EIA blockchain is the blockchain for your business

Information about blockchain platform operated The Electrical and Electronic Association of the Czech Republic

EIA

EIA
Blockchain Services

This brochure will inform you what is ElA blockchain, why we decided to establish it and why to use it in your company. Brochure comprises in two parts. The first one answers to frequently asked questions concerning blockchain, its principle, possibilities and strategy of development. The second parts deals with basic application Blockchain Notarius, developed for a simple use of ElA blockchain in an industrial or service company or anywhere else.

The ElA blockchain is developed to meet your needs and improve your business. It is intended as unique opened trustworthy platform for industrial companies and other corporate bodies, which can use it for its own application.

The reliability and accessibility of ElA blockchain depends on its widespread and intensive using. That is the reason we appeal to you: became visionary and evangelizator of blockchain. Obtain your own ElA blockchain node, use it and offer its advantages to your partners and customers. It is easy, inexpensive and no risky. The installation pack of the ElA blockchain software, including application Blockchain Notarius is free of charge and simply to install and maintain. In the second part of brochure you will find an inspiration how to use application Blockchain Notarius in your company.

The board of Electrical and Electronic Association of the Czech Republic, the people of ElA Blockchain Services and ElA Blockchain development team wish you to have ElA blockchain as useful part of your company which improves the customer services and rises your prestige.

What is a blockchain?

You can imagine a blockchain as a highly-secured data file, existing in many identical copies on servers known as blockchain nodes. Blockchain nodes communicate mutually within a net-work. Software running on these nodes does not allow retrospec-tive changes to content saved on the blockchain; only a portion of data called blocks can be added to the blockchain. To add a block to the blockchain, it is necessary to obtain the approval of other nodes. They perform an endorsement of the validity of rights and rules for block adding. Only after successfully passing this process do all nodes add the block to their copy of the blockchain, secure the blockchain again, and mutually check that newly-modified blockchain copies are identical in all nodes.

This process guarantees that data records saved in a blockchain are practically unchangeable and indestructible. Only in the near-impossible case of an attacker changing the complete blockchain file, including all security components on every node, executed simultaneously at one particular moment, could an attack potentially be successful. The cryptocurrency Bitcoin is probably the most popular application of a block-chain. It is only one from many possible blockchain applica-tions, but it illustrates the safety of the blockchain technology. Bitcoin blockchain has not been cracked during ten years of its existence, even if there is a strong motivation to do it. If the bitcoins were stolen, an absence of carefulness was the reason.

What is the ElA Blockchain?

The ElA Blockchain has nothing in common with Bitcoin. Despite it is an open and public network of blockchain nodes, the access to network membership is regulated. Membership is limited to trustworthy corporate bodies, whose credibility is guaranteed by the Electrical and Electronic Association of the Czech Republic (ElA). The blockchain network's operation, security, and develop-ment is provided by the joint-stock company ElA Blockchain Services a.s., a company founded and owned by ElA.

Why have we established ElA blockchain?

Blockchains are considered as a future of industry, trade, and banking. They allow the verification of documents, contracts, certificates and diplomas, the tracing of goods flow, and the ex-posure of fakes. The widespread use of blockchain is expected in industry, particularly in communication among machines. Blockchain is a technology of Industry 4.0.

We would like to offer ElA members the possibility to be at the start of this technology in the industry, and the possibility to build their own blockchain-based business. That is the reason we have built a web platform intended for development and performance of your own blockchain business projects. You can not only use the blockchain, but also make money doing so.

What are the distinct features of the ElA blockchain?

First of all, it is a way of building the blockchain network. The majority of existing blockchain networks have been built by large corporations, banks, or fintech associations. There are also blockchains which have been built by government agencies, such as Beefedger, certifying the origin of Australian beef.

ElA blockchain has no central founder. It is a voluntary associa-tion of node owners, made up of trustworthy companies and corporate bodies. The list of node owners is public, and an

external users can choose one in which they trust. The nodes are owned by various subjects, and each corporate body is limited to one node. This heterogenous network is highly immune to technical collapse or attack by hackers.

