

RA lifetime metrics in the wild

Patrick Rohr <prohr@google.com>

IETF 120

Why do we care?

- For mobile devices, low RA lifetimes have outsized impact on battery life.
- RA filtering offloads are based on the lifetime of the RA.

Methodology

- Collected RA data on Android 11+ devices.
- Includes only networks that receive 1 distinct RA
 - Essentially maps to single router.
- For a given RA option type, only the lowest lifetime value is recorded.
- 0 lifetime values are not reported.

LEAST (router lft, PIO valid lft, RIO lft)

lowest_lifetime	network_session_count	percent	percentile
1800	13544100	43.46%	66.64%
2147483647	6686862	21.46%	100.00%
180	3574736	11.47%	14.72%
300	1404238	4.51%	19.72%
3600	1201213	3.85%	70.51%
7200	925114	2.97%	74.09%
65535	678985	2.18%	78.15%
9000	520846	1.67%	75.76%
30	446783	1.43%	1.74%
600	350776	1.13%	21.49%

router lifetime	network_session_count	percentage
1800	12899523	59.14%
180	3586402	16.44%
3600	1231732	5.65%
300	781943	3.58%
65535	685502	3.14%
9000	524767	2.41%
30	413357	1.90%
600	277517	1.27%

PIO valid lifetime	network_session_count	percentage
7200	3154724	14.43%
86400	3129425	14.31%
300	2398097	10.97%
259200	1222197	5.59%
2592000	1214562	5.55%
4294967295	1194291	5.46%
3600	966040	4.42%
1800	762111	3.48%
604800	599861	2.74%
14400	594938	2.72%
172800	476914	2.18%
3603	326093	1.49%
43200	295033	1.35%
345600	225432	1.03%

RIO lifetime	network_session_count	percentage	percentile
1800	3412084	33.49%	61.33%
180	2276625	22.34%	23.41%
86400	1213672	11.91%	80.89%
259200	361224	3.55%	87.77%
2592000	280807	2.76%	96.12%
4294967295	268500	2.64%	100.00%
3600	246099	2.42%	63.81%
172800	218800	2.15%	83.72%
604800	194893	1.91%	91.11%
43200	185963	1.83%	68.37%
7200	136046	1.34%	65.33%
1200	125900	1.24%	27.81%

Questions?