

Inter-City Latencies in Africa

AfPIF 2018 - Cape Town - 21 August 2018



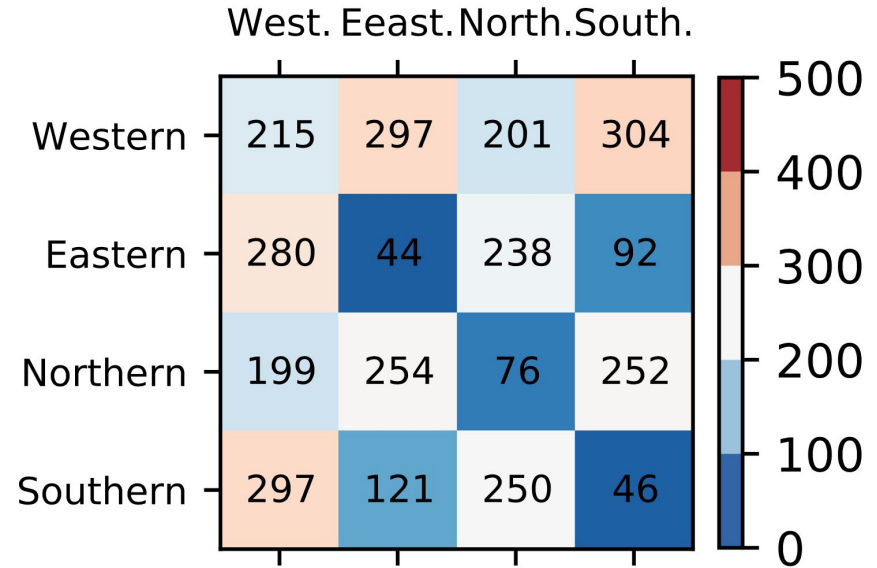
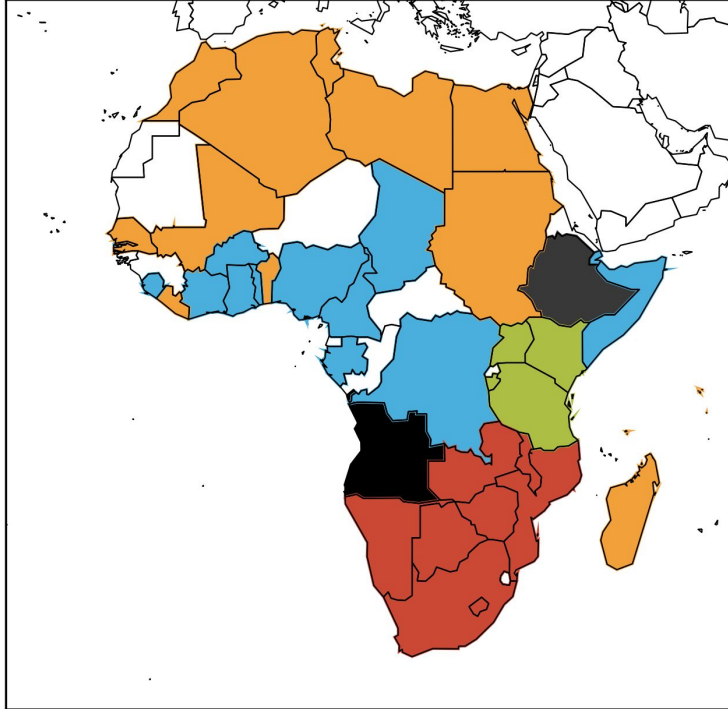
Josiah Chavula

