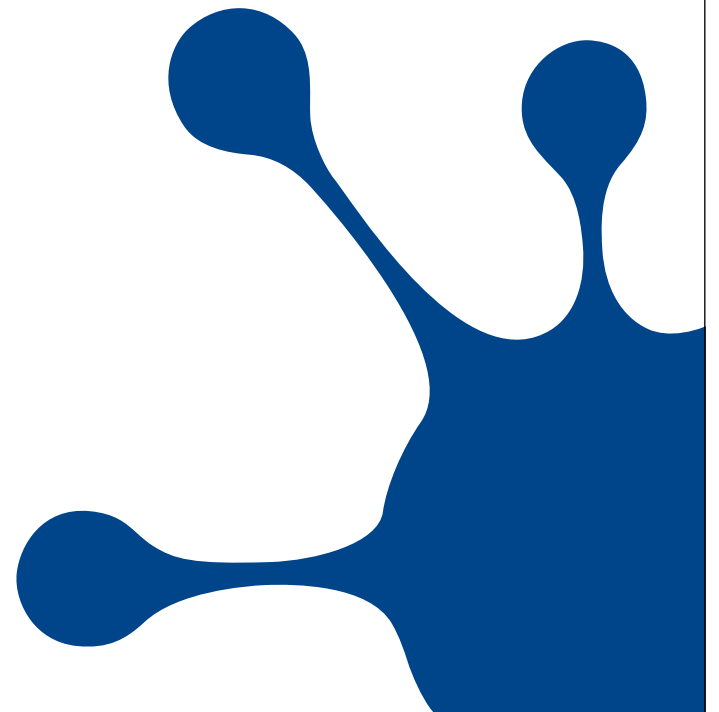


# I.ROOT-SERVERS.NET

ANALYSIS OF QUERY SRC AND ANYCAST  
LOCATIONS

**NEW AND IMPROVED!!!!**

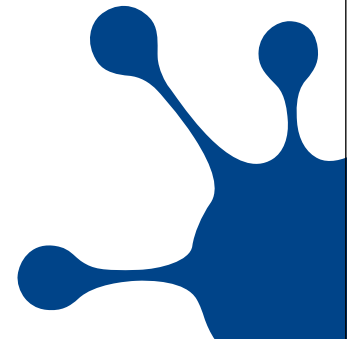


## i.root-servers.net

ONE OF THIRTEEN DNS ROOT-SERVERS

OPERATED BY NON-PROFIT NETNOD IN STOCKHOLM, SE (ALSO OPERATES THE INTERNET EXCHANGES)

ANYCAST AT +40 LOCATIONS AROUND THE WORLD





## The root-servers

ALL HAVE DIFFERENT HARDWARE / SOFTWARE ARCHITECTURE, CHOICES ETC. DIVERSITY IS GOOD!

ALL HAVE DIFFERENT DEPLOYMENT STRATEGIES

- Some are unicast, some are anycast
- Some are anycast at IXPs some are inside carrier networks
- Some have few global nodes, and the rest are local nodes

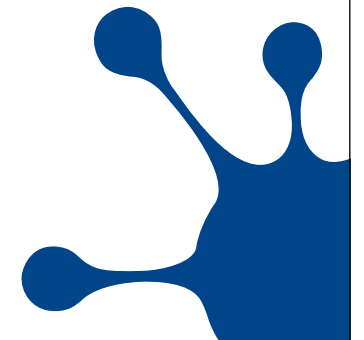


## i.root deployments

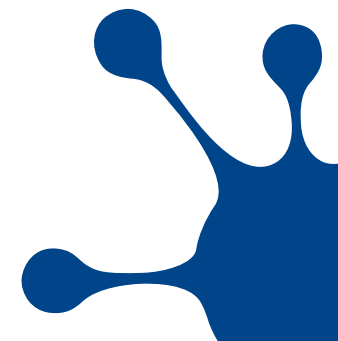
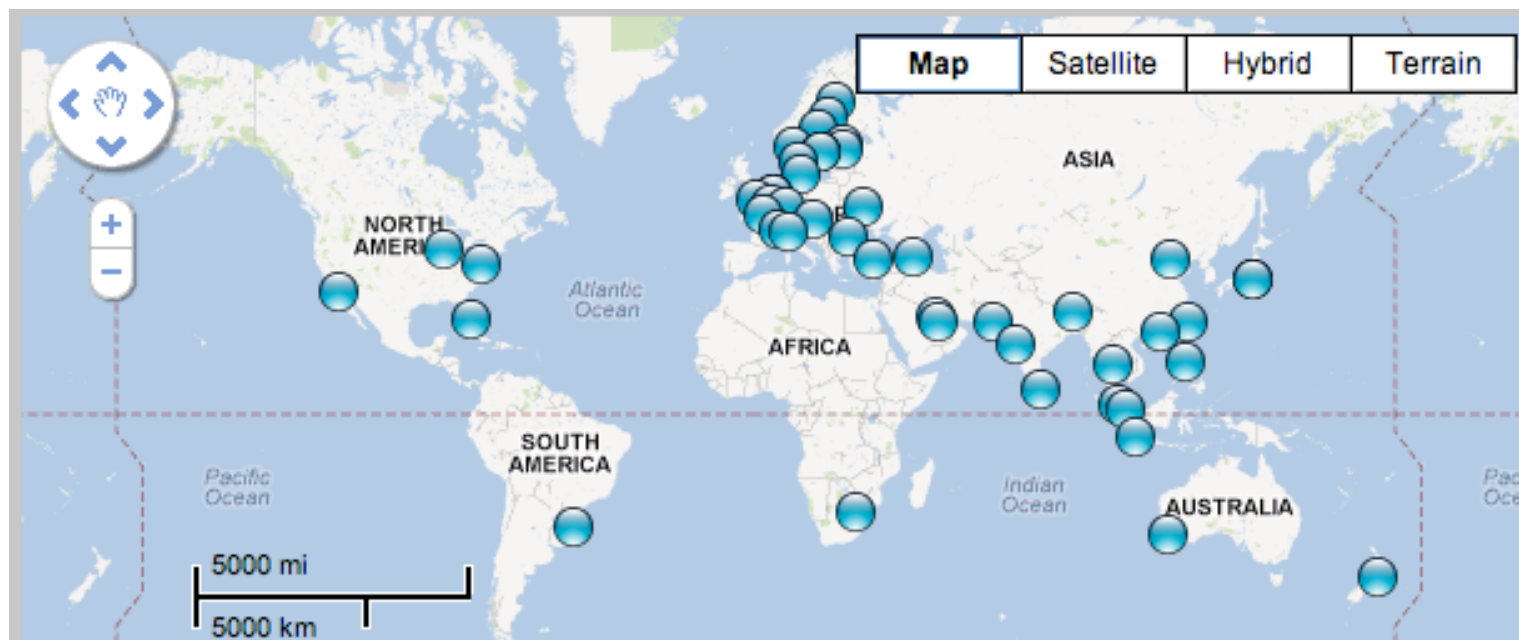
MOST LOCATIONS ARE AT IXPs, A FEW INSIDE TIER-1 NETWORKS, A FEW LOCATIONS ARE WHERE NO IXP EXISTS

GLOBAL / LOCAL DISTINCTION PER PEER (USING NO-EXPORT)

MOST PEERS ARE LOCAL



# i.root-servers.net



## Peerings

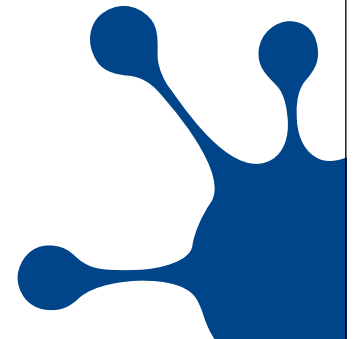
APPROX. 1400 PEERINGS WITH 650 ASNs

INCLUDES ROUTE-SERVERS AT SOME OF THE LARGER IXPs

WE ARE ALWAYS LOOKING FOR MORE PEERINGS!

**[peering@netnod.se](mailto:peering@netnod.se)**

**<http://as8674.peeringdb.com>**



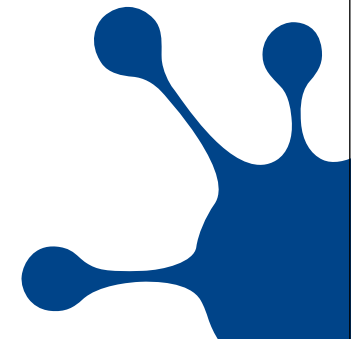
## Analysis of query src

BASED ON SRC IPv4 / IPv6 ADDRESS

ECONOMY REPRESENTED BY CORRESPONDING RIR DATA FOR A PREFIX

BASED ON A 2H40M SNAPSHOT

NOT 100% REPRESENTATIVE, BUT GIVES AN INDICATION OF ROUTING

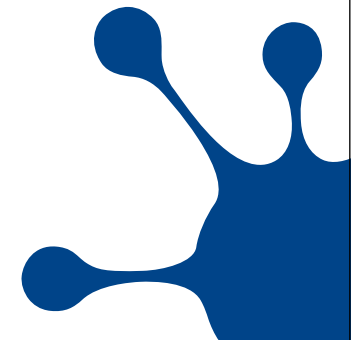




## Analysis of query src

### SOME OBSERVATIONS :

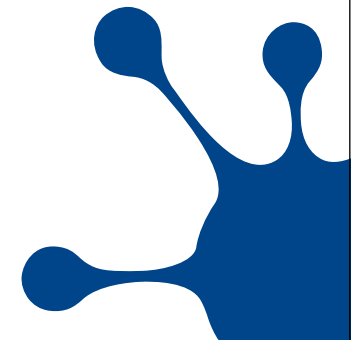
- Most nodes behaves as expected
- A lot of RFC1918 sources at some locations - Should not be there at all
- Some IXPs see traffic from far away where there are closer instances of i.root - Very odd routing



## Analysis of query src

### SOME OBSERVATIONS CONTD.

- Nodes with a lot of transit get traffic from diverse locations, and global Eyeball providers
- Large IXPs have a diversity of Economies represented - as expected
- Smaller IXPs/National IXPs have high % of national traffic - as expected



## IPv6

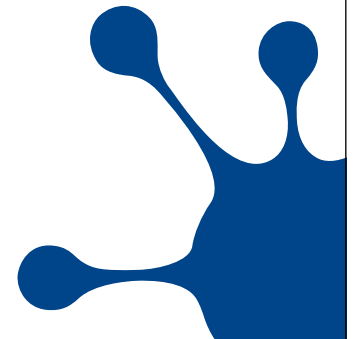
VERY.....DIFFERENT

PARTLY MIGHT BE DUE TO US NOT HAVING IPv6 GLOBALLY

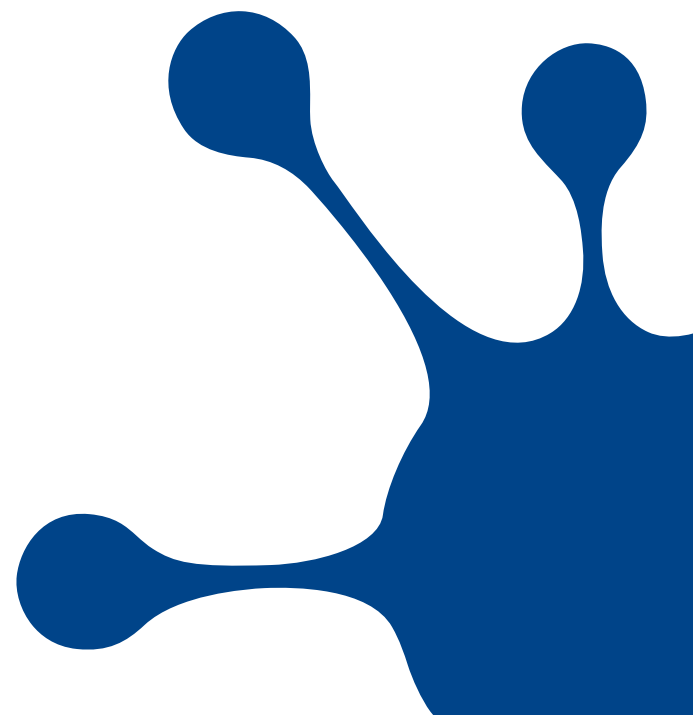
PARTLY BECAUSE THE PEERING LANDSCAPE IS VERY DIFFERENT

PARTLY BECAUSE JUST BECAUSE WE PEER DOESN'T MEAN THAT WE ARE SENT TRAFFIC....

PARTLY....I CAN'T EXPLAIN



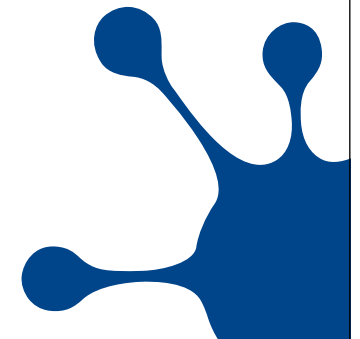
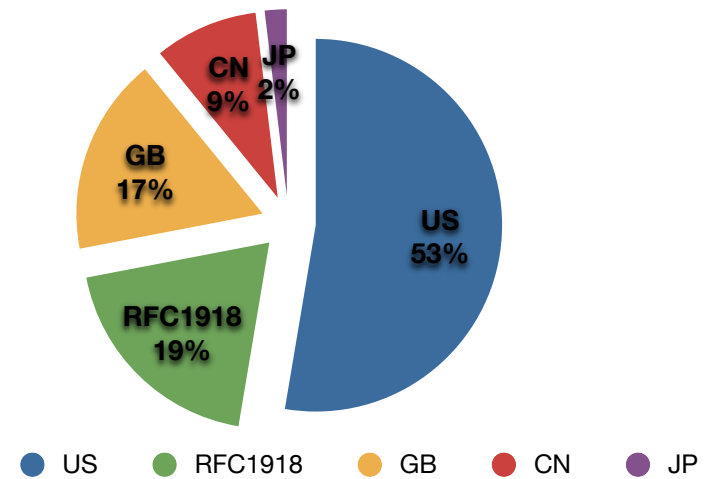
# ASIA



# Beijing, CN

%	ASN	Economy	Network
18			RFC1918
18	2828	US	XO-AS15
15	26496	US	AS-26496-GO-DADDY-COM-LLC
14	2856	GB	BT-UK-AS
7	7497	CN	CSTNET-AS-AP
3	21788	US	NOC
3	26496	US	AS-26496-GO-DADDY-COM-LLC
2	10026	JP	PACNET
1	30633	US	LEASEWEB-US
1	558	US	NET2EZ
1	9497	PH	DIGITELONE
1	5769	CA	VIDEOTRON
1	15133	US	EDGECAST
1	8435	GB	Lloyds
1	24151	CN	CNNIC-CRITICAL-AP
1	9625	IN	PACIFIC-INTERNET-INDIA-ASN

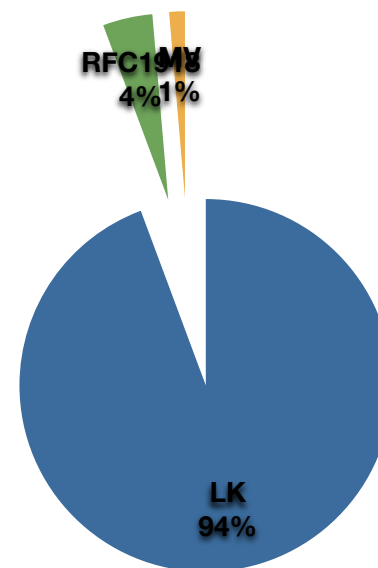
% Queries per Economy



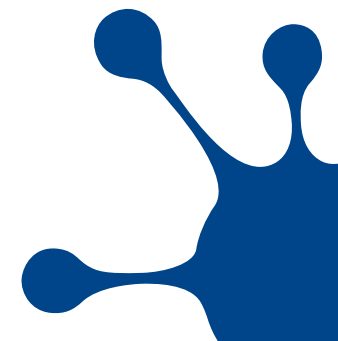
# Colombo, LK

%	ASN	Economy	Network
52	9329	LK	SLTINT-AS-AP
42	9329	LK	SLTINT-AS-AP
4			RFC1918
1	7642	MV	DHIRAAGU-MV-AP
0	5087	LK	LANKA-COM
0	9329	LK	

% Queries per Economy



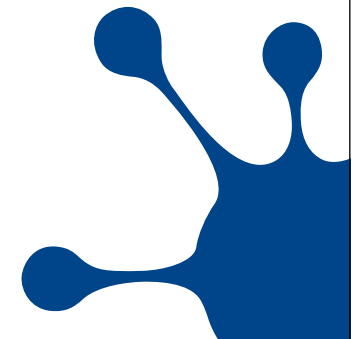
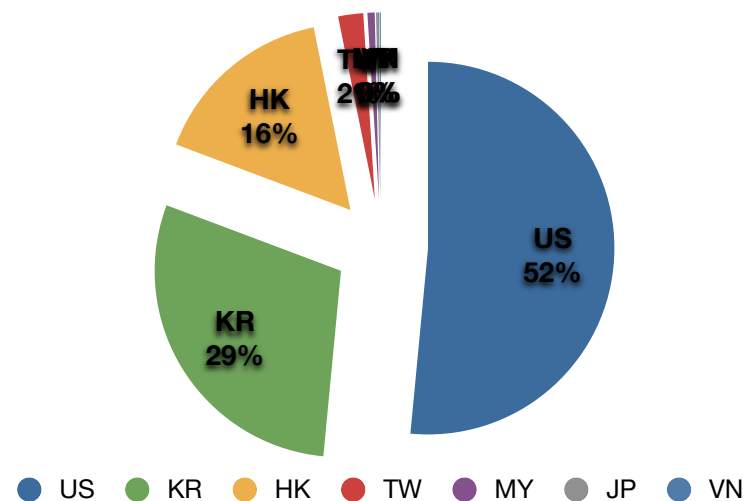
- LK
- RFC1918
- MV



# Hong Kong (HKIX),HK

%	ASN	Economy	Network
51	15169	US	GOOGLE
25	9318	KR	HANARO-AS
12	4760	HK	HKTIMS-AP
2	9644	KR	SKTELECOM-NET-AS
1	24506	TW	YAHOO-TP2
1	17924	HK	SMARTONE-MB-AS-AP
1	3661	HK	ERX-CUHKNET
1	10229	TW	YAHOO-TW1
1	9474	HK	SMARTONE-AS-AP
1	38689	KR	YHKR3
1	4862	MY	EQUANT-ASIA

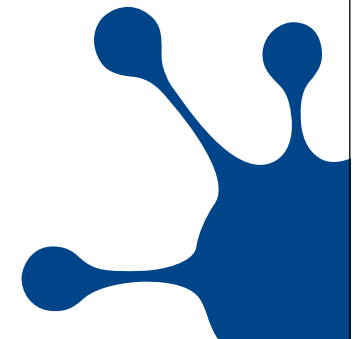
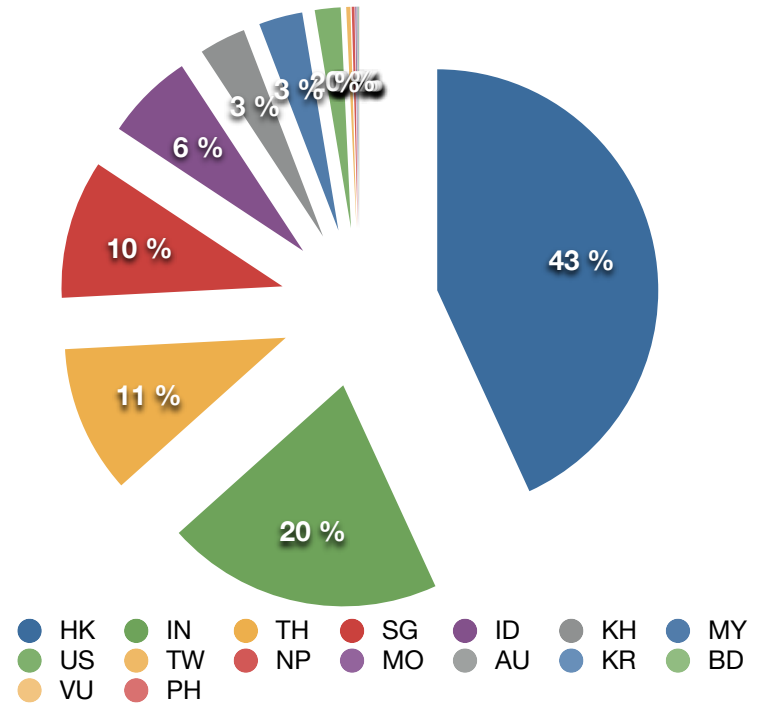
% Queries per Economy