ElA blockchain is not intended only for one purpose. It is open for every kind of application to suit your business. However, as a basic application it contains the very useful Blockchain Notarius®. This application provides a number of services most frequently associated with blockchain: contract confirmation, identity verification, and other such features. This application is mandatorily installed on all ElA blockchain nodes, and everybody who decides to build their own node will receive this application in the installation pack free of charge. One may then, for example, offer registration on a blockchain as a paid service to others who do not own a blockchain node of their own.

How does the ElA blockchain work?

This explanation can be easily made on Blockchain Notarius application. There are two basic operations in the Blockchain Notarius: file registration, and file verification. To explain what these two operations mean, the principles of ElA blockchain will be described in brief:

There is no readable data in the ElA blockchain. There is only saved an "imprint" of the file content, known as a hash. A hash is a string of letters and ciphers generated by hash software. It is a unique feature of file. If only a single letter of a file is changed, the hash will change too.

A hash has two inherent characteristics:
- The probability of two different files having the same hash is practically zero. The string of a standard hash offers number of combinations comparable to the number of atoms in the known univers.
- It is impossible to reconstruct the original file content from a hash. Similarly as it is not possible to reconstruct the original content of an aquarium from fish soup.

The hash file, together with optional metadata (information supporting orientation or finding in the blockchain), comprises a so-called block prepared to be added to the blockchain. Blockchain nodes mutually assure each other that a prepared block meets all required security conditions and can be added to the blockchain. If the endorsement is passed successfully, the block is added to every particular copy of the blockchain on every node. These new copies are then secured again. The nodes then mutually ensure that all copies stored on the blockchain are identical. This process guarantees that the hash with metadata is forever saved in copies on all nodes of the blockchain.

It should be highlighted that there is no readable data in the blockchain: there are only hashes. As such, any attempt to hack the content of the blockchain is futile. There is nothing to steal or abuse.

The verification of documents makes it simple to find whether a submitted document has previously been registered. How is this possible, if there are only hashes in the blockchain? An individual, who wishes to verify a copy of a file, can calculate its hash. Verification means querying the existence of a hash in the blockchain that is identical to the hash of a submitted copy of a file. If such a hash is found, the submitted copy is identical with the file originally registered. If somebody tries to verify a file, which has been even slightly modified, an identical hash will not be found in the blockchain and the application will announce that the file has not been registered.

How to use document registration and verification features

The registration of public company documents can be an illustrative example. If you register your business conditions published on your company website, everybody can verify their validity simply by pushing a button. On the other hand, you are able to positively prove the validity of a particular past version of contract conditions in any given moment.

Registration of contracts will protect you against battles of contract validity, or against various tricks such as replacement of pages or attachments in contracts.

Blockchain Notarius allows users to make a remote contract. Your partner, hundreds of kilometers away from you, ensures (using the blockchain node installed in their country) that the content of the contract you both have agreed, is the same that is registered on the blockchain. The contract can then be approved by the push of a button, since both approvals, related to the agreed content of the contract, are registered in the blockchain. After that, no changes can be made to the contract, otherwise Blockchain Notarius announces a false result of contract verification.

The Blockchain Notarius is only a beginning

While Blockchain Notarius offers the possibility of many other applications, it has been designed as a basic universal application for occasional use. However, you can build your own completely new applications on the ElA blockchain. ElA blockchain can be used for the registration of thousands of certificates issued by your company. Similarly as the aforementioned beef producers, you can trace a path of your unique product through the distribution chain from manufacturing to the final customer. If such products are offered for purchase, everybody can verify this in the blockchain, as well as whether the person offering a product is a certified distributor, or if the offered unit is legitimate. The blockchain will disclose that the same unit has been sold in another part of the world. Blockchain Notarius itself is not designed for these purposes. You need a different application, installed, for example, only on nodes, dedicated to issuing certificates. Such an application can be ordered from a software developer. Our website offers a list of companies dealing in blockchain software development.

Who can register and verify documents in Blockchain Notarius?

If the Blockchain Notarius application is running on your own node, you have guaranteed full access to both the registration and verification of any document. However, you can enable access to applications for other users, who are not node owners.