Amreesh Phokeer

AFRINIC
The Internet Numbers Registry for Africa



Clustered Inter-Country Delays



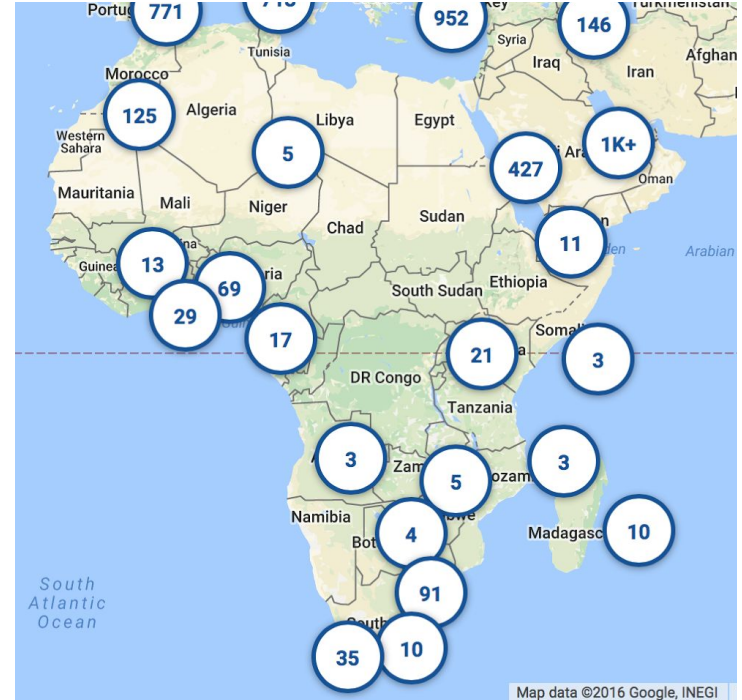
Inter-cluster / country latencies
mostly exceeding **200ms**