# Hong Kong (HKIX),HK - IPv6

%	ASN	Economy	Network
19	4515	HK	ERX-STAR
18	9381	HK	NEWTT-IP-AP
7	4755	IN	TATACOMM-AS
5	4773	SG	MOBILEONELTD-AS-AP
5	9829	IN	BSNL-NIB
4	4750	TH	CSLOXINFO-AS-AP
4	4621	TH	UNSPECIFIED
3	17547	SG	QALA-SG-AP
3	38794	TH	BB-BROADBAND-TH-AS-AP
3	38235	KH	MEKONGNET-ADC-AS-AP
2	38322	MY	P1NETWORKS-MY-AP
2	10029	IN	SPECTRANET
2	6939	US	HURRICANE
2	38457	IN	HNS-AS-AP
2	17665	IN	IN2CABLE-AP

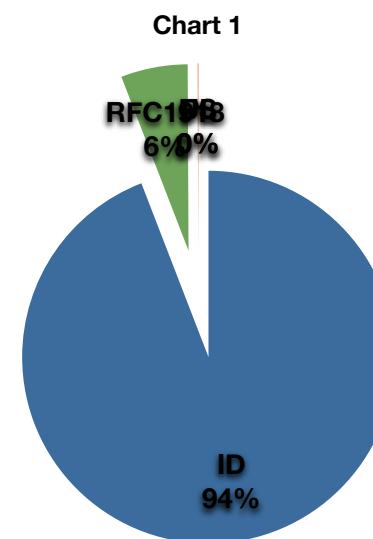
% Queries per Economy



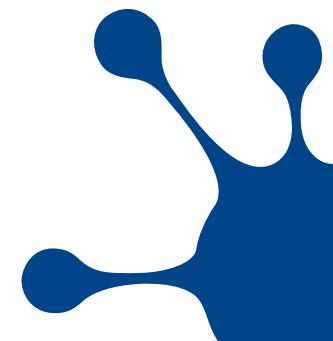


# Jakarta (IIX, MCIX), ID

%	ASN	Econom y	Network
40	17974 ID		TELKOMNET-AS2-AP
12	23693 ID		TELKOMSEL-ASN-ID
7	38149 ID		RATELINDONET-AS-ID
4	4787 ID		ASN-CBN
5			RFC1918
3	18004 ID		WIRELESSNET-ID-AP
2	10217 ID		NTT-NET-ID-AS
2	24518 ID		NTSNET-AS-ID
1	4795 ID		INDOSATM2-ID
1	4761 ID		INDOSAT-INP-AP
1	38511 ID		TACHYON-AS-ID
1	18059 ID		DTPNET-AS-AP
1	4855 ID		PI-ID-AS-AP
1	18103 ID		NEUVIZ-AS-ID-AP
1	23679 ID		NUSANET-AS-ID
1	4800 ID		LINTASARTA-AS-AP
1	56246 ID		SDI-AS-ID
1	9875 ID		PESAT1-AS-AP
1	17727 ID		NAPINFO-AS-AP
1	9228 ID		CENTRALONLINE-ID-AS-AP
1	24530 ID		POWERNET-AS-ID
1	38496 ID		CNI-AS-ID
1	18051 ID		JARDIKNAS-AS-AP

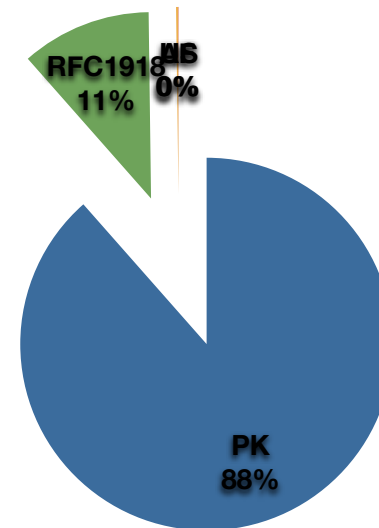


- ID
- RFC1918
- US
- PL



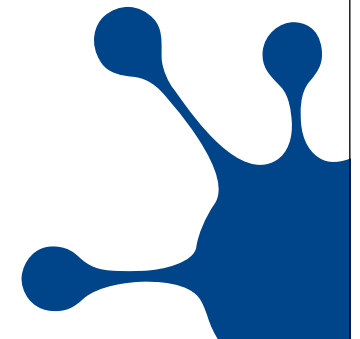
# Karachi, PK

% Queries per Economy



- PK
- RFC1918
- AF
- US

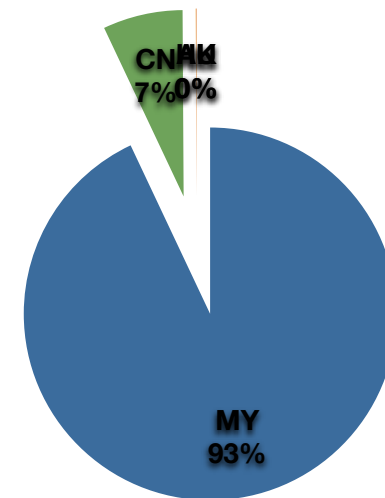
%	ASN	Economy	Network
64	45595	PK	PKTELECOM-AS-PK
12	45595	PK	PKTELECOM-AS-PK
11			RFC1918
6	24435	PK	SUPERNET-PAKISTAN-AS-AP
1	4661	PK	PTCLBB-PK
1	17557	PK	PKTELECOM-AS-PK
1	9557	PK	PKTELECOM-AS-PK
1	7590	PK	COMSATS
1	55541	PK	MCB15MAIN-AS-AP
1	55453	PK	SKYTELECOM-AS-PK



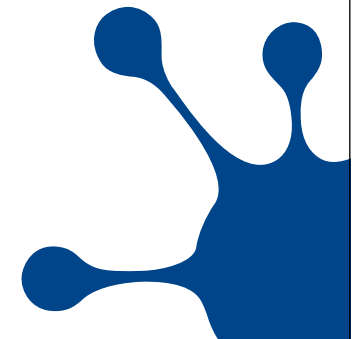
# Kuala Lumpur (MyIX), MY

%	ASN	Economy	Network
25	9534	MY	MAXIS-AS1-AP
20	9534	MY	MAXIS-AS1-AP
10	9930	MY	TTNET-MY
7	24218	MY	GTC-MY-PIP-AS
7	9930	MY	TTNET-MY
7	4538	CN	ERX-CERNET-BKB
5	45668	MY	AIMS-MY-AS
4	38044	MY	GITN-SCHOOLNET-AP
3	45352	MY	IPSERVERONE-AS-AP
3	24321	MY	OCENET-AS-AP
2	9655	MY	TPMNETWORK-AS-AP
2	46015	MY	EXABYTES-AS-AP
2	17666	MY	FREENET-MY-AS
1	45785	MY	TECHAVENUE-AP

% Queries per Economy



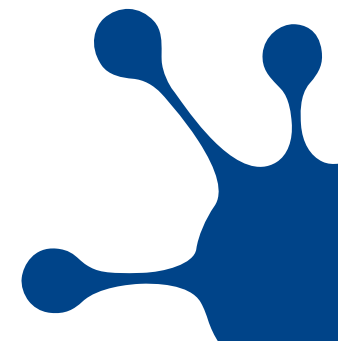
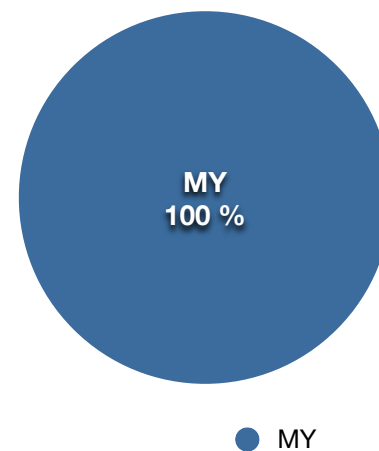
● MY ● CN ● HK ● AU



# Kuala Lumpur (MyIX), MY - IPv6

%	ASN	Economy	Network
90	9930	MY	TTNET-MY
10	38904	MY	N3LABS-MY

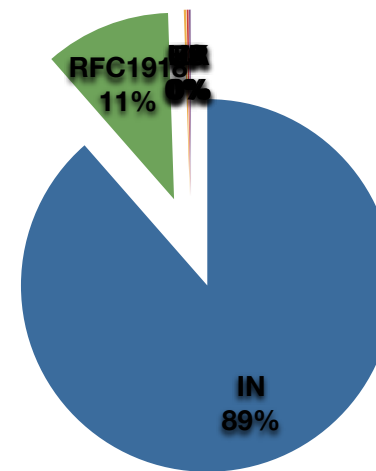
% Queries per Economy



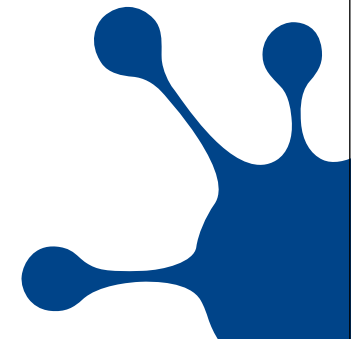
# Mumbai (NIXI), IN

%	ASN	Economy	Network
31	131222	IN	MTS-INDIA-IN
15	131222	IN	MTS-INDIA-IN
9	9829	IN	BSNL-NIB
11			RFC1918
8	4755	IN	TATACOMM-AS
7	18101	IN	RELIANCE-COMMUNICATIONS-IN
2	38224	IN	REDIFF-AS
2	18209	IN	BEAMTELE-AS-AP
1	17813	IN	MTNL-AP
1	17488	IN	HATHWAY-NET-AP
1	17803	IN	BSES-AS-AP
1	24554	IN	FIVE-NET-AS-IN
1	23682	IN	PACENET-AS
1	17439	IN	NETMAGIC-AP

% Queries per Economy



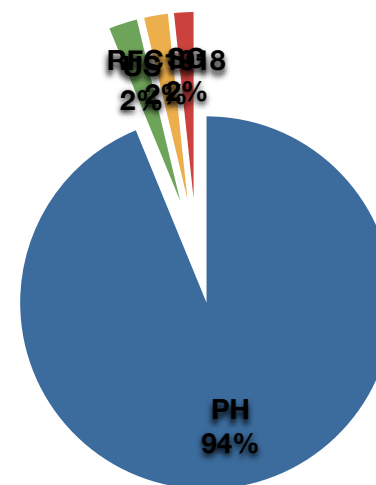
● IN 
 ● RFC1918 
 ● US 
 ● HK 
 ● JP 
 ● ZA 
 ● FR



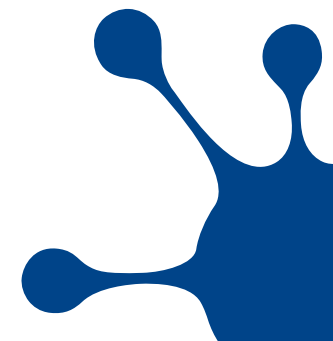
# Manila (PHOpenIX), PH

%	ASN	Economy	Network
68	4775	PH	GLOBE-TELECOM-AS
9	4775	PH	GLOBE-TELECOM-AS
6	17894	PH	APMI-AS-AP
6	17894	PH	APMI-AS-AP
2	3561	US	SAVVIS
2	9927	PH	PHILCOMNET-PH
2	4775	SG	GLOBE-TELECOM-AS
1			RFC1918
1	9658	PH	ETPI-IDS-AS-AP
1	24079	PH	DATAONE-PH-AS-AP
1	10229	AU	Yahoo

% Queries per Economy



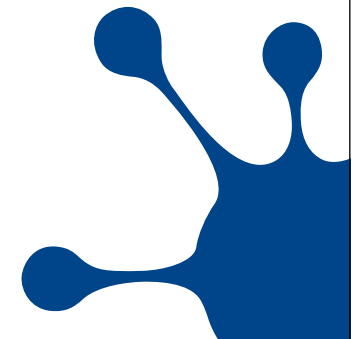
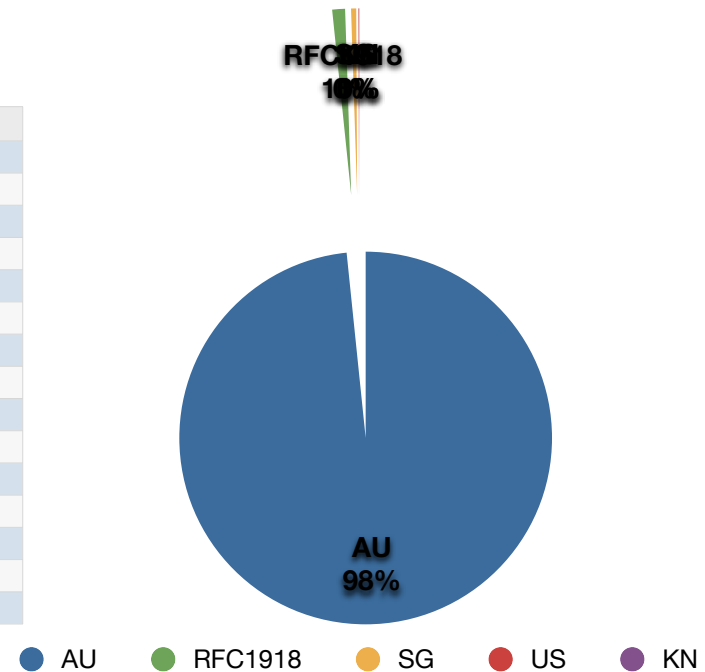
- PH
- US
- RFC1918
- SG



# Perth (WAIX), AU

%	ASN	Economy	Network
49	4802 AU		ASN-IINET
11	9822 AU		AMNET-AU-AP
7	7545 AU		TPG-INTERNET-AP
5	38657 AU		WAWB-AS-AP
4	4739 AU		INTERNODE-AS
3	2764 AU		AAPT
3	9443 AU		INTERNETPRIMUS-AS-AP
1	24541 AU		FORTYFIVERU-AS-AU
1	24437 AU		UWA-AS-AP
1			RFC1918
1	45454 AU		WEB24-VIC-AU
1	9745 AU		WANET-AS-AP
1	7575 AU		AARNET-AS-AP
1	17561 AU		SERVICENET-AP
1	7604 AU		HWY1-AS

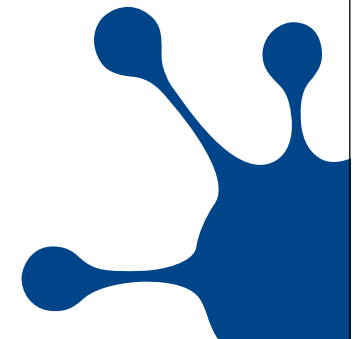
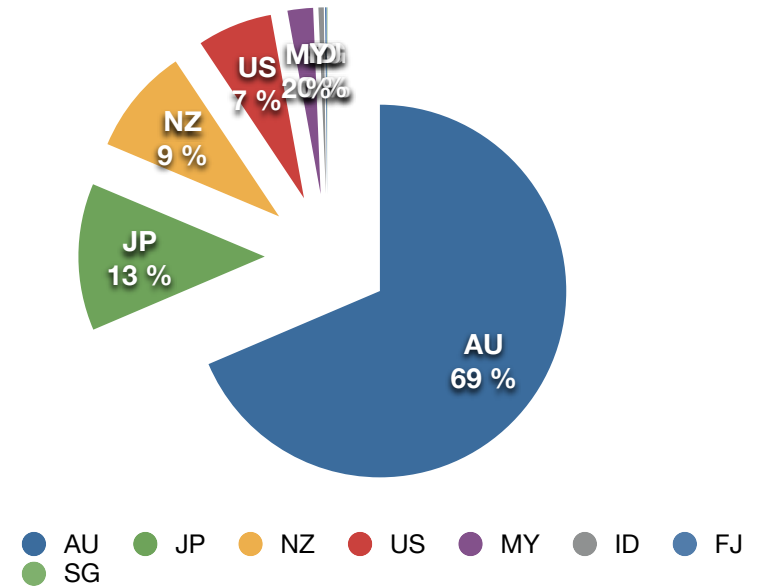
% Queries per Economy



# Perth (WAIX), AU - IPv6

%	ASN	Economy	Network
40	4739	AU	INTERNODE-AS
12	9556	AU	ADAM-AS-AP
9	9824	JP	ASN_ATHOME.JP
6	36626	US	JGTLD
4	7575	AU	AARNET-AS-AP
4	45177	NZ	LAYER2CO-AS-AP
4	9617	JP	ZAQ
3	18371	AU	NCABLE-AP
2	2042	MY	ERX-JARING
2	7477	AU	TEREDONN-AS-AP
1	55850	NZ	TRUSTPOWERLTD-AS-AP
1	24130	AU	PIPETRANSIT-AS-AP
1	9503	NZ	FX-PRIMARY-AS
1	24557	AU	UBERGLOBAL-AS-AP
1	6262	AU	CSIRO
1	45425	AU	DEDICATED-SERVERS-SYD-AS-AP
1	38477	NZ	UNLEASH-AS-NZ
1	45920	AU	SKYMESH-AS-AP
1	17705	NZ	INSPIRENET-AS-AP

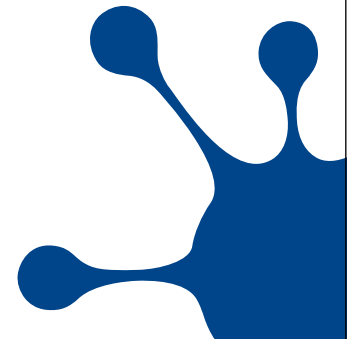
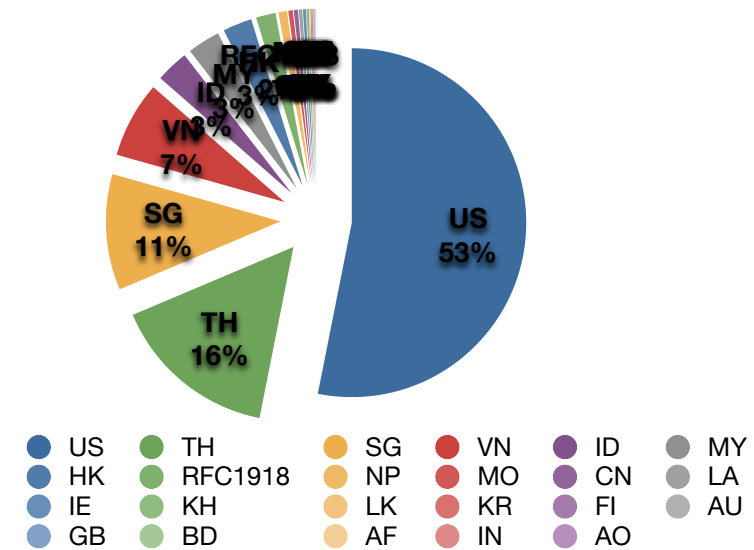
% Queries per Economy





