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Local Hosting in the Middle East

Jim Cowie

DeepMacro LLC
@jimcowie

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Today's Presentation

- Let's examine local and remote hosting in Turkey, Iran, Saudi Arabia, the UAE, and Egypt.
- The bigger picture: how does the Middle East stack up against its neighbors and the rest of the world, in terms of local hosting?
- How might that impact network operators and the national economies they support?

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Dyn

Dyn supplied the underlying datasets for this research, as part of their support for understanding Internet evolution and the assessment of Internet performance in emerging markets.

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Methodology

To identify current trends in ccTLD zone hosting, we:

- **Reconstructed** country-level zonefiles via passive DNS, counting popular domains queried
- **Abstracted** FQDNs to sets of second- and third-level zones ($something.cc, $something.com.cc)
- **Geolocated** the A records returned for those zones and counted the fraction that were in various countries

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Methodology (2)

The use of passive DNS for zone analysis samples each ccTLD in a way that biases towards domains that are **live** and **of interest to consumers.**

- We performed this analysis for 234 ccTLDs worldwide, from AD, AE, AF, AG, … to YE, YT, ZA, ZM, ZW.
- Today we'll examine a few in greater detail:
  IR, TR, SA, AE, and EG.

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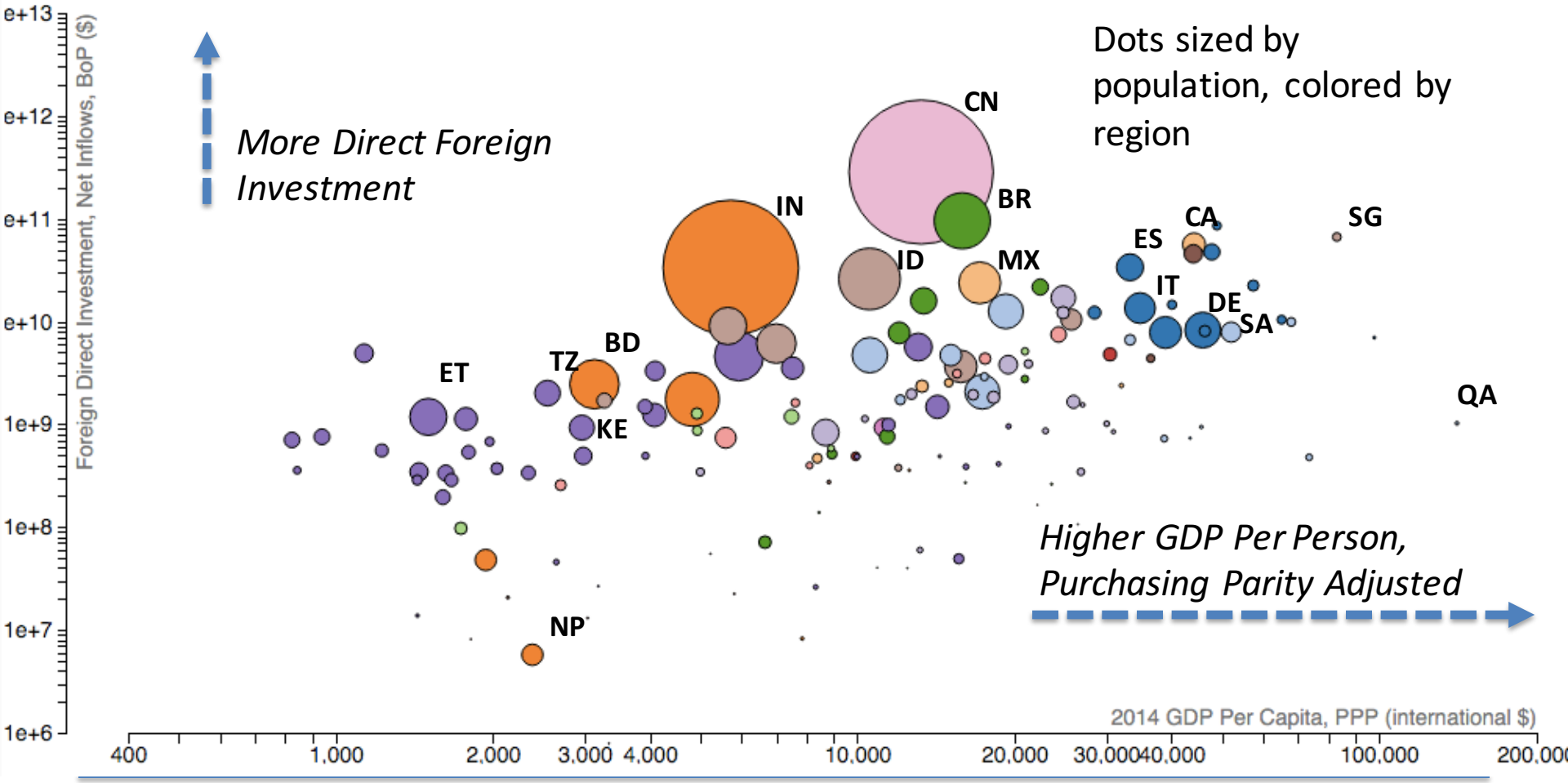
Is it just economics?



Source: World Bank

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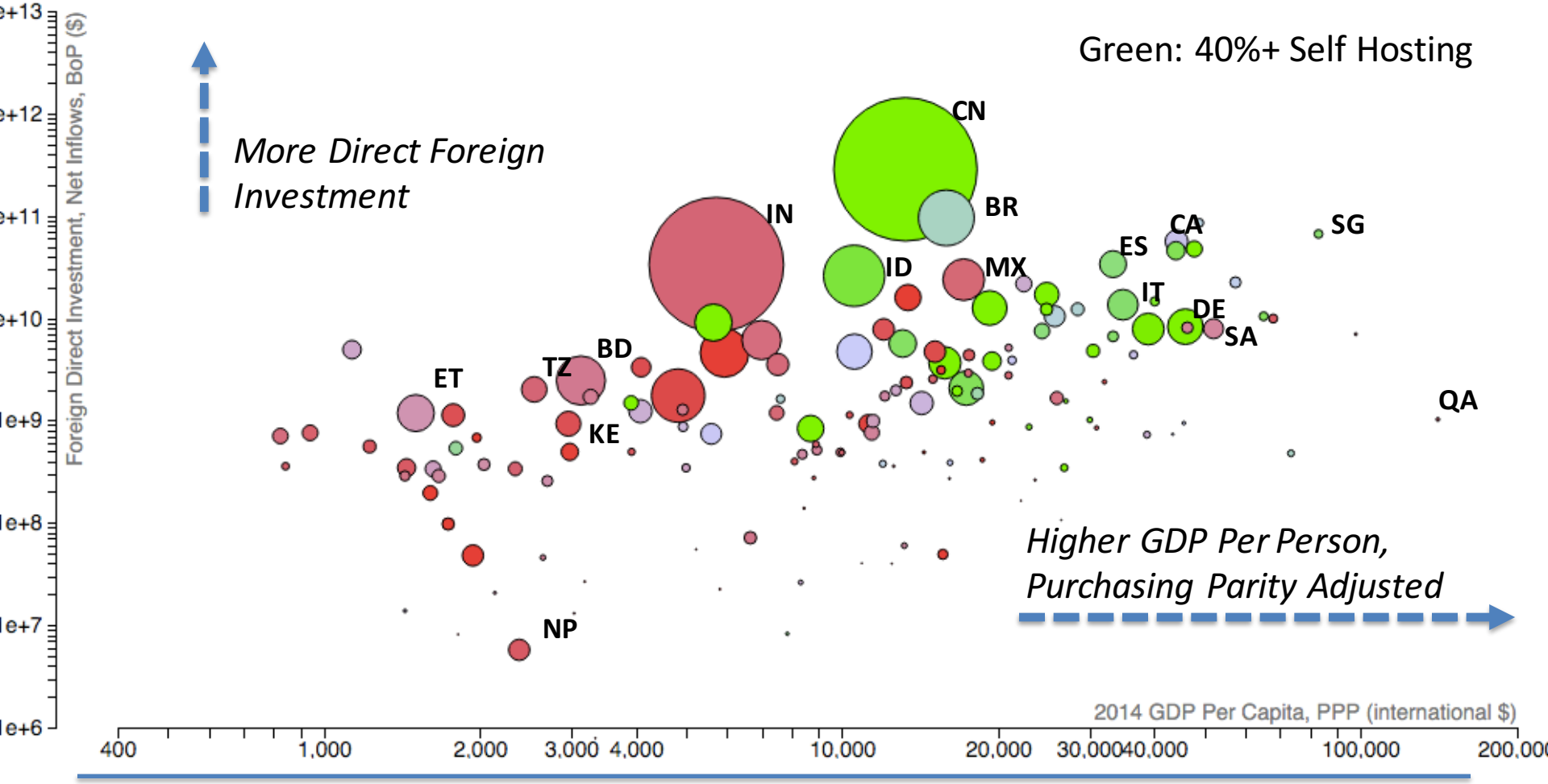
That would be simple!



