

Registry functions and stability

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Some background about AFNIC

- **AFNIC is the ccTLD manager of *.fr* (France), *.re* (Réunion Island), *.tf*, *.pm*, *.wf*, *.yt*.**
- **Not for profit organisation (Association loi 1901) founded in 1997 by the French State and INRIA**
- **Membership open to all stakeholders**
- **43 employees, located in St Quentin en Yvelines (near Paris)**
- **Budget approx. 5,5 M€, more than 1 million domain names managed.**

Categories of service provided

What services does a ccTLD manager provide ?

1. **Domain name resolution service**
2. **Registration services**
3. **Directory services**
4. **Traditional business services**

Domain name resolution service

Answers requests for second level domains (ie afnic.fr) name server information (delegation).

- **Who are the users ?**

- Any user or application using domain names : Web and e-mail mostly, but most applications communicating over the Internet also request domain name resolution.

- **Security needs :**

- Availability and limited response time:
 - requests must be answered within very short timeframes (typically 95% requests answered in less than 100 ms),
 - from anywhere on the Internet
 - full-range availability, global coverage.
 - **Volume : for .fr, several thousand queries/s is common for 1 server**
- Data must point to the correct resource and be comprehensive : incorrect, truncated or missing record will cause application to stop working
- No specific confidentiality constraint... except for bulk access : zone file may provide sensitive information.

Registration services

Operations on the registry itself : create, delete, transfer, hold, update information, etc.

- **Who are the users ?**

- Mainly registrars, but some ccTLDs also provide services to end-users (companies, individuals, public authorities...)

Volume, example of .fr : more than 30 000 requests « create » per month

- **Security needs :**

- Authentication recommended, similar to any BtoB transaction.
- Some operations are particularly sensitive : delete or transfer for instance
- Some of the data provided during the operation may request a level of confidentiality (personal data or authentication data for instance)
- Confidentiality of the transactions themselves may be requested.
- Availability of service and delays vary among TLDs: from near-real time (hundreds of ms) and 24x7 to 5 days a week and several days for processing the request.

Directory services (1)

Provide information to the public related to domains : registrant, different kinds of contacts (administrative, technical), etc.

*Usually known as **Whois**.
Provided by most, but not all TLDs, information available as well as its display format vary*

- **Who are the users ?**
- Registrants, registrars, right holders, lawyers, law enforcement authorities.

Nom de domaine : afnic.fr

État : Actif (consultez aussi le [Site web](#))

Bureau d'enregistrement : [RENATER](#)

Date de création : 11/12/2001
Date anniversaire : 11 décembre

Serveurs de noms (DNS) :

- Serveur n° 1 : ns1.nic.fr [192.93.0.1]
- Serveur n° 2 : ns2.nic.fr [192.93.0.4][2001:660:3005:1::1:2]
- Serveur n° 3 : ns3.nic.fr [192.134.0.49][2001:660:3006:1::1:1]

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Directory services (2)

- **Security needs :**

Volume : approx. 10-20 queries/s in the case of .fr

- Whois information used in law cases and investigations : accuracy and integrity of data expected (within certain limits)
- Real-time full-range availability - publicly accessible information (Web, port 43).
 - 100% availability is targeted although disruption does not affect the most widespread Internet applications.
- Directory contains personal data : some information may remain confidential (in accordance with local regulations, such as Directive 95/46/CE in European Union)
- Bulk access enables or facilitates advanced services such as trademark infringement alerts, reversed directory, but also spam etc. Mass access to data must be restricted.

Business services

*Billing, customer support, information to the public...
Some ccTLDs also provide dispute resolution processes.*

- **Who are the users ?**
 - Registrars mainly but also registrants or even the public in some cases (depends on the ccTLD's mission statement)
- **Security needs :**
 - Billing practices may protect more or less against trademark infringements (see domain tasting for instance...).
 - Emergency customer support may be needed (especially when registrations run 24x7)
 - Those services must not be ignored since many ccTLDs are businesses (even when not-for-profit organisation).

In a nutshell

- **ccTLDs provide a range of services.**
- **Most of them have « business class » security needs**
- **The domain resolution service deserves special attention, since it is used by the most widely spread Internet applications.**
- **The Internet community (among whom ccTLD managers) has been dedicating significant resources to elaborating and sharing best practices to confront existing and emerging threats.**
 - CENTR's risk management resource
 - Examples of relevant RFCs: 2182, 2870, 1912, 2182, 2870, 3833, 4033
 - ...