First experience with the new .cern Top Level Domain

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Motivation

CERN is using its top level domain (TLD) to support its Web communication strategy. Other benefits of owning its own TLD are:

- Branding
- Recognition
- Innovation
- Trust

Background TLDs
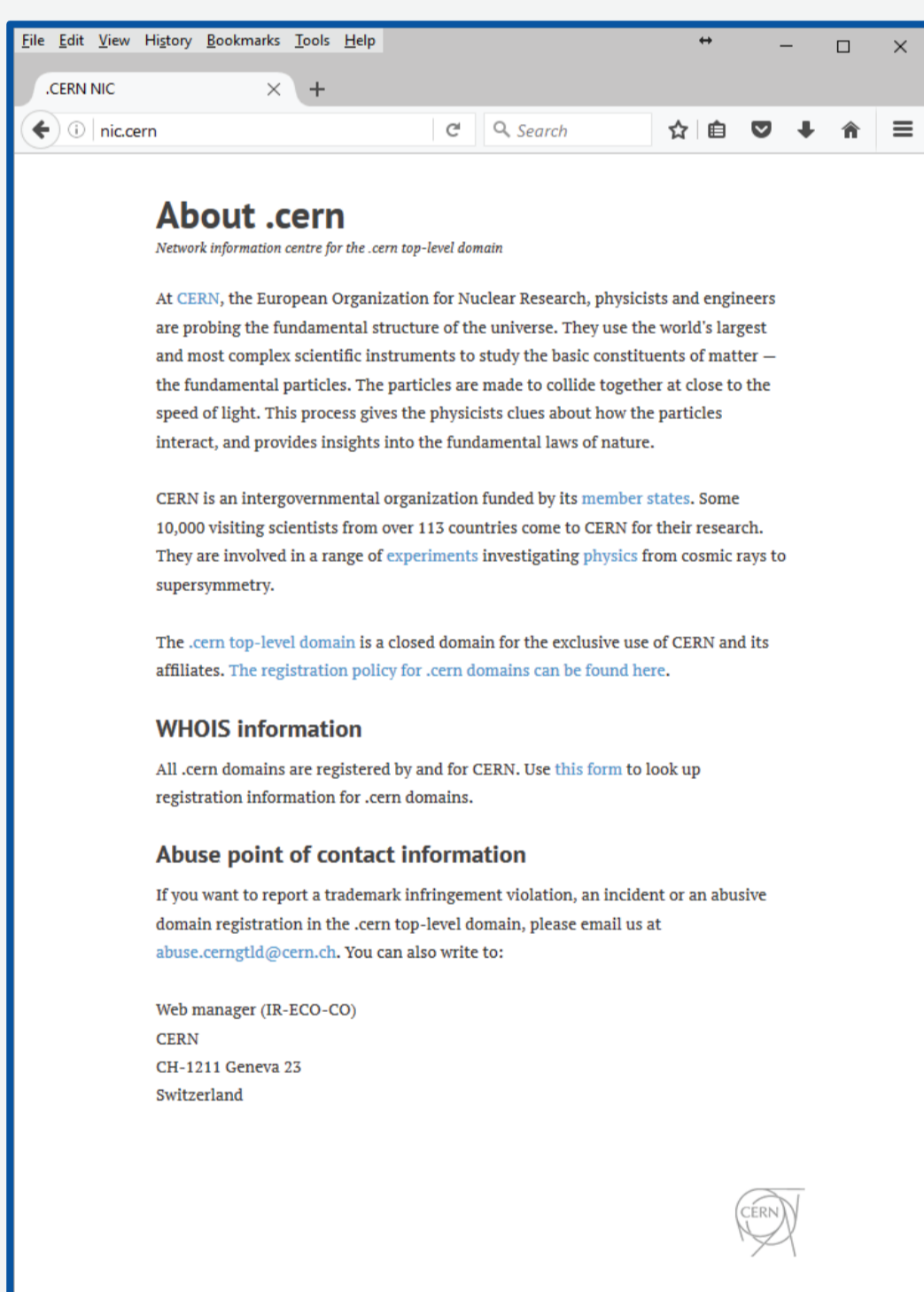
Generic top-level domains