Source: World Bank

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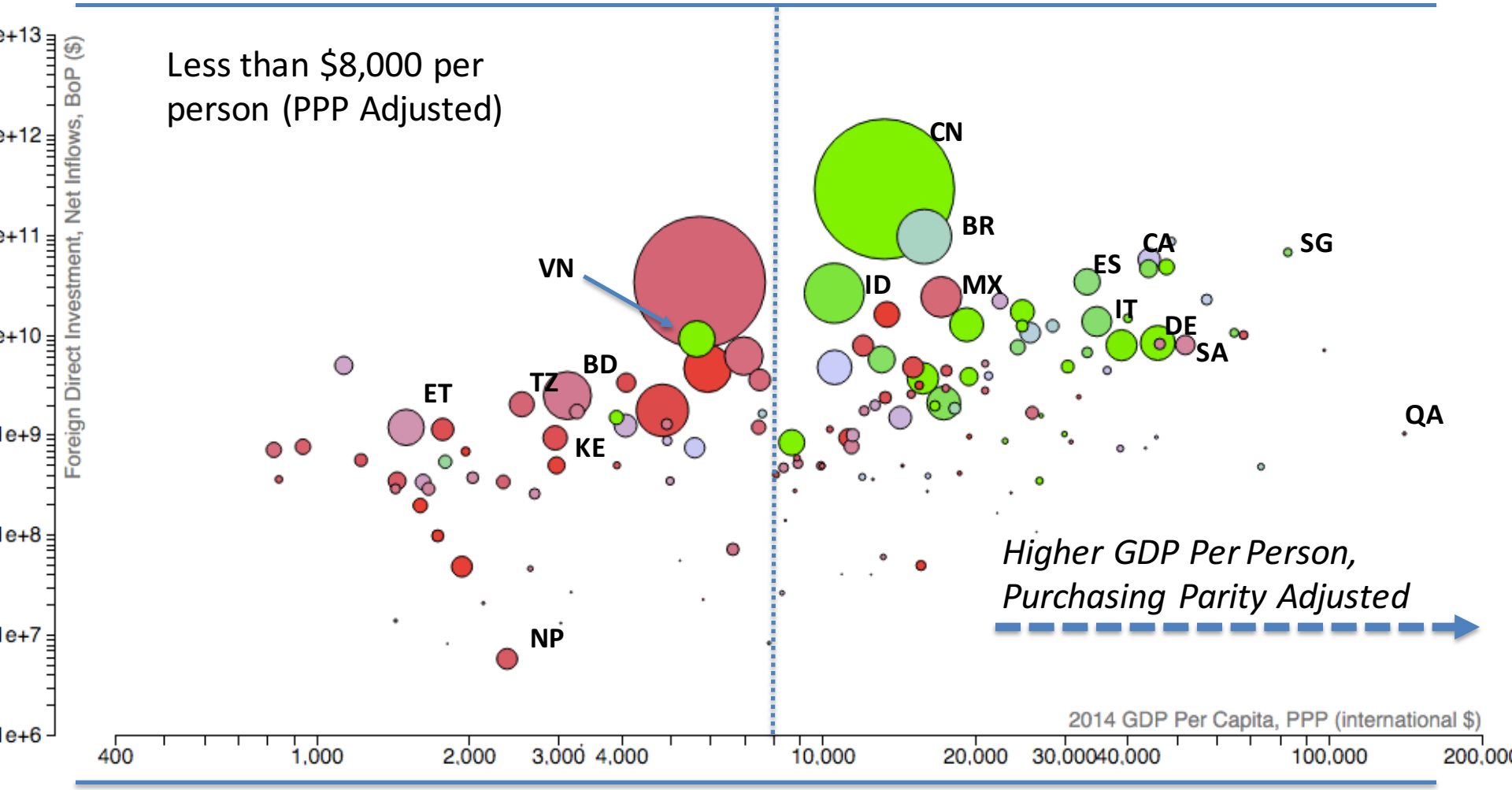
GDP Threshold?



Source: World Bank

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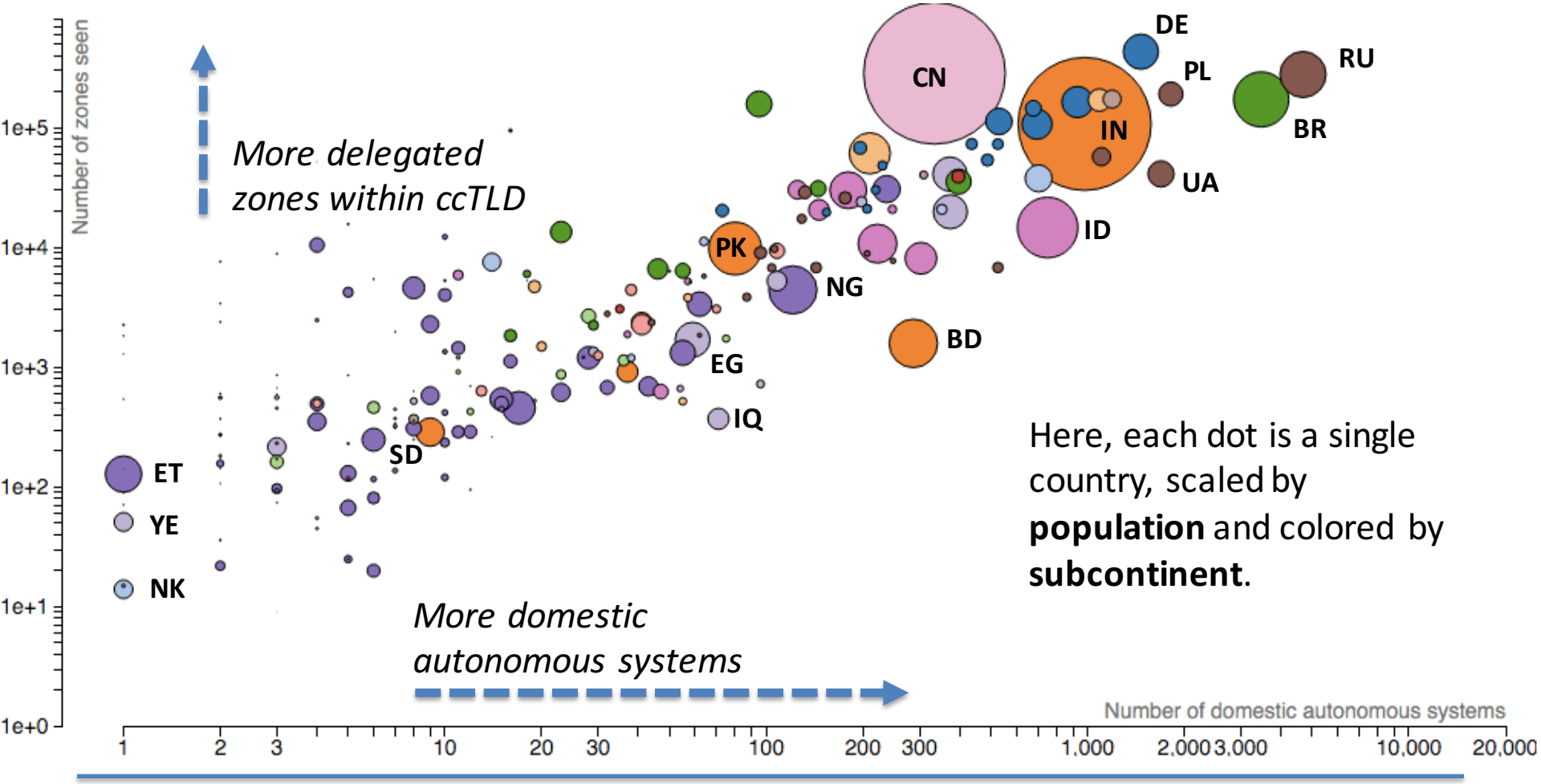
Internet Economies



Here, each dot is a single country, scaled by **population** and colored by **subcontinent**.

