



IPv4 De-aggregation in LACNIC Region.

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Introduction.

- ◆ De-aggregation: is the division of the space allocated or assigned as shown in the DFZ.
- ◆ De-aggregation has an important effect in the size of the DFZ routing table.
- ◆ Long term solutions are being studied at IRTF.
- ◆ Possible reasons for de-aggregation: traffic engineering, prefix hijacking avoidance, iBGP leaking.
- ◆ De-aggregation factor:

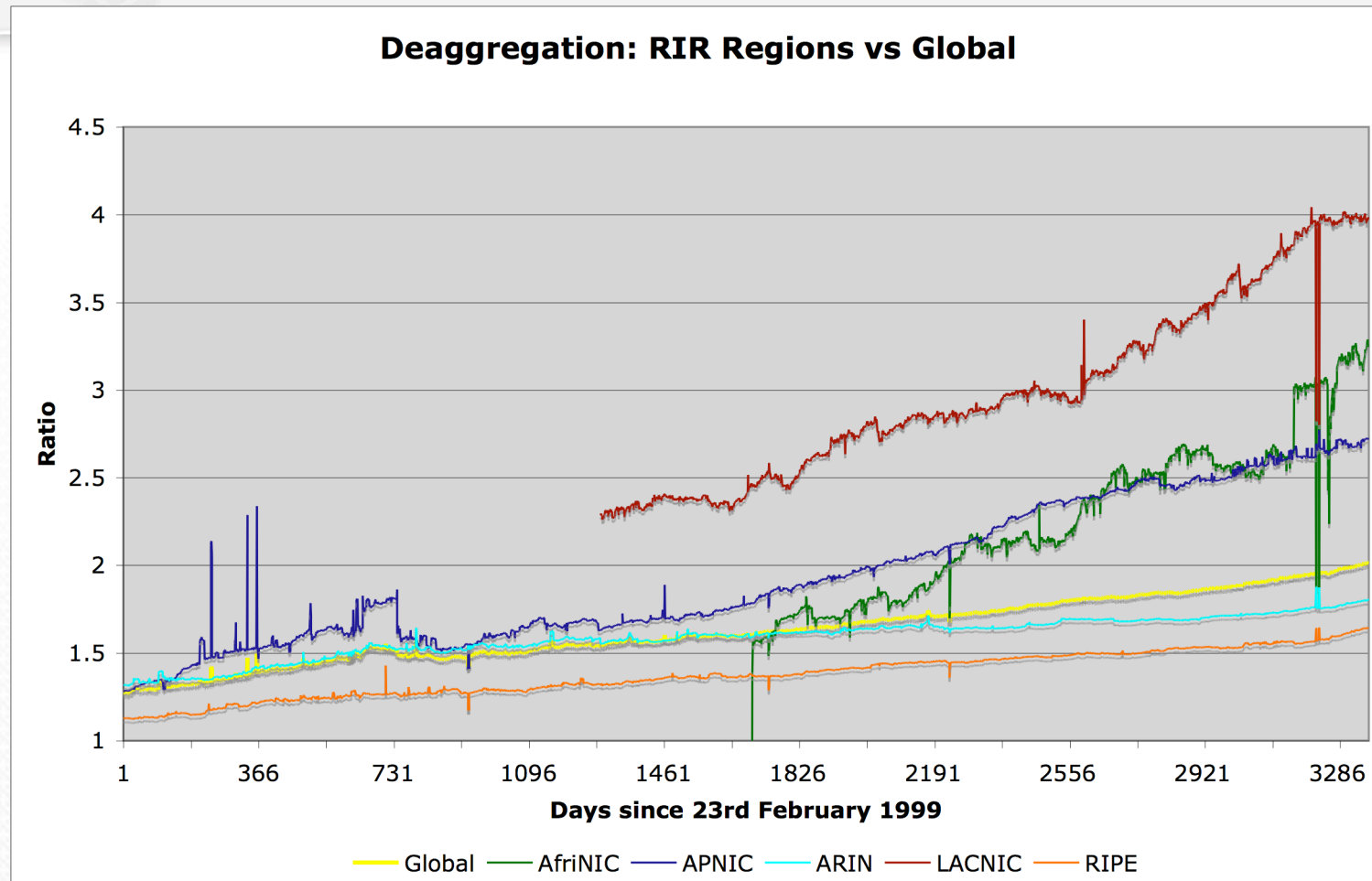
globally routed prefixes/ # aggregatable prefixes.

Per ASN stats maintained by Phil Smith at:

<http://thyme.apnic.net/current/>

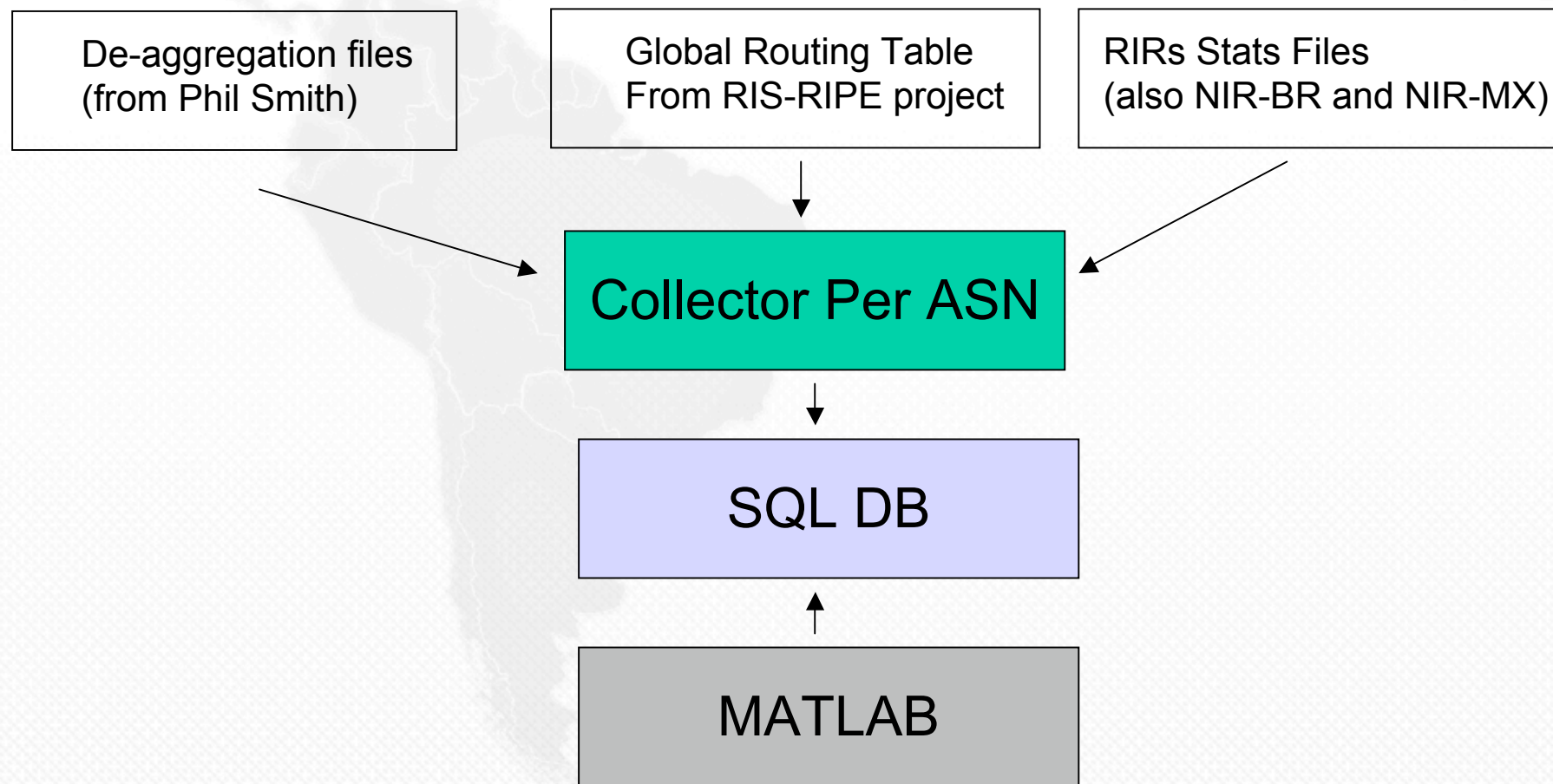


Motivation:



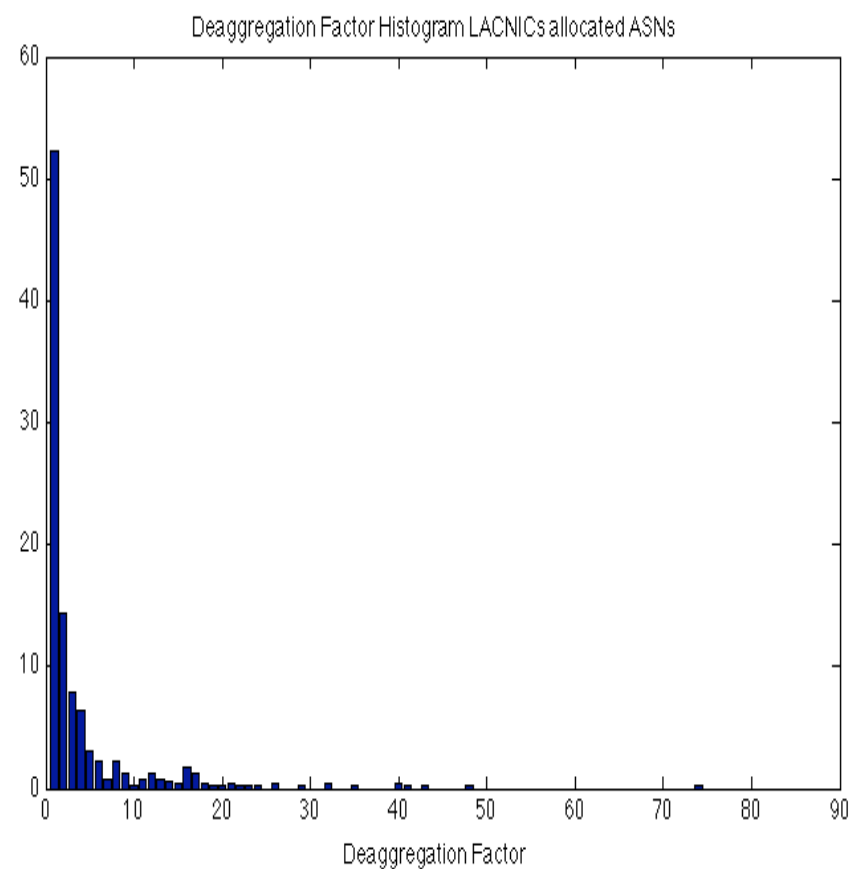
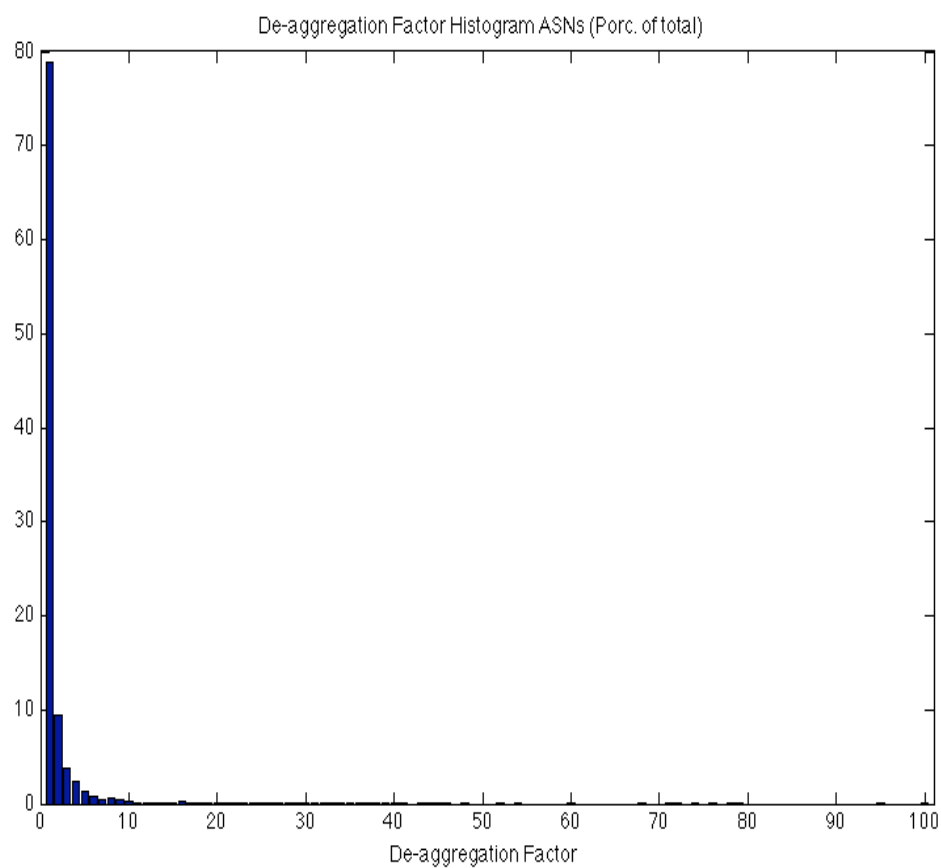