Blockchain Notarius includes an administrator interface, via which a user name and password can be provided to any of your customers or partners. Whether to offer this free of charge, or as a paid service, is at the sole discretion of the node owner.

Network administrators cannot see who has registered a document, only that it has been done on your node, and they will charge you micropayments according to a valid price list. Nonetheless, node owners are responsible for the behavior of their blockchain clients, and we would appreciate if a node owner adheres to the basic principle of the ElA blockchain:

the credibility of all users. An individual provided with access to Blockchain Notarius can use it in the same way as a node owner, excluding the provision of access to further users. Unlike registration, verification is a public service. All node owners are obligated to provide it on their nodes, free of charge. There is no user name or password required. Anybody can open the public part of Blockchain Notarius on any node of the EIA blockchain and verify a document. The list of website addresses of all nodes in the EIA blockchain network is published on blockchainotarius.com

Which types of document can be registered on the EIA blockchain?

In previous paragraphs, we have spoken about written documents in digital form, such as, for example, contracts in PDF format. However, it is possible to register any type of digital file: digital photos, audio files, videoclips, etc. Even binary files created by machine, such as the data log files of technical equipment, or records of communication among machines, can be registered. This also means that a contract which is simply written on paper can be registered in the form of a digital image. It is enough to take a picture with one's mobile phone and register the picture. The upcoming mobile version of Blockchain Notarius will allow users to directly register a picture taken with a phone camera.

However, there can be a problem: as previously mentioned, only completely identical digital files providing identical hashes are positively verified in Blockchain Notarius. However, some types of file can be changed even if you do not intend it. Some file types include a large amount of metadata, such as, for example, the last date of the file being opened. If you open this files, the application automatically adjusts this metadata in the background. You may not know it, but verification in Blockchain Notarius fails, because the change of metadata also causes a change to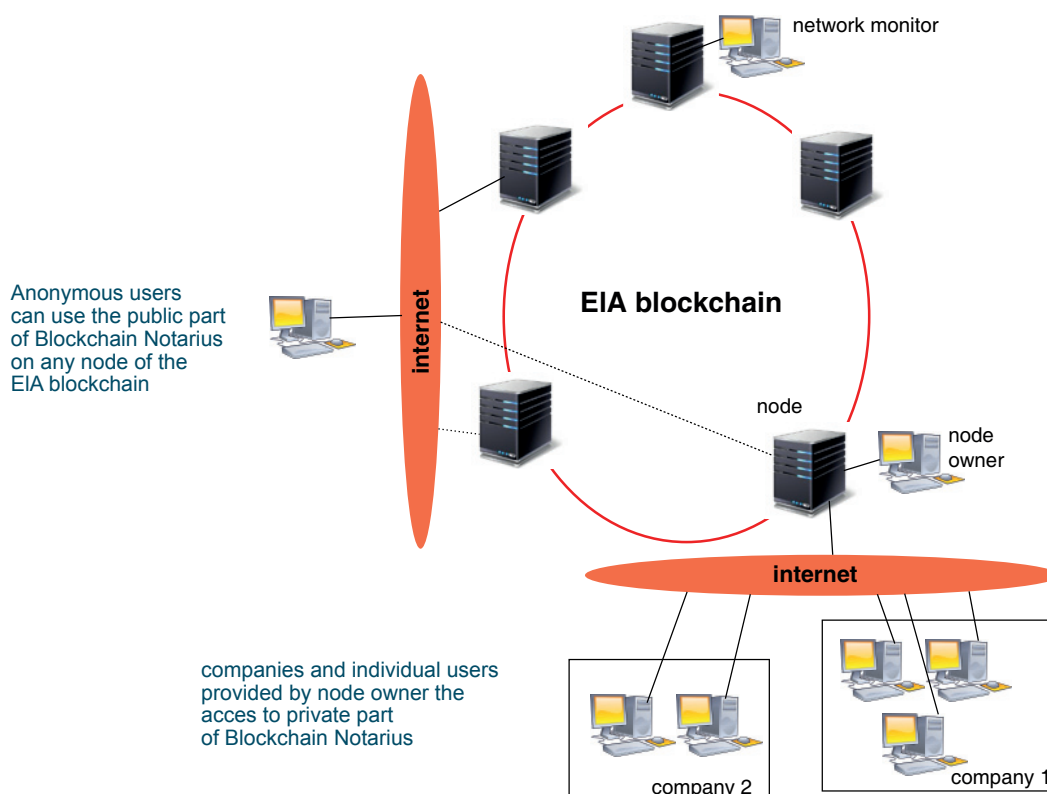 the hash. Similar problems can be caused by cloud storage. Some cloud systems conduct image compression before storing, so as to save disk space. Compressed files provide different hashes, even if the picture itself appears to be the same. Nonetheless, verification in Blockchain Notarius will fail, as in the previously-described case.

