TEN BASIC DOMAIN FACTS

Although the Internet is still evolving, domains remain an integral part of it. Domain names are still one of the most widely used network navigation options that will always help us get to the right place. Without them, the Internet would actually be useless.

If you want to learn more about domains, CZ.NIC has prepared Ten Basic Domain Facts – a summary of what is there to know about domains.

1. What is a domain?

Imagine the contact list on your phone. You would have to possess the abilities of the Rain Man to remember all the numbers and still know who they belong to. Therefore, we mostly find the right number by looking at the names assigned to the individual numbers. And domains can be compared to such names. Individual computers connected to the Internet identify themselves by so-called IP addresses. These have the form of structured series of numbers, e.g. 209.68.1.11 in case of **IPv4** or 2001: 1488:800:200:217:a4ff: fea7:49fe in case of **IPv6**. **The Domain Name System** (DNS) gives a much more friendly face to numeric addresses in the form of easily recognizable and memorable names, such as www.nic.cz, making our use of the Internet much more comfortable.

2. Are all domains the same?

We can divide domains into several types – it depends on how we look at them. From a purely technical point of view, domains are divided hierarchically – into "levels" through which an Internet browser advances when we enter a specific address into it. If you want to visit the site **www.dobradomena.cz**, the browser starts its search with an invisible dot at the root level; every domain ends with one. However, you do not need to include this dot when you type the address in your browser. From there it continues to the top level domain (TLD), which in this case is .cz. From there, the search proceeds to the second level domain dobradomena.cz until it reaches the destination – the third level domain www.dobradomena.cz and displays the desired page.

Top-level domains can be either national (ccTLD - country code TLD) - .cz, .sk, .de, .ru etc. or so-called generic TLD (gTLD) such as .com, .edu, .gov, .arpa, .int, .mil, .net, and .org, which were created in the 1980s. In 2000, these were joined by .aero, .biz, .coop, .info, .museum, .name and .pro. Some of these domains are put into extensive use (.net, .com, .org), but others are not that sought after.

Since 2013, so-called new generic domains such as .club, .berlin and .guru have been gradually introduced.

However, domains may also differ depending on the characters we can use in them. In the past, domains could only contain Latin characters. However, with the growth of Internet users in countries where they use other scripts (Arabic, Chinese, and others), the need to use the characters of other national alphabets appeared. This concept is known as IDN – Internationalized Domain Names. In Taiwan, for example, in addition to the .tw national domain they also use .台灣. We can also find the website of the city of Munich at münchen.de. We do not yet support diacritics in the Czech national domain. You can read more about this topic at www.háčkyčárky.cz.

3. Where are domains stored?

Domains are stored on so-called name servers, which contain transfer information for "translation" of the domain name to a numeric address. Computers connected to the Internet then communicate with these name servers. Name servers form a system with a tree hierarchy. It has many levels, each representing what is also called a level (part of the Internet address separated by a dot) of the domain name. From the user's point of view, however, it acts as a huge global database accessible from any computer connected to the Internet.

The base of the whole tree is the so-called root level, which manages data on all top-level domains (domain levels are numbered from behind) – that is, on all national domains such as .cz, .sk or .de and all so-called generic domains such as .com,. org or .info, or even the new ones (.blog, .party, or .tennis). This root level has 13 basic name servers (A – M), which are handled by organizations such as **ICANN, RIPE NCC, NASA** or the US Army. Each of them has dozens of copies in different parts of the world, of which seven are in the Czech Republic and three of them are hosted by CZ.NIC. Each top-level domain has its own administrator, who maintains in its registry and on its own network of name servers the information about second-level domains below the given top-level domain, and so on, in theory up to any number of domain levels.

4. Who takes care of domains?

The worldwide domain authority is ICANN (**Internet Corporation for Assigned Names and Numbers**). It is responsible for the smooth running of basic technological processes without which the Internet, including DNS, would basically stop working. Regarding domain names, ICANN is the only authority that can assign top-level domains.

Generic top-level domains, such as .com or .blog, are typically administered by commercial organizations. National top-level domains are administered by various institutions; in some countries it is a state organization, in others it is a purely commercial entity or a non-profit organization.

The Czech Republic was assigned the **.CZ domain** by ICANN on January 13, 1993. Five years later, the administration of its registry was taken over by the **CZ.NIC Association**, created for this purpose at the initiative of domain name holders, Internet service providers and registrars. Representatives of all three groups are still

present in the Association. The main activities of the Association are the operation of the .CZ domain name registry, education in the field of domains and Internet technologies and support of projects beneficial for the Czech and international Internet community.

