



TRACK: DNS

Comcast DNS – DNSSEC – IPv6

Tuesday, October 11, 2011



NATIONAL ENGINEERING & TECHNICAL OPERATIONS

DNSSEC UPDATE

- At the last DNS meeting at NANOG 51, we had roughly ~ 5% of our caching DNS traffic performing DNSSEC validation, and a couple hundred authoritative DNS zones were signed.
- We now have ~ 25% of our caching DNS traffic performing DNSSEC validation.
- There are several thousand Comcast authoritative DNS zones signed, and we are well on our way to complete the signing of all of our public facing zones by the end of this year.
- We have automated the signing and DS record insertion into our registrar which has significantly sped up our signing process.

DNSSEC UPDATE Cont.

- Below is a DNSSEC validation lookup against our caching resolvers from the NOGLAB network:

```
$ dig @75.75.75.75 www.xfinitytv.com +dnssec
```

```
; <<>> DiG 9.7.3 <<>> @75.75.75.75 www.xfinitytv.com +dnssec
; (1 server found)
;; global options: +cmd
;; Got answer:
;; ->>HEADER<<- opcode: QUERY, status: NOERROR, id: 5202
;; flags: qr rd ra ad; QUERY: 1, ANSWER: 5, AUTHORITY: 0, ADDITIONAL: 1

;; OPT PSEUDOSECTION:
; EDNS: version: 0, flags: do; udp: 4000
;; QUESTION SECTION:
;www.xfinitytv.com.      IN      A

;; ANSWER SECTION:
www.xfinitytv.com.      3375   IN      CNAME   xfinitytv.com.
www.xfinitytv.com.      3375   IN      RRSIG   CNAME 5 2 7200 20111017204516 20111010174016 49035
xfinitytv.com. uz/o2TQX6R43xCUGHtYSTrotKkKQcnvTep/jm2WLJncGFktVlliKaZOA RHiydVydGPI362C
+ICZvTITrunKUXvkg5KKKGfcYzGwcYdjngvh9Axfw
DN7EIMzKuoyjfpq5sqSpRxe0Vwf74lz2smvjuAuFlq9JzSV9dVm0MVai 4fU=
xfinitytv.com.      3375   IN      A       69.252.76.77
xfinitytv.com.      3375   IN      A       68.87.29.35
xfinitytv.com.      3375   IN      RRSIG   A 5 2 7200 20111017204516 20111010174016 49035 xfinitytv.com.
x3frBCu5kqDwoqu/gL/FbZ5EUuUSSqjLo/6F3gxqNgK7+h+sezKZmgqE
JtGRuYn4qxWrZPu3pqNa2u6Vq3a1Rkqhr1g36klrOFACyxVKY75uCmMX
LgHawm9tTwnKFFMZEWpXyt0ngKQ/qPnMC/10+YqQ+6YPuh8Q60PmKH/r NHQ=

;; Query time: 57 msec
;; SERVER: 75.75.75.75#53(75.75.75.75)
;; WHEN: Mon Oct 10 19:27:02 2011
;; MSG SIZE rcvd: 438
```

IPv6 and DNS

- We recently launched the Comcast IPv6 Anycast caching resolvers:
 - 2001:558:FEED::1
 - 2001:558:FEED::2
- These resolvers are dual stacked caching servers that also perform DNSSEC validation.
- All of the Comcast authoritative DNS servers are dual-stacked and glue records have been updated to support end to end IPv6 lookups.

;; AUTHORITY SECTION:

comcast.net.	7200	IN	NS	dns103.comcast.net.
comcast.net.	7200	IN	NS	dns104.comcast.net.
comcast.net.	7200	IN	NS	dns105.comcast.net.
comcast.net.	7200	IN	NS	dns102.comcast.net.
comcast.net.	7200	IN	NS	dns101.comcast.net.

;; ADDITIONAL SECTION:

dns103.comcast.net.	7200	IN	AAAA	2001:558:1014:c:68:87:76:228
dns104.comcast.net.	7200	IN	AAAA	2001:558:100a:5:68:87:68:244
dns105.comcast.net.	7200	IN	AAAA	2001:558:100e:5:68:87:72:244
dns102.comcast.net.	7200	IN	AAAA	2001:558:1004:7:68:87:85:132
dns101.comcast.net.	7200	IN	AAAA	2001:558:1002:a:68:87:29:164
dns103.comcast.net.	7200	IN	A	68.87.76.228
dns104.comcast.net.	7200	IN	A	68.87.68.244
dns105.comcast.net.	7200	IN	A	68.87.72.244
dns102.comcast.net.	7200	IN	A	68.87.85.132
dns101.comcast.net.	7200	IN	A	68.87.29.164

DNSSEC UPDATE Cont.

- Below is a DNSSEC validation lookup over IPv6 against our caching resolvers from the the NOGLAB network:

```
$dig @2001:558:FEED::1 www.xfinitytv.com +dnssec
```

```
; <<>> DiG 9.7.3 <<>> @2001:558:FEED::1 www.xfinitytv.com +dnssec
; (1 server found)
;; global options: +cmd
;; Got answer:
;; ->>HEADER<<- opcode: QUERY, status: NOERROR, id: 35336
;; flags: qr rd ra ad; QUERY: 1, ANSWER: 5, AUTHORITY: 0, ADDITIONAL: 1

;; OPT PSEUDOSECTION:
; EDNS: version: 0, flags: do; udp: 4000
;; QUESTION SECTION:
;www.xfinitytv.com.      IN      A

;; ANSWER SECTION:
www.xfinitytv.com.      2723   IN      CNAME   xfinitytv.com.
www.xfinitytv.com.      2723   IN      RRSIG   CNAME 5 2 7200 20111017204516 20111010174016 49035
xfinitytv.com. uz/o2TQX6R43xCUGHtYSTrotKkKQcnvTep/jm2WLJncGFktVlliKaZOA RHiydVydGPi362C
+ICZvTITrunKUXvkg5KKKGfcYzGwcYdjngvh9Axfw
DN7EIMzKuoyjfpq5sqSpRxe0Vwf74lz2smvjuAuFlq9JzSV9dVm0MVai 4fU=
xfinitytv.com.      2723   IN      A       69.252.76.77
xfinitytv.com.      2723   IN      A       68.87.29.35
xfinitytv.com.      2723   IN      RRSIG   A 5 2 7200 20111017204516 20111010174016 49035 xfinitytv.com.
x3frBCu5kqDwoqu/gL/FbZ5EUuUSSqjLo/6F3gxqNgK7+h+sezKZmgqE
JtGRuYn4qxWrZPu3pqNa2u6Vq3a1Rkqhr1g36klrOFACyxVKY75uCmMX
LgHawm9tTwnKFFMZEWpXyt0ngKQ/qPnMC/10+YqQ+6YPuh8Q60PmKH/r NHQ=

;; Query time: 57 msec
;; SERVER: 2001:558:feed::1#53(2001:558:feed::1)
;; WHEN: Mon Oct 10 19:52:25 2011
;; MSG SIZE rcvd: 438
```

Thank You!



**For more information on the Comcast
DNSSEC and IPv6 deployments:**

<http://www.dnssec.comcast.net>

<http://www.comcast6.net>

<http://dns.comcast.net>

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