I do not wish for my document registered in Blockchain Notarius to be visible to other parties

Certainly, nobody would agree with the registration of a contract if its content had to be published, or if the file containing the contract must be saved in a place, he hasn't chosen. Some are even afraid to open such files on a computer connected to the Internet – and they might be right.

Fortunately, Blockchain Notarius provides a way of keeping the content of files out of any eye.

As mentioned, the simplest way to register a file in Blockchain Notarius is dropping a file icon into the application form. Even in this case, the file stays only on your computer; the hash is calculated directly in the application. However, there is also another way. Hashes can be calculated offline, on another computer, which is not connected to the Internet. The final hash string can then be manually inputted to the Blockchain Notarius form. Software for hash making is commonly available on the Internet. The block also contains metadata. However, metadata is optional, or can comprise irrelevant information. If you wish to conceal your identity as the registering party of a file, you can ask the node owner for anonymous access. So, in the most secret mode, you can register a file that nobody has seen and cover traces leading to you as the person that has registered the file. Certainly, to make later verification, you need to keep the file.

network monitor

EIA blockchain

Anonymous users can use the public part of Blockchain Notarius on any node of the EIA blockchain

internet

node

node owner

internet

companies and individual users provided by node owner the acces to private part of Blockchain Notarius

company 2

company 1

How can I arrange an ElA blockchain node, and how much will it cost?

ElA blockchain can be installed both on standard PC hardware and in a cloud. You only need a running Linux server, Internet access, and a public IP address. The simplest way is to use a virtual cloud server. The installation pack is free of charge, and installation of nodes from dockers is not a complicated task for an IT specialist. Moreover, on the website elachain.cz, you can find a suitable provider, who will install and maintain your node. You will only use the provided applications.

If you decide to stop your activities on blockchain, you are only able to switch off your node. No further costs will arise.

How can I arrange a node, in the case that I am not allowed to change our company's IT system?

Node arrangement can be complicated within a branch of a corporate company, because of restrictions to changing the installed IT system. Another obstacle can be the resistance of company IT specialists to the installation of third party software. Fortunately it is not a problem.

An ElA blockchain node is a separate software that can run on a separate server or separate cloud space. No relationship to a company's IT system is necessary. Certainly, we would prefer if the internet domain and name of a server suggests a relationship with the node owner. It is a part of the idea of the openness and credibility of the ElA blockchain.

The security of company data is not at risk. As previously mentioned, no real data are saved in the blockchain. The flexibility of Blockchain Notarius allows you to set a process to meet all necessary safety rules in your company.

Certainly, if you decide to use blockchain in your own specialised applications, you will probably connect it to the company information system. Then it is the responsibility of software engineers and integrators to make a safe solution.

The basic Blockchain Notarius application does not meet my requirements, as I intend to use blockchain in a different way

As previously mentioned, ElA blockchain is open to any kind of application. There is no problem in building a public application for verifying certificates or school diplomas on it. It is possible to use it for logistic system support, similarly as MAERSK. It can be utilised for tracing the path of a product through the distribution chain or identification of fakes. ElA blockchain can mediate communication among machines, register operator and machine logs, and safety system statuses. ElA blockchain provides a wide range of possibilities.