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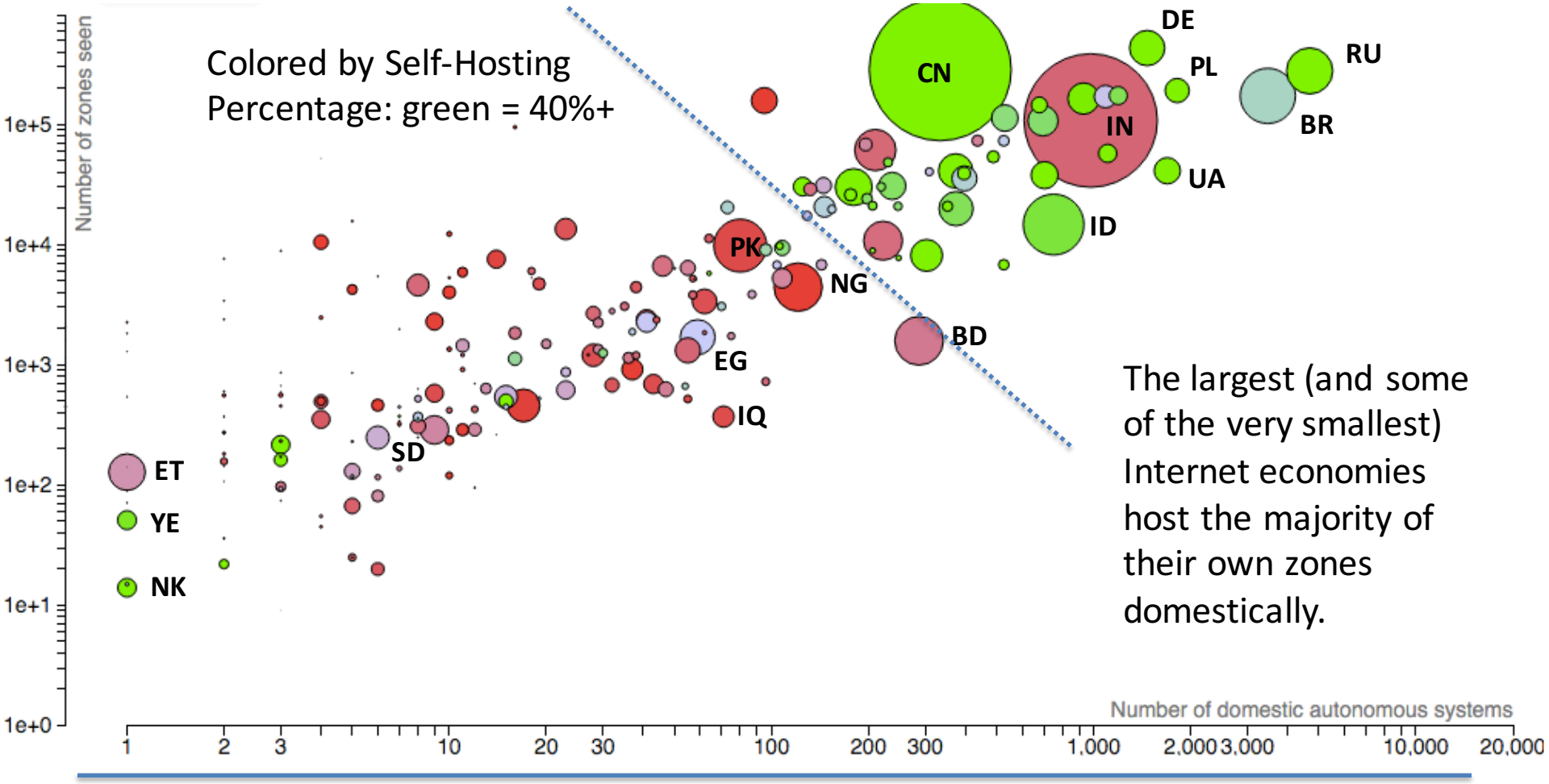
Self Hosting



The largest (and some of the very smallest) Internet economies host the majority of their own zones domestically.

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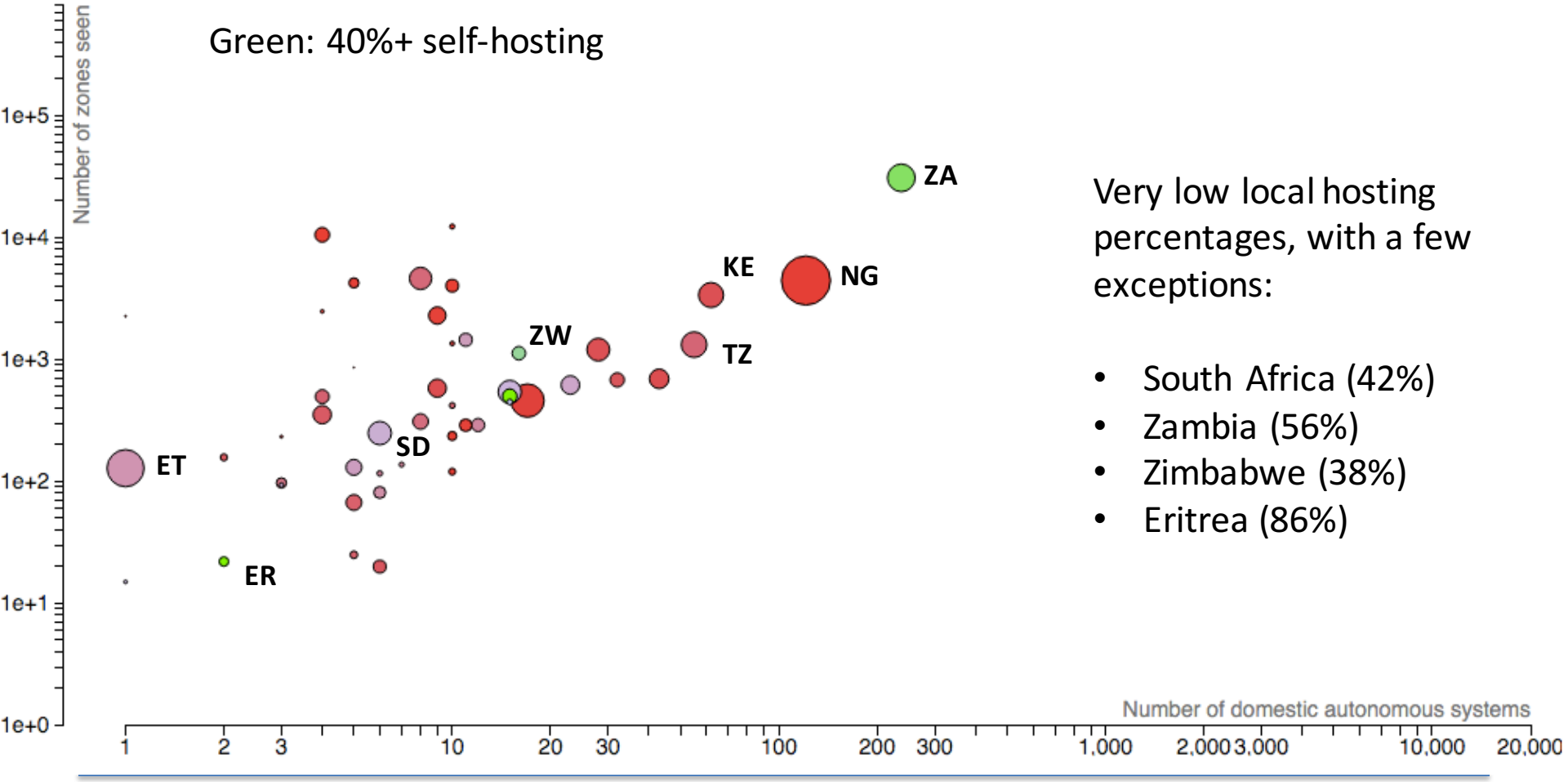
African Local Hosting



Very low local hosting percentages, with a few exceptions:

- South Africa (42%)
- Zambia (56%)
- Zimbabwe (38%)
- Eritrea (86%)