# Singapore (Equinix), SG

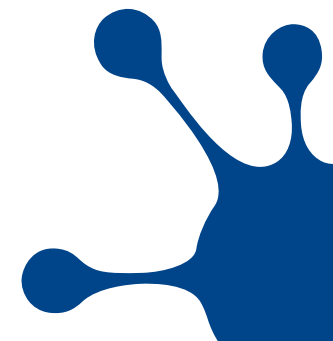
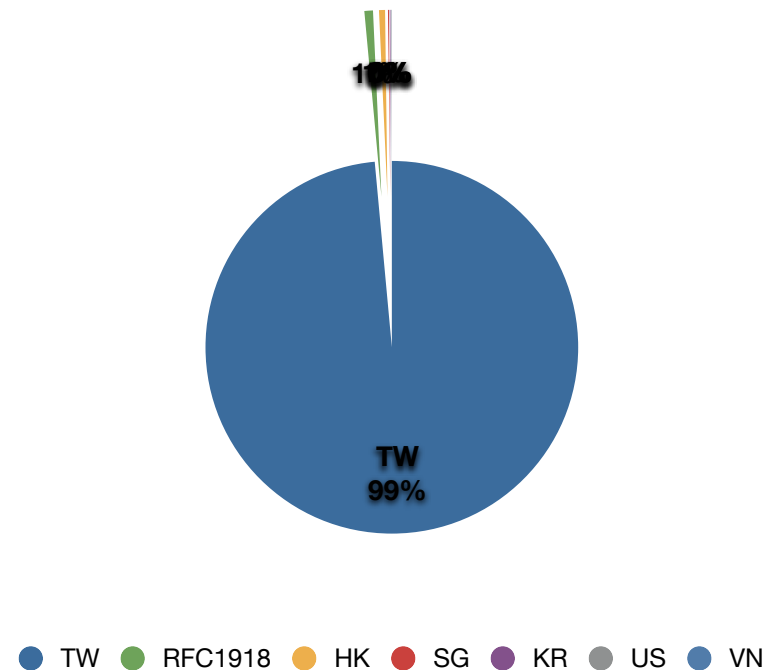
%	ASN	Economy	Network
22	15169	US	GOOGLE
21	36692	US	OPENDNS
14	9737	TH	TOTNET-TH-AS-AP
8	13414	US	TWITTER-NETWORK
5	7552	VN	VIETEL-AS-AP
2	9989	SG	EQUINIX-AP
2	56173	SG	YAHOO-SG3
2	56173	SG	YAHOO-SG3
2			RFC1918
2	4773	SG	MOBILEONELTD-AS-AP
2	10030	MY	CELCOMNET-AP
1	18403	VN	FPT-AS-AP
1	23974	TH	MOE-EDNET-AS-AP
1	23700	ID	BM-AS-ID
1	38322	MY	P1NETWORKS-MY-AP
1	4515	HK	ERX-STAR
1	38895	SG	AMAZON-AS-AP
1	14803	US	AS-14803
1	10230	HK	YAHOO-SG



# Taipei, TW

%	ASN	Economy	Network
30	9924	TW	TFN-TW
18	4780	TW	SEEDNET
10	1659	TW	ERX-TANET-ASN1
9	9416	TW	MULTIMEDIA-AS-AP
5	9919	TW	NCIC-TW
4	7482	TW	APOL-AS
4	9674	TW	FET-TW
3	18182	TW	SONET-TW
3	24154	TW	APBT-AS-TW
2	1659	TW	ERX-TANET-ASN1
1	17809	TW	MONAD-TW-AP
1	17420	TW	ACCSI-TW
1	17716	TW	NTU-TW
1	9916	TW	NCTU-TW
1	4782	TW	GSNET
1	10135	TW	EASPNET-AS-AP
1	18042	TW	KBT
1			RFC1918
1	18420	TW	NCU-TW
1	7539	TW	TANET2-TW
1	9264	TW	ASNET

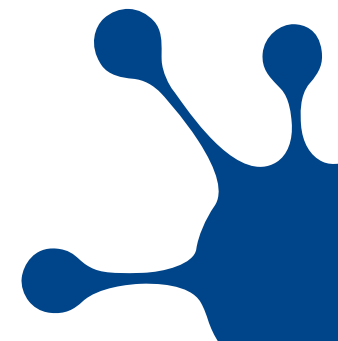
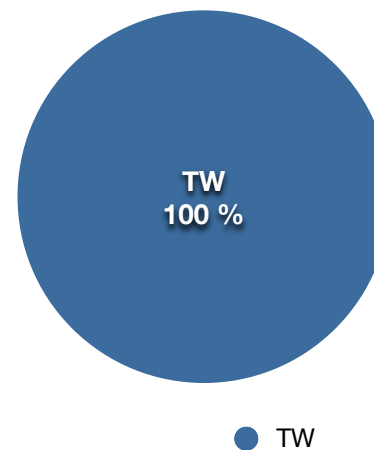
% Queries per Economy



# Taipei, TW - IPV6

%	ASN	Economy	Network
62	1659	TW	ERX-TANET-ASN1
18	9264	TW	ASNET
17	17419	TW	HINET-IPV6-TW
3	4782	TW	GSNET
0	17709	TW	EBT
0	17419		

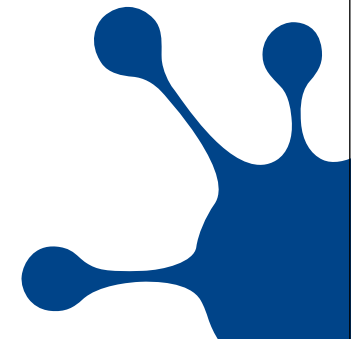
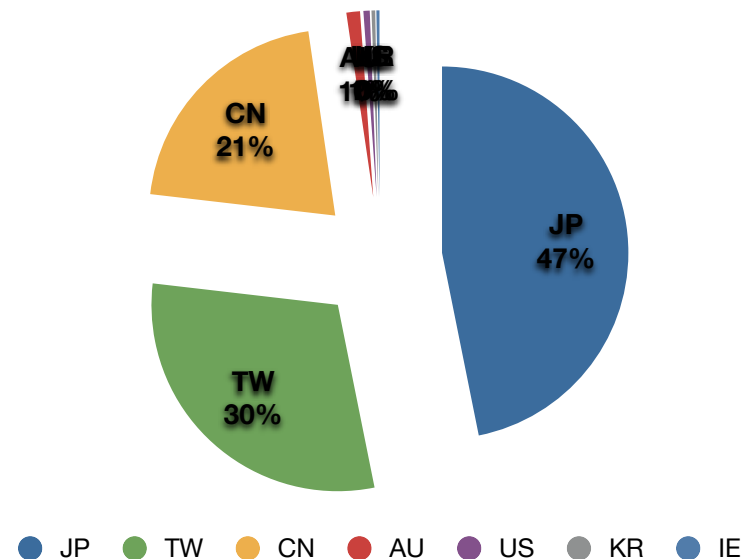
% Queries per Economy



# Tokyo (JPNAP), JP

%	ASN	Economy	Network
26	3462	TW	HINET
12	4134	CN	CHINANET-BACKBONE
11	4713	JP	OCN
7	2518	JP	BIGLOBE
6	17506	JP	UCOM
4	3462	TW	HINET
4	9595	JP	XEPHION
4	2527	JP	SO-NET
2	9824	JP	ASN-ATHOMEJP
2	9605	JP	MOPERA
2	4813	CN	BACKBONE-GUANGDONG-AP
2	23724	CN	CHINANET-IDC-BJ-AP
1	2907	JP	SINET-AS
1	4847	CN	CNIX-AP
1	4691	JP	DTI
1	38627	JP	BAIDUJP
1	17964	CN	DXTNET
1	4835	CN	CHINANET-IDC-SN
1	10010	JP	TOKAI
1	9600	JP	SONYTELECOM
1	17672	CN	CHINATELECOM-HE-AS-AP
1	15133	AU	EDGECAST

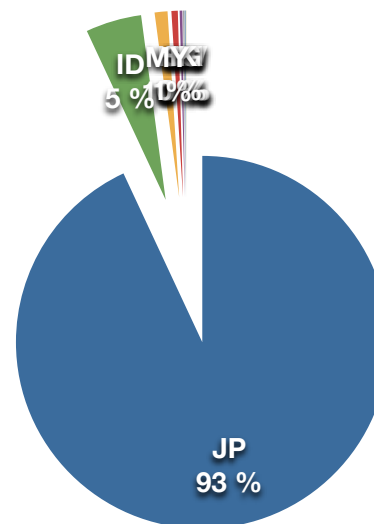
% Queries per Economy



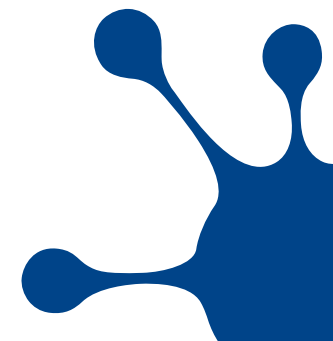
# Tokyo (JPNAP), JP - IPv6

%	ASN	Economy	Network
57	4713	JP	OCN
10	9605	JP	MOPERA
8	2907	JP	SINET-AS
6	18126	JP	CTCX
4	9600	JP	SONYTELECOM
4	17974	ID	TELKOMNET-AS2-AP
2	10013	JP	FBDC
1	2914	JP	NTT-COMMUNICATIONS-2914
1	2518	JP	BIGLOBE
1	23720	JP	FUSIONGOL-AS-AP
1	10030	MY	CELCOMNET-AP
1	17924	HK	SMARTONE-MB-AS-AP

% Queries per Economy

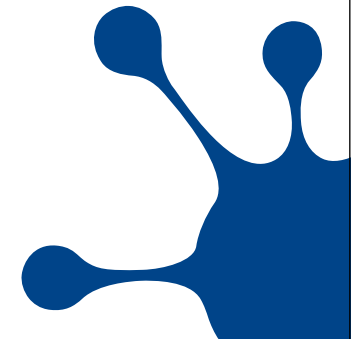
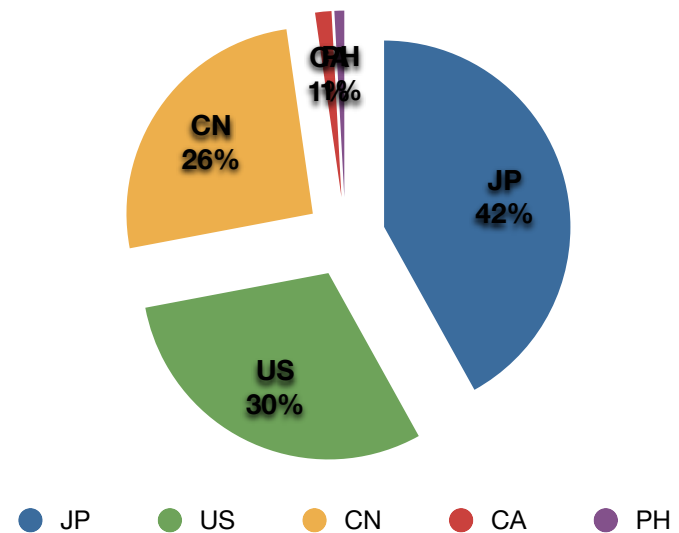


- JP
- ID
- MY
- HK
- SG
- LK
- TH
- MV
- AU



%	ASN	Economy	Network
18	4134	CN	CHINANET-BACKBONE
7	17676	JP	GIGAINFRA
5	4812	CN	CHINANET-SH-AP
4	2497	JP	IJJ
4	4725	JP	ODN
4	2510	JP	INFOWEB
2	8001	US	NET-ACCESS-CORP
2	37903	JP	EMOBILE
2	2514	JP	INFOSPHERE
2	14618	US	AMAZON-AES
2	2519	JP	VECTANT
2	13768	US	PEER1
1	9371	JP	SAKURA-C
1	37963	CN	CNNIC-ALIBABA-CN-NET-AP
1	16509	US	AMAZON-02
1	11622	US	MOTRICITY
1	6318	US	CHECKFREE
1	6167	US	CELLCO-PART
1	701	US	UUNET
1	9370	JP	SAKURA-B
1	4694	JP	IDC
1	10507	US	SPCS
1	4685	JP	ASAHI-NET
1	54428	US	FRD-ASN
1	9386	PH	DESTINY-AS-AP
1	1668	US	AOL-ATDN
1	10912	US	INTERNAP-BLK
1	22394	US	CELLCO
1	1239	US	SPRINTLINK
1	9365	JP	ITSCOM
1	10010	JP	TOKAI
1	7506	JP	INTERQ
1	10933	US	ATXNET-AS
1	17633	CN	CHINATELECOM-SD-AS-AP
1	18126	JP	CTCX
1	13731	US	BCHARRIS
1	36692	US	OPENDNS

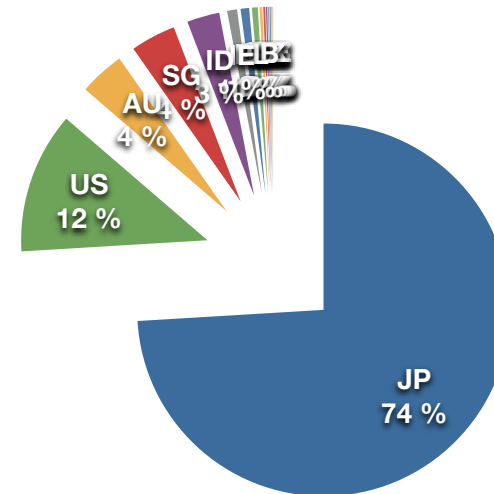
% Queries per Economy



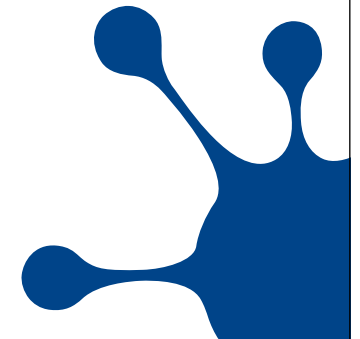
# Tokyo (DIX-IE, JPIX), JP - IPv6

%	ASN	Economy	Network
12	2516	JP	KDDI
11	9371	JP	SAKURA-C
10	2514	JP	INFOSPHERE
9	9824	JP	ASN-ATHOMEJP
8	9371	JP	SAKURA-C
4	9354	JP	TDNC
4	7018	US	ATT-INTERNET4
4	1221	AU	ASN-TELSTRA
3	2518	JP	BIGLOBE
3	2497	JP	IIJ
3	6939	US	HURRICANE
3	9365	JP	ITSCOM
2	3758	SG	ERX-SINGNET
2	17511	JP	K-OPTICOM
2	17451	ID	BIZNET-AS-AP
2	18268	JP	JANIS
2	7684	JP	SAKURA-A
2	4657	SG	STARHUBINTERNET-AS
1	9619	JP	SSD
1	7672	JP	FITWEB
1	4795	ID	INDOSATM2-ID
1	27357	US	RACKSPACE
1	31080	PL	O2-AS
1	11985	US	ASN-SSA
1	25441	IE	IBIS-AS
1	22394	US	CELLCO
1	10010	JP	TOKAI
1	29550	GB	SIMPLYTRANSIT

% Queries per Economy



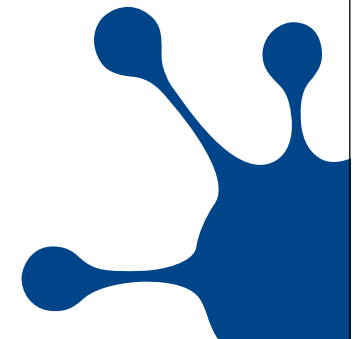
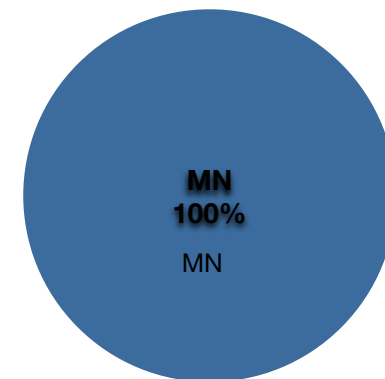
- JP
- US
- AU
- SG
- ID
- IE
- PL
- GB
- IL
- NZ
- IT
- SK
- DE
- NL
- CZ
- ES
- TH



# Ulan Bataar, MN

%	ASN	Economy	Network
34	45204	MN	GEMNET-MN
15	17882	MN	ASN-MCS-AP
13	38818	MN	YOKOUNANET-MN-AS-AP
11	38805	MN	CITINET-AS-MN-AP
7	45237	MN	GLOBAL-MG-AS-AP
6	38038	MN	SANSAR-INTERNET-AS
4	10219	MN	SKYCC-AS-MAIN
2	24559	MN	WIRELESSCOM-MN
2	10109	MN	TOPNET-AS-MN-AP
2	38008	MN	HANS-AS-MN
1	38042	MN	INCOMNET-MONGOLIA-AS-AP
1	9934	MN	MICOM-MN-AS
1	56293	MN	KEWIKONET-AS-AP
1	4850	MN	DIGICOM-AS-AP

% Queries per Economy

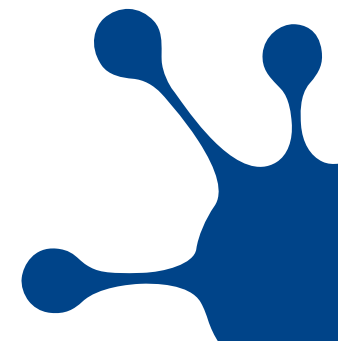
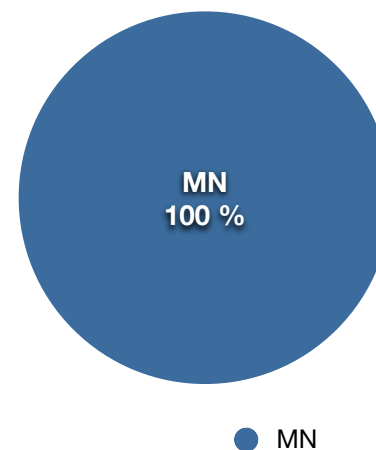




# Ulan Bataar, MN - IPv6

%	ASN	Economy	Network
100	58598	MN	COMTEL-NET-AS

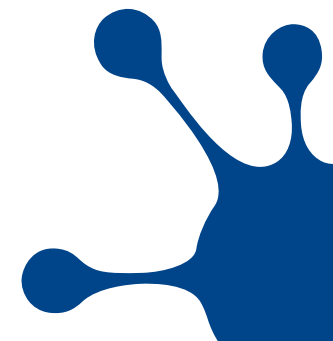
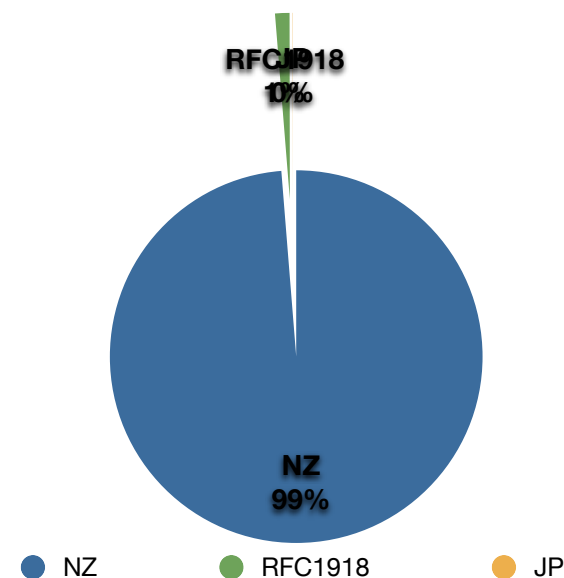
% Queries per Economy