- 1984: .com, .org, .net, .edu, .gov, .mil
- 1988: .int
- 2000: .aero, .biz, .coop, .info, .museum, .name, .pro
- 2008: calls to open up gTLDs to applicants
- 2016 October: 1501 TLDs in the root domain, including e.g. .apple, .google, microsoft, .yahoo, .ubs, .xerox, .谷歌

TLDs are handled by

- ICANN – Internet Corporation for Assigned Names and Numbers
- IANA – Internet Assigned Numbers Authority

.cern Timeline

- 2011: CERN begins application process for .CERN
- 2012: .cern string delegated to CERN
- 2014 September:
  Name Information Centre http://nic.cern available

- 2015 October 20 at 2PM (GMT+1):
  CERN moves its main Website to

  http://home.cern

.cern Governance

The .cern domain is under the overall responsibility of the Director-General of CERN and is governed by the .cern TLD Board ("TLDB"); a board of three persons comprised of one member from each of:

- CERN communications team
- CERN Information Technology Department
- CERN Legal Service

Registration policy for .cern TLD:

- https://nic.cern/registration-policy/

...
The .cern top-level domain is a closed domain for the exclusive use of CERN and its affiliates.
.cern domains are to be used as an operational tool for the Organization. As such, they are not intended for individual or personal use.
All applications for .cern domains need to be proposed by an applicant and supported by a sponsor before they will be considered by the TLDB
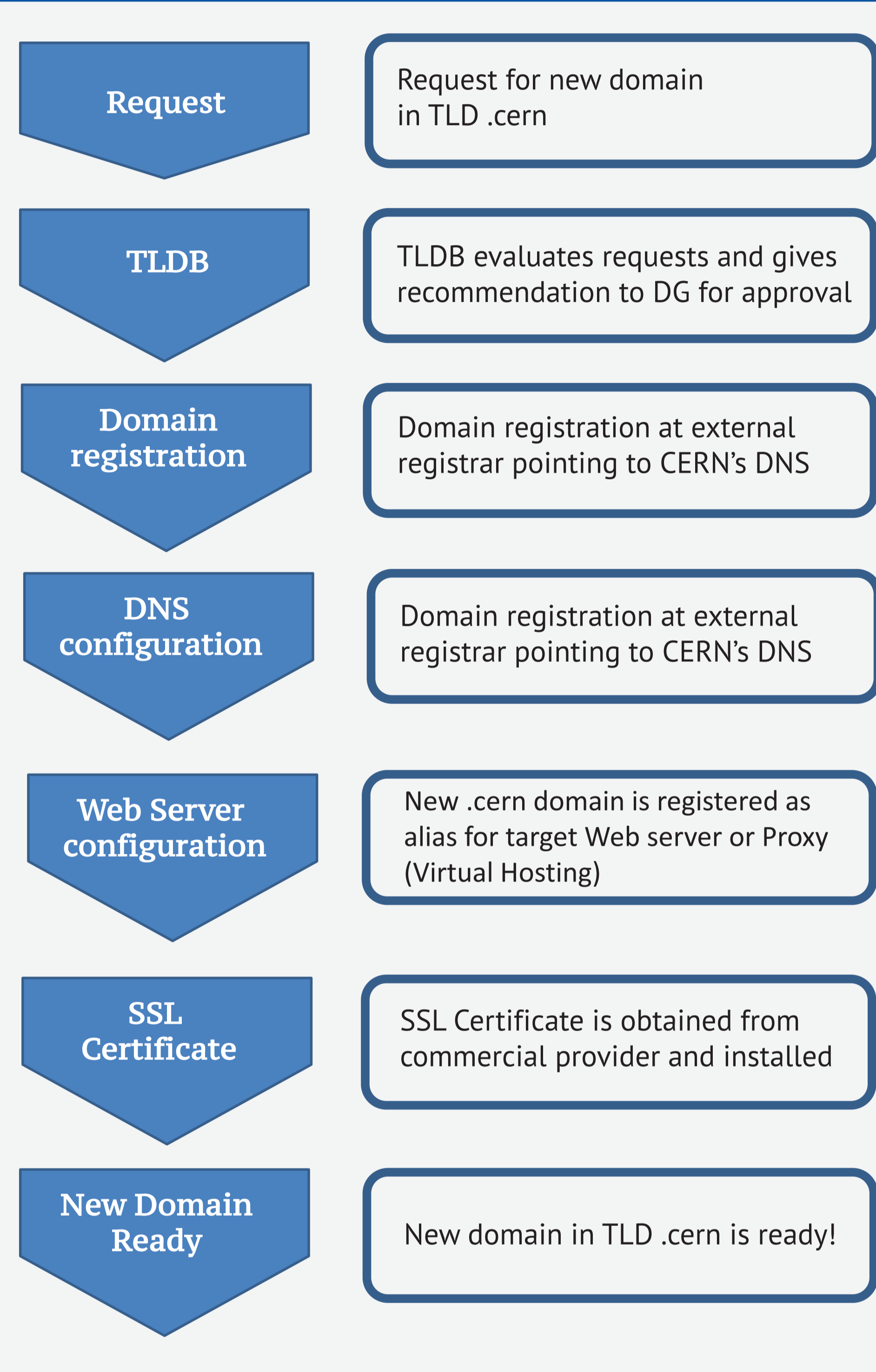...