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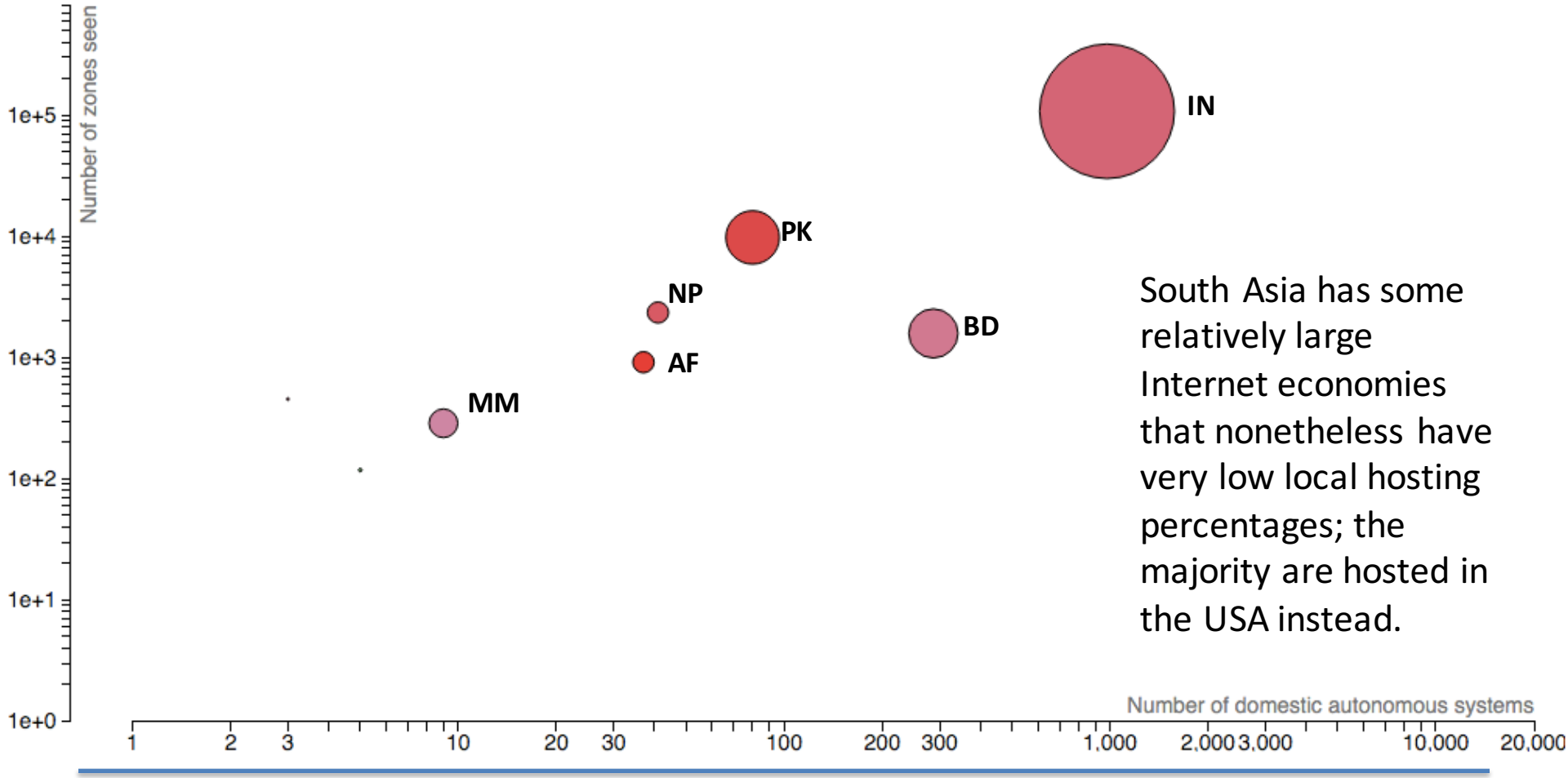
South Asia



South Asia has some relatively large Internet economies that nonetheless have very low local hosting percentages; the majority are hosted in the USA instead.

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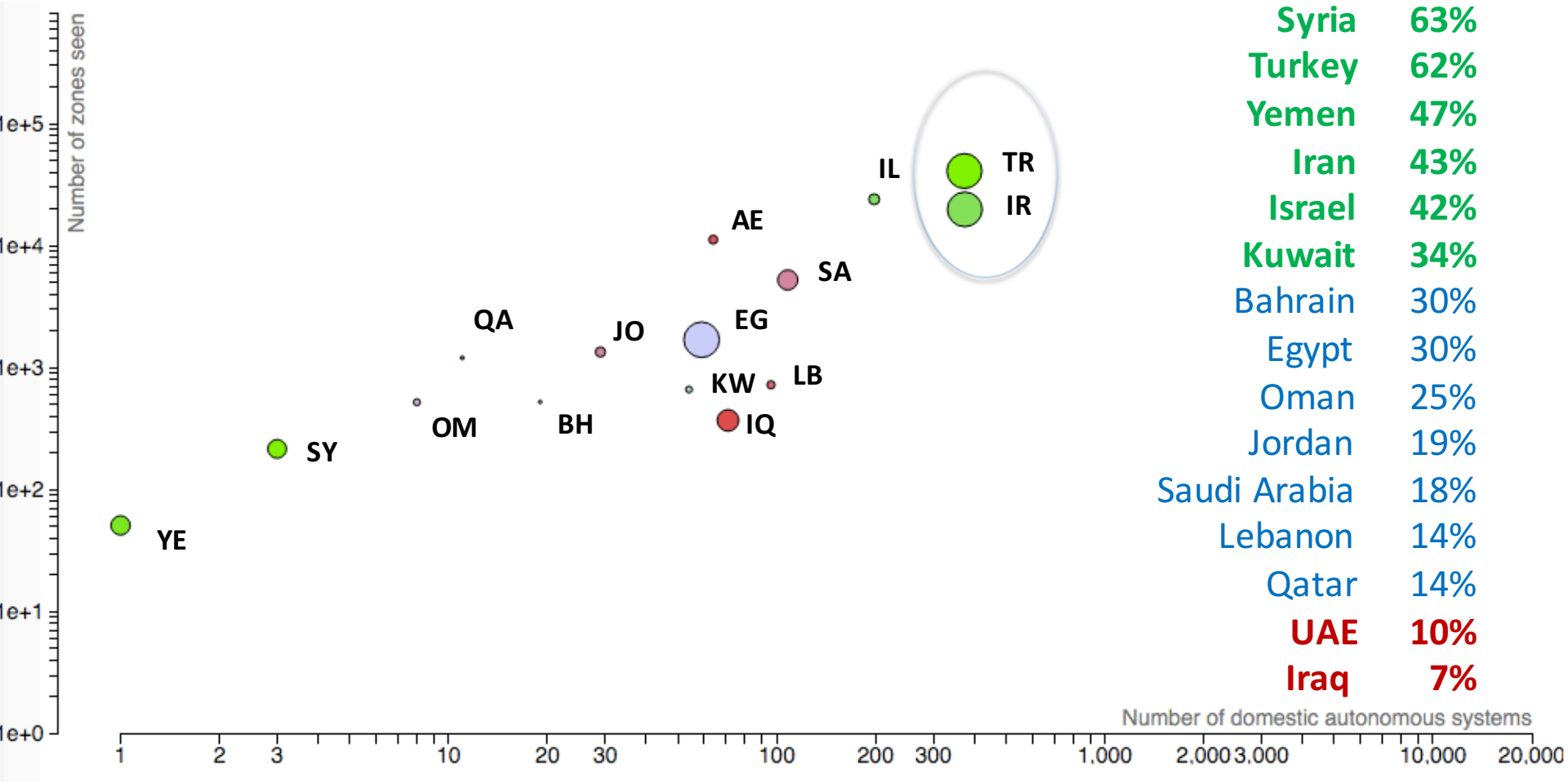
Middle East Local Hosting



Syria	63%
Turkey	62%
Yemen	47%
Iran	43%
Israel	42%
Kuwait	34%
Bahrain	30%
Egypt	30%
Oman	25%
Jordan	19%
Saudi Arabia	18%
Lebanon	14%
Qatar	14%
UAE	10%
Iraq	7%

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Where else do we turn?

Syria	**63%**	**US 14%**	DE 6%		CA 6%	
Turkey	**62%**	**US 16%**	DE 5%		NL 5%	
Yemen	**47%**	**US 51%**				
Iran	**43%**	**US 17%**	**DE 19%**	GB 7%		
Israel	**42%**	**US 34%**	DE 5%	GB 6%		
Kuwait	**34%**	**US 45%**		GB 5%		
Bahrain	30%	**US 51%**		GB 6%		
Egypt	30%	**US 47%**	DE 8%			
Oman	25%	**US 52%**		GB 5%		
Jordan	19%	**US 58%**	DE 9%			
S Arabia	18%	**US 60%**	DE 5%			
Lebanon	14%	**US 66%**		GB 6%		
Qatar	14%	**US 55%**		GB 6%		
UAE	**10%**	**US 56%**	DE 6%	GB 7%		
Iraq	**7%**	**US 62%**	DE 5%	GB 5%	SG 5%	

Turkey, Iran, and Syria have relatively low dependence on the US for content hosting within their own ccTLD zones.

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2nd Level Zones

COM.$CC usually has the least self hosting, followed by ORG, EDU or AC, and finally (understandably) GOV.