The basic Blockchain Notarius application is not suitable for complex projects requiring a high number of registrations. It is intended for general use, and its software has been designed to fulfill this task. The optimal solution of your intentions can take several different forms, and the best way is to consult with blockchain software architects, engineers, and integrators. These people can be found on the website elachain.cz. ElA Blockchain is designed to support an unlimited number of such applications without any restrictions or speed reductions.

We would like to have our own blockchain

Modern digital technologies cannot be the subject of a monopoly, as they have been developed for the open globalised world. The basic software required to operate a blockchain is open source, and available for everybody who can utilise it. This is one reason that we are open to collaboration, and consider supporting new blockchains as a mission of ElA Blockchain Services.

What can we offer if you are considering building a blockchain for your community, association, or company?

You can adjust the technical and business model of your blockchain on our platform. You can test your technical solutions on our network as a separate application. You can administrate your nodes, while ElA Blockchain Services will provide technical arrangement of the network. We will confirm to you, that the technical arrangement will be transferred to your servers at the moment you ask for it. At this time, we will control your nodes according to your instructions and provide you with data for billing.

If you are sure that your business model is viable, you will establish your own servers and train your service staff. We will then transfer node identities to the administration software running on your server. We also hope to maintain a close relationship after you become an independent user. It can be useful to offer Blockchain Notarius commonly on both networks, and provide some applications mutually on part of nodes of both networks. These kinds of joined networks become stronger, and we can build further independent but attached networks.

What is the ElA blockchain platform?

The ElA blockchain platform joins all those who use it to create the ElA blockchain network. The platform is built on the website elachain.cz. There you can find information and news about network operation, directory of blockchain software and application developers, and inspiration for your own business utilisation of blockchain.

Blockchain Notarius®
Application

Blockchain Notarius® is our registered trademark. It is a basic service and application, installed on every node of the EIA blockchain network. Node owners are obligated to provide the public part of this service free of charge, and publish the access point of the Blockchain Notarius application on the website blockchainotarius.com.

A node owner can use the private part of the application themselves. or can provide access to other users. The conditions of access are at the discretion of the node owner.

The Blockchain Notarius application provides service of registration of data files on the blockchain, and the service of verification of whether a submitted copy of a file is identical to the registered original of a file.

These two operations are provided with remarkable user comfort. The simplest way to register a file is to drag and drop the file icon to a particular form field. It is also possible to manually insert a hash directly. Then the registering party is invited to enter metadata (the majority of metadata is optional), This metadata can be used in various ways. It enables users to, for example, link verification both with websites and document storage. Finally, the confirmation of registration is required.

In fact, it is possible to insert multiple hashes into one block. This means that multipage documents, documents with attachments, image sets, etc., can all be included in one registration.

The verification of registered documents is as simple as registration: only dragging and dropping of a file icon is required. If the metadata of registration is public, you can see it after successful verification. If metadata is private, you will only be able to obtain information on whether or not the file has been registered. It is not important which type of file is used and
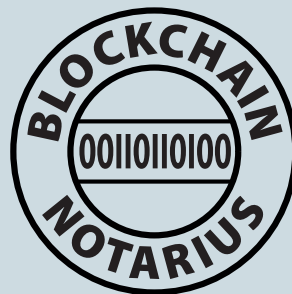
where it is saved. A file needs only to be at a user's disposal at the moment of registration or verification.

File registration is possible only with the permission of the node owner, who provides login data to a private part of the Blockchain Notarius application on their node. The node owner also determines the login conditions.Verification is made in the public part of the Blockchain Notarius application. All nodes provide access to verification as a public and free service.

Blockchain Notarius is offered as both a desktop and mobile application. On a mobile phone, embedded camera made images can be directly register in the blockchain.

the document verification can is a public service provided on any node of EIA blockchain.

