Drink, an experimental dynamic authoritative server (1/11)

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- A DNS authoritative-only server,
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- Mostly experimental,
- Installed at `dyn.bortzmeyer.fr`.

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- A and AAAA QTYPEs are accepted (but returns an answer only if appropriate),
- TXT QTYPE is more reliable.

Address of the client

```
% dig ip.dyn.bortzmeyer.fr
...
;; ->>HEADER<<- opcode: QUERY, status: NOERROR, id: 33388
;; flags: qr rd ra ad; QUERY: 1, ANSWER: 1, AUTHORITY: 0, ADDITIONAL: 1
...
;; ANSWER SECTION:
ip.dyn.bortzmeyer.fr. 10 IN A 185.49.141.27

;; Query time: 76 msec
;; SERVER: 127.0.0.1#53(127.0.0.1)
;; WHEN: Mon Feb 13 10:08:46 CET 2023
;; MSG SIZE  rcvd: 85
```

Not your family

```
% dig @ns1-dyn.bortzmeyer.fr ip.dyn.bortzmeyer.fr
...
;; ->>HEADER<<- opcode: QUERY, status: NOERROR, id: 62331
;; flags: qr aa rd; QUERY: 1, ANSWER: 0, AUTHORITY: 1, ADDITIONAL: 2

;; OPT PSEUDOSECTION:
; EDNS: version: 0, flags:; udp: 1440
; COOKIE: 9a818558863785856a184399d22b9cbb (good)
;; QUESTION SECTION:
;ip.dyn.bortzmeyer.fr. IN A
...
;; ADDITIONAL SECTION:
ip.dyn.bortzmeyer.fr. 10 IN AAAA 2001:67c:1348:7::86:133

;; Query time: 8 msec
;; SERVER: 2001:41d0:302:2200::180#53(2001:41d0:302:2200::180)
;; WHEN: Mon Feb 13 10:09:35 CET 2023
;; MSG SIZE  rcvd: 190
```

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- And Drink has many extras:
  1. NSID,
  2. Cookies,
  3. TCP (with pipelining and out-of-order responses),
  4. And of course DNSSEC.

Several requests on one TCP connection

```
% kdig +tcp +keepopen @ns1-dyn.bortzmeyer.fr hello.dyn.bortzmeyer.fr TXT \
                ecs.dyn.bortzmeyer.fr TXT random.dyn.bortzmeyer.fr LOC

hello.dyn.bortzmeyer.fr. 10 IN TXT "Hello, this is the Drink DNS server, ver

ecs.dyn.bortzmeyer.fr. 10 IN TXT ""

random.dyn.bortzmeyer.fr. 10 IN LOC
7 41 20 N  179 53 24 W  923m  0m 0m 0m
```

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- `whoami.fastly.net/TXT` can do it, too.

AS number of the client

Does it with a HTTP request to a microservice.

```
% dig  bgp.dyn.bortzmeyer.fr TXT
...
;; ->>HEADER<<- opcode: QUERY, status: NOERROR, id: 22858
;; flags: qr rd ra ad; QUERY: 1, ANSWER: 1, AUTHORITY: 0, ADDITIONAL: 1
...
;; ANSWER SECTION:
bgp.dyn.bortzmeyer.fr. 3582 IN TXT "139.162.68.55" "139.162.64.0/19" "63949"
```

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- Yes, there is a Docker image
  https://hub.docker.com/r/bortzmeyer/drink,
- For implementation details, see my talk at FOSDEM
  https://fosdem.org/2023/schedule/event/dns_
  implementation_of_the_drink_server/.

Merci !