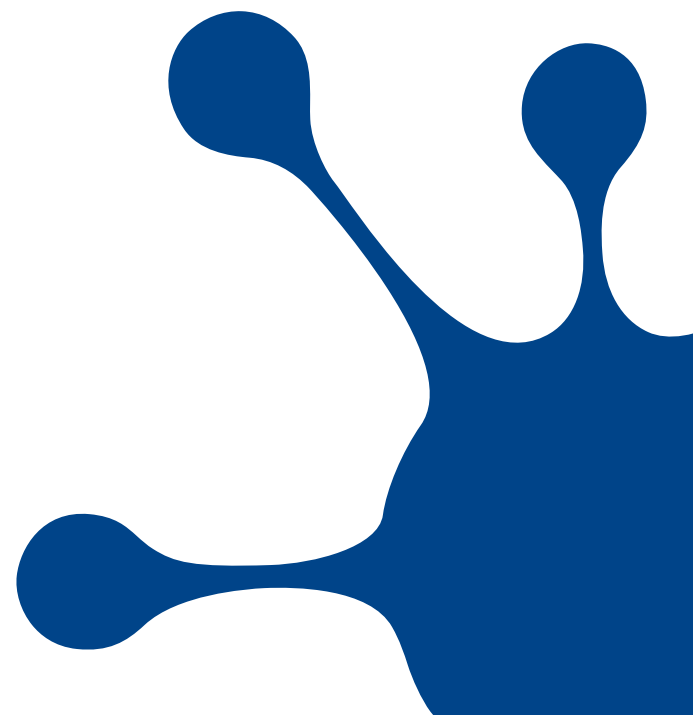
# Wellington (WIX-NZ), NZ

%	ASN	Economy	Network
41	4768	NZ	CLIX-NZ
14	7657	NZ	VODAFONE-NZ-NGN-AS
7	17746	NZ	ORCONINTERNET-NZ-AP
5	23655	NZ	SNAP-NZ-AS
3	4770	NZ	ICONZ-AS
3	9889	NZ	MAXNET-NZ-AP
3	24183	NZ	DTS-ISP-CORE1-AP
2	45179	NZ	SITEHOST-AS-AP
2	9503	NZ	FX-PRIMARY-AS
2	132040	NZ	CITYLINK-CT-AP
2	45177	NZ	LAYER2CO-AS-AP
1	9872	NZ	ITNET-NZ-AS-AP
1			RFC1918
1	9889	NZ	MAXNET-NZ-AP
1	45459	NZ	WEB-DRIVE-NZ-AS-AP
1	18119	NZ	ACSDATA-NZ
1	55850	NZ	TRUSTPOWERLTD-AS-AP
1	24006	NZ	KNOSSOS-AS-NZ
1	24466	NZ	HOSTINGDIRECT-NZ
1	45637	NZ	UNIFONENETWORKS-AS-AP
1	38793	NZ	NZCOMMS-AS-AP
1	18202	NZ	ASN-NZ-NET24
1	17649	NZ	DMZGLOBAL-AP

% Queries per Economy



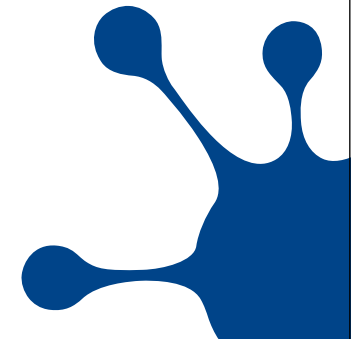
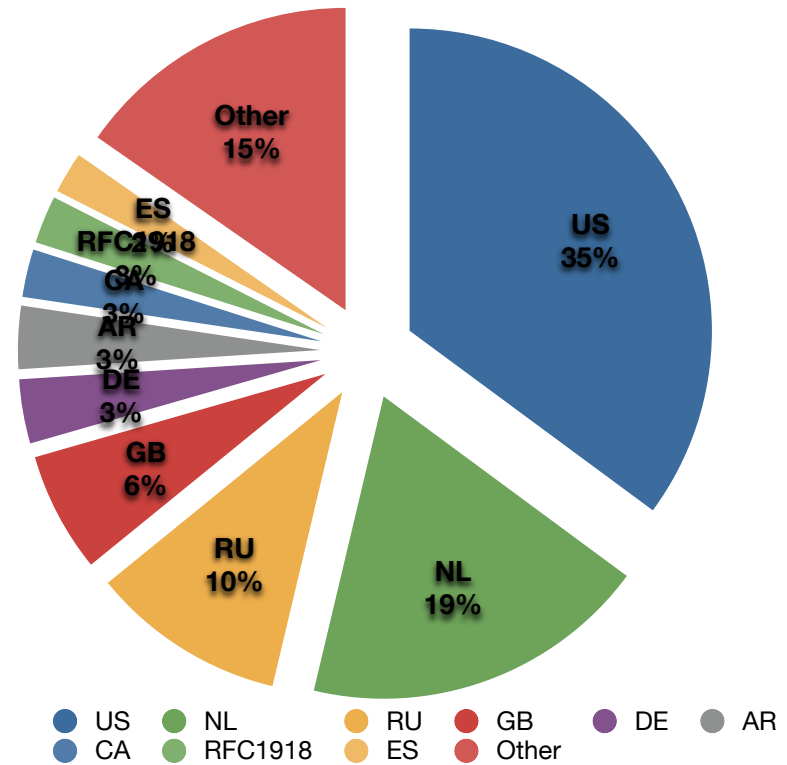
# EUROPE



# Amsterdam (AMS-IX), NL

ASN	%	Econom	Network
		y	
9	7132	US	SBIS-AS
5	6389	US	BELLSOUTH-NET-BLK
3	7018	US	ATT-INTERNET4
3	5607	GB	BSKYB-BROADBAND-AS
2	10481	AR	Prima
2	6830	NL	LGI-UPC
2	36692	US	OPENDNS
2	9143	NL	ZIGGO
2	13127	BE	VERSATEL
2	12322	FR	PROXAD
2	3209	DE	VODANET
2			RFC1918
2	12430	ES	VODAFONE_ES
1	26496	NL	AS-26496-GO-DADDY-COM-LLC
1	13285	GB	OPALTELECOM-AS
1	9105	GB	TISCALI-UK
1	3265	NL	XS4ALL-NL
1	8048	VE	CANTV
1	11479		-
1	36647	US	YAHOO-GQ1
1	48635	NL	PCEXTREME
1	8422	DE	NETCOLOGNE
1	16237	NL	NXS
1	3549	BR	GBLX
1	25542	NL	DENIT-AS
1	197902	NL	HOSTNET
1	577	CA	BACOM
1	30925	NL	SPEEDXS-AS
1	14780	US	INKTOMI-LAWSON

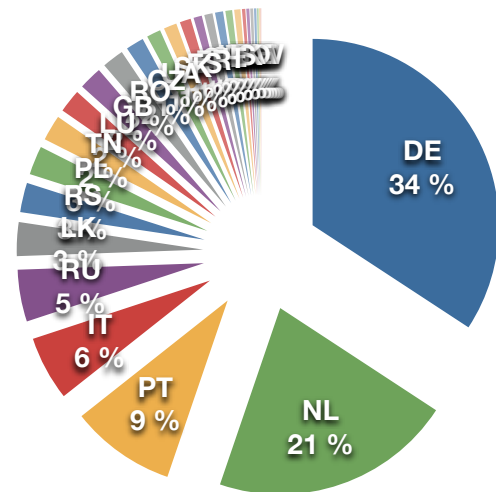
% Queries per Economy



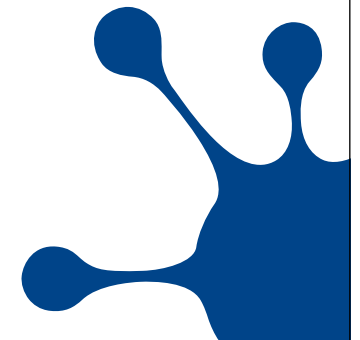
# Amsterdam (AMS-IX), NL - IPv6

%	ASN	Economy	Network
16	8422	DE	NETCOLOGNE
11	20825	DE	UNITYMEDIA
9	3243	PT	TELEPAC
3	18001	LK	DIALOG-AS
3	39120	IT	CONVERGENZE-AS
2	12414	NL	NL-SOLCON
2	16265	NL	LEASEWEB
2	2609	TN	TN-BB-AS
2	5577	LU	ROOT
2	12695	RU	DINET-AS
1	13127	NL	VERSATEL
1	39120	IT	CONVERGENZE-AS
1	49562	NL	XMS
1	21155	NL	ASN-PROSERVE
1	31117	SK	ENERGOTEL-AS
1	5550	PL	TASK-AS
1	39120	IT	CONVERGENZE-AS
1	35467	NL	DCF-AS
1	31042	RS	SERBIA-BROADBAND-AS
1	12859	NL	NL-BIT

% Queries per Economy

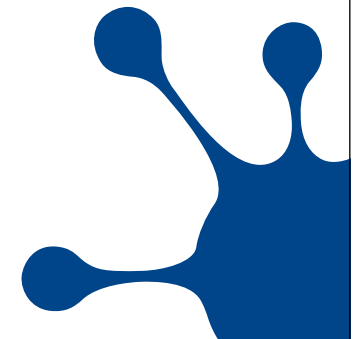
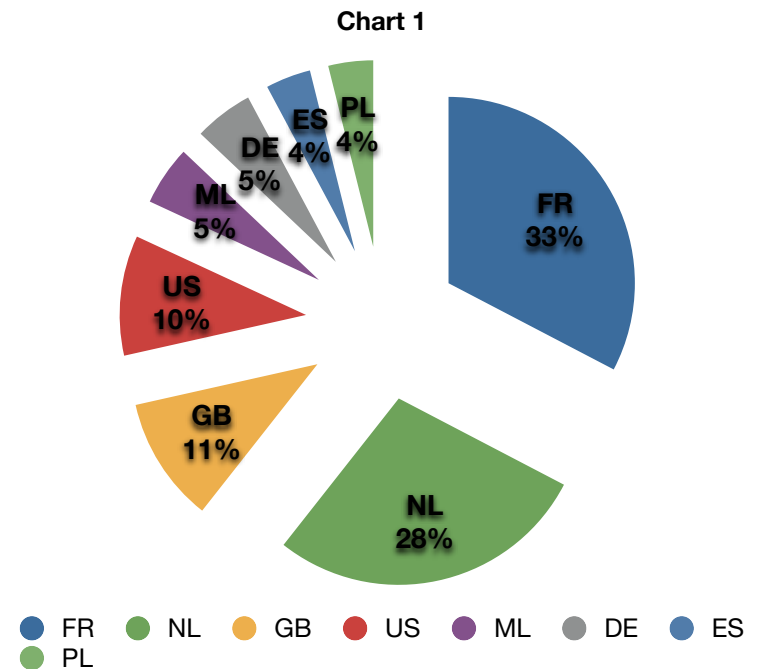


- DE
- NL
- PT
- IT
- RU
- LK
- RS
- PL
- TN
- LU
- GB
- RO
- CZ
- UA
- SK
- ES
- FR
- CH
- SE
- US
- PK
- VA
- BD
- BE
- CA
- MW
- AT
- NO



# Amsterdam, NL

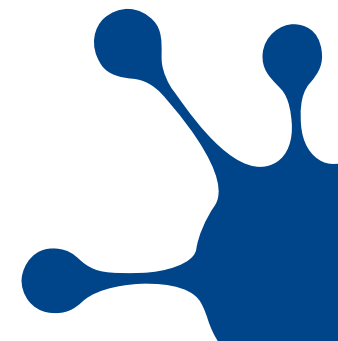
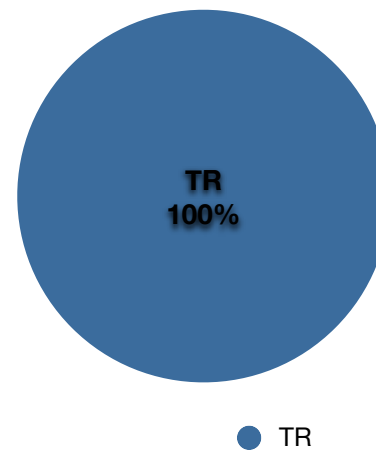
%	ASN	Economy	Network
25	3215 FR		France Telecom - Orange
11	8737 NL		PT
4	30985 ML		IKATELNET
4	12576 GB		ORANGE-PCS
4	8315 NL		ARGEWEB-AS
3	5617 PL		TPNET
2	12479 ES		UNI2-AS
2			RFC1918
2	35819 SA		MOBILY-AS
1	702 NL		AS702
1	11486 US		COLO-PREM-VZB
1	13778 US		JOHNSON-AND-JOHNSON
1	51949 NL		IT-ERNITY-AS
1	22394 US		CELLCO
1	286 NL		KPN
1	702 GB		AS702
1	12390 GB		KINGSTON-UK-AS
1	13156 PT		AS13156
1	19262 US		VZGNI-TRANSIT
1	286 NL		KPN
1	8362 FR		NordNet
1	15776 BE		International
1	5511 FR		OPENTRANSIT
1	109 US		CISCO-EU-109
1	8220 FR		COLT
1	198139 DE		DE-EXEDRA
1	48951 DE		ASN-TSI-IAS



# Ankara, TR

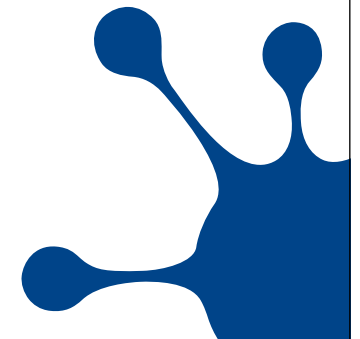
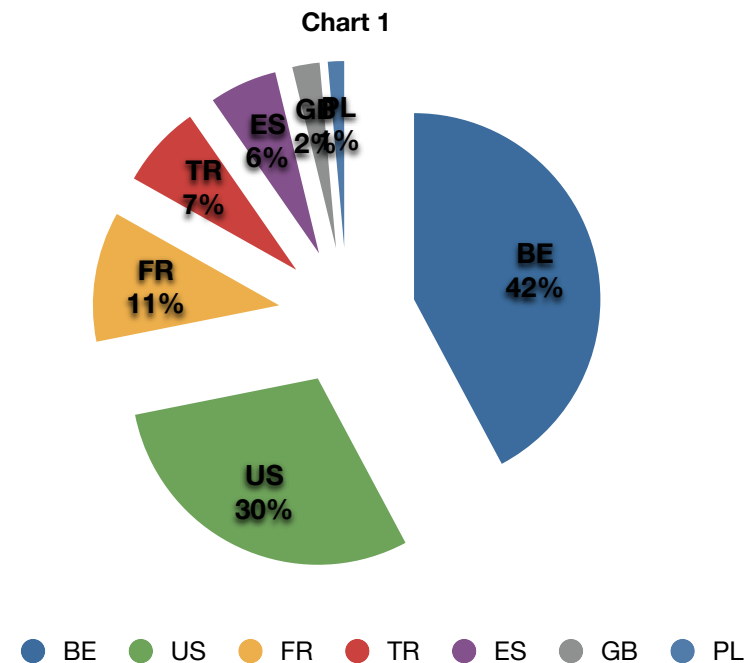
%	ASN	Economy	Network
78	8517 TR	ULAKNET	
13	24922 TR	HACETTEPE	
6	1967 TR	TR-NET	
2	15390 TR	SELCUK-NET-AS	
1	8517 TR	ULAKNET	

Chart 2



# Brussels (BIX), BE

%	ASN	Economy	Network
26	5432	BE	BELGACOM-SKYNET-AS
8	16276	FR	OVH
7	6848	BE	TELENET-AS
7	3356	US	LEVEL3
5	3356	US	LEVEL3
5	9121	TR	TTNET
3	12715	ES	JAZZNET
2	21928	US	T-MOBILE-AS21928
2	12392	BE	ASBRUTELE
1	21502	FR	ASN-NUMERICABLE
1	6739	ES	ONO-AS
1	2611	BE	BELNET
1	7029	US	WINDSTREAM
1	6459	US	TRANSBEAM
1	21327	GB	H3GUKNIE
1	16509	IE	AMAZON-02
1	3361	US	FCC-NETWORK
1	3356	GB	LEVEL3
1	8402	RU	CORBINA-AS
1	6849	UA	UKRTELNET
1	12978	TR	DOGAN-ONLINE

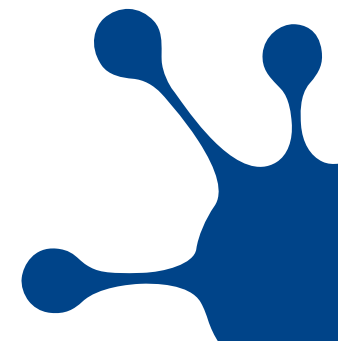
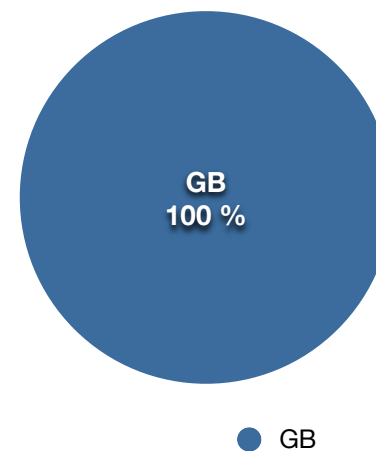




# Brussels (BIX), BE - IPv6

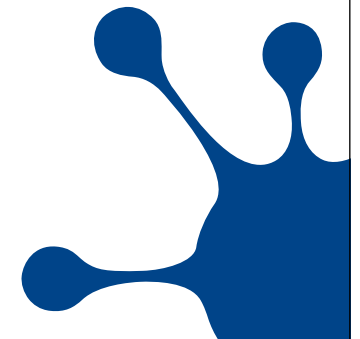
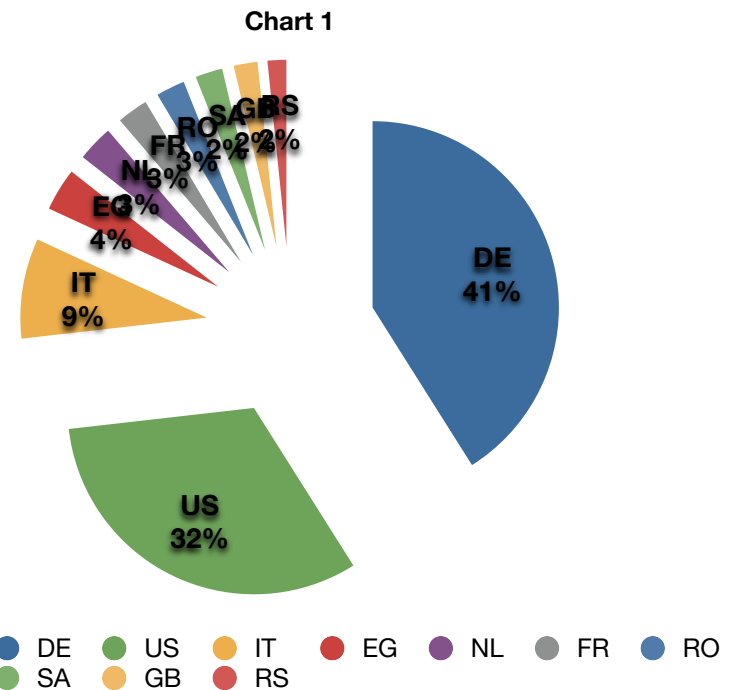
%	ASN	Economy	Network
100	4589	GB	EASYNET