The setup:



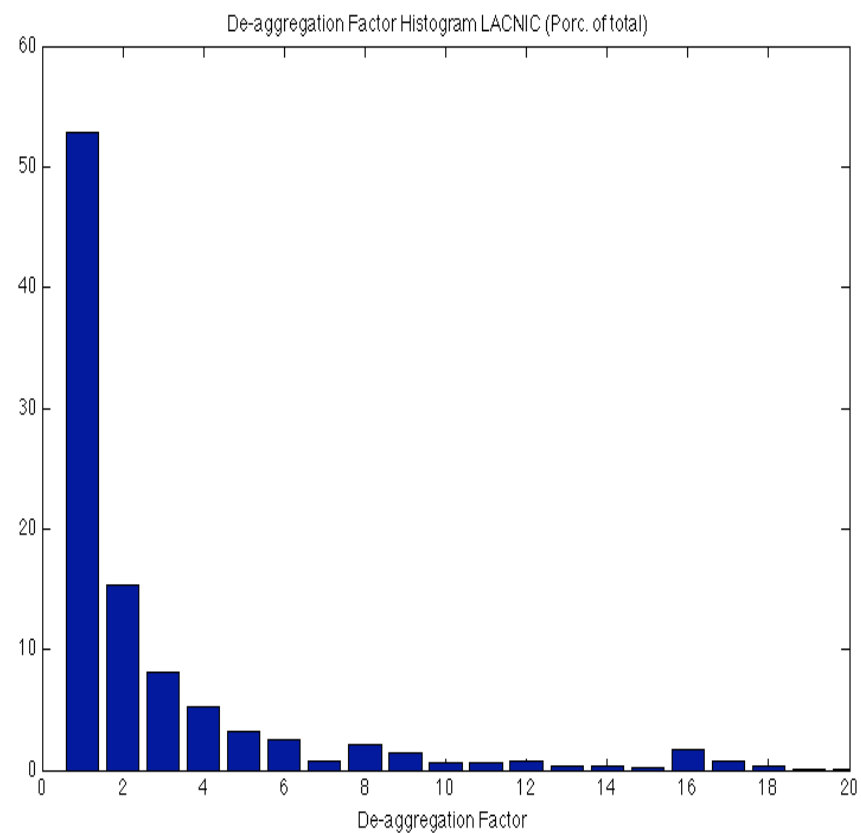
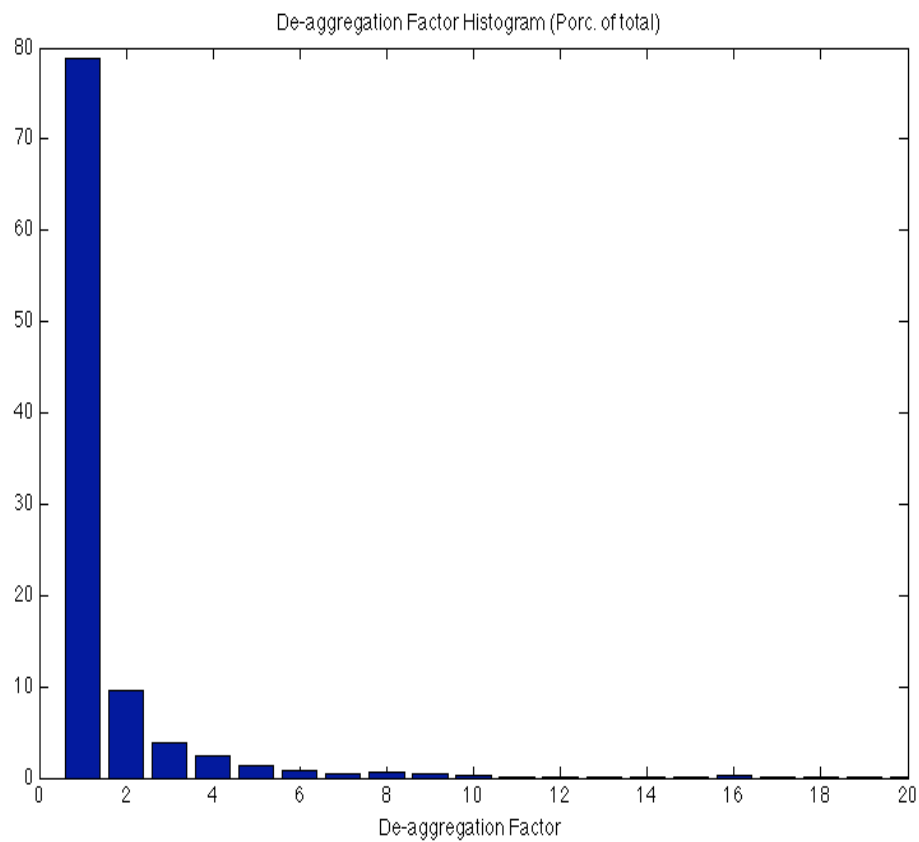


Histograms:



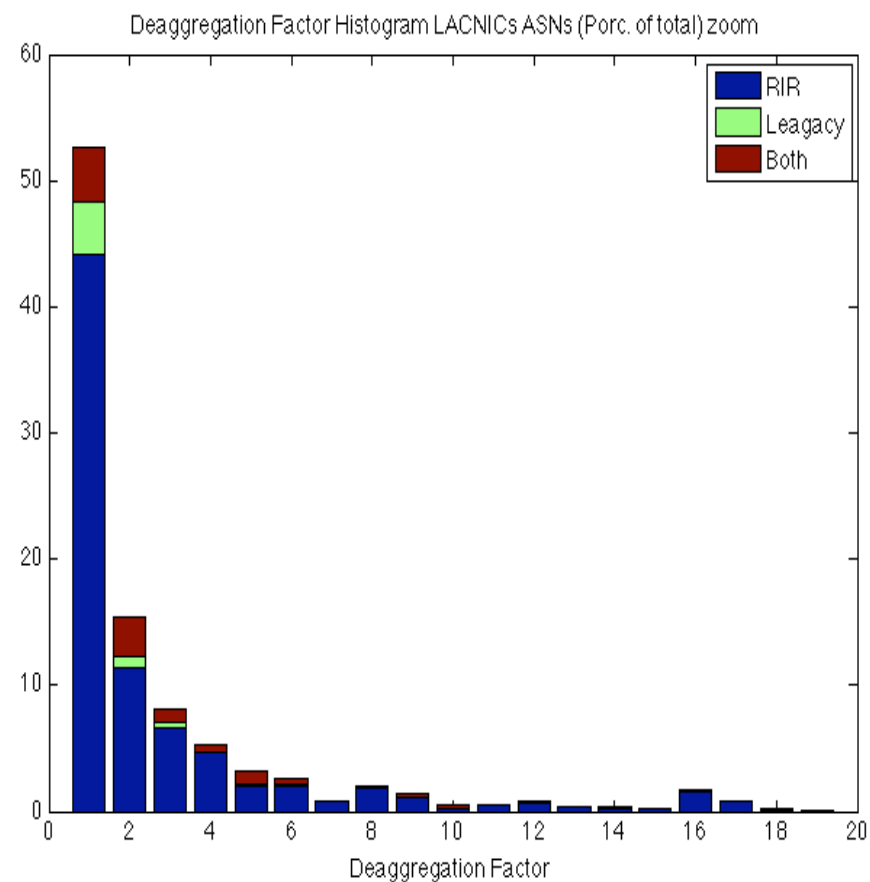
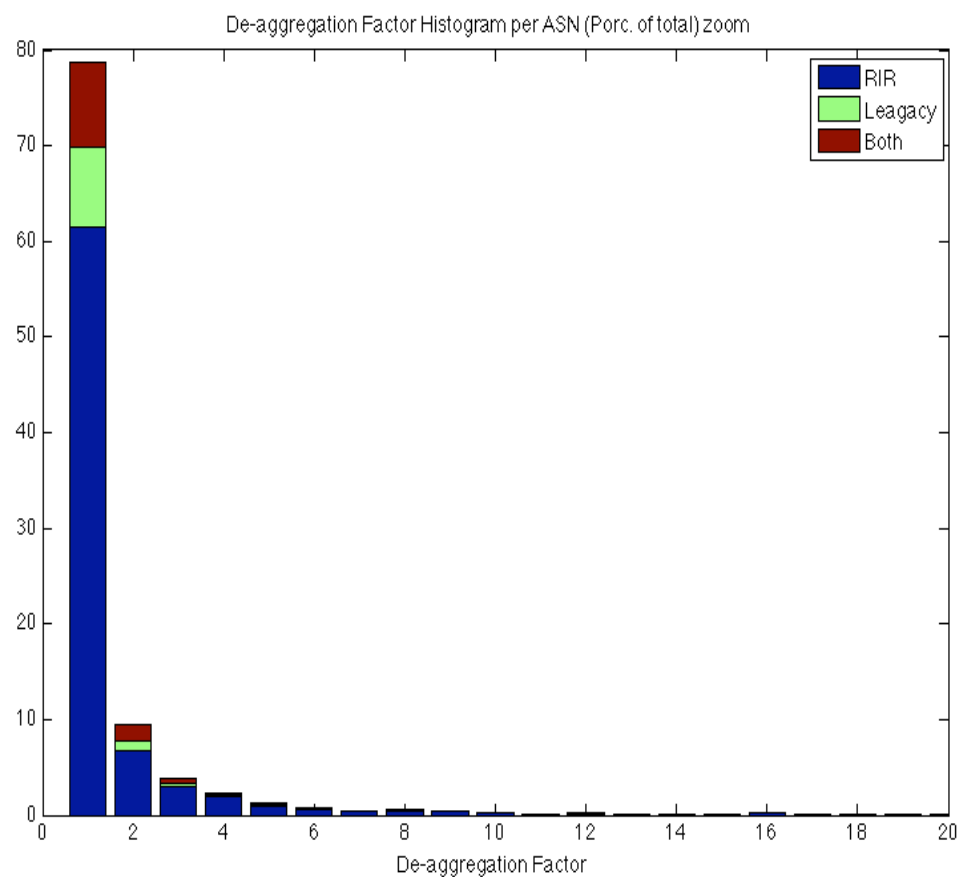


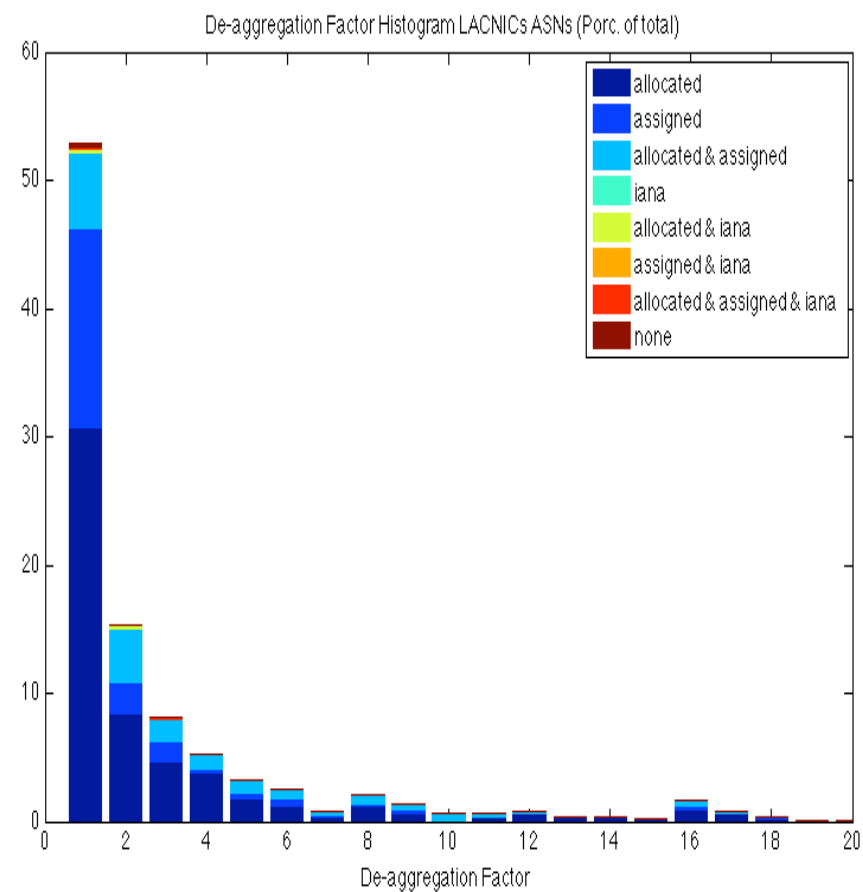
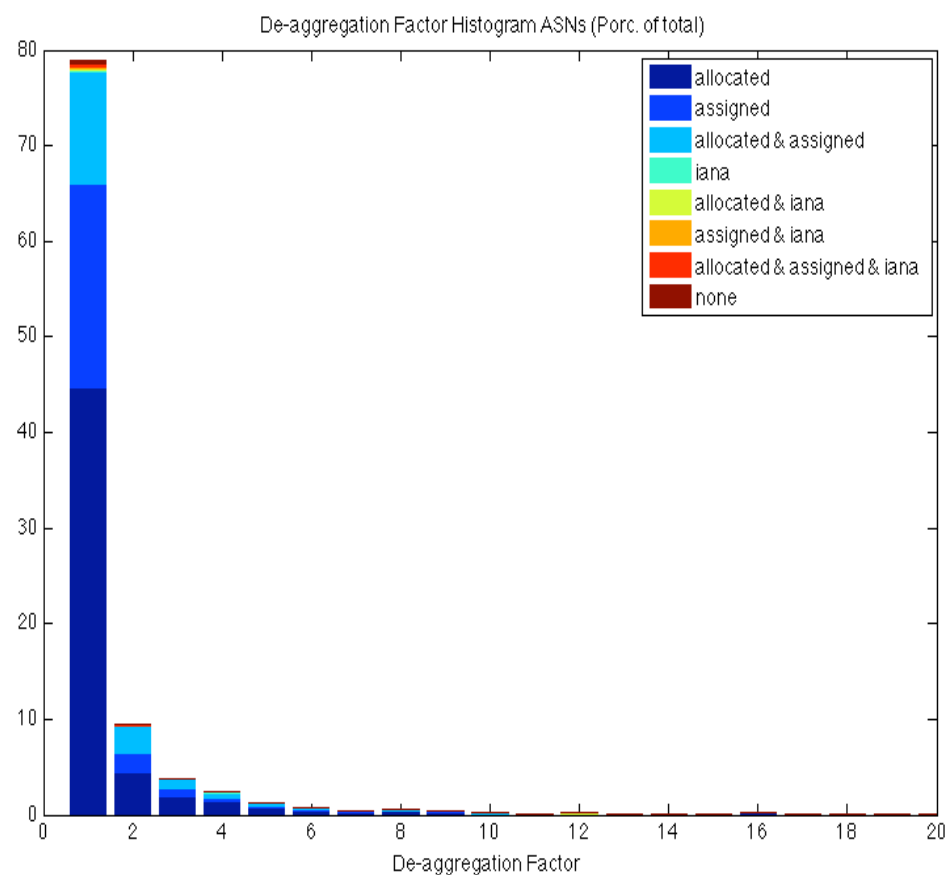
Histogram (zoom):