EIA blockchain

network monitor

node

node owner

internet
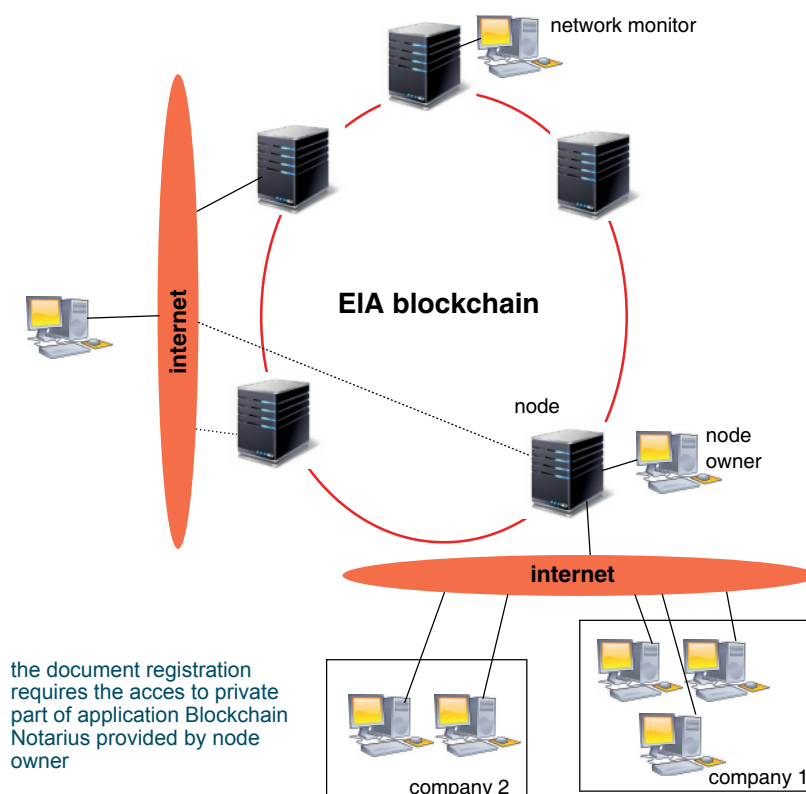
the document registration requires the acces to private part of application Blockchain Notarius provided by node owner

company 2

company 1

Limitations of the Blockchain Notarius

applicationBlockchain Notarius is a basic application of EIA blockchain that is installed on every node. Its purpose is to provide basic tools for the occasional utilisation of the EIA blockchain in a company's operation. It is not intended for special services requiring high frequency of registrations or verifications. The installation of Blockchain Notarius does not require (unlike special applications) any particular conditions, such as node computing power or connection speed. To avoid local network overloads and service slowdown, the number of registrations is regulated via progressive payment. Every node is granted a monthly pack of free registrations. After using this pack, every registration is charged by micropayment.

The current number of registrations and total payment amount is accessible in the client section of the platform website. It is the personal decision of a node owner, whether and in which way to share these payments with the clients allowed to use the private part of Blockchain Notarius on their node.

Cybersecurity of Blockchain Notarius

As previously mentioned, there is no exploitable data in the EIA blockchain. The Blockchain Notarius application provides information only if a submitted copy of a file is identical to one which has already been registered. Consequently, only three types of cyberattack to Blockchain Notarius can provide any form of benefit:
- modification of blockchain content
- fraudulent registration – the actual saved hash is different from the one the user supposes
- fraudulent verification – the result of verification is inaccessible or fake.

Modifying blockchain content is virtually impossible. Blockchain technology is commonly considered as uncrackable, much like any forensic evidence submitted during a trial.

However, attack is also possible via manipulation of data on the way between the blockchain and a user. Such attacks can result in a hash inserted into a block being different from one calculated in the application. The other possibility is to change the results of searching for a hash in the blockchain.

This can be made via an attack on the part of Blockchain Notarius communicating with a user. In spite of using the latest safety technology in the Blockchain Notarius software, and the requirements of ciphered communication on every node, the possibility of such a kind of attack exists. Fortunately, EIA blockchain provides tools for identifying attacks before any damage can occur.

Fake registration can be revealed by immediate verification performed on several different nodes. An attacker cannot know which nodes will be used for checking of verification, and manipulating the application on all nodes in a network to provide the same fake result is impossible. Simply: this kind of attack is more trouble than it is worth.

The same procedure can be used for revealing a fake result of verification. All nodes of the EIA blockchain network should provide the same result of verification.

