delivery and taxation can now be cleared and settled together as one transaction, in which all parties provide consent at the same time.
This substantially reduces risks, costs and liabilities.

In summary, the “Internet of Entities” is right around the corner.
It will enable us to make yet another great leap forward in economic evolution, in which synergies once again can be created and shared more easily.



The UETP and DENARS community

FOCAFET, the independent, neutral non-profit foundation that supports the development of free and open intellectual property for UETP and DENARS for everyone, was established in August 2014. Since then, a global community has evolved working currently on initiatives in twenty countries in five continents.
This vibrant community spans the entire socio-economic spectrum and is currently doubling in size every three months. Community partners basically hail from all sectors, commerce, government institutions, ports, logistic solution providers, health care, finance, accounting, insurance and so on. Within the IT sector Oracle, HP, Red Hat and others are investing in the development of prototypes, with fast growing interests.

UETP 0.6 and DENARS 0.2 will formally be released in October 2016 through FOCAFET's website

Get involved

The community is active in many different initiatives, sectors, and jurisdictions. In order to bring you in contact with the right people that can help you or co-develop initiatives, you can send an email to state an Expression Of Interest And Contact to eoiac@focafet.org
The FOCAFET Foundation's most important mission is to facilitate the development of a neutral and independent new entity and transaction layer on the internet. In order to avoid conflict of interests, the foundation does not have an earnings model. As such, the foundation is completely dependent on voluntary (unconditional) donations.

FOCAFET

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Donations can be made to:
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Sponsorship:
FOCAFET is developing a (corporate) sponsorship program.
If your organisation is interested in participating, please contact:
sponsorship@focafet.org
for further information and to discuss options.

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