.cern Domain Name Service

Domain Name Service (DNS)

- CERN manages DNS for all .cern domains.
- External registrar NetNames handles domain name registration
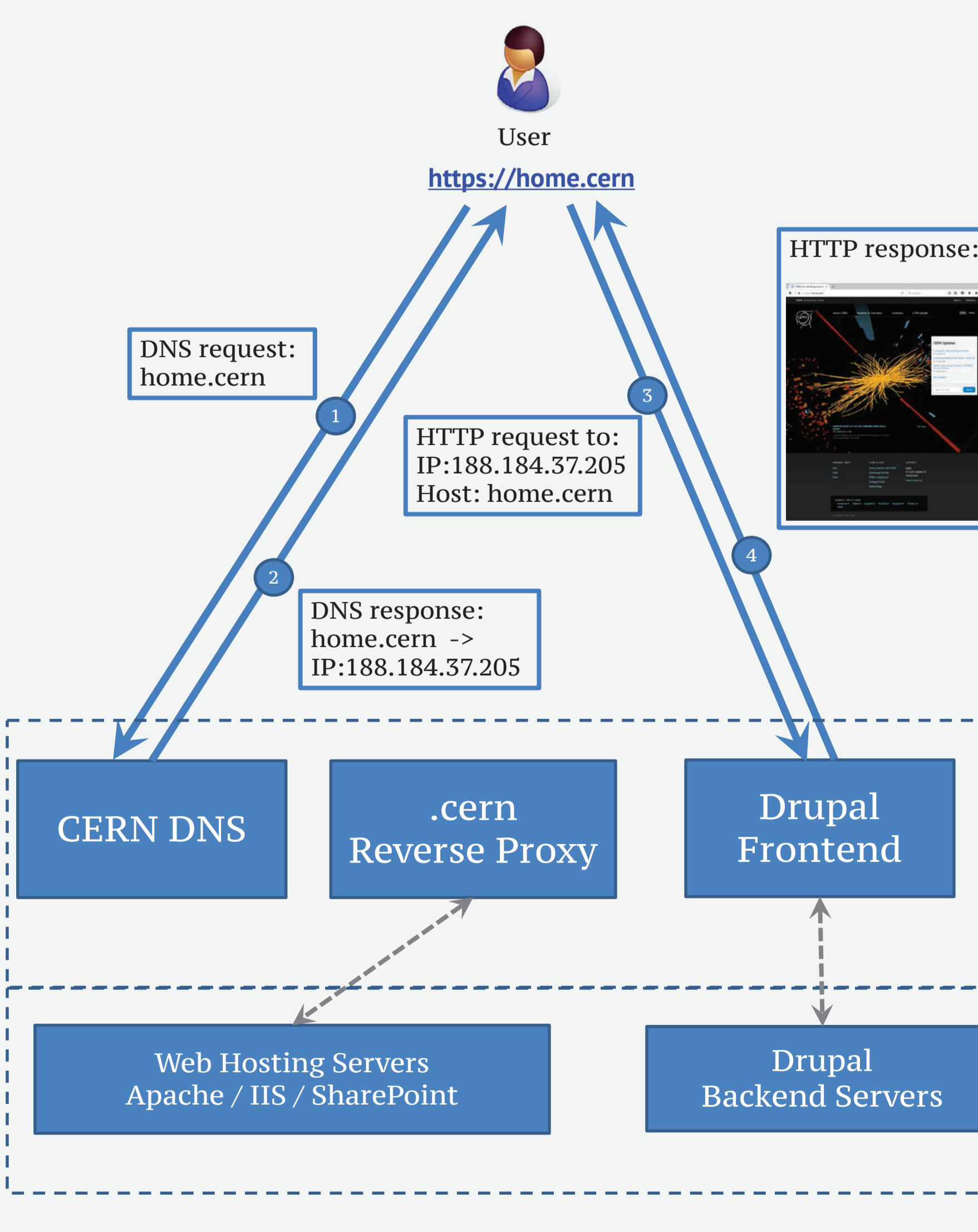- CERN's external DNS servers used for resolving .cern domains