% Queries per Economy



# Frankfurt (DE-CIX), DE

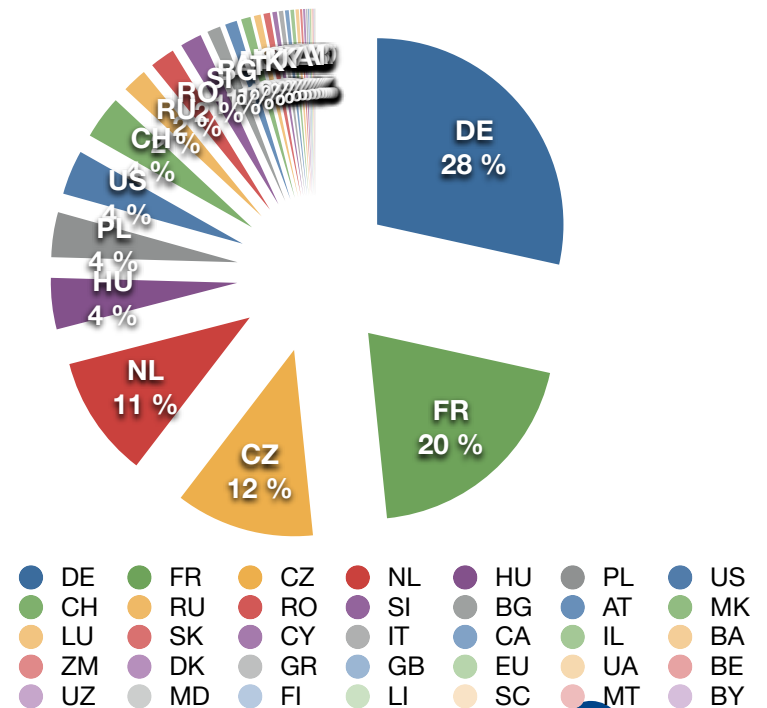
%	ASN	Economy	Network
25	15169	US	GOOGLE
13	3320	DE	DTAG
4	3209	DE	VODANET
3	24940	DE	HETZNER-AS
3	3269	IT	ASN-IBSNAZ
3	8452	EG	TE-AS
3	6830	NL	LGI-UPC
2	6805	DE	TDDE-ASN1
2	25019	SA	SAUDINETSTC-AS
2	15557	FR	LDCOMNET
2	20746	IT	ASN-IDC
1	5607	GB	BSKYB-BROADBAND-AS
1	13184	DE	HANSENET
1	6713	MA	IAM-AS
1			RF1918
1	6830	RO	LGI-UPC
1	30722	IT	VODAFONE-IT-ASN
1	30722	IT	VODAFONE-IT-ASN
1	2609	TN	TN-BB-AS
1	6830	RO	LGI-UPC
1	37376	SS	ZAIN-South-Sudan
1	8881	DE	VERSATEL
1	8560	DE	ONEANDONE-AS
1	8400	RS	TELEKOM-AS
1	48265	AL	ITIRANA-AL-AS
1	15133	US	EDGECAST
1	36969	MW	MTL-AS
1	12874	IT	FASTWEB
1	20676	DE	QSC-1



# Frankfurt (DE-CIX), DE - IPv6

%	ASN	Economy	Network
11	12322	FR	PROXAD
9	16276	FR	OVH
9	3265	NL	XS4ALL-NL
6	24940	DE	HETZNER-AS
5	29562	DE	KABELBW-ASN
4	5483	HU	HTC-AS
4	6939	US	HURRICANE
2	8426	DE	CLARANET-AS
2	553	DE	BELWUE
2	5603	SI	SIOL-NET
2	28725	CZ	CZ-EUROTTEL-AS
1	43037	CZ	SEZNAM-CZ
1	5541	RO	ADNET-TELECOM
1	8447	AT	TELEKOM-AT
1	5610	CZ	TO2-CZECH-REPUBLIC
1	30890	RO	EVOLVA
1	12360	DE	KTK
1	34878	DE	KIT
1	16333	MK	ONNET-AS-OWN
1	8246	PL	GTS-POLSKA-AS
1	12355	DE	HAMCOM-DE
1	47215	DE	FILOO-ASN
1	15600	CH	FINECOM
1	6724	DE	STRATO
1	21069	CH	ASN-METANET

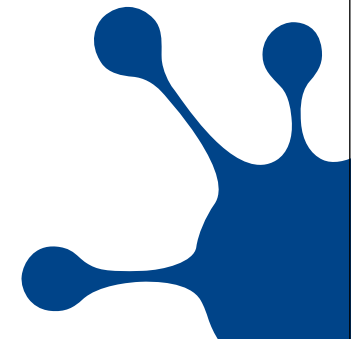
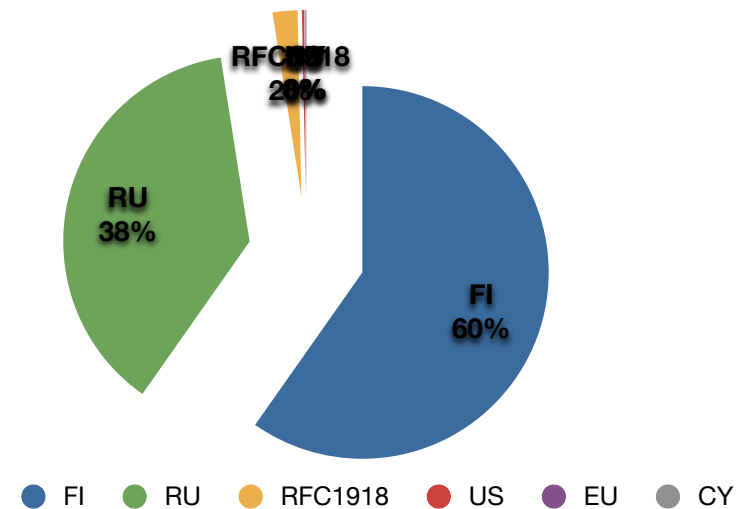
% Queries per Economy



# Helsinki (FICIX), FI

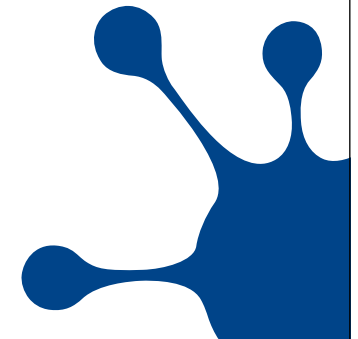
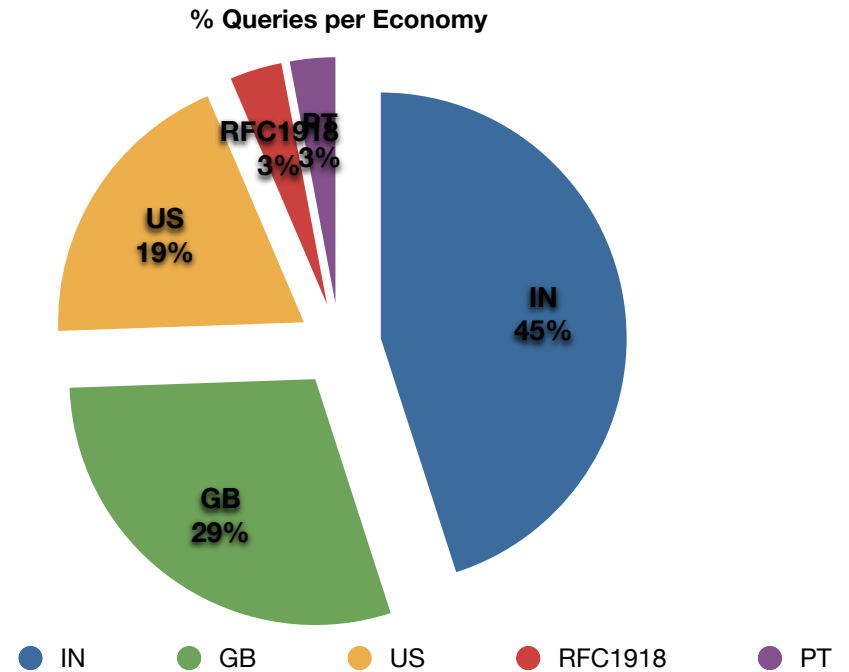
%	ASN	Economy	Network
10	1759	FI	TSF-IP-CORE
8	719	FI	ELISA-AS
6	29422	FI	NBLNETWORKS-AS
6	3336	FI	ELISA-AS
5	16086	FI	DNA
5	8359	RU	MTS
3	24751	FI	MULTIFI-AS
3	25513	RU	ASN-MGTS-USPD
3	29209	RU	SPBMTS-AS
3	790	FI	EUNETFI
3	24638	RU	RAMBLER-TELECOM-AS
2	35154	RU	TELENET-AS
2	42387	RU	SSERV-AS
2			RFC1918
2	12668	RU	EXTRIM-AS
2	15527	FI	ANVIA
2	1248	FI	NOKIA
1	13174	RU	MTSNET
1	25086	RU	URALTC-AS
1	1741	FI	FUNETAS
1	13062	RU	LANCK-AS
1	15756	RU	CARAVAN
1	20931	FI	PPOINTS-AS
1	20569	FI	AINAIP-AS
1	6767	RU	RU-CTSRND-AS
1	29154	FI	ACADEMICA-AS
1	1741	FI	FUNETAS
1	12418	RU	QUANTUM
1	50503	FI	TP-AS
1	30881	RU	SENSOR-AS
1	15496	FI	Aalto
1	29497	RU	KUBANGSM
1	42343	FI	KTAB-AS
1	16020	RU	TASCOM
1	24713	FI	WMDATAFI

% Queries per Economy



# London (Linx), UK

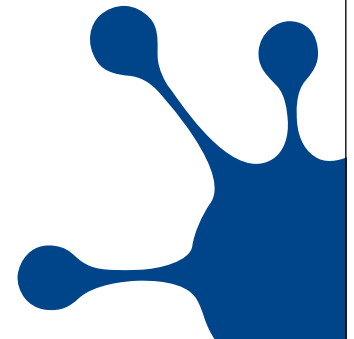
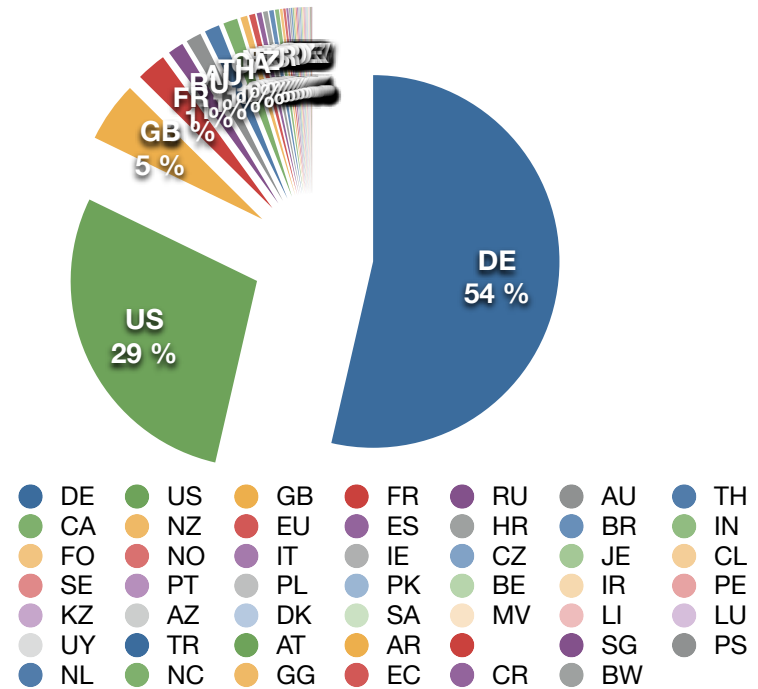
%	ASN	Economy	Network
33	131222	IN	MTS-INDIA-IN
6	5089	GB	NTL
5	22458	US	NETSOURCE
4	6871	GB	PLUSNET
4	24560	IN	AIRTELBROADBAND-AS-AP
3			RFC1918
2	13672	US	FAIRPO-3
2	7151	US	BAYAREA-AS
2	8657	PT	CPRM
1	32475	US	SINGLEHOP-INC
1	15830	GB	TELECITY-LON
1	15802	AE	DU-AS1
1	8551	IL	BEZEQ-INTERNATIONAL-AS
1	24931	GB	DEDIPOWER
1	5713	ZA	SAIX-NET
1	30496	US	COLO4
1	1267	IT	ASN-INFOSTRADA
1	9116	IL	GOLDENLINES-ASN
1	23752	NP	NPTELECOM-NP-AS
1	35228	GB	BEUNLIMITED
1	20860	GB	IOMART-AS
1	31727	GB	NODE4-AS
1	6882	IT	RTRT-PEGASO
1	48447	GB	COMODO
1	13213	GB	UK2NET-AS
1	9498	IN	BBIL-AP
1	29328	GB	ASN-TMOBILEUK
1	8897	GB	KCOM-SPN



# London (Linx), UK - IPv6

%	ASN	Economy	Network
53	3320	DE	DTAG
15	22773	US	ASN-CXA-ALL-CCI-22773-RDC
3	22773	US	ASN-CXA-ALL-CCI-22773-RDC
2	6939	US	HURRICANE
1	1221	AU	ASN-TELSTRA
1	31715	GB	NETRINO-AS
1	5410	FR	ASN-BOUYGTEL-ISP
1	45758	TH	TRIPLETNET-AS-AP
1	16422	US	NEWSKIES-NETWORKS
1	30733	RU	GLOBUS-AS
1	33070	US	RMH-14
1	7018	US	ATT-INTERNET4
1	36351	US	SOFTLAYER
1	1742	US	HARVARD-UNIV
1	20712	GB	AS20712
1	4768	NZ	CLIX-NZ

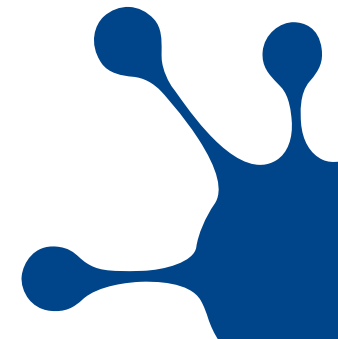
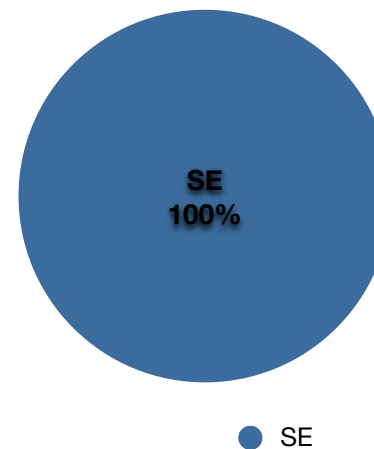
% Queries per Economy



# Luleå (Netnod), SE

%	ASN	Economy	Network
48	44581 SE	SE	SE-ALLTELE
28	25176 SE	SE	AC-NET
11	6782 SE	SE	BDNET
8	8473 SE	SE	BAHNHOF
2	31331 SE	SE	LINNEA
1	29518 SE	SE	BREDBAND2
1	25072 SE	SE	IRF-AS
1	1653 SE	SE	SUNET

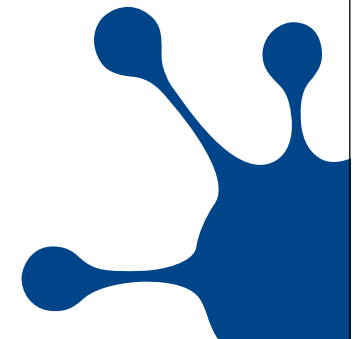
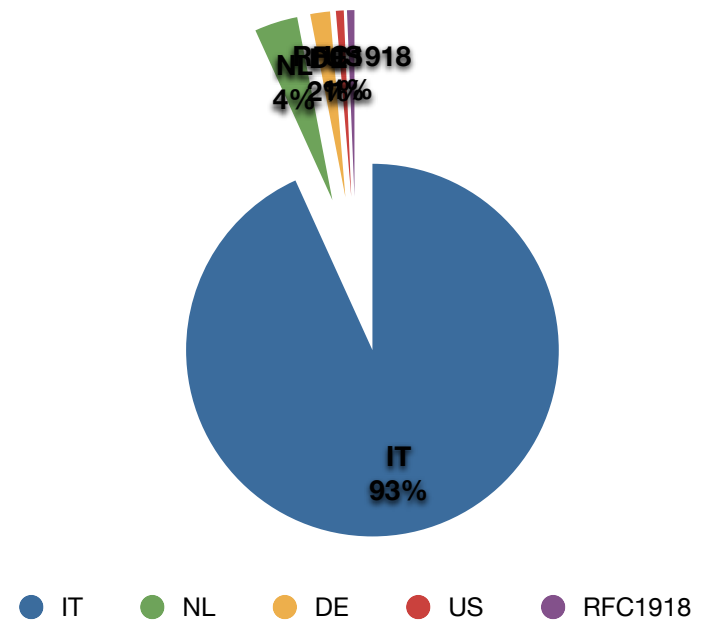
% Queries per Economy



# Milano (MIX), IT

%	ASN	Economy	Network
24	3313	IT	INET-AS
11	24608	IT	H3G-AS
9	31034	IT	ARUBA-ASN
8	3302	IT	INFRACOM-NETWORK-APPLICATION-AS
6	5396	IT	MC-LINK
4	16265	NL	LEASEWEB
4	5602	IT	KPNQwest
3	35612	IT	NGI-AS
2	15589	IT	ASN-EUTELIA
1	28753	DE	LEASEWEB-DE
1	20811	IT	BRENNERCOM-AS
1	12637	IT	SEEWEB
1	30848	IT	IT-TWT-AS
1	28716	IT	RETELIT-AS
1	25002	IT	AEMCOM-AS
1	21309	IT	CASAWEB-AS
1	39729	IT	REGISTER-AS
1	12779	IT	ITGATE
1	29177	IT	ASCOTLC-AS
1	31034	US	ARUBA-ASN
1	12850	IT	ASN-ENTER
1			RFC1918
1	20608	IT	T-SYSTEMS-ITALIA-AS
1	8816	IT	IT-STCOM
1	47880	IT	NML-AS

% Queries per Economy

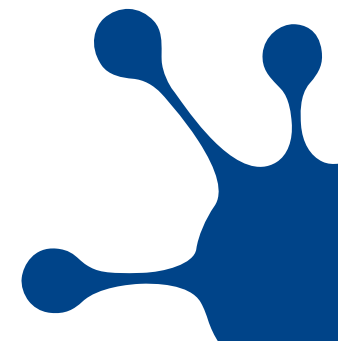
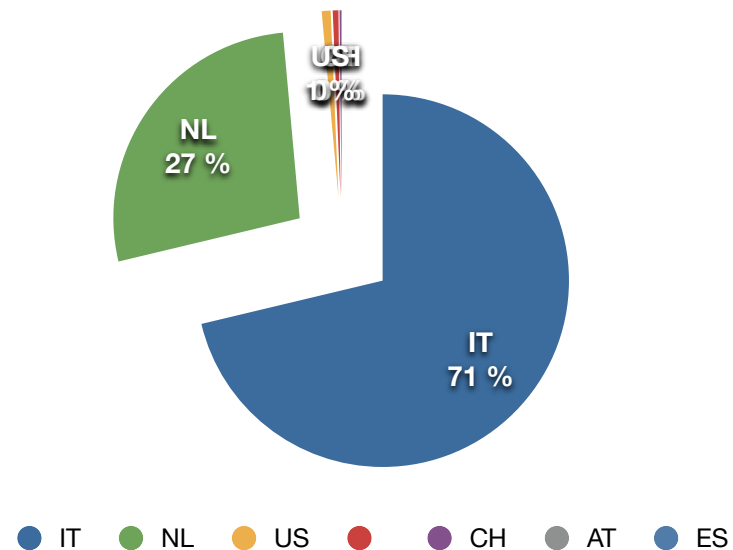