Targets and Vantage Points



271
servers

43
countries

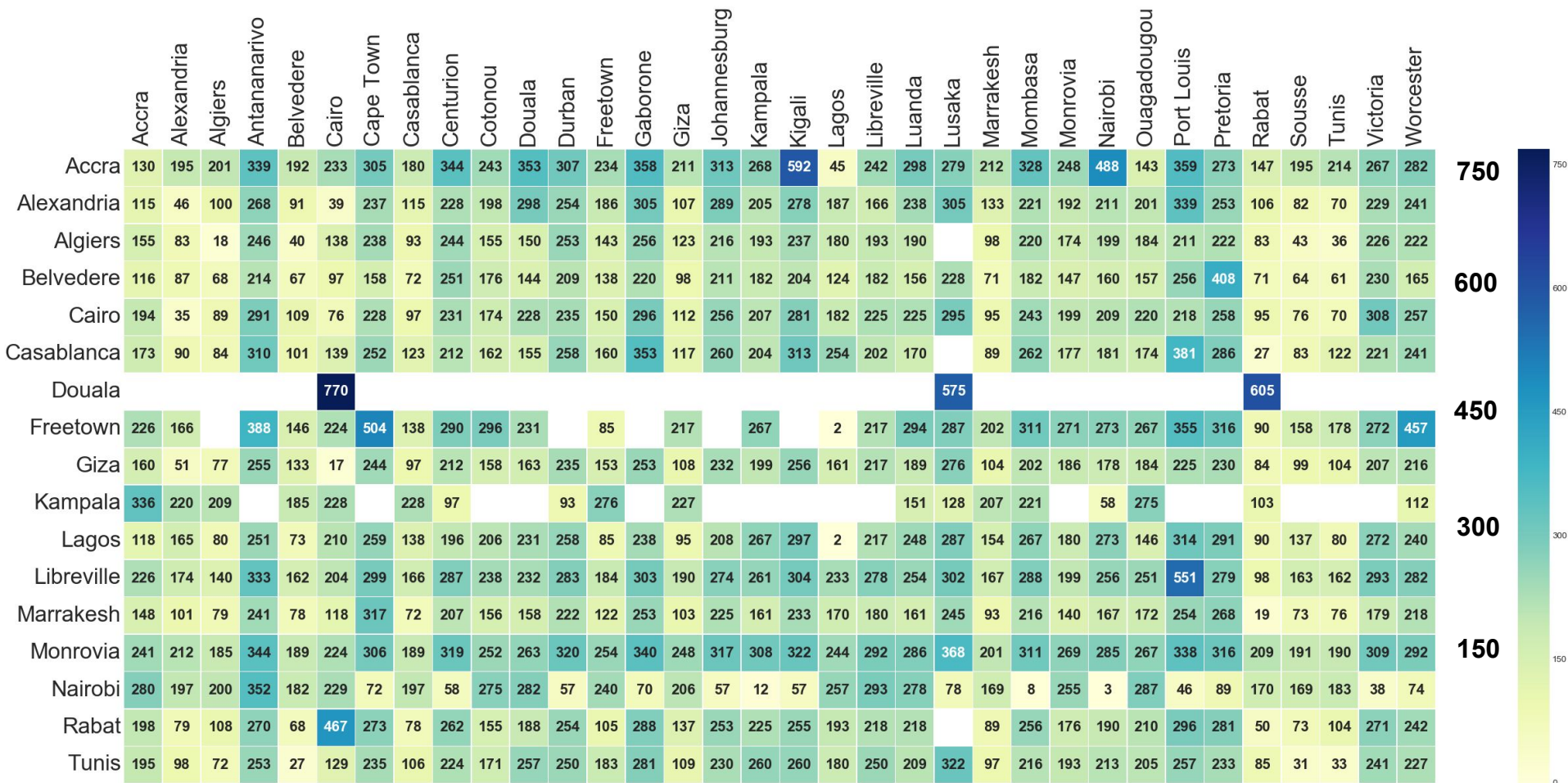


723
probes

100
cities

Latency (Ping) Data Collection

- Over 3 days
- Ping from **Source Probe** to **SpeedTest Server**
- 34 source cities to the same 34 destination cities
- 2200 RTT samples from 84 ASNs i.e. more than 2 per city



	Accra	Alexandria	Algiers	Antananarivo	Belvedere	Cairo	Cape Town	Casablanca	Centurion	Cotonou	Douala	Durban	Freetown	Gaborone	Giza	Johannesburg	Kampala	Kigali	Lagos	Libreville	Luanda	Lusaka	Marrakesh	Mombasa	Monrovia	Nairobi	Ouagadougou	Port Louis	Pretoria	Rabat	Sousse	Tunis	Victoria	Worcester	
Antananarivo	297	280	248	2	260	271	57	256	42	314	340	48	305	54	296	43	96	392	207	347	333	230	243	98	324	94	319	89	40	256	245	236	113	62	
Cape Town	312	199	181	300	185	226	108	186	56	253	465	168	251	76	341	26	194		243	310	92	160	179	83	385	79	266	100	66	197	182	175	128	167	
Centurion	271	199	214	291	210	233	21	212	7	440	401	13	270	21	228	6	65	88	186	312	60	26	209	62	290	57	280	49	9	194	188	210	75	24	
Cotonou	226	201	165	383	918	225	328	195	290	252	420	304	250	319	211	421	345	324	252	324	294	329	190	288	265	291	248	357	354	198	172	178	347	457	
Durban	287	278	268	454	252	343			39	315			316		282	36		117	214		101	86			329			81			265				
Gaborone	310	292	247	425	270	263	88	255	47	351	341	44	303	32	310	53	92	128	325	335	77	80	243	81	306	84	337	87	42	243	265	270	109	49	