Examples:

- IR (43%): CO 43%, ORG 65%, AC 69%, GOV.IR 75%
- SA (18%): COM 13%, ORG 27%, EDU 33%, GOV.SA 53%
- EG (30%): COM 18%, ORG 42%, EDU 53%, GOV.EG 75%
- AE (11%): CO 40%, ORG 55%, AC 44%, GOV.AE 81%

And…

- TR (62%): CO 62%, ORG 66%, EDU **91%**, GOV.TR 75%

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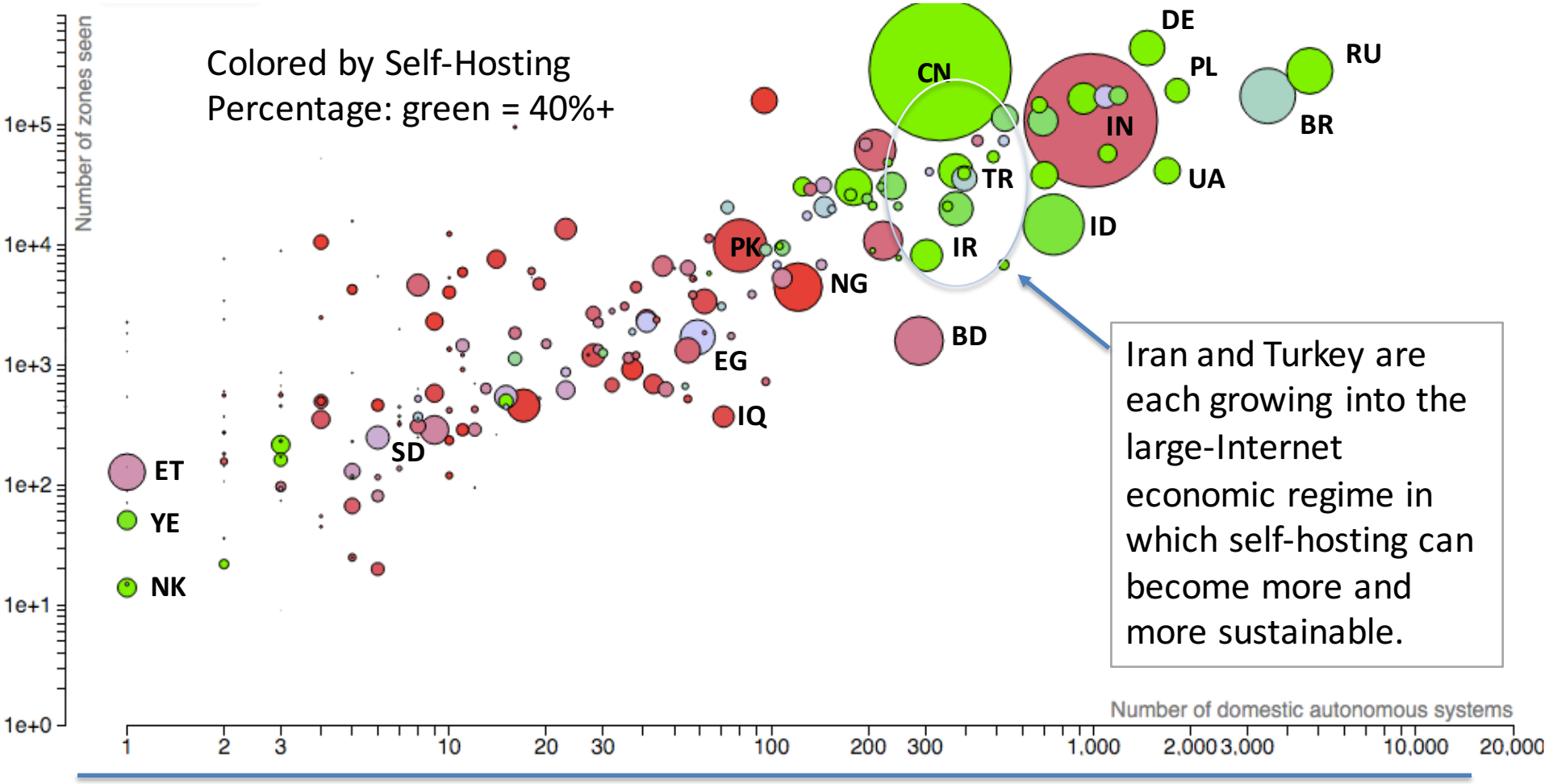
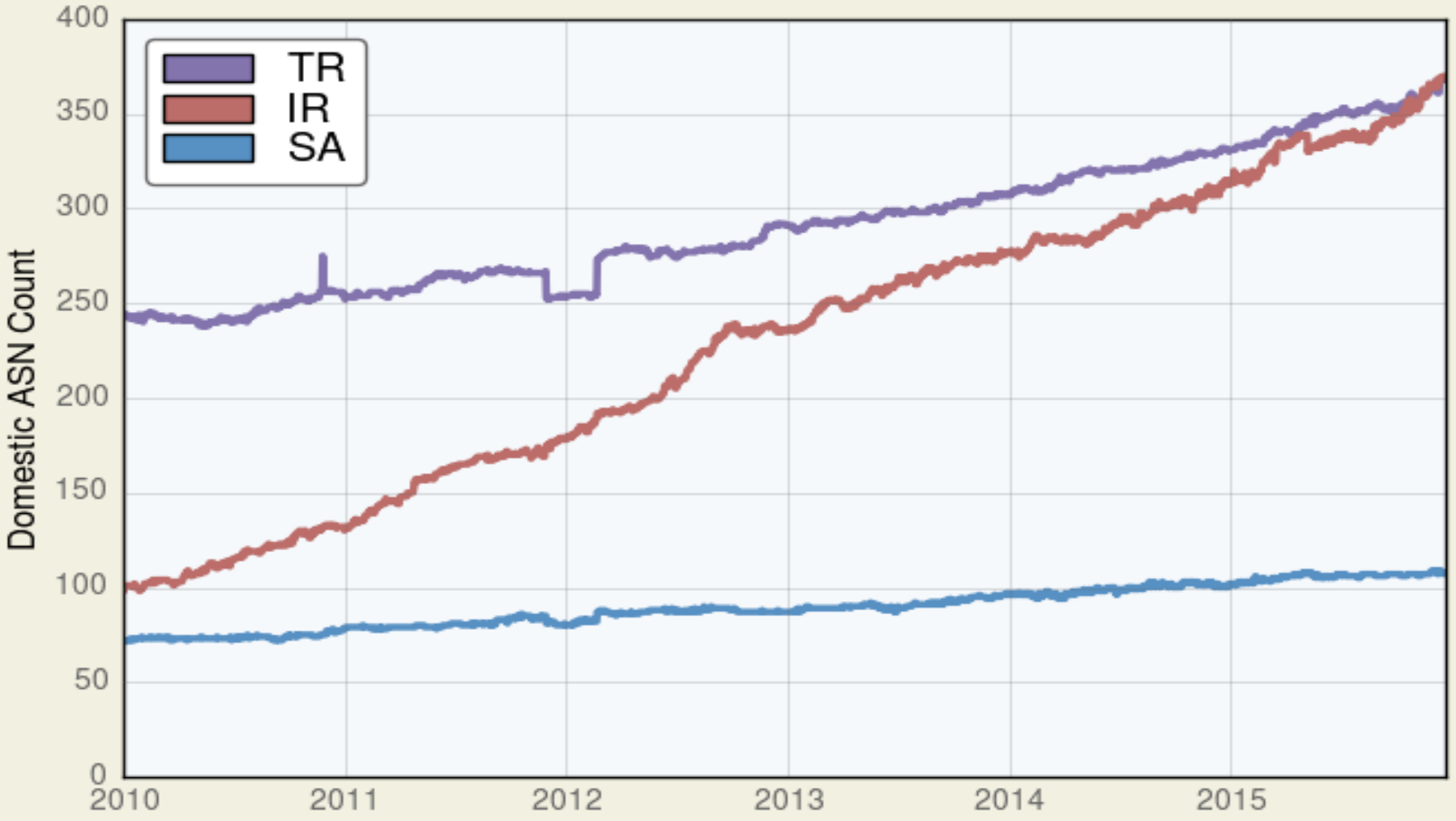
The Big Picture