Considering this, we have made verification a free service, and accessible on every node of the EIA blockchain.It is the permanent accessibility and high security of blockchain services that promise a wide range of blockchain technology applications in the near future.

Blockchain and law

There are no special laws concerning blockchain. Future creation of blockchain law is expected in Europe, as blockchain is one of the strategies processed by the European Committee. By this, the suitable interpretation of present law is used together with forensic evidence. Similarly, there are, at present, legal conditions related to other modern digital technologies.

Possible uses of Blockchain Notarius

In this part of the brochure, we would like to present some possibilities for the utilisation of Blockchain Notarius in your company. Below are some examples:

Registration of internal company documents

There are a many internal company documents in which content must be fixed at a particular moment. While some of them must be fixed in a prescribed manner (notarial authentication), for many others the method of fixing is not officially prescribed, and can be approved by a nongovernmental authority such as, for example, a QMS auditor. It concerns, for example, internal organisational decisions, working and organisational rules, various reports, etc. Many present and complicated ways of the fixation of these documents can be replaced by registration in the EIA blockchain. These documents are obviously saved in a company's data storage. No changes need to be made; documents will only be registered in Blockchain Notarius. As they are internal documents, all metadata should be set as private, so as to make it invisible to common users. However, metadata will be accessible to auditors or other authorised persons.

Blockchain Notarius can also be used in HR processes. The service of remote approval of documents (described later) can be used for fixing of agreements on employees' positions, confirmation of order, or decision acceptance. Again, both the content of documents and the registration of acceptance can be made invisible to unauthorised persons.

Registration of a public company document

The same way as internal company documents can be fixed, public company documents, for example trade terms. The only difference lies in setting metadata as public. The metadata can also contain a link to the registered document itself to enable the display of its content. Linking to company websites is also possible. Anybody can ensure that the trade terms they suppose as valid are truly valid. They can also ensure the validity of versions of trade terms in a particular moment in the past. This can be extremely useful in trade disputes.

Evidence of status in a particular moment

In the process of entering and acceptance of technology facilities, it is often very useful to fix the status of a facility at the moment of entering. Blockchain Notarius enables users to register any data considered important: photos of important mechanical or electrical parts, test reports, data log files, copies or photos of screens, internal switch settings, cable wiring, etc. Even both sides of the entering process can confirm these documents using remote approval document service (described later). The costs of this process are minimal, especially if you are a blockchain node owner. However, in the future, you can avoid

disputes related to possible defects existing at the moment of device entry.

Interesting applications can be found in the building industry. A builder can register photos and other documents during the progress of building works, in order to be able to prove adherence to the prescribed procedures. On the other hand, a resident engineer or building owner can register photos of critical parts before they are covered later in the work process.

Similarly, it can be useful to register the status of a device at the moment of breakdown, or in other non-standard situations. We suppose, that many applications embedded directly in technology software will grow around EIA blockchain. They will automatically register important signals and statuses of technological devices. Something like an aircraft "black box" will be created, that will document the cause of a breakdown.

Registration of creative work

Creative people, designers, or other authors such as software developers, can use blockchain to prove authorship. Blockchain Notarius offers the possibility to register any type of file: text document, picture, photo, clipart, audio file, video clip. While the registered file need not be published, the author can prove that the work existed at a given time.

Remote approval of documents, remote countersigning of contracts

Blockchain Notarius provides the very useful and attractive possibility to call an additional person to approve the registration of a file on the EIA blockchain. There are many applications of this possibility. Allow us to present one of them: remote countersigning of contracts.

Imagine that your business partner is on the opposite side of the world. After finishing the negotiation process, you have written up a contract and sent it to your partner, say, via e-mail. Your partner preliminarily agrees via text. On the basis of

this agreement, you register a file containing the contract in Blockchain Notarius. You check the field "remote agreement" in the application form. Blockchain Notarius will register a file and generate two safety elements: transaction ID enabling the contract registration to be found in the blockchain, even with private metadata. The second safety element is a PIN, which allows document approval. Due to safety reasons, we recommend sending ID and PIN in various ways; for example e-mail and SMS, similarly to Internet banking.

