

# DNS Test Result

## draft-zhang-dnsext-test-result-00

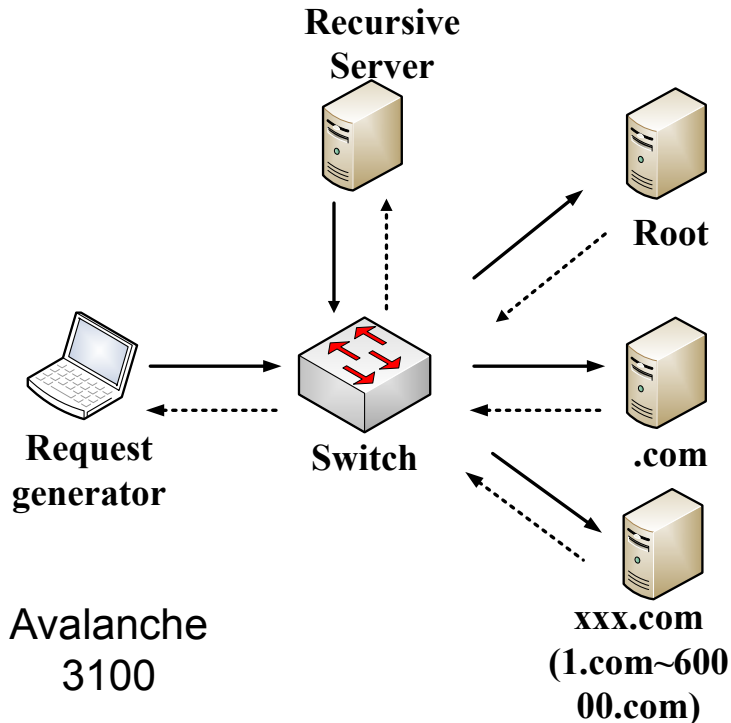
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# Introduction

- Case 1, all queries generated by the simulator are DNS queries without authentication request
- Case 2, tests on recursive DNS with DNSSEC and sortlist enabled is done. That is all queries are still DNS queries without authentication request. However, recursive DNS need to sort the records in special order for every query.
  - ◆ records in specific IP address segment can be sorted in front of the others.
- Finally, all queries are based on DNSSEC and all the signature part records are authenticated by the recursive server.

# Test layout



request-response procedure in a closed network.

- All the servers are assembled with 2 Intel CPUs with 8 core in each other and 8GB RAM. And DNS software is BIND 9.8.1-p1.
- Two data models are simulated
  - 75% and 80% shooting average in the cache of recursive DNS.

# More details on test layout

- many clients with different IP addresses with each other.
- In the test, the Sortlist function of Bind is used to sort records for every query.
- In the test, Dnssec-keygen of Bind is used to generate the keys, and the algorithm is RSASHA1. The size of ZSK is 1024bit, and the KSK is 2048bit.

# Test Results

**Table 1 : Performance Test Results Of Recursive DNS with hit ratio of 80%**

QPS Numerical	percentage of CPU utilization				QPS under 30%CPU Utilization
	12000QPS	10000QPS	8000QPS	6000QPS	
DNS	21.6%	17.6%	14.1%	10.6%	19800
Sortlist (200)	24.7%	19.5%	16.8%	12.3%	19300
DNSSEC	36.2%	30.6%	24.3%	18.1%	9800

**Table 2 : Performance Test Results Of Recursive DNS with hit ratio of 75%**

QPS Numerical	percentage of CPU utilization				QPS under 30%CPU Utilization
	12000QPS	10000QPS	8000QPS	6000QPS	
DNS	20.3%	17.2%	13.9%	10.5%	18000
Sortlist (200)	23.2%	19.1%	15.8%	11.7%	17400
DNSSEC	46.9%	37.6%	29.5%	22.2%	8200

- If some strategy like sortlist is enabled, the performance of recursive DNS almost doesn't change.
- While if DNSSEC is enabled, the performance of recursive DNS will be greatly influenced, which can be reduced about 50%.

# Suggestion and Next Step

- Suggestion

- Suggestion

- DNSSEC is enabled
    - More attention should be paid on the performance of DNS when

- DNSSEC is enabled.

- Next Step

- More tests on this subject will be done