.cern Registration Workflow

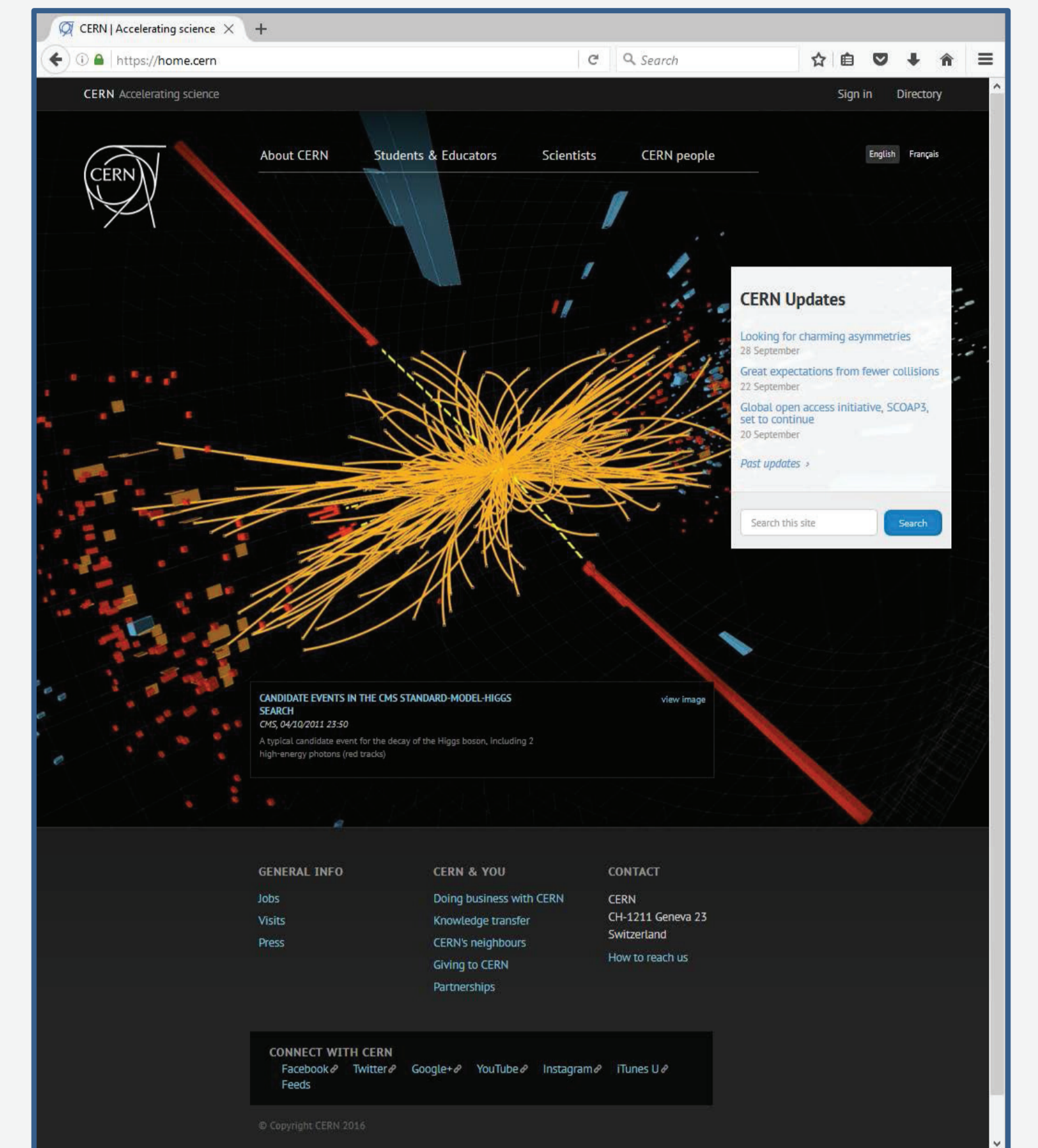| Step	Description
Request	Request for new domain in TLD .cern
TLDB	TLDB evaluates requests and gives recommendation to DG for approval
Domain registration	Domain registration at external registrar pointing to CERN's DNS
DNS configuration	Domain registration at external registrar pointing to CERN's DNS
Web Server configuration	New .cern domain is registered as alias for target Web server or Proxy (Virtual Hosting)
SSL Certificate	SSL Certificate is obtained from commercial provider and installed
New Domain Ready	New domain in TLD .cern is ready!