Growth of Internet in Iran, Turkey, and Saudi Arabia



Source: *BGP Data*

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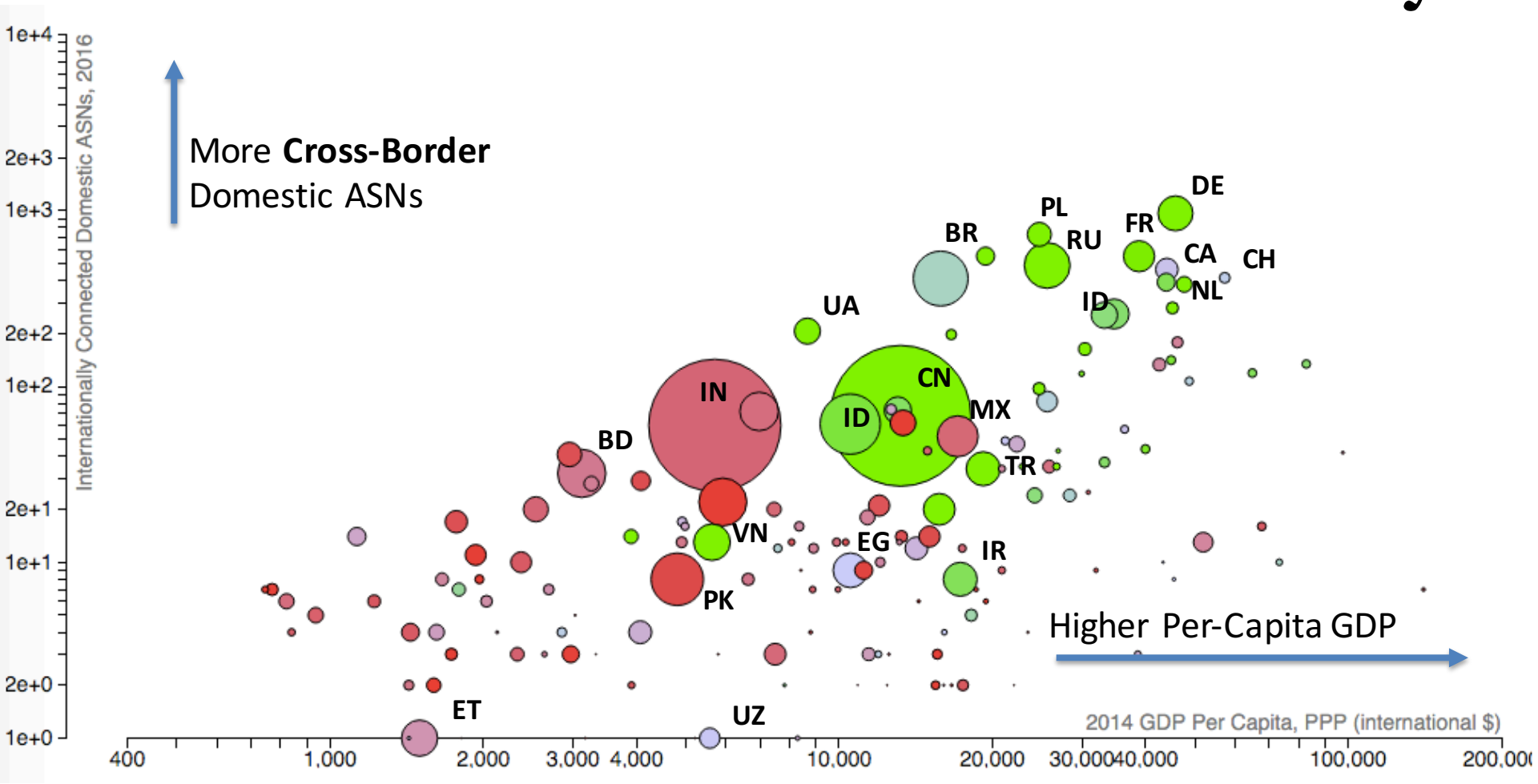
GDP + Diversity



Source: Dyn, World Bank

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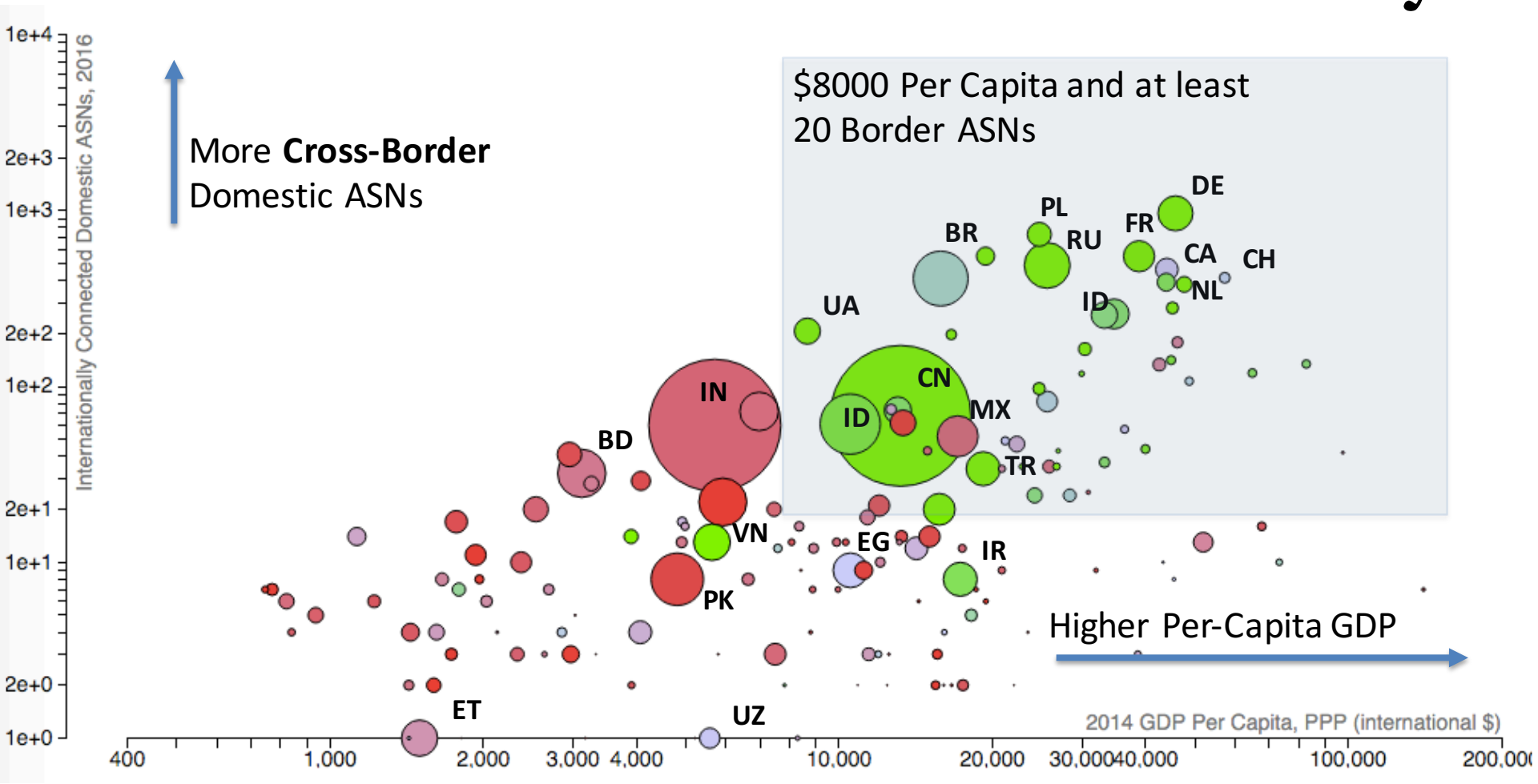
GDP + Diversity



Source: Dyn, World Bank

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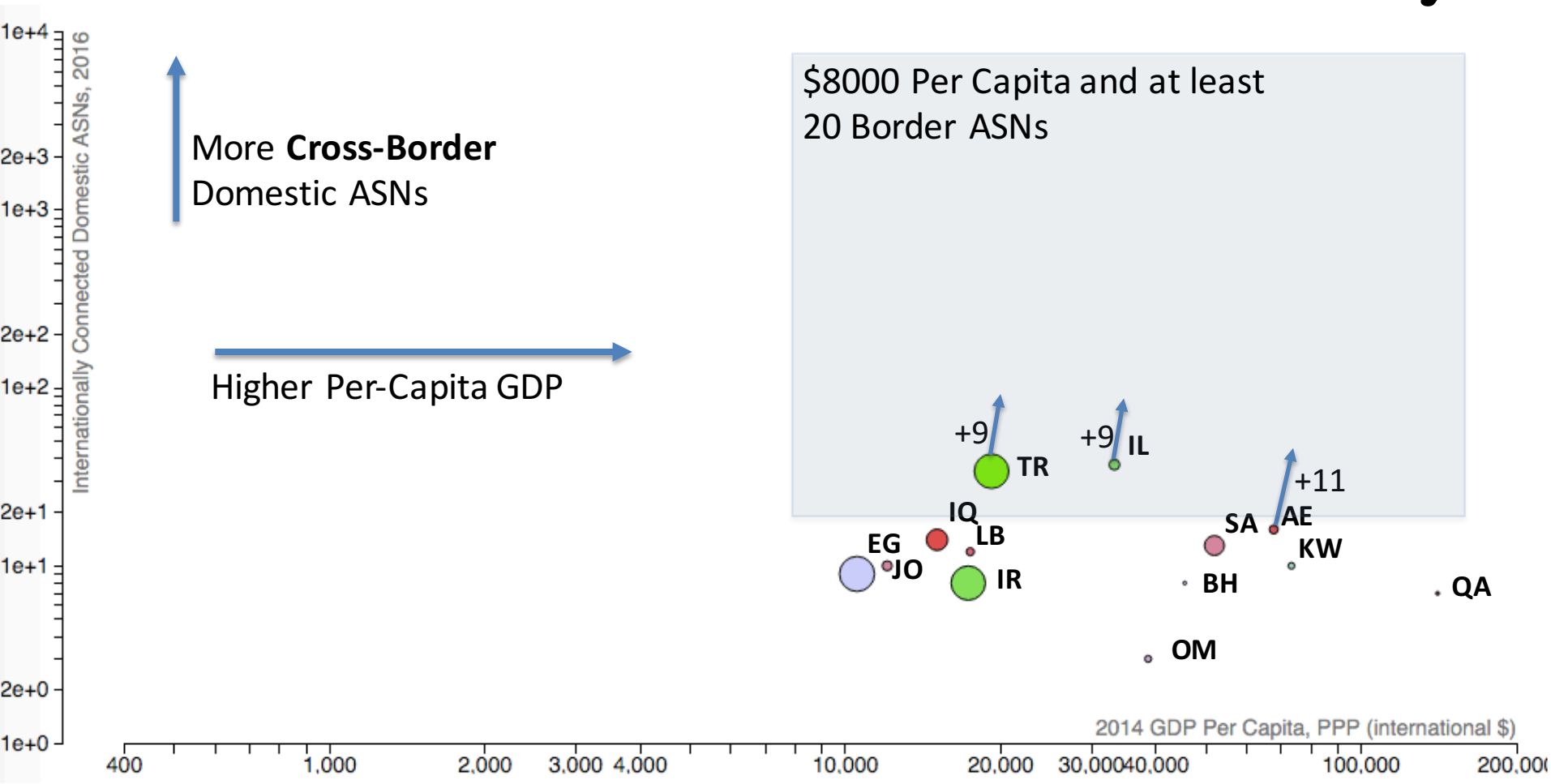
GDP + Diversity