Johannesburg	268	237	226	419	205	220		229	54	454	342		301	38	237	19	65	107	316	413	89		220	86	282		290	92	192	248	220	212	108	87	
Kigali	1049	936		1074	889	983	928		798	1017	1041		1009	864	887	919	684	696	1041		910	761	892	608		683	1100	806	948	857	896	891	791	807	
Luanda	332	233	229	321	266	288	39	150	59	308	361	69	328	76	228	177	171	228	342	230	6	88	267	225	290	110	379	161	189	172	285	246	217	82	
Lusaka	323	287	266	409	265	277	68	275	45	345	455	54	320	48	290	38	106	121	351	335	92	38	296	243	367	99	334	82	45	260	286	232	128	62	
Mombasa	252	191	186	377	182	232	315	183	317	257	358	332	257	352	216	326	278	338	265	299	280	393	181	298	265	267	279	486	323	166	166	166	292	315	
Ouagadougou	414	304	234	401	202	274	304	199	368	272	377	413	286	333	321	371	319	369	193	311	396	343	294	381	302	327	304	454	400	180	202	194	325	369	
Port Louis	323	251	218	380	215	265	172	232	50	439	292	62	299	59	248	49	109	267	284	399	238	245	311	211	300	101	320	4	53	229	194	226	122	68	
Pretoria	266	246	219	286	249	251	38	211	8	296	357	38	289	52	306	24	100	115	231	321	57	75	240	236	306	56	351	87	26	282	247	236	121	62	
Sousse	295	143	82	315	33	194	486	128	387	244	360	349	260	353	249	330	321	359	296	315	307	311	147	562	309	325	253	341	342	126	62	33	492	323	
Victoria	237	226	184	361	198	217	274	187	293	259	266	301	230	319	204	292	290	321	257	275	276	315	180	299	245	279	257	346	302	166	197	189	302	312	
Worcester		76	131	211	83	98		64		121			115		82	176		197	109	160	146	233	61		133	170	129	226		74	77	62		157	