# Milano (MIX), IT - IPv6

%	ASN	Economy	Network
27	16265	NL	LEASEWEB
13	15589	IT	ASN-EUTELIA
8	34695	IT	E4A-AS
8	12637	IT	SEEWEB
7	15663	IT	UMBRIA_NET
7	6734	IT	ASN-SPIN
6	12779	IT	ITGATE
4	29449	IT	TPN-AS
3	8224	IT	INTERCOM-AS
3	8265	IT	FASTNET-BKB-ASN
2	16210	IT	GRUPPOIH-AS
2	25309	IT	TOPIX-AS
2	28716	IT	RETELIT-AS
2	43989	IT	EHIWEB
1	44160	IT	INTERNETONE
1	9026	IT	ULI-MAIN
1	20912	IT	ASN-PANSERVICE
1	44567	IT	ASCOMPU
1	6939	US	HURRICANE

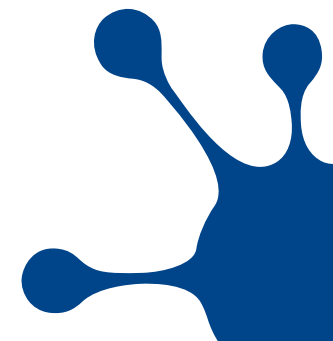
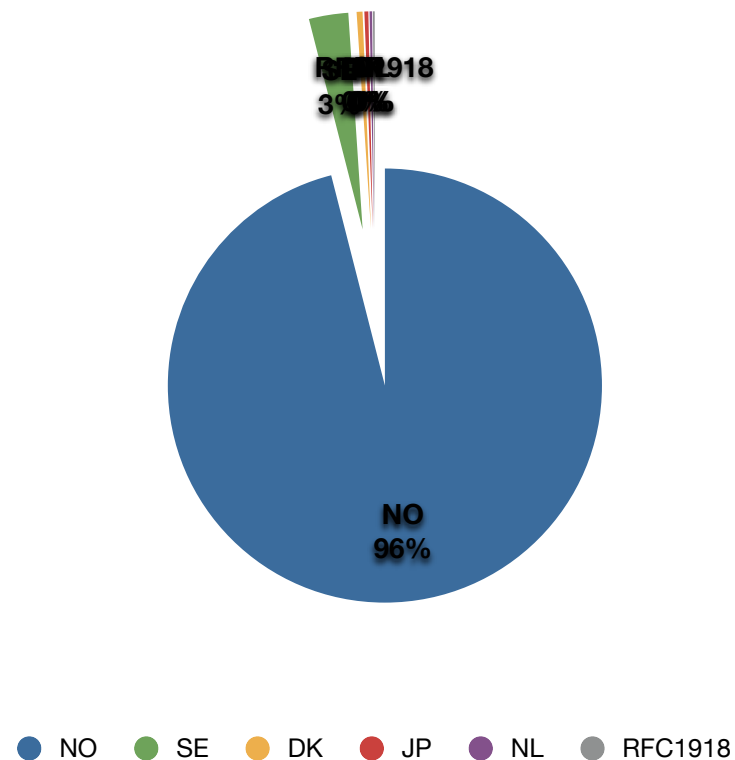
% Queries per Economy



# Oslo (NIX), NO

%	ASN	Economy	Network
31	2119	NO	TELENOR-NEXTEL
28	2119	NO	TELENOR-NEXTEL
7	15659	NO	NEXTGENTEL
6	29695	NO	LYSE-AS
5	224	NO	UNINETT
3	25148	NO	BASEFARM-ASN
3	1257	SE	TELE2
2	5381	NO	POWTECH-AS
2	41741	NO	BBS-AS
2	8542	NO	BKKB
1	29300	NO	DIRECTCONNECT-AS
1	31283	NO	FASTHOST-AS
1	41572	NO	HAFSLUND
1	12996	NO	DOMENESHOP
1	5619	NO	ERGO
1	29492	NO	EIDSIVA-ASN
1	49455	NO	LOQAL-AS
1	16175	NO	SIGNAL

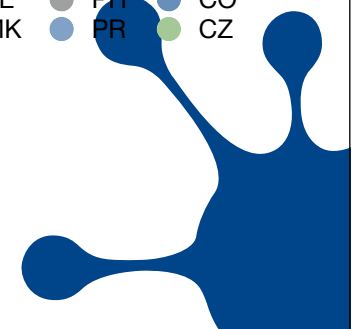
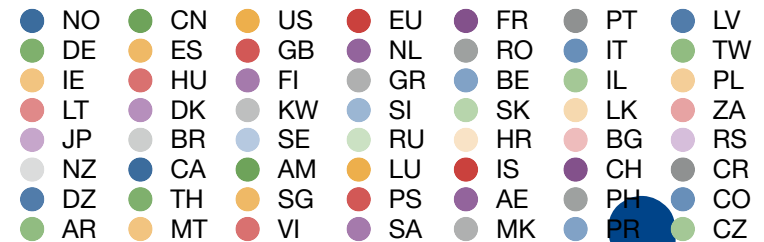
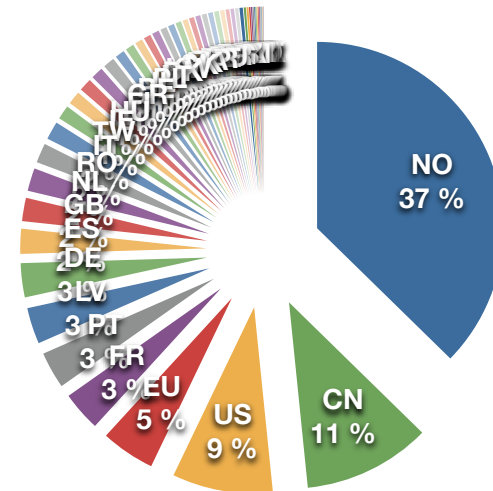
% Queries per Economy



# Oslo (NIX), NO - IPv6

%	ASN	Economy	Network
13	2116	NO	ASN-CATCHCOM
5	23910	CN	CNGI-CERNET2-AS-AP
4	5381	NO	POWTECH-AS
4	224	NO	UNINETT
4	1759	EU	TSF-IP-CORE
4	4134	CN	CHINANET-BACKBONE
4	41572	NO	HAFSLUND
3	2200	FR	FR-RENATER
3	1930	PT	RCCN
3	34087	NO	NTE-BREDBAND
3	16657	US	FIBERTECH-NETWORKS-AS-ROC-NY-US
2	29492	NO	EIDSIVA-ASN
2	4538	CN	ERX-CERNET-BKB
2	786	GB	JANET
2	680	DE	DFN
2	41164	NO	GET-NO
2	2614	RO	ROEDUNET
2	766	ES	REDIRIS
2	137	IT	ASGARR

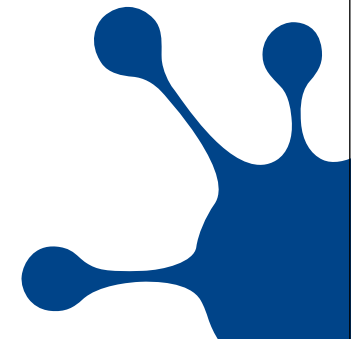
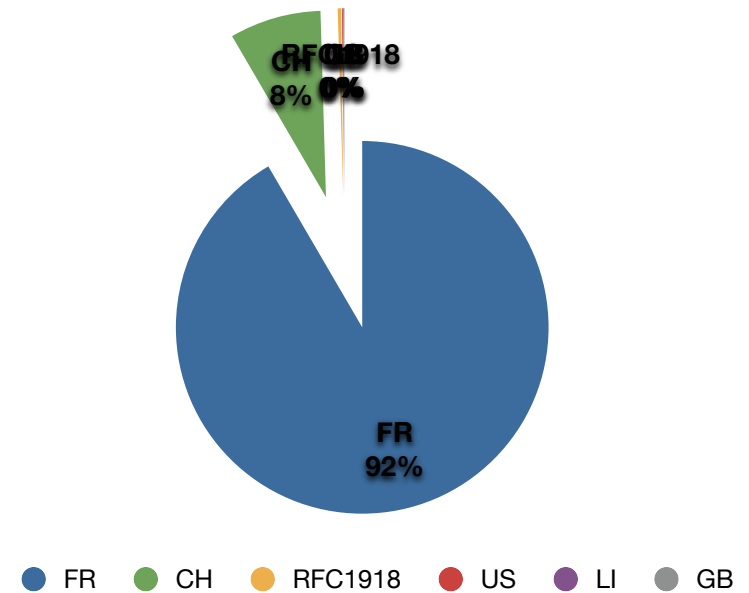
% Queries per Economy



# Paris (Sfinx), FR

%	ASN	Economy	Network
33	2200	FR	FR-RENATER
28	2200	FR	FR-RENATER
6	6730	CH	SUNRISE
3	16211	FR	STELLA-NET
3	1948	FR	FR-RENATER-SAPHIR
2	2422	FR	FR-RENATER-RAP
2	2269	FR	FR-U-PARISSUD-ORSAY
2	789	FR	IN2P3
2	4589	FR	EASYNET
2	1942	FR	FR-CICG-GRENOBLE
1	2426	FR	FR-RENATER-RUBIS
1	25187	FR	FCV
1	1307	FR	FR-U-JUSSIEU-PARIS
1	41765	FR	IPGARDE-AS
1	2259	FR	FR-U-STRASBOURG
1	2060	FR	FR-RENATER
1	1945	FR	FR-LYRES
1	1715	FR	FR-REMIP2000
1	2202	FR	FR-RENATER-REAUMUR
1	2065	FR	FR-RENATER-HDMON
1	776	FR	FR-INRIA-SOPHIA
1	29075	FR	IELO-AS

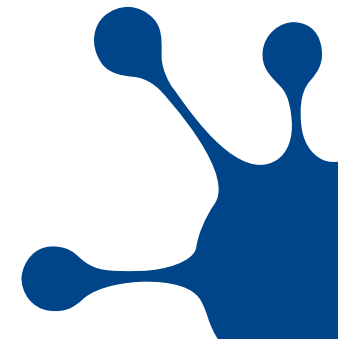
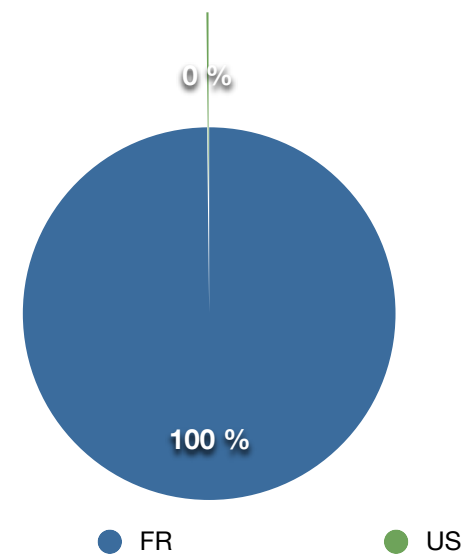
% Queries per Economy



# Paris (Sfinx), FR - IPv6

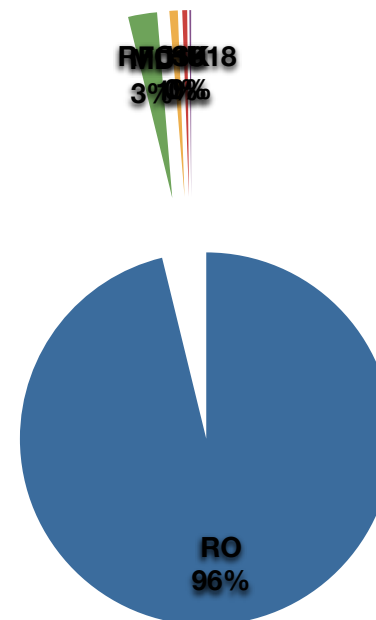
%	ASN	Economy	Network
95	29169	FR	GANDI-AS
3	34752	FR	DOCTISSIMO
2	25358	FR	NOVSO
0	29169	US	GANDI-AS

% Queris per Economy



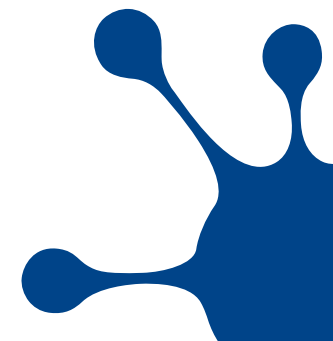
# Bucharest (RoNIX), RO

% Queries per Economy



%	ASN	Economy	Network
52	9050	RO	RTD
28	8708	RO	RDSNET
5	12310	RO	INES
2	48331	MD	GLOBNET-AS
1	6910	RO	DIALTELECOMRO
1	31017	RO	GMBNET
1	48161	RO	NG-AS
1			RFC1918
1	34358	RO	CLAXTELECOM

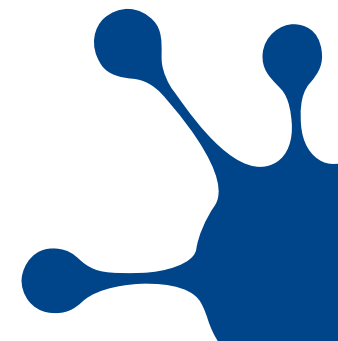
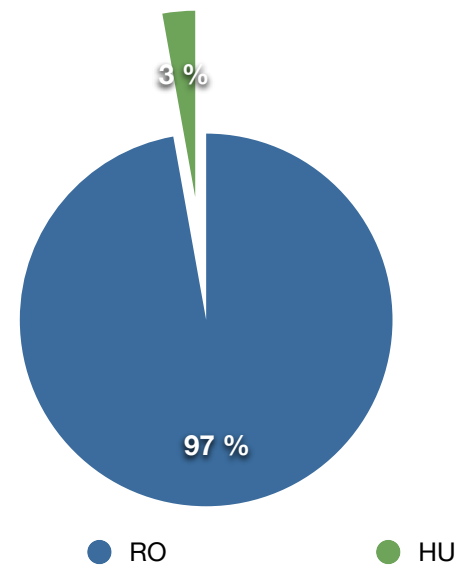
- RO
- MD
- RFC1918
- HU
- SK



# Bucharest (RoNIX), RO - IPv6

%	ASN	Economy	Network
65	8708	RO	RDSNET
32	8708	RO	RDSNET
3	20845	HU	DIGICABLE
0	8708		

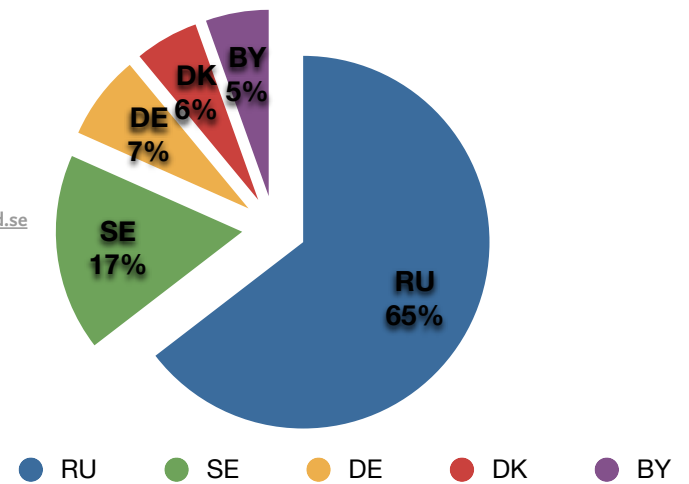
% Queries per Economy



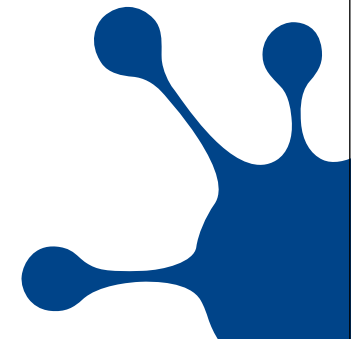
# Stockholm (Netnod), SE

%	ASN	Economy	Network
4	680	DE	DFN
3	3301	SE	TELIANET-SWEDEN
2	786	GB	JANET
1	25405	RU	NMTS-AS
1	31302	RU	TSRV-AS
1	13272	EE	STARMAN
1	28849	BY	ASN-GLOBALONEBEL-CORE
1	12880	IR	DCI-AS
1	1103	NL	SURFNET-NL
1	137	IT	ASGARR
1	3292	DK	TDC
1	2119	SE	TELENOR-NEXTEL
1	6697	BY	BELPAK-AS
1	8732	RU	COMCOR-AS
1	766	ES	REDIRIS
1	35154	RU	TELENET-AS
1	31133	RU	MF-MGSM-AS
1	8997	RU	ASN-SPBNIT
1	8342	RU	RTCOMM-AS
1	3249	EE	ESTPAK
1	8901	RU	Moscow
1	47395	RU	SCARTEL-AS
1	20632	RU	PETERSTAR-AS
1	12389	RU	ROSTELECOM-AS
1	12714	RU	TI-AS
1	12578	LV	APOLLO-AS
1	8968	IT	BT-ITALIA
1	39651	SE	COMHEM-SWEDEN
1	41592	RU	BWCCJSC-AS
1	6697	BY	BELPAK-AS
1	51747	SE	INTERNETBOLAGET
1	34001	LV	LIVAS-NET-AS
1	41164	NO	GET-NO
1	1653	SE	SUNET
1	29385	UZ	BUZTON-JV-AS
1	158	SE	ERI-AS

% Queries per Economy



SANOG XXI, Cox's Bazaar, 2013-01-28, Kurt Erik Lindqvist, [kurtis@netnod.se](mailto:kurtis@netnod.se)

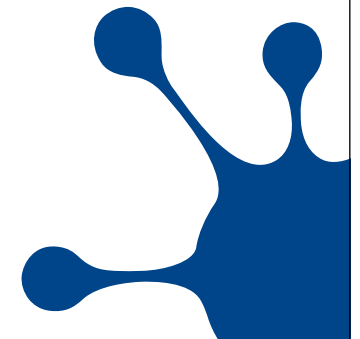
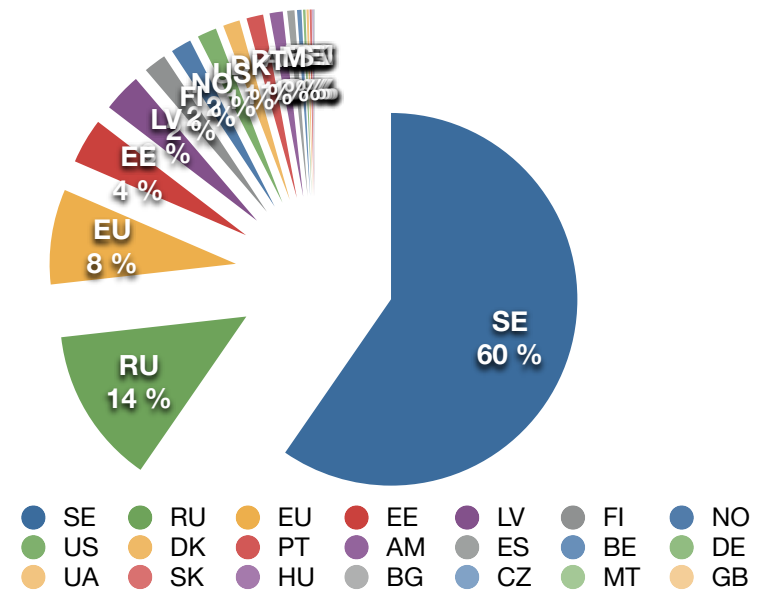