Implementation

Domains in .cern TLD:

- Used for Web communication only
- Virtual Hosting of .cern domain on existing CERN Web servers
- All underlying infrastructure in standard CERN domain .cern.ch
- Special Drupal configuration using Apache virtual hosting.
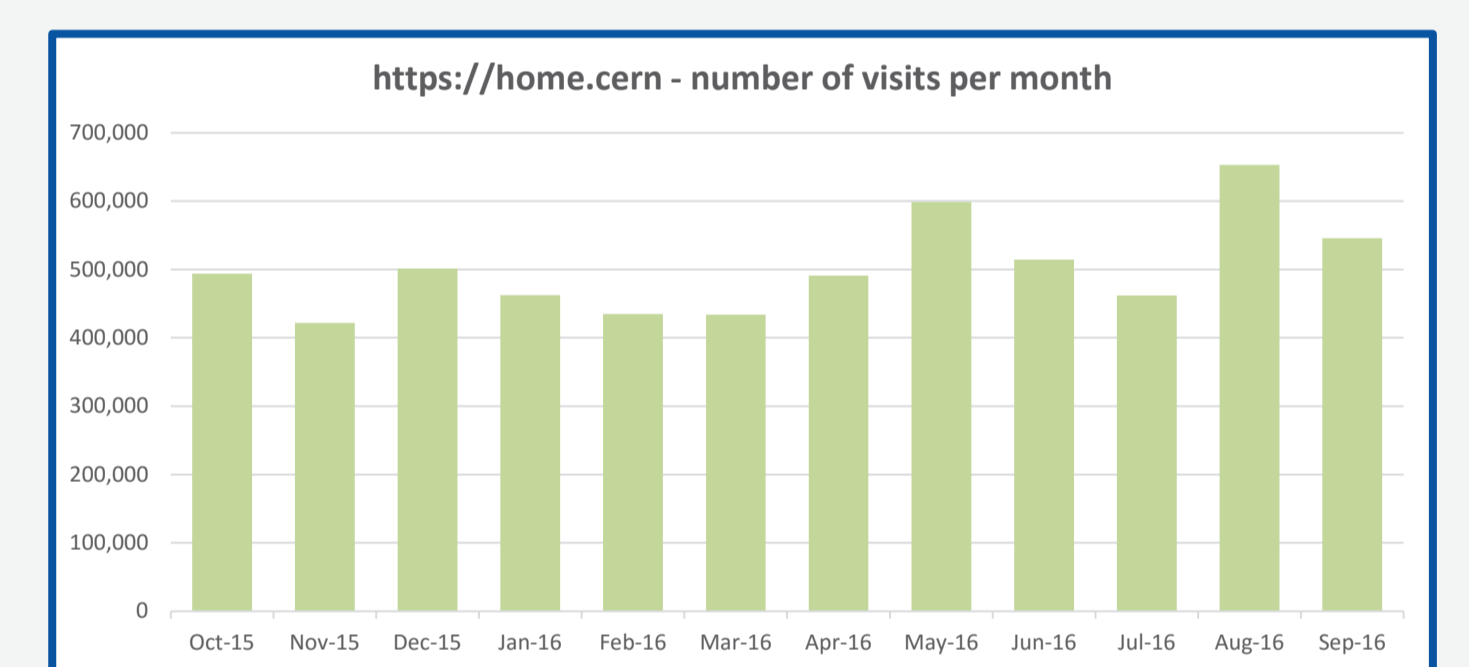