1000

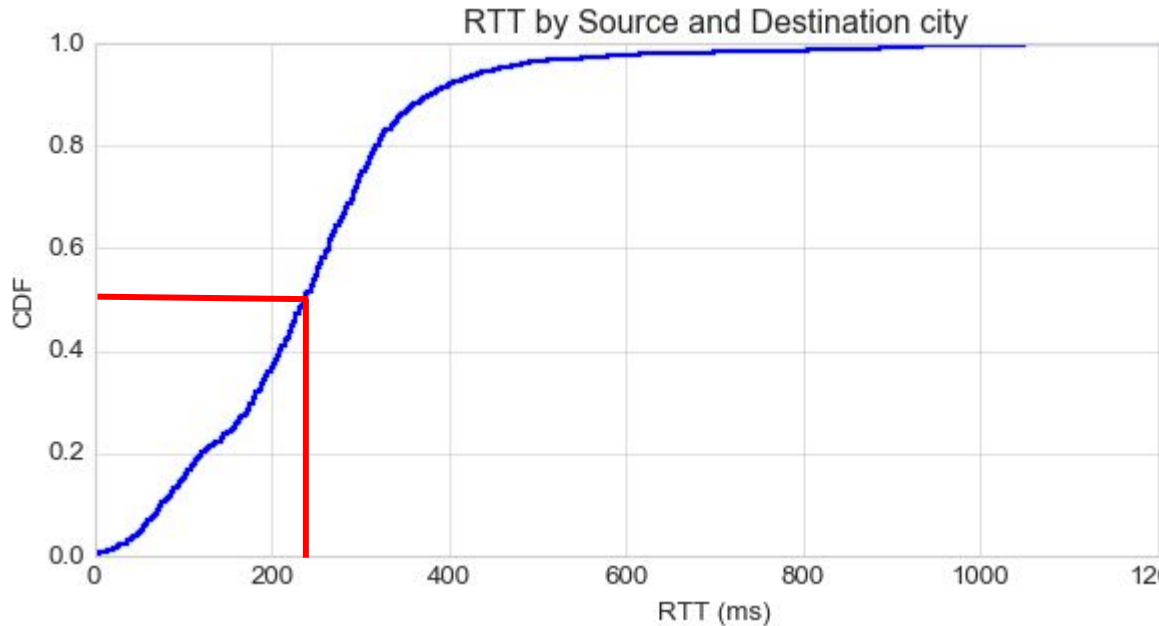
800

600

400

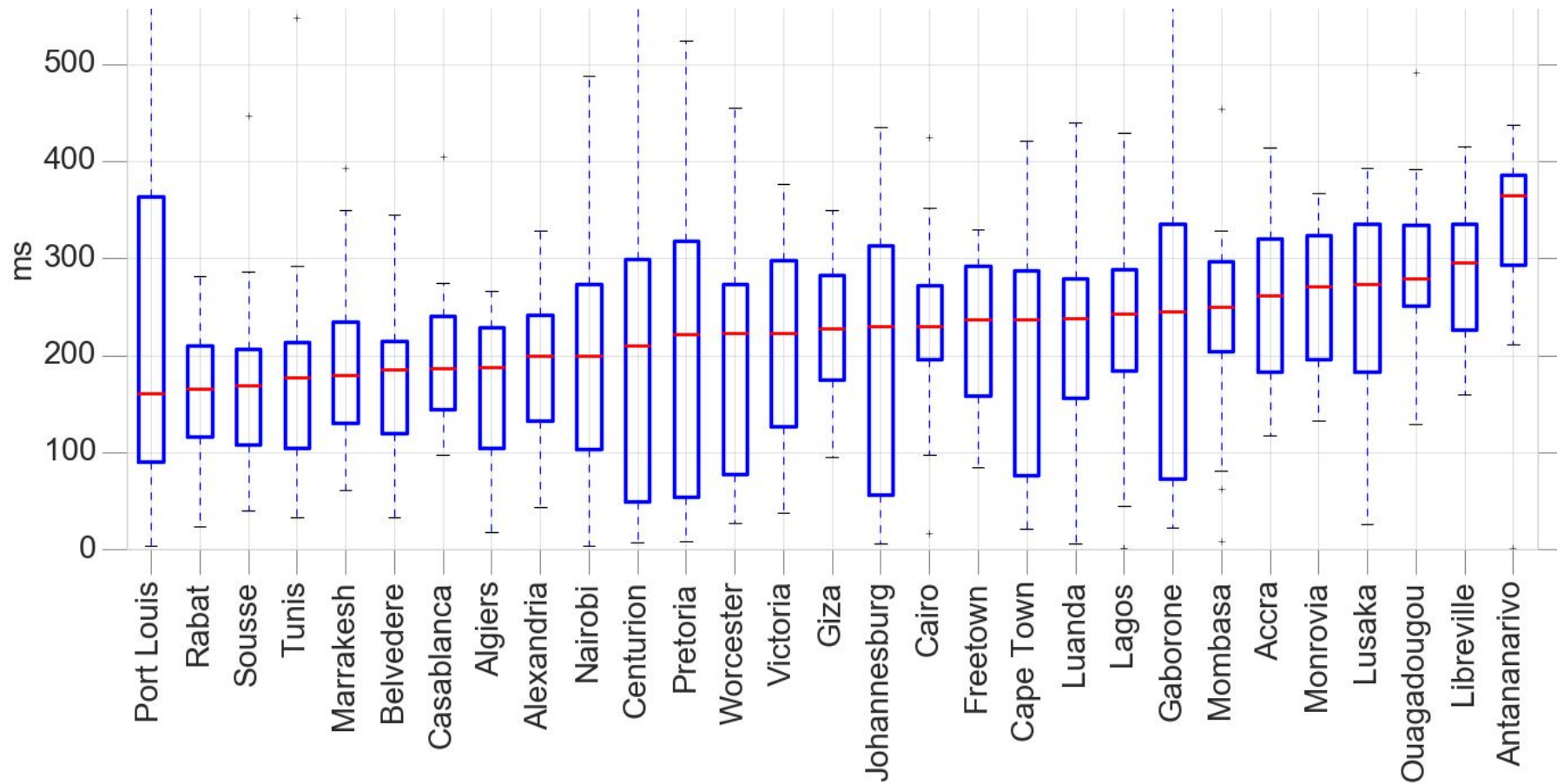
200

Inter-City Latencies

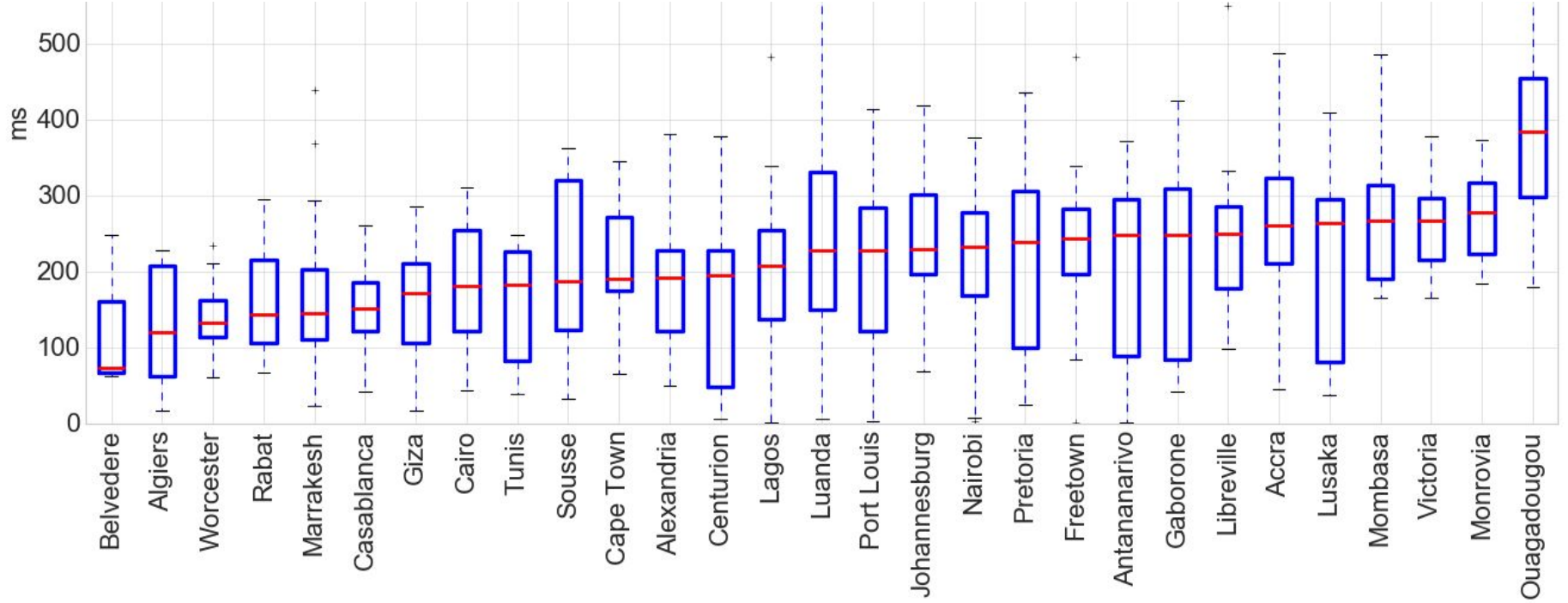


- 80% of Inter-city delays under **350ms**
- Median inter-city delay: **250ms**

Latencies to Cities



Latencies from Cities



Take Aways

- Mauritius seems to have lower latencies from rest of Africa (~160ms)
 - while Madagascar has the worst? (~360ms)
- North Africa cities appear to have lower latencies from/to the rest of Africa?
 - Rabat, Sousse, Tunis, Algiers, Marrakesh, Belvedere, Casablanca have median latencies of <200ms

Thank You

@josiahchavula

@amreesh