Your partner can log in to Blockchain Notarius on any node. If they are not a node owner, they can ask any other node owner in the network to provide login data. It is not necessary to approve the contract on the same node on which the contract is registered. On the contrary, it is better if your partner chooses a node they know and trust in. This is the reason we appeal to EIA blockchain users to support establishing EIA blockchain nodes with Blockchain Notarius with their partners abroad.

After logging in, your partner inputs their ID, and an approval form appears. Then they can make sure that the text of the registered contract is the same as they preliminarily agreed with. Then they can insert the received PIN and push the "Approve" button. Moreover, there is a possibility to choose if they provide approval without reserves, and they can also add comments. Following the insertion of approvals, the contract registration together with both approvals, is saved in the blockchain forever.

Remote approval can also be used for many other applications, concerning, for example, the delivery of construction materials, technology units, etc. Local construction companies can confirm to developers finishing the construction phase and register photos, documents, or tests results proving the present status. On the other hand, developers can use the blockchain for the approval of necessary changes of plans or procedures made by the constructor.

In the process of entering the installed machine, remote approval can be used for the approval of an acceptance certificate, again together with attachments, photos, test results, etc.

The view of public website of Blockchain Notarius application

The wiew of form of private part of Blockchain Notarius application

The public list of nodes of EIA blockchain network

Trust, authority, and blockchain

Services provided by Blockchain Notarius can, in some instances, act as a substitute for similar services, such as authentication by notary public, electronic signature, etc. What is different?

These services can be considered as services to a group of subjects (companies, people, inhabitants, etc.) which, because they do not know one another, do not trust each other enough to engage in sensitive transactions (contracts, testaments, etc.). That is why they find an authority, trustworthy enough for all parties, and authorise it to perform the transaction. At present, there is a full hierarchy of such authorities. There are authorities established, licensed or recognised by government on the hierarchy top, and private companies based on their widely-recognised authority as a result of long-term provision of reliable services on the bottom of the hierarchy. Common features of all these authorities is that they are exclusive and central.

An application of central authority poses a threat to users. The central authority is commanded by one subject, owns all data, and has unlimited access to this data. The decision of such authority is exclusive, final, and can be disputed only at legal trial. However, a subject owning or commanding central authority can fail, or be corrupted or blackmailed, and data in central storage can be stolen or attacked by hackers.

ElA blockchain is not a central authority. Its authority is "shared" by many subjects, and even the failure of several of them would not cause the failure of the authority as a whole. It can be understood with the example of bitcoin. Bitcoin transactions run in an environment of distrust, and many participants could be interested in the manipulation of "decisions" in the blockchain. Despite this, no successful attack on the bitcoin blockchain is known to have taken place.

We have built the network of nodes to be heterogenous and without the possibility to cumulate even a part of authority by one subject. Unlike the bitcoin blockchain, ElA blockchain node owners are not anonymous. They are known, trusted subjects. One of the tasks of ElA Blockchain Services is the monitoring of attack attempts, and solving such situations with node owners. This is one reason that ElA blockchain can use simpler and cheaper endorsement. Because of this, we can offer ElA blockchain to users at a comparatively inexpensive rate. Concurrently, the decision of this shared authority remains reliable, unalterable, and tamperproof.

The implementation of authority sharing secures blockchain technology. It prevents central manipulation of the blockchain. ElA Blockchain Services does not possess the tools to intervene in either blockchain content or node software. ElA Blockchain Services cannot even upgrade the software installed on nodes. Sofware upgrades are recognised as a special transaction requiring endorsement.

ElA Blockchain Services uses only one exclusive software: a passive network monitor. It is used for the detection of hacker attacks, and for transaction counting, which enables the billing of services. Blockchain technology prevents us from doing anything more. The mission of ElA Blockchain Services is to maintain the ElA blockchain network as a network of trusted subjects, prevent concentration of authority, and mediate useful and reliable information for everybody who uses, intends to use, and develops the ElA blockchain. The website elachain.cz has been established for this purpose.