Legacy vs RIR resources:





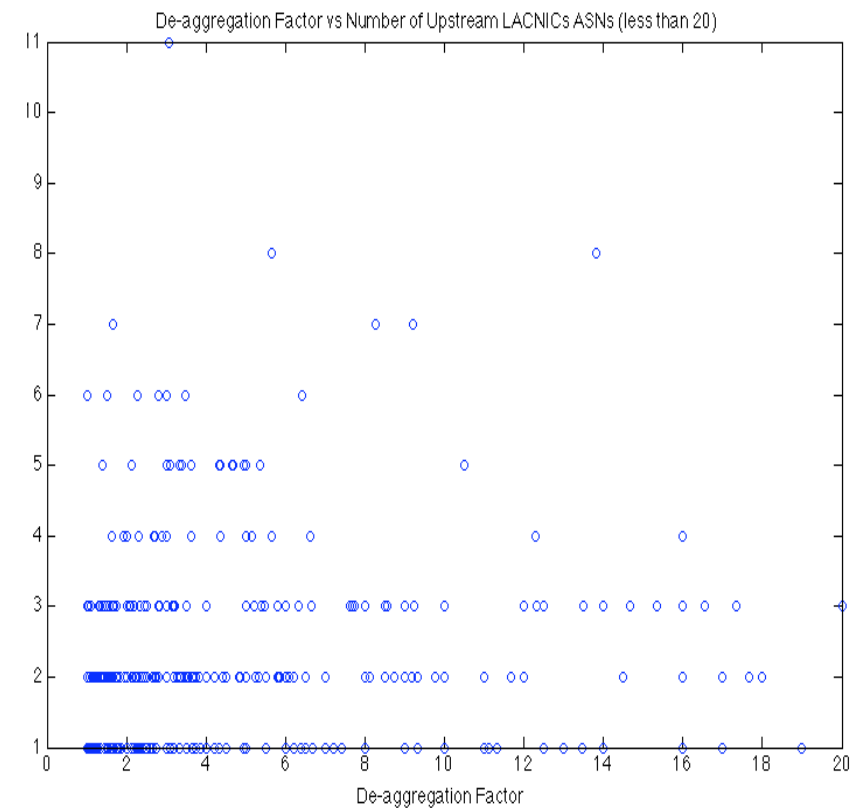
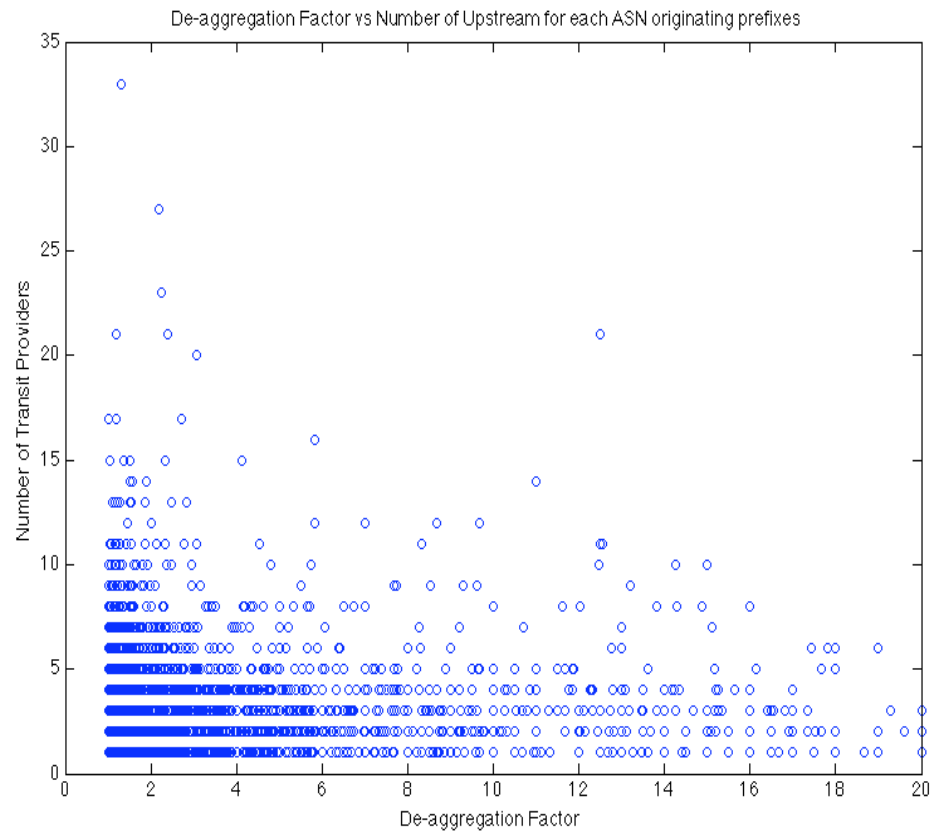