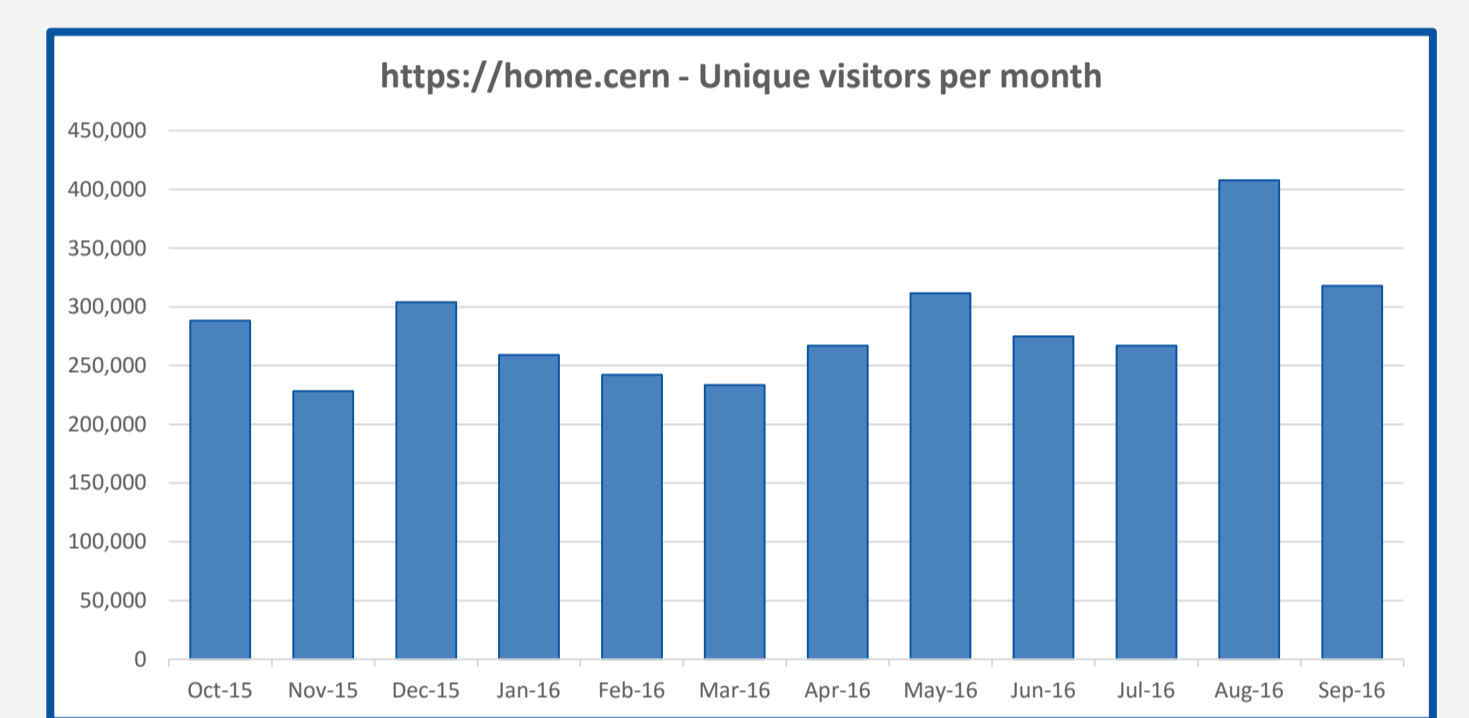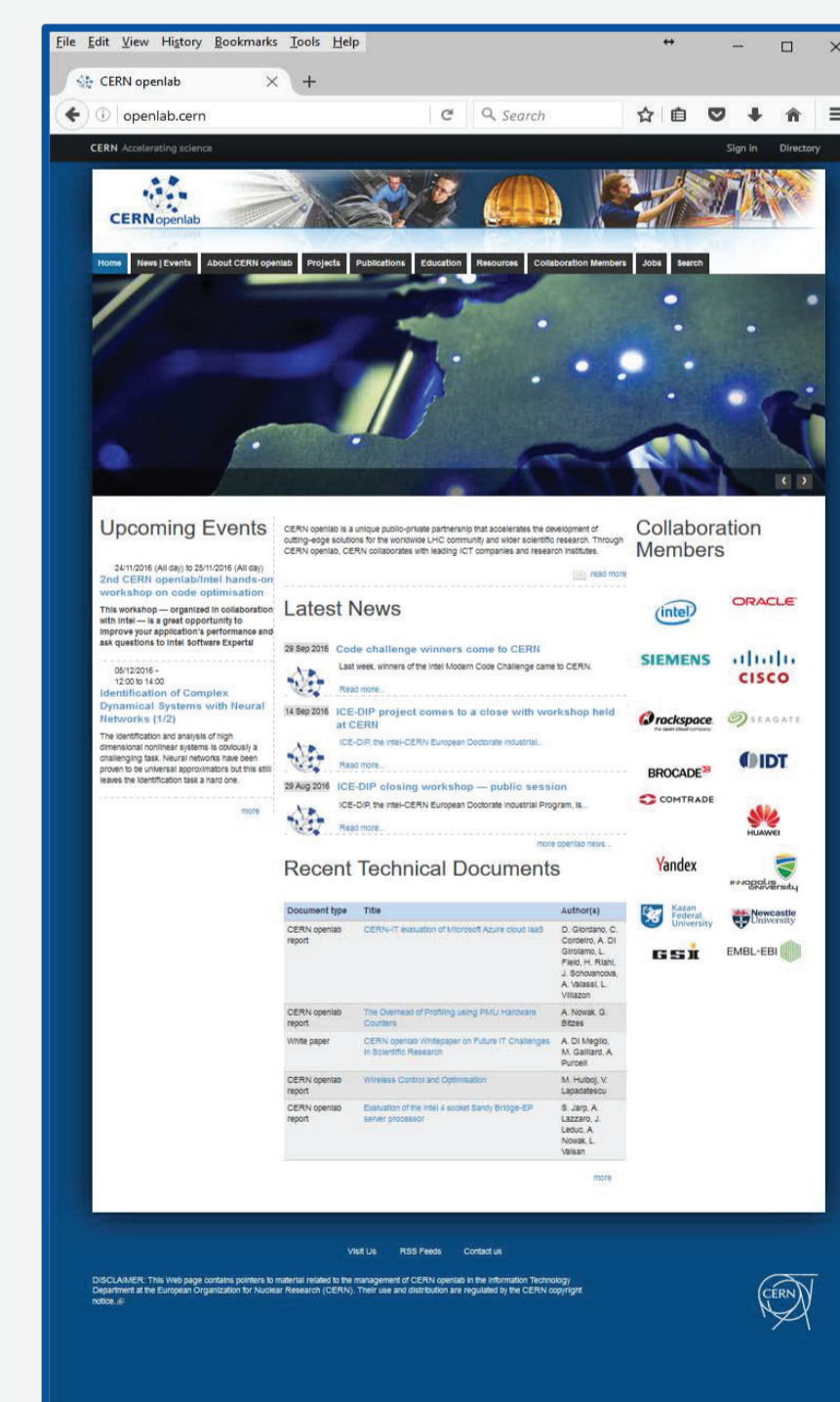- Reverse Proxy as general solution for non-Drupal sites