# Stockholm (Netnod), SE - IPv6

%	ASN	Economy	Network
42	1257	SE	TELE2
8	3301	EU	TELIANET-SWEDEN
4	13238	RU	YANDEX
4	3249	EE	ESTPAK
3	12578	LV	APOLLO-AS
3	33885	SE	OWNIT
2	44034	SE	HI3G
2	1653	SE	SUNET
2	3292	SE	TDC
2	6939	US	HURRICANE
1	12353	PT	VODAFONE-PT
1	3292	NO	TDC
1	8359	RU	MTS
1	21195	SE	DGCSYSTEMS
1	NA	RU	NA
1	8473	SE	BAHNHOF
1	44581	SE	SE-ALLTELE
1	12552	SE	IPO-EU
1	25513	RU	ASN-MGTS-USPD
1	3292	DK	TDC
1	12389	RU	ROSTELECOM-AS
1	49363	AM	OAR-DC
1	29518	SE	BREDBAND2
1	34168	RU	ELCOM-ISP-AS

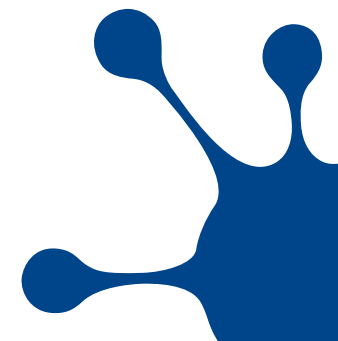
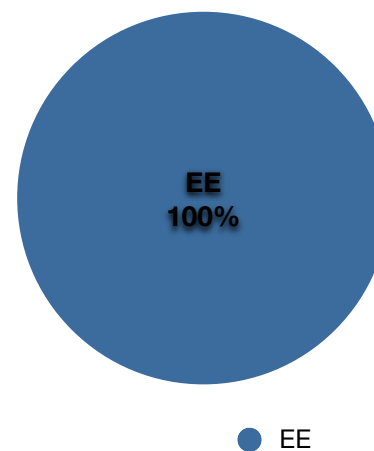
% Queries per Economy



# Tallin (RTIX), EE

%	ASN	Economy	Network
52	2586	EE	UNINET-AS
24	3221	EE	EENet
11	8240	EE	ASO
7	39301	EE	TELEVORK-AS
5	34702	EE	WAVECOM-AS

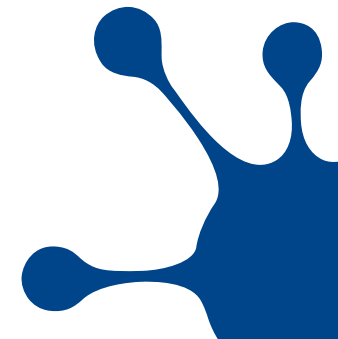
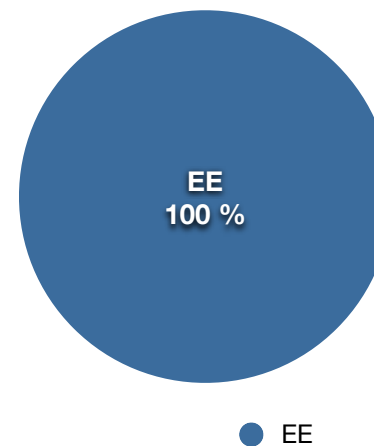
% Queries per Economy



# Tallin (RTIX), EE - IPV6

%	ASN	Economy	Network
60	3221	EE	EENet
23	8240	EE	ASO
16	39301	EE	TELEVORK-AS
0	12757	EE	IPTRON
0	2586	EE	UNINET-AS

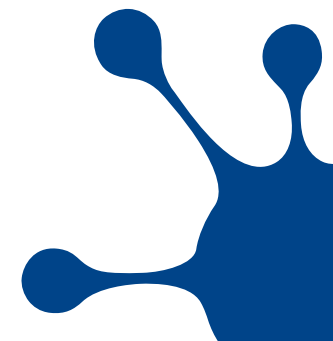
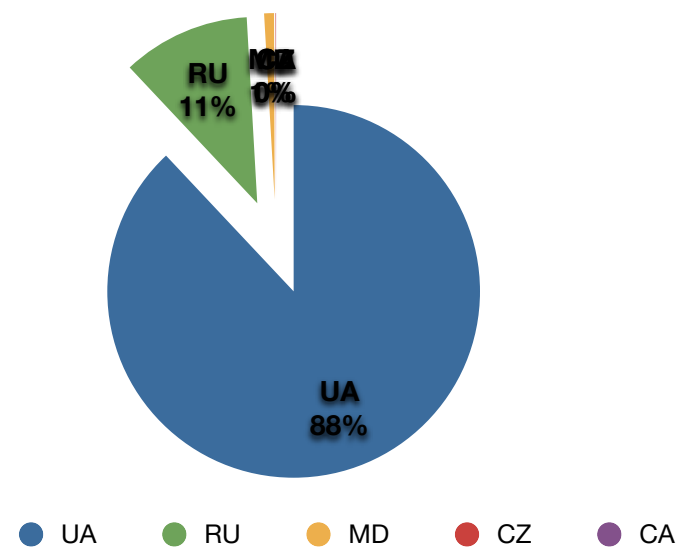
% Queries per Economy



# Kiev (UA-IX), UA

%	ASN	Economy	Network
10	6877	UA	AS6877
8	13238	RU	YANDEX
5	6703	UA	ALKAR-AS
3	25229	UA	VOLIA-AS
3	6846	UA	UKRPACK
3	47764	RU	MAILRU-AS
2	3255	UA	UARNET-AS
2	12530	UA	GOLDENTELECOM-UKRAINE
2	15895	UA	KSNET-AS
2	21488	UA	EMPLOT-AS
2	31725	UA	SHTORM-AS
2	21219	UA	DATAGROUP
2	28858	UA	LECOS
1	6876	UA	TENET-AS
1	31272	UA	WILDPARK-AS
1	42396	UA	PPLNETUA-AS
1	48196	UA	TRK-AS
1	25386	UA	INTERTELECOM-AS
1	1547	MD	IDK-NETWORK
1	12872	UA	MEGASTYLE
1	43668	UA	BIGNET-AS
1	35320	UA	ETT-AS
1	3261	UA	DIPT-AS
1	12963	UA	VOLZ
1	15497	UA	COLOCALL
1	13307	UA	SKIF-AS
1	35233	UA	CDMAUA-AS
1	34867	UA	COSMONOVA-AS
1	15461	UA	SOLVERNET-AS
1	12998	UA	BGNET-AS
1	21011	UA	TOPNET
1	13188	UA	BANKINFORM-AS

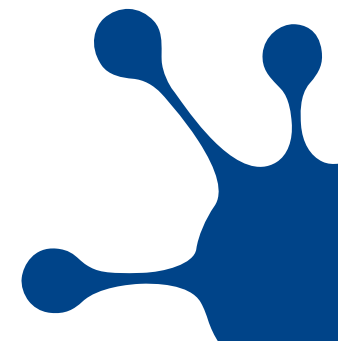
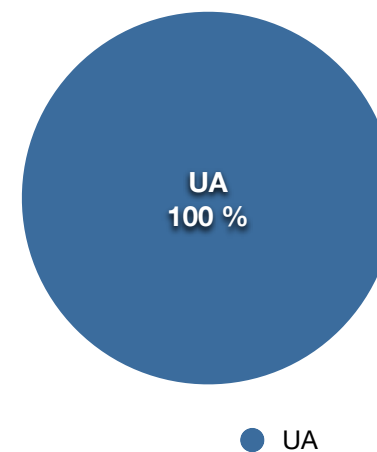
% Queries per Economy



# Kiev (UA-IX), UA - IPv6

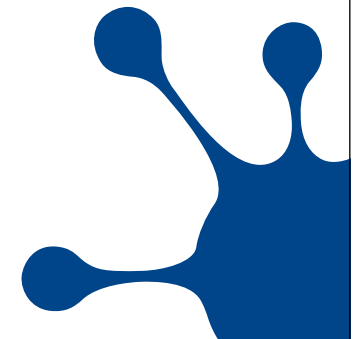
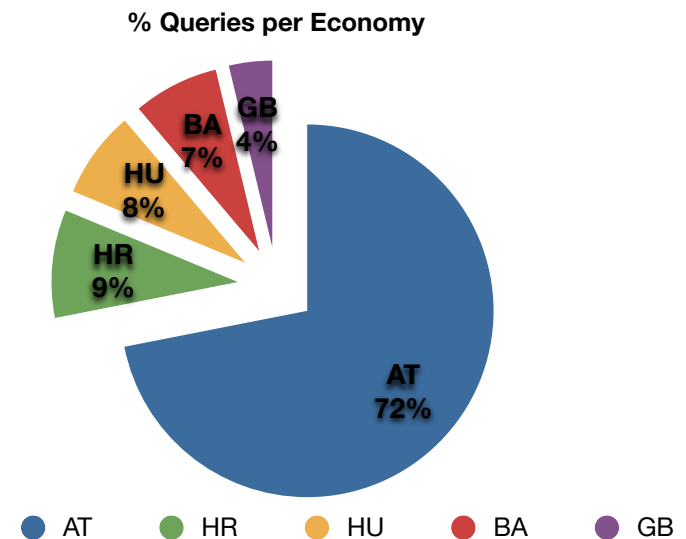
%	ASN	Economy	Network
96	13307	UA	SKIF-AS
2	6723	UA	UA-XAIM
1	29632	UA	NASSIST-AS
0	NA	UA	NA
0	21131	UA	SACURA-AS
0	21219	UA	DATAGROUP
0	13103	UA	VALOR-AS

% Queries per Economy



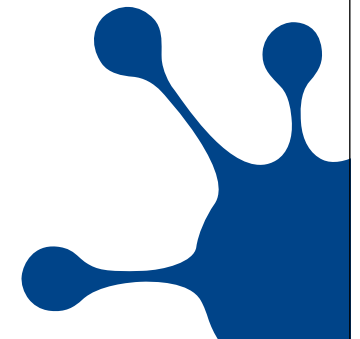
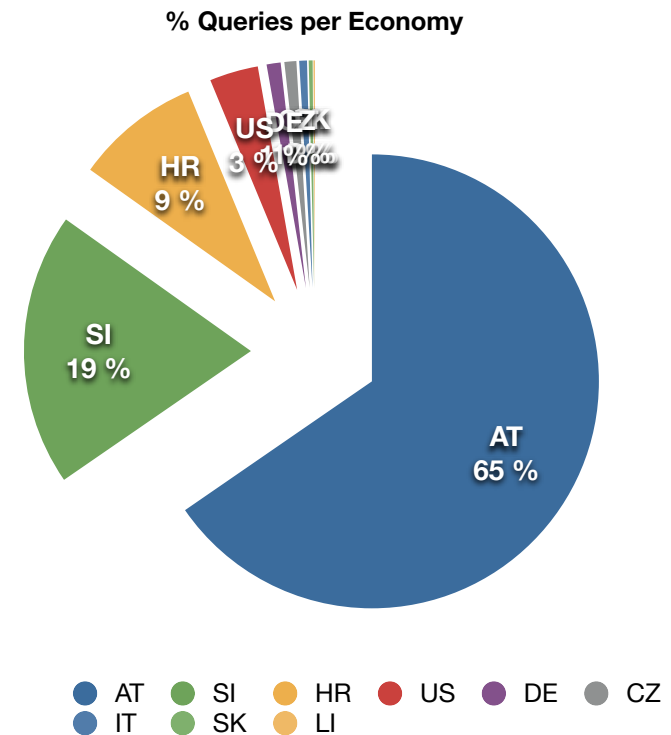
## Vienna (VIX), AT

%	ASN	Economy	Network
27	8447	AT	TELEKOM-AT
12	6830	AT	LGI-UPC
6	5391	HR	T-HT
4	12301	HU	INVITEL
3	8928	GB	INTERROUTE
3	5606	RO	KQRO
2	25255	AT	H3G-AUSTRIA-AS
2	8437	AT	UTA-AS
2	42572	AT	ABATON-AS
2	25144	BA	TELEKOM-SRPSKE-AS
2			RFC1918
2	42473	AT	ANEXIA-AS
2	9146	BA	BIHNET
1	1853	AT	ACONET
1	24757	ET	EthioNet-AS
1	15133	US	EDGECAST
1	2819	CZ	GTSCZ
1	12635	AT	AS12635
1	8339	AT	KABSI-AS
1	20875	BA	HPTNET-AS
1	6714	PL	ATOMNET
1	8445	AT	SALZBURG-AG-AS
1	6798	AT	NET4YOU-AS
1	2819	CZ	GTSCZ
1	8358	HU	INTERWARE-AS
1	29198	AT	SCHENKER-AS
1	29019	GB	HEMSCOTT-AS
1	8559	AT	WELLCOM
1	5385	AT	TELEPORT
1	3248	AT	SIL-AT



# Vienna (VIX), AT - IPv6

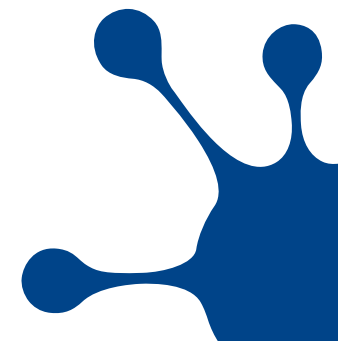
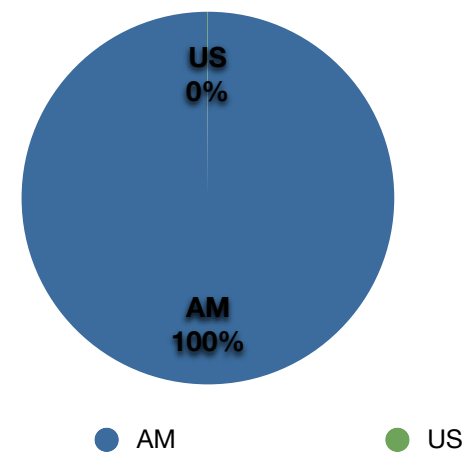
%	ASN	Economy	Network
26	8437	AT	UTA-AS
15	9119	SI	SOFTNET-AS
9	1853	AT	ACONET
9	34594	HR	OT-AS
8	39912	AT	I3B-AS
6	760	AT	University
4	34779	SI	T-2-AS
3	6939	US	HURRICANE
3	12605	AT	LIWEST-AT
3	3248	AT	SIL-AT
2	1853	AT	ACONET
2	31543	AT	MYNET-AS
2	21013	AT	ITANDTEL-AS
1	6830	CZ	LGI-UPC
1	3330	AT	PROFINET-AT
1	28919	AT	STWKUFSTEIN-AS
1	28760	AT	INFOTECH-AT-AS
1	34347	AT	CNH-AS
1	15598	DE	IP-EXCHANGE
1	15598	IT	IP-EXCHANGE



# Yerevan, AM

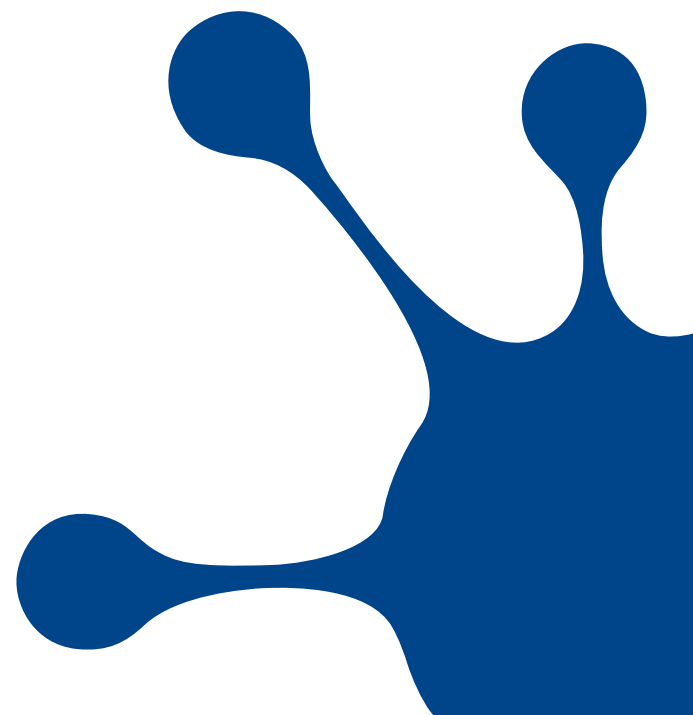
%	ASN	Economy	Network
100	42109	AM	ADC-AS
0	51493	AM	UNITEL
0	48406	US	MENTOR-GRAPHICS-
0	197497	AM	RA-GOV

% Queries per Economy



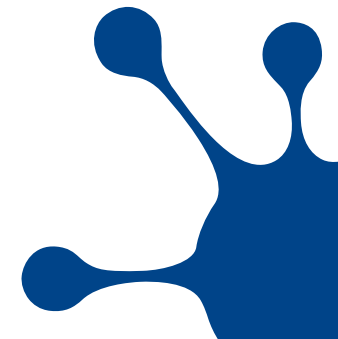
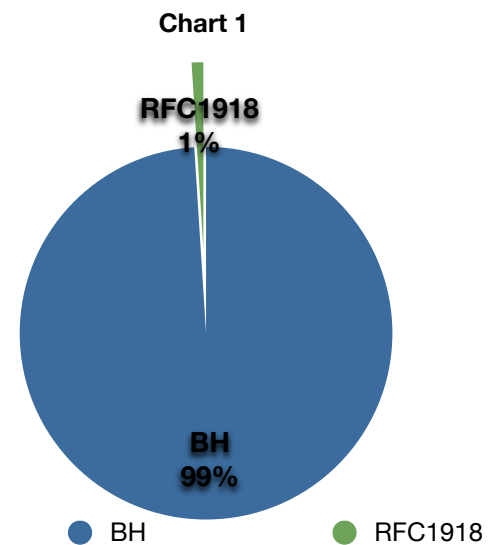


# MIDDLE EAST



# Manama, BH

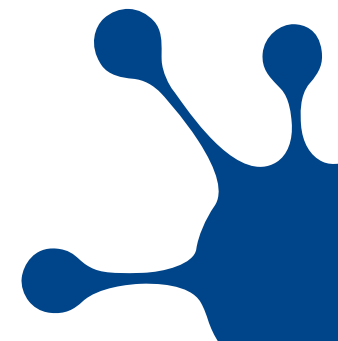
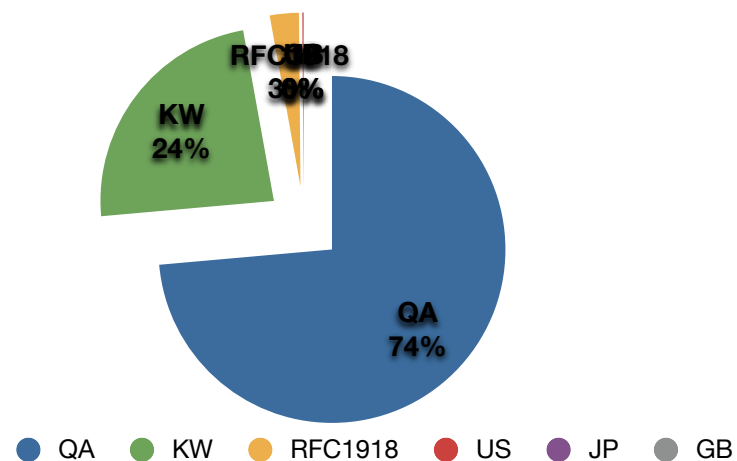
%	ASN	Economy	Network
99	35313	BH	BH2CONNECT-AS
1			RFC1918