5. How to get your own .CZ domain?

The **process of domain registration** in the Czech Republic is nothing difficult or lengthy. There are basically four simple steps. The first is to choose a name that must meet certain technical conditions and at the same time should have a logical link to the content or the owner of the presentation. After selecting the name it is necessary to check if it is not occupied – this can be found at the registrars, but also via the **Whois** service on the CZ.NIC website. If the name is not available, it is necessary to look for its vacant variant or to persuade the existing owner to sell the domain. This is followed by selecting a registrar and registering the domain name. Prices vary – it depends on what accompanying services are required (data capacity of the storage space, number of e-mail addresses, speed of server connection, etc.). The last step is to pay for the selected domain name. The shortest period for which a domain can be acquired is one year.

6. How much is a domain?

Each domain registry has its own price list for domain registration fees; individual prices may vary considerably. In 1999, the annual fee for the .CZ domain in the Czech Republic was 800 crowns, today it is only 145 crowns without VAT. But this is the wholesale price that registrars pay CZ.NIC for the costs associated with the necessary administration, maintenance and protection of registered domains. The end customer will get different prices depending on the scope of the services provided by the registrar.

7. What threatens your domain?

Paradoxically, domains are most threatened by their own owners if they do not provide accurate contact and technical details or do not update them in time. For example, it may happen that the notification of an upcoming domain expiration ends up delivered to a former employee of a business, which may result in domain downtime and, in the worst case, the loss of the domain.

Quite often it also happens that a free email service is used to register the domain. Later, the user stops actively using the e-mail, and this mailbox is often canceled in accordance with the rules of the service in question. Again, this situation can lead to the consequences described above.

8. How to protect your domain?

It is the domain holders who can do the most for the protection and proper working of their domains – for example by providing the correct identity information to the domain registry and ensuring that up-to-date contact information is always available in the registry. It is also important to consider who gets the rights to negotiate with the

registrar on domain administration issues such as renewing the registration, changing registry data, payments, and so on. It is often the case that someone "takes out" the company domain with the aim of keeping it or reselling it. It should be noted that a domain is an intangible asset and has a certain economic value – especially if it is identical to the company name, product or service. Holders should also keep in mind that domain administration gets more complicated with their growing number.

Damage or attack on the central registry itself is considered a direct threat to a domain. If it stopped working, sites with the .cz extension could not be registered and administered. CZ.NIC made precautions against this situation by putting more identical copies of the registration system in different locations in the Czech Republic. Each copy has a separate connection to the **NIX.CZ** peering center and independent connectivity abroad via IPv4 and IPv6.

Name servers contain only technical information about .CZ domains and are located not only in the Czech Republic but **also abroad** (e.g. in Vienna, Frankfurt, Stockholm or Redwood City, California). Their task is to replace the malfunctioning server in case of failure of one of the name servers in the Czech Republic.

9. Domain rights

We often hear about so-called domain disputes. These mostly occur at the moment when someone registers a domain that has the same or very similar name to someone else's business or product. Since an amicable resolution by the parties is rather rare, litigation is possible either in the ordinary court, which is relatively time consuming, or through alternative dispute resolution at the Arbitration Court attached to the Economic Chamber of the Czech Republic and the Agrarian Chamber of the Czech Republic. The ADR system used since 2015 is not arbitration within the meaning of the Arbitration Act; it is based on a contractual agreement and it allows for claiming only the transfer of a domain name or its cancellation, not for other claims such as damages. However, the issued decision is not the basis for its official enforcement. A pending ADR dispute does not constitute an obstacle to pending proceedings on the same matter and a terminated dispute does not constitute an obstacle to a matter that has been ruled upon. Thus, the same claims may be brought before the ordinary court during or after the proceedings. As a rule, the duration of ADR dispute resolution shall not exceed four months. For more information, see the Rules and Procedures section of the Association's website.

10. Future prospects of the .cz domain

At present, the Association's employees are involved in several project in connection with the Czech national domain, focused primarily on security, service development and education.

Thanks to these activities, the Czech Republic ranks among the world leaders in the implementation of the DNSSEC security technology. CZ.NIC is also responsible for the operation of the National Security Team CSIRT.CZ. For several years, it has also been

developing its own login service called mojeID and has focused intensively on supporting IPv6 implementation.

The Association also operates its own research and development department – the CZ.NIC Labs. Recently, its staff has gained the attention of the international Internet community thanks to the alternative DNS server Knot DNS or the Turris project and the unique Turris Omnia and Turris Mox routers, which boast a number of advanced security features.

Educational activities are covered by the CZ.NIC Academy, a training center that offers a range of courses for IT professionals, students and general public.

Detailed information on individual projects is available at www.nic.cz.