Monitoring and measuring Yeti

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Yeti workshop
Yokohama
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Humans are lousy

Testing with dig from time to time is not enough.

We need to automate!

Monitoring

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We'll use Icinga `http://www.icinga.org/` as an example but any Nagios-compatible will be fine.

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Also, in various contrib repositories:

- check_soa
  `https://github.com/bortzmeyer/check_dns_soa` Checks
  a zone, not an individual server. Warns if a server is down
- check_rrsig
  `http://dns.measurement-factory.com/tools/`
  `nagios-plugins/check_zone_rrsig_expiration.html`
  Check DNSSEC signature expiration

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  nagios-plugins/check_zone_rrsig_expiration.html
  Check DNSSEC signature expiration

RIPE Atlas can also return the current state of a permanent
measurement, allowing to monitor reachability.
https://labs.ripe.net/Members/suzanne_taylor_muzzin/
introducing-ripe-atlas-status-checks

Example, Dahu monitoring with Icinga

```
define service{
    use                     generic-service
    hostgroup_name              Yeti
    service_description     PING
    check_command           check_ping!200.0,20%!400.0,35%
}

define service{
  use                       generic-service
  host_name                dahu1,dahu2
  service_description       DNS
  check_command            check_dig!-6 -l . -T SOA -A +dnssec
        }
```

Other examples

```
 define service {
       use generic-service
       hostgroup_name My_zones
       service_description CHECK_DNS_SOA
       check_command check_dns_soa
}

define service {
       use dns-rrsig-service
       hostgroup_name My_zones
       service_description SIGEXPIRATION
       check_command    check-zone-rrsig!5!2
}
```

DNS quality

Testing a root is a bit more difficult. . .

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Zonemaster `https://zonemaster.net/` Currently cannot test the Yeti root (bug #381). With a local installation?

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DNSmon `https://dnsmon.ripe/net/` Can it be configured to monitor Yeti?

DNS quality

Testing a root is a bit more difficult. . .

DNSviz `https://dnsviz.net/` Requires a local installation.
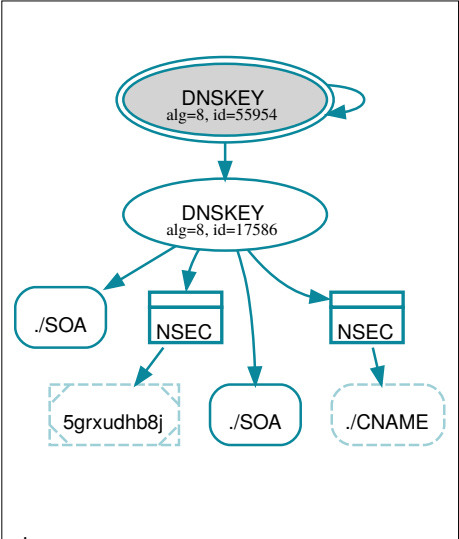
DNSviz

```
% dnsviz probe -A -x .:$(dig +nodnssec +short @dahu1.yeti.eu.org NS .)
    > yeti.json
% dnsviz print  -t ksk.txt  -r yeti.json .

% dnsviz graph -T html  -t ksk.txt  -r yeti.json . > yeti.html
```

DNSviz, text

```
. [.]
  [.]   DNSKEY: 8/55954/257 [.], 8/17586/256 [.]
  [.]     RRSIG: ./8/55954 (2015-10-29 - 2015-11-28) [.]
  [.]   CNAME: NODATA
  [.]     SOA: bii.dns-lab.net. yeti.biigroup.cn. 2015102900 1800 900 60
  [.]       RRSIG: ./8/17586 (2015-10-29 - 2015-11-28) [.]
  [.]     PROOF:  [.]
  [.]       NSEC: . aaa. NS SOA RRSIG NSEC DNSKEY
  [.]         RRSIG: ./8/17586 (2015-10-29 - 2015-11-28) [.]
  [.]   SOA: bii.dns-lab.net. yeti.biigroup.cn. 2015102900 1800 900 6048
  [.]     RRSIG: ./8/17586 (2015-10-29 - 2015-11-28) [.]
5grxudhb8j
  [.]   A: NXDOMAIN
  [.]     SOA: bii.dns-lab.net. yeti.biigroup.cn. 2015102900 1800 900 60
  [.]       RRSIG: ./8/17586 (2015-10-29 - 2015-11-28) [.]
  [.]     PROOF:  [.]
  [.]       NSEC: . aaa. NS SOA RRSIG NSEC DNSKEY
  [.]         RRSIG: ./8/17586 (2015-10-29 - 2015-11-28) [.]
```

