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.
Among the existing monitoring plugins, check_dig (DNS tests)
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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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  http://dns.measurement-factory.com/tools/
  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

```plaintext
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?
Testing a root is a bit more difficult...

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 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 [.]
[.] CNAME: NODATA
[.] SOA: bii.dns-lab.net. yeti.biigroup.cn. 2015102900 1800 900 604800 86400
[.] PROOF: [ .]
[.] NSEC: . aaa. NS SOA RRSIG NSEC DNSKEY
[.] SOA: bii.dns-lab.net. yeti.biigroup.cn. 2015102900 1800 900 604800 86400

5grxudhb8j
[.] A: NXDOMAIN
[.] SOA: bii.dns-lab.net. yeti.biigroup.cn. 2015102900 1800 900 604800 86400
[.] PROOF: [ .]
[.] NSEC: . aaa. NS SOA RRSIG NSEC DNSKEY

afnic
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.
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.
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::22: OK: 2015102801 (250 ms)
% check-soa -i .
bii.dns-lab.net.
240c:f:1:22::6: OK: 2015102801 (194 ms)
dahu1.yeti.eu.org.
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.
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

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https://www.ietf.org/registration/MeetingWiki/wiki/ripe_atlas_probes
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  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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- Web interface or API
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- Official CLI under development but already several contributed libraries
- Probes can be selected by country, region (“America”) or AS number
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
Test a Yeti server from AS 15557:

```bash
% python resolve-name.py --asn=15557 -6 \  
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 !