Source: Dyn, World Bank

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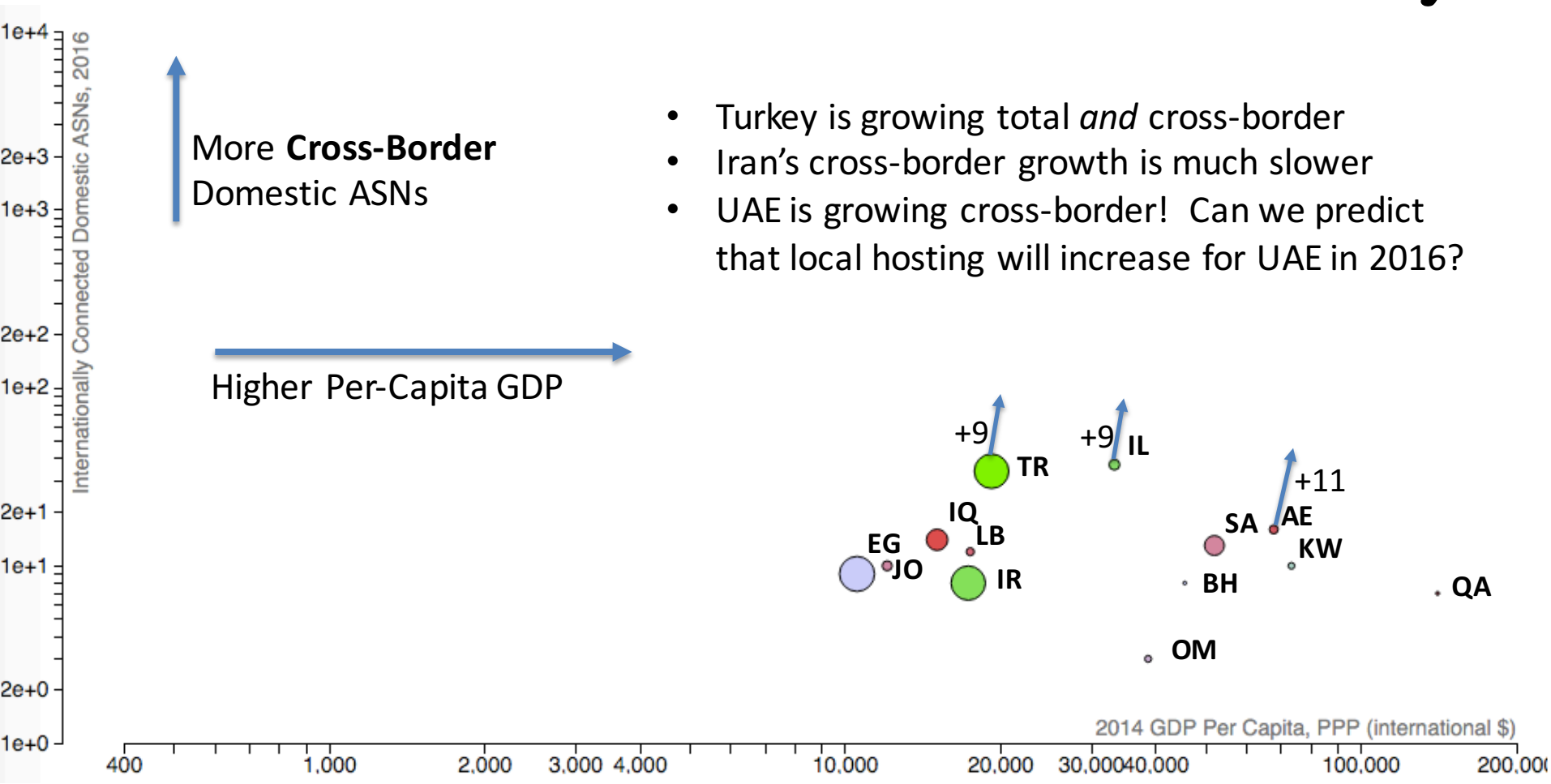
GDP + Diversity



- Turkey is growing total *and* cross-border
- Iran's cross-border growth is much slower
- UAE is growing cross-border! Can we predict that local hosting will increase for UAE in 2016?

Source: Dyn, World Bank

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Operators: So What?

Lack of local hosting creates:

- **Higher latency** (customer experience)

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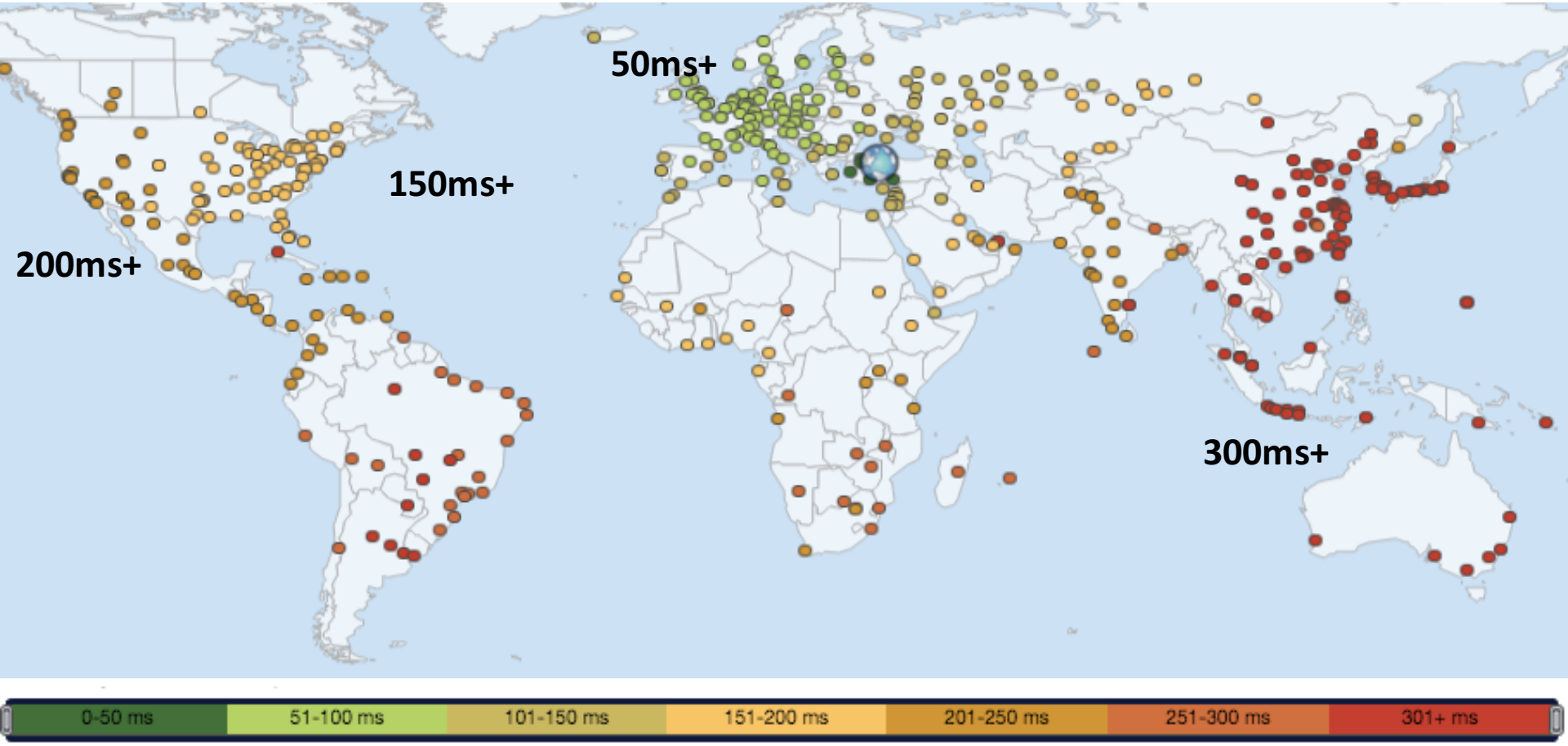
Latency (RTT)



Source: Dyn Internet Intelligence

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Operators: So What?