DNSviz, picture

check_soa

https://github.com/bortzmeyer/check-soa

```
% check-soa -i .
bii.dns-lab.net.
240c:f:1:22::6: OK: 2015102801 (194 ms)
dahu1.yeti.eu.org.
2001:4b98:dc2:45:216:3eff:fe4b:8c5b: OK: 2015102801 (273 ms)
dahu2.yeti.eu.org.
2001:67c:217c:6::2: OK: 2015102801 (270 ms)
ns-yeti.bondis.org.
2a02:2810:0:405::250: OK: 2015102801 (290 ms)
yeti-dns01.dnsworkshop.org.
2001:1608:10:167:32e::53: OK: 2015102801 (255 ms)
yeti-ns.wide.ad.jp.
2001:200:1d9::35: OK: 2015102801 (3 ms)
yeti-ns.as59715.net.
2a02:cdc5:9715:0:185:5:203:53: OK: 2015102801 (265 ms)
yeti-ns.conit.co.
2607:ff28:2:10::47:a010: OK: 2015102801 (148 ms)
yeti-ns.ix.ru.
2001:6d0:6d06::53: OK: 2015102801 (298 ms)
yeti-ns.switch.ch.
2001:620:0:ff::29: OK: 2015102801 (250 ms)
```

check_soa

```
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bii.dns-lab.net.
240c:f:1:22::6: OK: 2015102801 (194 ms)
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2001:4b98:dc2:45:216:3eff:fe4b:8c5b: OK: 2015102801 (273 ms)
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ns-yeti.bondis.org.
2a02:2810:0:405::250: OK: 2015102801 (290 ms)
yeti-dns01.dnsworkshop.org.
2001:1608:10:167:32e::53: OK: 2015102801 (255 ms)
yeti-ns.wide.ad.jp.
2001:200:1d9::35: OK: 2015102801 (3 ms)
yeti-ns.as59715.net.
2a02:cdc5:9715:0:185:5:203:53: OK: 2015102801 (265 ms)
yeti-ns.conit.co.
2607:ff28:2:10::47:a010: OK: 2015102801 (148 ms)
yeti-ns.ix.ru.
2001:6d0:6d06::53: OK: 2015102801 (298 ms)
yeti-ns.switch.ch.
2001:620:0:ff::29: OK: 2015102801 (259 ms)
yeti-ns.tisf.net.
```

RIPE Atlas

```
https://atlas.ripe.net/
```

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- Strong bias towards Europe: let's fix it. Several Atlas ambassadors will be at the IETF meeting `https://www.ietf.org/registration/MeetingWiki/wiki/ripe_atlas_probes`
- The probes can measure ICMP Echo, DNS (with a lot of options, such as query type, DO, EDNS bufsize. . .), traceroute, NTP. . .

User Defined Measurements

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- Official CLI under development but already several contributed libraries
- Probes can be selected by country, region ("America") or AS number

Atlas API example, ICMP Echo

Test a Yeti server from Canada:

```
% python reachability+retrieve.py --country=CA 2001:200:1d9::35
46 probes reported
Test done at 2015-10-29T12:37:23Z
Tests: 45 successful tests (97.8 %),
       0 errors (0.0 %), 1 timeouts (2.2 %),
       average RTT: 182 ms
```

Atlas API example, DNS

Test a Yeti server from AS 15557:

```
% python resolve-name.py --asn=15557 -6 \
        --nameserver=2001:200:1d9::35 --type=SOA .
Measurement #2879147 for ./SOA uses 16 probes
Nameserver 2001:200:1d9::35
[bii.dns-lab.net. yeti.biigroup.cn. 2015102801 1800 900 604800 86400] :
    16 occurrences
Test done at 2015-10-29T12:32:55Z
```

Atlas with the API

See the quantitative results posted on the mailing list (obtained through Atlas API). `http://lists.yeti-dns.org/pipermail/discuss/2015-October/000262.html`

Merci !

afnic