User
https://home.cern

HTTP response:

DNS request:
home.cern

HTTP request to:
IP:188.184.37.205
Host: home.cern

DNS response:
home.cern ->
IP:188.184.37.205

CERN DNS | .cern Reverse Proxy | Drupal Frontend

Web Hosting Servers Apache / IIS / SharePoint | Drupal Backend Servers

Examples & Usage

CERN Homepage: https://home.cern

CERN Homepage Statistics:

Web server serves 12.3 million requests/month

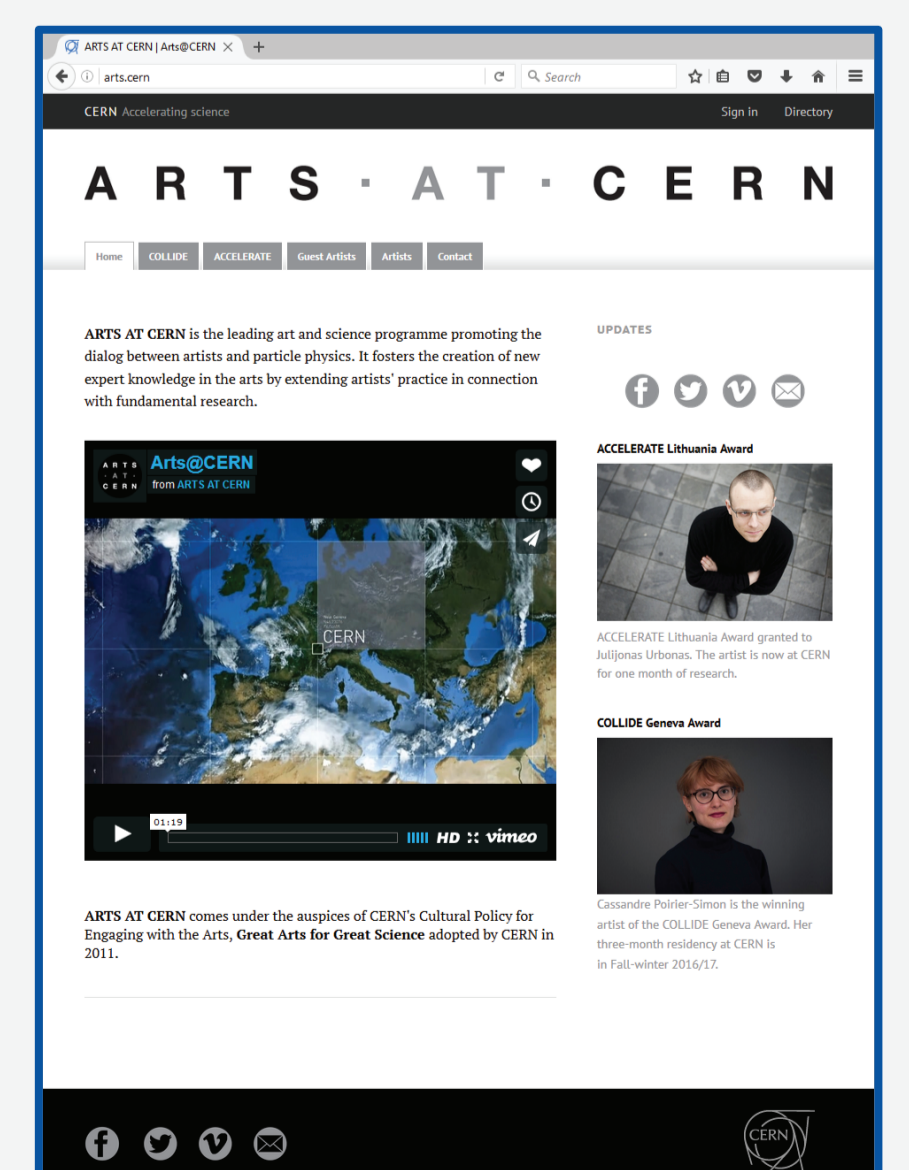https://home.cern - Unique visitors per month

https://home.cern - number of visits per month

CERN Openlab
http://openlab.cern

CERN Press Office
http://press.cern

ATLAS Public Pages
http://atlas.cern

Arts at CERN
http://arts.cern