Lack of local hosting creates:

- **Higher latency** (customer experience)

- **Lost opportunity** (value flowing offshore)

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UAE: Top 10

Originating ASN	%hosted	Provider Name*	Sample Domains
1. AS5384	13.30%	**Etisalat**	mominoilindustry.ae. rascocare.ae. karaz.ae. …
2. AS46606	9.30%	Unified Layer	rooftop.ae. bintannaf.ae. fancydecor.ae. …
3. AS26496	6.30%	GoDaddy	ifm.ae. yellowpower.ae. prohomes.ae. …
4. AS20013	5.50%	CyrusOne	timeline.ae. rheat.ae. harebgen.ae. …
5. AS32475	3.80%	SingleHop, Inc.	techcapital.ae. binary.ae. xk.ae. …
6. AS24940	3%	Hetzner Online	khalifaco.ae. clearwater.ae. ga.ae. …
7. AS36351	2.90%	SoftLayer	mirkgroup.ae. uaef.ae. readymaids.ae. …
8. AS32244	2.40%	Liquid Web, Inc.	hardshell.ae. nahar.ae. airtracer.ae. …
9. AS29873	2%	Endurance	otd-motorsports.ae. eurasian.ae. theblog.ae. …
10. AS20454	1.80%	SECURED SERVERS	easydental.ae. homestyle.ae. faya.ae. …

Domestic in **bold*

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Saudi Arabia: Top 10

Originating ASN	%hosted	Provider Name*	Sample Domains
1. AS46606	9.20%	Unified Layer	acits.com.sa. sob.sa. ucp.edu.sa. ...
2. AS20013	7.80%	CyrusOne	al-jabri.com.sa. alarab.sa. revival.sa. ...
3. AS26496	4.70%	GoDaddy	solan.com.sa. thefaceshop.com.sa. tharawat.com.sa. ...
4. AS41176	4.70%	**Sahara Network**	newvision.sa. usg.com.sa. bhh.com.sa. ...
5. AS24940	4.30%	Hetzner Online	yamami.com.sa. sag.sa. tkkween.sa. ...
6. AS60781	3.80%	LeaseWeb	thatalnitakain.edu.sa. daleel-alintag.com.sa. tkc.sa. ...
7. AS25233	3%	**AwalNet**	alwabelgroup.com.sa. emartaseer.gov.sa. ncp-jgc.com.sa. ...
8. AS36351	2.90%	SoftLayer	mazen.com.sa. almanahjschools.edu.sa. osrah.sa. ...
9. AS33182	2.60%	HostDime	sanacom.com.sa. qimam.edu.sa. jrc.com.sa. ...
10. AS29873	2.50%	Endurance	ucy.edu.sa. atsc.sa. sadeem.com.sa. ...

Domestic in **bold*

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Egypt: Top 10

Originating ASN	%hosted	Provider Name*	Sample Domains
1. AS8452	16.90%	**Telecom Egypt**	ema.gov.eg. ra.com.eg. tradelink.com.eg. …
2. AS24863	11.30%	**MobiNil**	task.com.eg. decibel.com.eg. dataxprs.com.eg. …
3. AS26496	5.70%	GoDaddy.com, LLC	icrema.com.eg. itqan.com.eg. rsmi.com.eg. …
4. AS46606	4.80%	Unified Layer	tmt.com.eg. azhar.edu.eg. iceberg.com.eg.…
5. AS20013	4.70%	CyrusOne LLC	tpcon.com.eg. ejust.edu.eg. egc.com.eg. …
6. AS12876	2.50%	ONLINE S.A.S.	ehf.com.eg. nicapital.com.eg. futurecontrols.com.eg. …
7. AS36024	2.10%	Colo4, LLC	elements.com.eg. esc.org.eg. leadersinfo.com.eg. …
8. AS20928	1.90%	**The Noor Group**	mcsd.com.eg. iinvest.org.eg. shony.com.eg. …
9. AS6127	1.80%	**IDSC**	portsaidsw.edu.eg. cabinet.gov.eg. tcfegypt.org.eg. …
10. AS36992	1.80%	**Etisalat Misr**	scbank.com.eg. cepack.com.eg. etisalat.com.eg. …

Domestic in **bold*

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Iran: Top 10

Originating ASN	%hosted	Provider Name*	Sample Domains
1. AS24940	23.10%	Hetzner Online AG	akq.ir. green-pen.ir. hamisheno.ir. ...
2. AS16276	14.10%	OVH SAS	delbar.ir. isfahaniaz.ir. tehransarang.ir. ...
3. AS16322	9.60%	**Pars Online PJS**	clup.ir. mrc.ir. sharjiran-pay.ir. ...
4. AS48434	4.10%	**Tebyan-e-Noor**	infinityco.ir. bavarha.ir. ilami.ir. ...
5. AS43754	4%	**AsiaTech Inc.**	funmix.ir. computer19.ir. adventuretour.ir. ...
6. AS25184	2.70%	**Afranet**	decotech.ir. met-co.ir. khanehroshan.ir. ...
7. AS58262	2.60%	**Nrp Network LLC**	marketabi.ir. mobin.ir. adinehsanat.ir. ...
8. AS201999	2.40%	**Fanavari Serverpars Argham Gostar**	scriptweb.ir. irankohan.ir. koola.ir. ...
9. AS28753	1.90%	Leaseweb Germany	tiraz.ir. doyas.ir. lotfi.ir. ...
10. AS57497	1.80%	**Faraso Samaneh Pasargad Ltd.**	payafilm.ir. dris.ir. marvel.ir. ...

Domestic in **bold*

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Turkey: Top 10

Originating ASN	%hosted	Provider Name*	Sample Domains
1. AS34619	12.40%	**Cizgi**	desttekstil.com.tr. diasis.com.tr. detateknik.com.tr. ...
2. AS42910	7.20%	**Hosting Internet**	frea.com.tr. ekmar.com.tr. erdimobilya.com.tr. ...
3. AS51559	5.10%	**Netinternet**	okanakdeniz.com.tr. gepar.com.tr. tunaakcay.com.tr. ...
4. AS43391	4.50%	**Netdirekt**	nazarmakina.com.tr. moreclick.com.tr. adresrulman.com.tr. ...
5. AS51557	4.50%	**FBS**	ibisk.org.tr. trivanacaferestorant.com.tr. clubseatime.com.tr. ...
6. AS8685	4.10%	**DorukNet**	otimsa.com.tr. bilgemek.com.tr. ozenhipermarket.com.tr. ...
7. AS42807	3.60%	**Aerotek**	emsmuh.com.tr. kocaelivoleybol.org.tr. hindistanbaharat.com.tr. ...
8. AS42926	3.50%	**Radore Veri Merkezi**	sahsuvarogluotomotiv.com.tr. otoemlakajansi.com.tr. tokatsmmmo.org.tr. ...
9. AS42868	2.80%	**Niobe**	promatech.com.tr. patron.com.tr. asdintekstil.com.tr. ...
10. AS49126	2.70%	**IHS**	karlis.com.tr. itimatsut.com.tr. tekart.com.tr. ...

Domestic in **bold*

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Conclusions

Local hosting depends on several factors:

- Size of the 'real' economy (GDP [per capita])
- Size of the Internet economy (ASNs, Domains)
- Political environment, content regulation
- Proximity of other significant hosting countries (Germany in Europe, USA in North America, Singapore in Southeast Asia)

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Conclusions

The Middle East has no natural centers of gravity for cross-border content hosting – **yet.**

- High per-capita GDP in the GCC has not yet translated into significant rates of local hosting
- UAE may anticipate more local hosting in 2016?
- Turkey and Iran are positioned to be the regional leaders for self-hosting of their domestic content
- The remaining factors for cross-border success are (as always) non-technical.

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