

Vasilis Georgiou

November 2024

1 Datasets

Datasets are split in REAL or SYNTHETIC and are based on the the source of the routing table:

- REAL-Tier-1-A: real core backbone router in a global tier-1 ISP
- REAL-Tier-1-B: national backbone router in research and educational network of WIDE Project.
- SYN1: each procedure that is no longer than /24 and /16 is split into two and four prefixes
- SYN2: Each prefix that is no longer than /24, /20 and /16 is split into two, four and eight prefixes

Notation:

- binary radix depth: longest prefix matching

2 Traffic Patterns

Take the following traffic patterns into consideration:

- random: 2^{32} random traffic patterns (generated by xorshift).
 - overhead for generating the data is included in the measurements, but it is small.
- sequential:
 - Generates in the range 0.0.0.0 to 255.255.255.255
- repeated
 - Similar to random but each random lookup is repeated 16 times
- real-trace
 - real traffic trace

3 Using the different libraries

- modified_poptrie
 - need to copy the test data files to modified_poptrie/build/tests
 - last test doesn't pass
- modified_radix_tree
- modified_tree_bitmap
 - rm_test_v6 need to pass the input file here to measure runtimes.
 - use the runtime information and memory usage to compute the lookup rate
- modified_sail
 - uncomment runtime measurement commands in function sailPerformanceTest()
 - QueryPerformanceFrequency() function doesn't exist
 - QueryPerformanceCounter() doesn't exist

3.1 Datasets included in libraries

- modified_poptrie/tests
 - linux-rib.20141217.0000-p46.txt
 - linux-rib.20141217.0000-p52.txt
 - linux-rib-ipv6.20141225.0000-p69.txt
 - linux-update.20141217.0000-p52.txt

3.2 Comments on preallocation of memory for data-structures

- It makes sense to preallocate, because the data structures will be initialized once and then remain as is.

3.3 Tables

Configuration	<i>s</i>	# inodes	# leaves	Mem (MiB)	Compilation (ms)	Rate (Mlps)
Radix	-					
Poptrie-basic	0					
Poptrie-leafvec	0					
Poptrie	0					