Allocated vs Assigned

	GLOBAL		LACNIC		ARIN		AFRINIC		RIPE NCC		APNIC	
TOTAL	100%	1.80	4%	3.72	42%	1.54	1%	3.51	41%	1.60	12%	2.67
AL.	55%	1.83	59%	3.96	60%	1.29	67%	3.55	45%	1.89	75%	2.70
AS.	25%	1.47	22%	2.54	17%	1.84	11%	3.36	39%	1.25	10%	1.40
IA.	0%	1.55	0%	1.50	0%	1.04	0%	1	1%	1.57	0%	2
AL & AS	17%	2.12	18%	4.58	23%	1.99	18%	3.68	13%	1.67	14%	3.34
AL & IA	0%	1.77	0%	1.49	0%	1.55	0%	5.15	0%	1.60	0%	2.16
AS & IA	0%	1.57	0%	0	0%	1.35	0%	1.67	0%	1.60	0%	0
AL & AS & IA	0%	1.90	0%	2.7	0%	2.35	0%	1.51	0%	1.38	0%	4,9

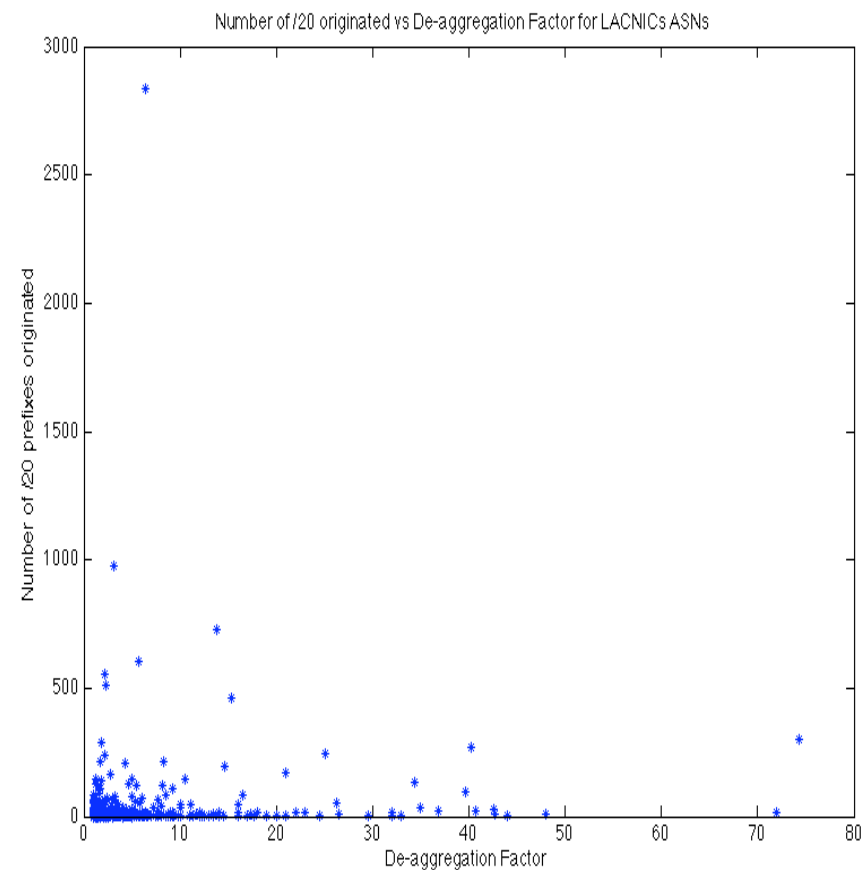
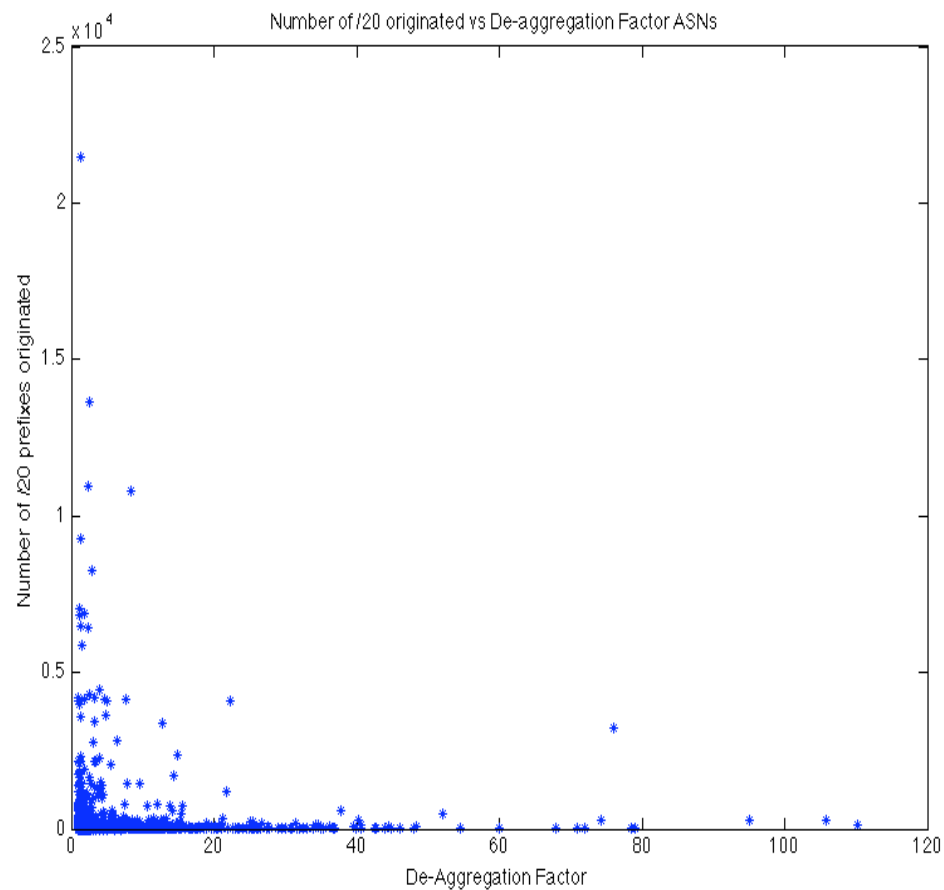


Traffic Engineering:



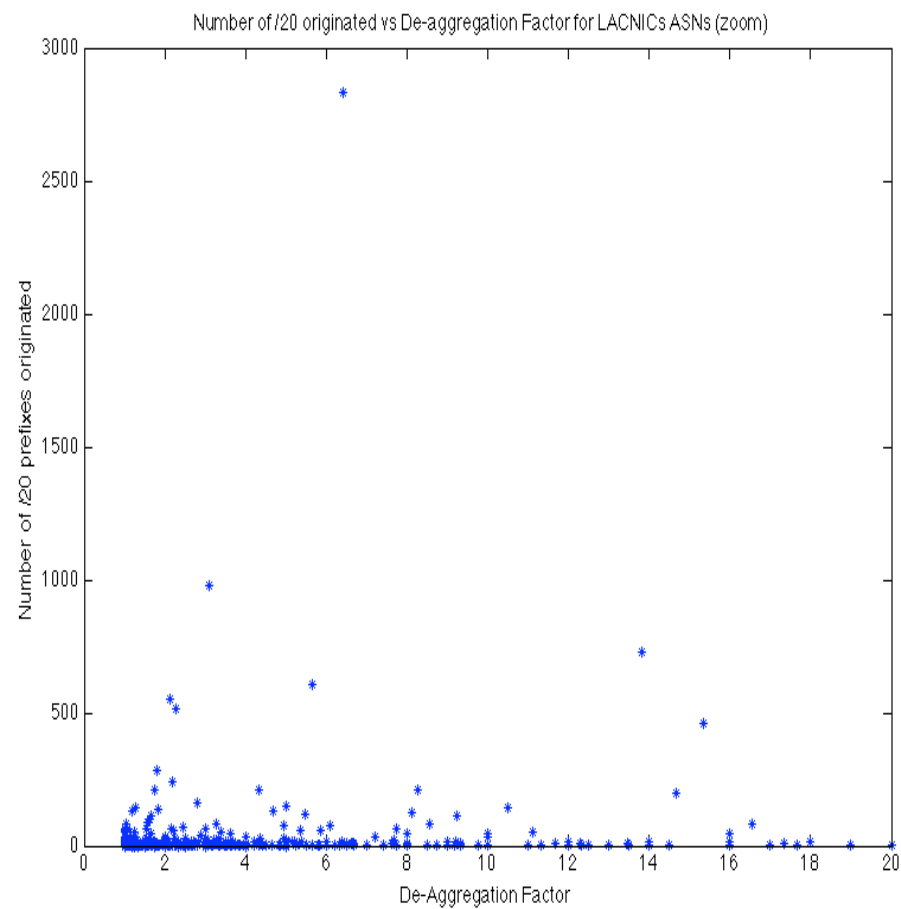
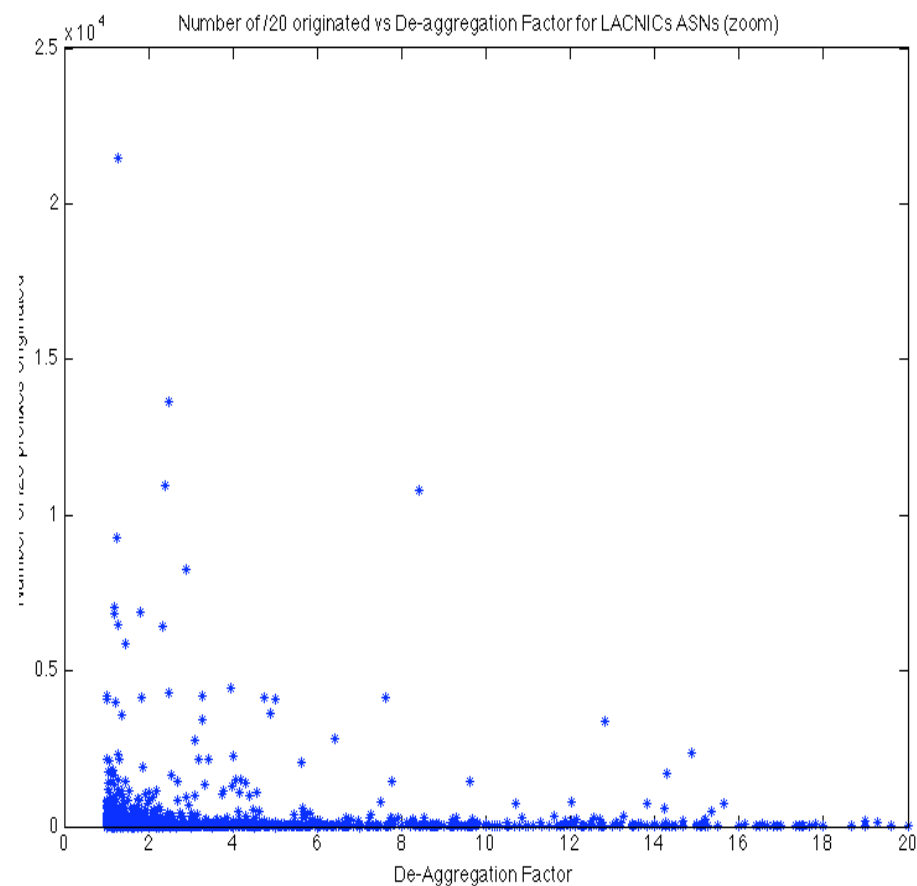


Size and De-aggregation:

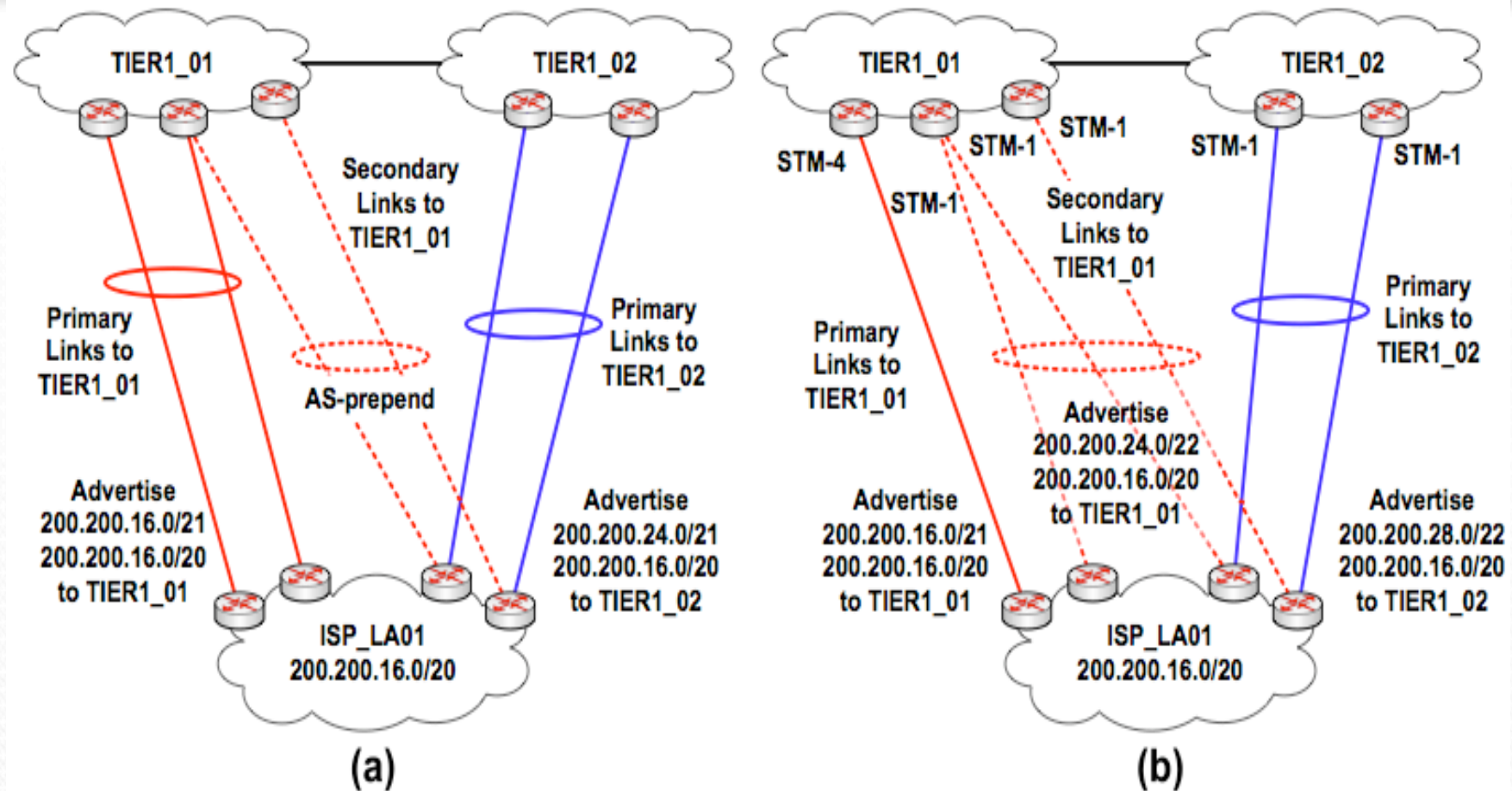




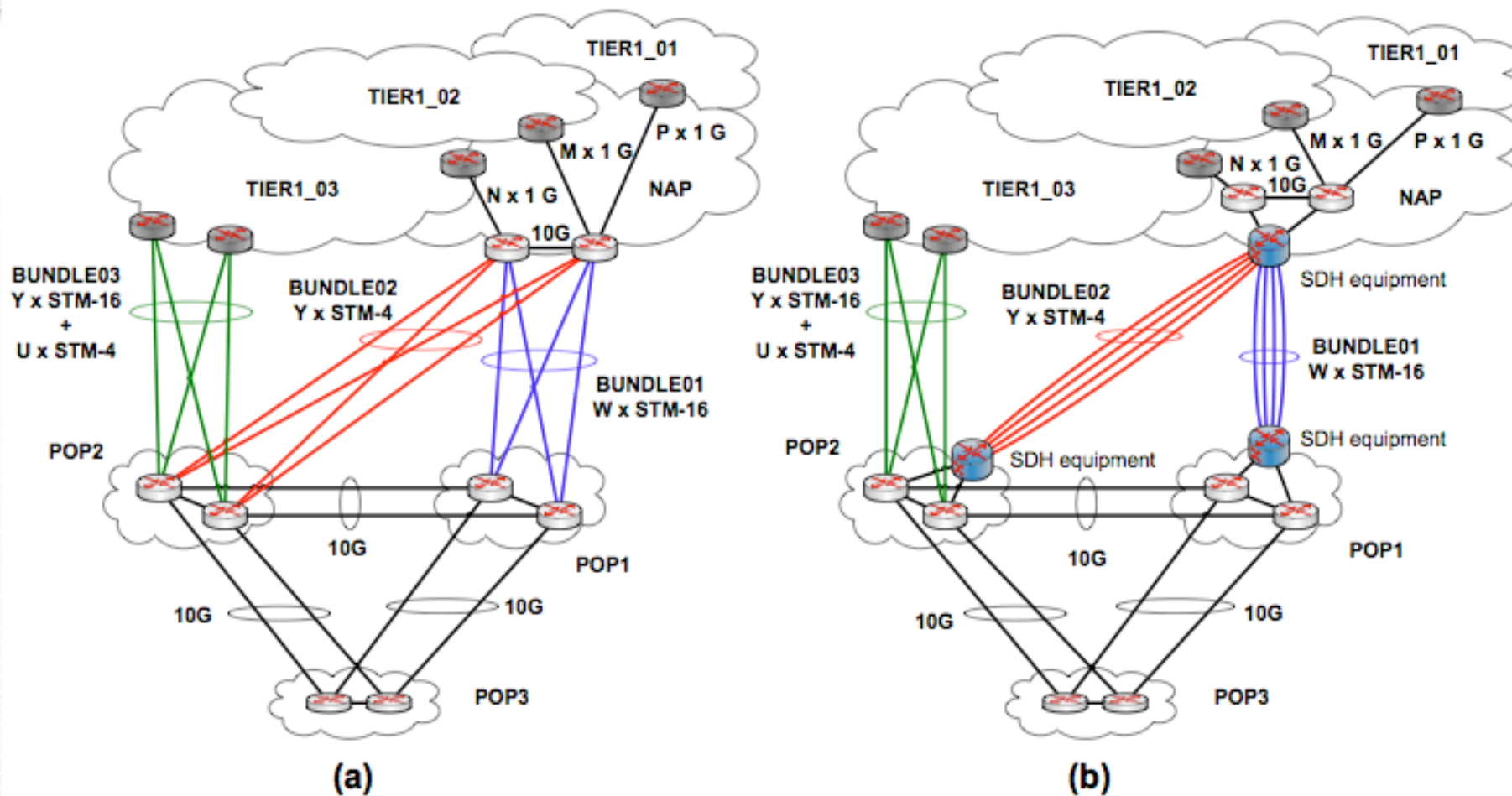
Size and De-aggregation:



Network Topologies (1)



Network Topologies (2):





What can I do?

- ◆ Check how you are behaving:
- ◆ Think about de-aggregation when doing your addressing/routing plan.
- ◆ Learn about BGP Communities for TE.
- ◆ Request your Upstream to provide you BGP Communities.



Conclusions:

- ◆ The histogram of the de-aggregation factor for the LACNIC region shows lower extinction rate.
- ◆ The distribution of de-aggregation factor between allocated/assigned for LACNIC region does not look differently that the Global Average.
- ◆ De-aggregation because of Traffic Engineering seams to be possible to be mitigated by using BGP Communities in many cases.