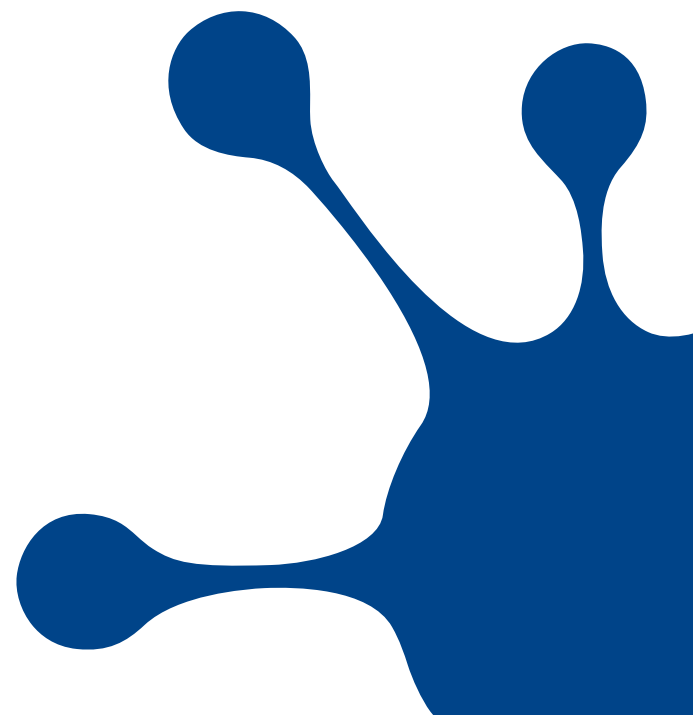
# Qatar, QA

%	ASN	Economy	Network
62	8781 QA	QA	QA-ISP
19	9155 KW	KW	QNET
11	42298 QA	QA	GCC-MPLS-PEERING
3	47589 KW	KW	KTC3G
3			RFC1918
1	42961 KW	KW	GPRS-AS

Chart 2



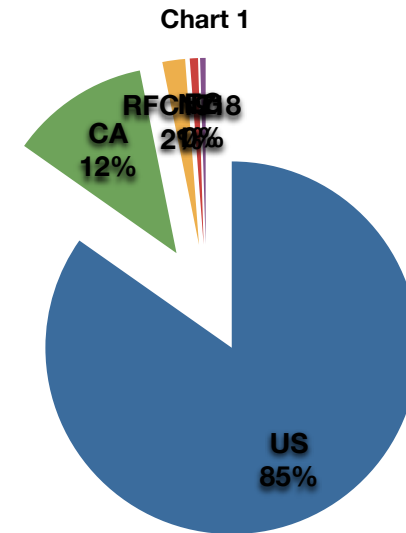
# NORTH AMERICA



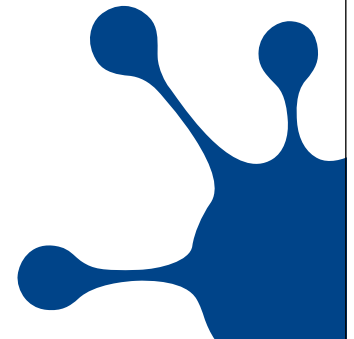
# Chicago (Startup), US

%	ASN	Economy	Network
5	14381	US	CATERPILLAR-INC
4	17	US	PURDUE
3	237	US	MERIT-AS-14
2	59	US	WISC-MADISON-AS
2	6325	US	ILLINOIS-CENTURY
2	81	US	NCREN
2	2381	US	WISCNET1-AS
2	3464	US	ASC-NET
1	376	CA	RISQ-AS
2			RFC1918
1	38	US	UIUC
1	3479	US	PEACHNET-AS1
1	87	US	INDIANA-AS
1	6200	US	UIC-AS
1	217	US	UMN-AGS-NET-AS
1	36375	US	UMICH-AS-5
1	20218	CA	BLACKSUN
1	5078	US	ONENET-AS-1
1	1998	US	STATE-OF-MN
1	103	US	NWU-AS
1	6356	US	NERDCNET
1	52	US	UCLA
1	6112	US	AUBURN
1	1767	US	ILIGHT-NET
1	11417	US	NIU
1	7050	US	UW-MILWAUKEE-AS1
1	14	US	COLUMBIA-GW
1	393249	CA	UBC
1	25887	US	SLIAC
1	2552	US	WUSTL-ASN
1	6122	US	ICN-AS
1	22742	US	CT-ED-NET
1	6559	US	NCIH

SANOG XXI, Cox's Bazaar, 2



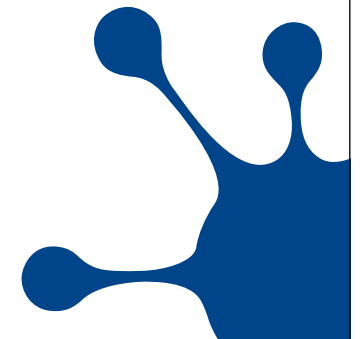
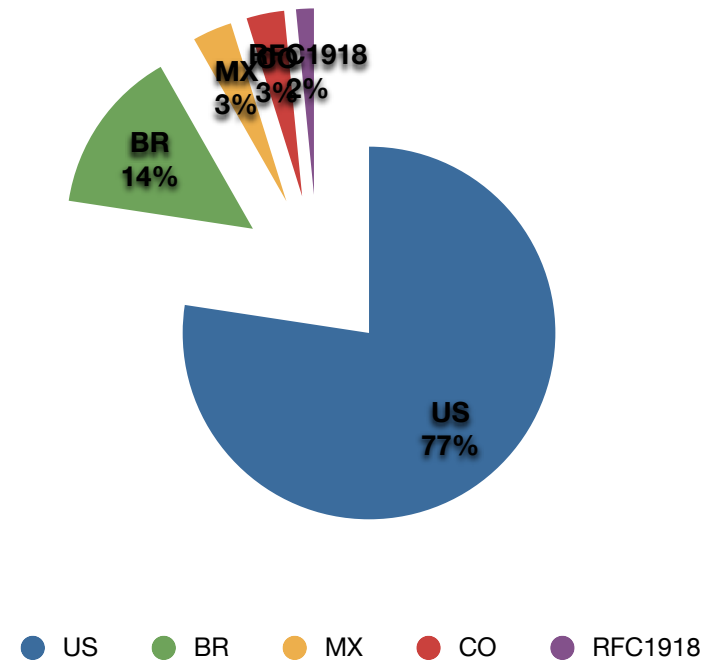
- US
- CA
- RFC1918
- NZ
- EG



# Miami (NOTA), US

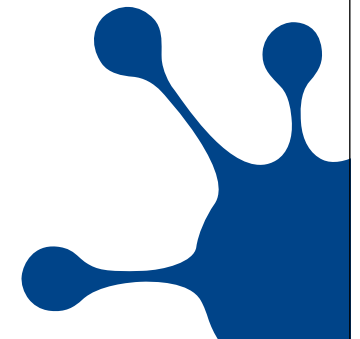
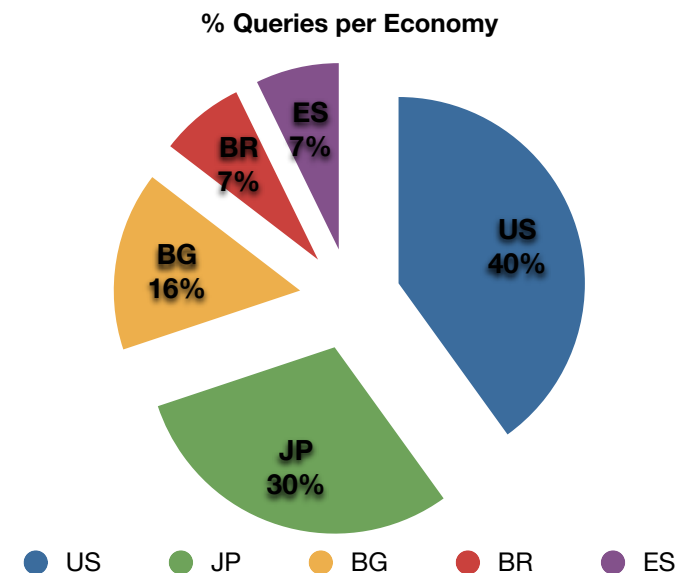
%	ASN	Economy	Network
47	15169	US	GOOGLE
6	7738	BR	Telecomunicacoes
4	21844	US	THEPLANET-AS
4	36692	US	OPENDNS
4	30607	US	302-DIRECT-MEDIA-ASN
3	13489	CO	EPM
2	558	US	NET2EZ
2	23106	BR	Empresa
2	12083	US	KNOLOGY-NET
2	10670	BR	PRODEMGE
2	36351	US	SOFTLAYER
1			RFC1918
1	13407	US	ONECOM-CTC
1	11888	MX	Television
1	16735	BR	Companhia
1	23148	US	TERREMARK
1	3595	US	GNAXNET-AS
1	11172	MX	Alestra,
1	6503	MX	Axtel,
1	13999	MX	Mega

% Queries per Economy



## Palo Alto (PAIX), US

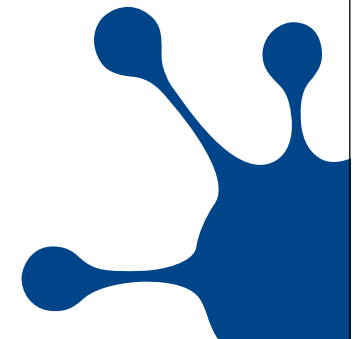
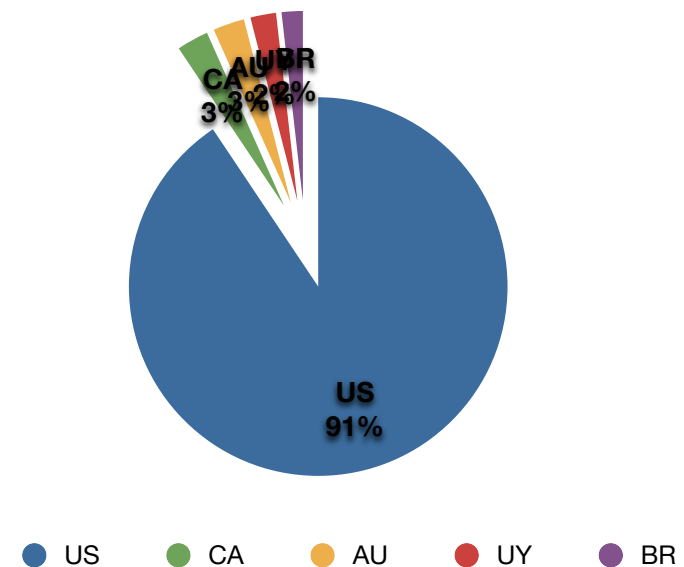
%	ASN	Economy	Network
25	16880	JP	TRENDMICRO
10	13236	BG	DATACOM-BG-ASN
6	3352	ES	TELEFONICA-DATA-ESPANA
4	36692	US	OPENDNS
3	22773	US	ASN-CXA-ALL-CCI-22773-RDC
3	8866	BG	BTC-ASN
3	2914	US	NTT-COMMUNICATIONS-2914
2	28573	BR	NET
2	12182	US	INTERNAP-2BLK
2	6389	US	BELLSOUTH-NET-BLK
2	30607	US	302-DIRECT-MEDIA-ASN
1	4323	US	TWTC
1	577	CA	BACOM
1	27653	HT	Alpha
1	4230	BR	Embratel
1	23520	US	COLUMBUS-NETWORKS
1	1785	US	AS-PAETEC-NET
1	15133	US	EDGECAST
1	6458	GT	Telgua
1	19262	US	VZGNI-TRANSIT
1	25019	SA	SAUDINETSTC-AS
1	10429	BR	Telefonica
1	8151	MX	Uninet
1	7018	US	ATT-INTERNET4
1	5650	US	FRONTIER-FRTR
1	8685	TR	DORUKNET
1	32107	US	WAVE-CABLE
1	17204	US	Nominum



## Washington D.C, US

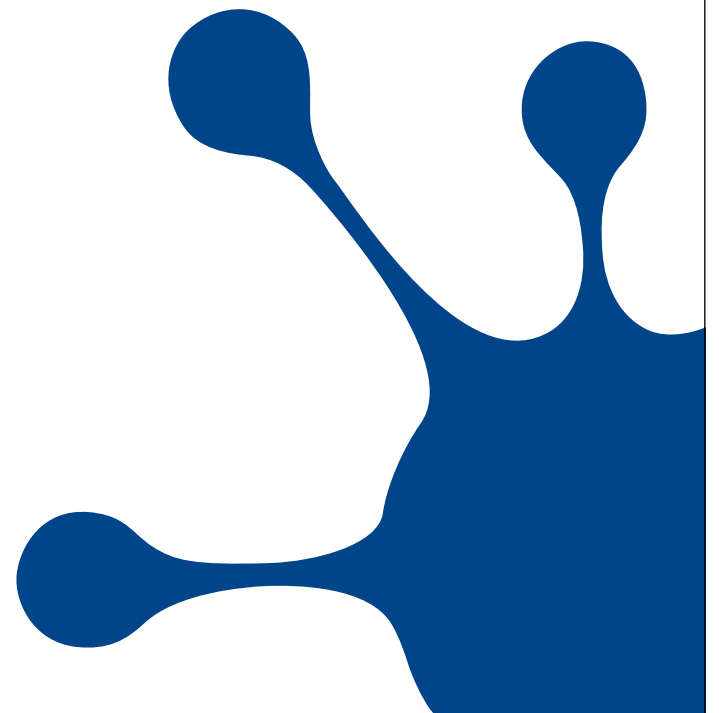
%	ASN	Economy	Network
27	209	US	ASN-QWEST
15	20115	US	CHARTER-NET-HKY-NC
5	6621	US	HNS-DIRECPC
3	7132	US	SBIS-AS
2	6057	UY	Administracion
2	721	US	DNIC-ASBLK-00721-00726
2	852	CA	ASN852
2			RFC1918
2	4323	US	TWTC
2	22561	US	DIGITAL-TELEPORT
2	7155	US	WB-DEN2
2	7381	US	SASUSA
1	6318	US	CHECKFREE
1	36727	US	INSIGHT-COMMUNICATIONS-CORP-AS1
1	4436	US	AS-NLAYER
1	25653	US	FORTRESSITX
1	33588	US	BRESNAN-AS
1	9797	AU	ASIAONLINEAUS-AS-AP
1	5778	US	EMBARQ-RCMT
1	7474	AU	OPTUSCOM-AS01-AU
1	13787	US	EMBARQ-JCTY
1	8167	BR	TELESC
1	2532	US	LOC
1	1221	AU	ASN-TELSTRA
1	7018	US	ATT-INTERNET4
1	13490	US	BUCKEYECABLEVISION

% Queries per Economy





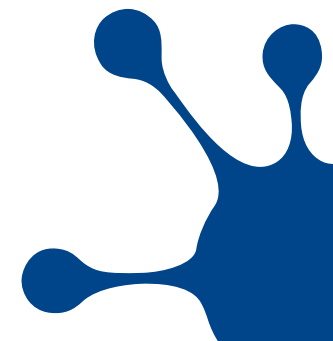
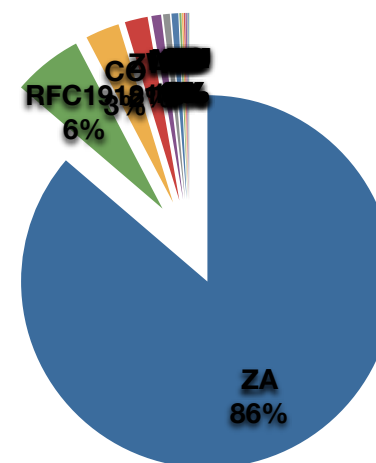
# AFRICA



# Johannesburg (JINX), ZA

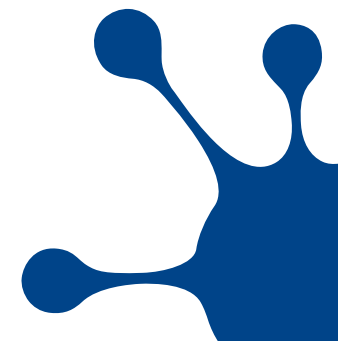
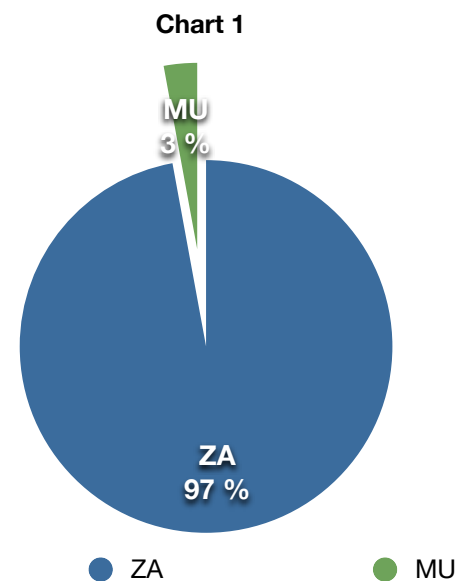
%	ASN	Economy	Network
40	3741 ZA		IS
25	10474 ZA		MWEB-10474
10	12258 ZA		MWEB-12258
9			RFC1918
3	2018 ZA		TENET-1
2	37130 ZA		SITA-AS
1	31856 ZW		CABS
1	37253 ZA		ATC
1	36943 ZA		webafrica
1	37235 ZA		MimecastSA
1	37028 ZA		FNBCONNECT
1	25695 LS		LEO
1	56696 GB		ASLIQUID-MPLS

Chart 1

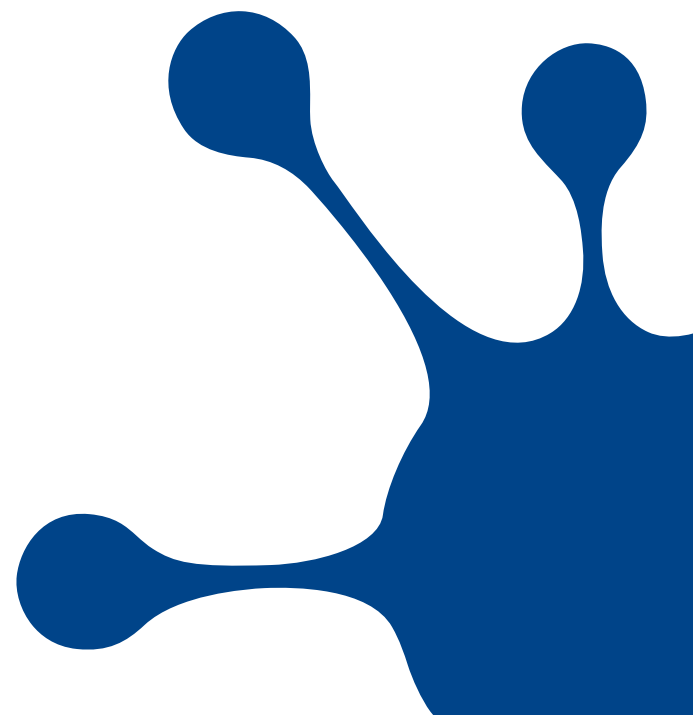


# Johannesburg (JINX), ZA - IPv6

%	ASN	Economy	Network
89	36943	ZA	webafrica
4	37105	ZA	NEOLOGY-AS
3	33764	MU	AFRINIC-ZA-AS
3	6083	ZA	POSIX-AFRICA
1	3741	ZA	IS
0	6968	ZA	UNIFORM-SA
0	26422	ZA	ABOUTIT-ONLINE
0	18931	ZA	SAINTERNET1



# SOUTH AMERICA



# Porto Alegre (PTTMetro), BR

%	ASN	Economy	Network
57	18881	BR	Global
4	28299	BR	CYBERWEB
3	1916	BR	Rede
3	28573	BR	NET
2	11706	BR	Terra
2	2715	BR	Fundacao
2	28271	BR	DataCorpore
1	2716	BR	Universidade
1	28347	BR	
1	22128	BR	Grupo
1	262443	BR	
1	28571	BR	Universidade
1	53115	BR	
1	19200	BR	Universidade
1	10715	BR	RCT-SC
1	14840	BR	CommCorp
1	8167	BR	TELESC
1	28634	BR	Life
1	26606	BR	COMPANHIA
1	1251	BR	Fundacao
1	19873	BR	INFOLINK
1	18881	BR	Global

% Queries per Economy

