#BruCON

The Curious Case of 42.0.20.80

WE NEED HELP!

The Curious Case of 42.0.20.80

@MRKOOT

@YAFSEC

The Curious Case of 42.0.20.80

$ host -t a www.google.com

www.google.com has address 42.0.20.80

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netnum: 42.0.16.0 - 42.0.23.255
netname: CHINANET-GD
descr: CHINANET Guangdong province network
descr: Data Communication Division
descr: China Telecom
country: CN
admin-c: CH93-AP
tech-c: IC83-AP
status: ALLOCATED PORTABLE
notify: [...redacted...]
remarks: service provider
changed: [...redacted...] 20110412
mnt-by: APNIC-HM
mnt-lower: MAINT-CHINANET-GD
mnt-irt: IRT-CHINANET-CN
source: APNIC

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@mrkoot

What's up with @Google domains incidentally resolving to 42.0.20.80, owned by China Telecom (Guangdong)? Is that bonafide?

@Yafsec:

@mrkoot If the resolver uses gethostbyname, it expects ipv4. When on ipv6 it apparently uses the first 4 bytes of the ipv6 address as ipv4.

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$ host -t aaaa www.google.com

www.google.com has IPv6 address 2a00:1450:4013:c00::63

....but I only now noticed that the first four bytes of that address, 2a00:1450, hexadecimally represent 42.0.20.80!

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UPDATE 2013-03-10: everything is caused by this bug in dproxy, a caching DNS proxy that runs on the Conceptronic C54APRB2+ router. Tip of the hat to the anonymous commenter who suggested this!

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$ host -t a ipv6.l.google.com

ipv6.l.google.com has no A record

$ host -t aaaa ipv6.l.google.com

ipv6.l.google.com has IPv6 address 2a00:1450:400c:c05::68

$ host -t a ipv6.l.google.com

ipv6.l.google.com has address 42.0.20.80

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```
try:
        answers = dns.resolver.query(qu, 'AAAA')
        for rdata in answers:
            print 'IPv6 address : ' + rdata.address
            a = rdata.address.replace(':',"")[:8]
            i = 0
            addr = ''
            while i < 8:
                j=i+2
                addr = addr + str((int(a[i:j],16)))
                if i < 6:
                    addr = addr + '.'
                i=j
            print 'IPv4 target  : ' + addr
    except:
        print 'No IPv6 record found'
        return
```

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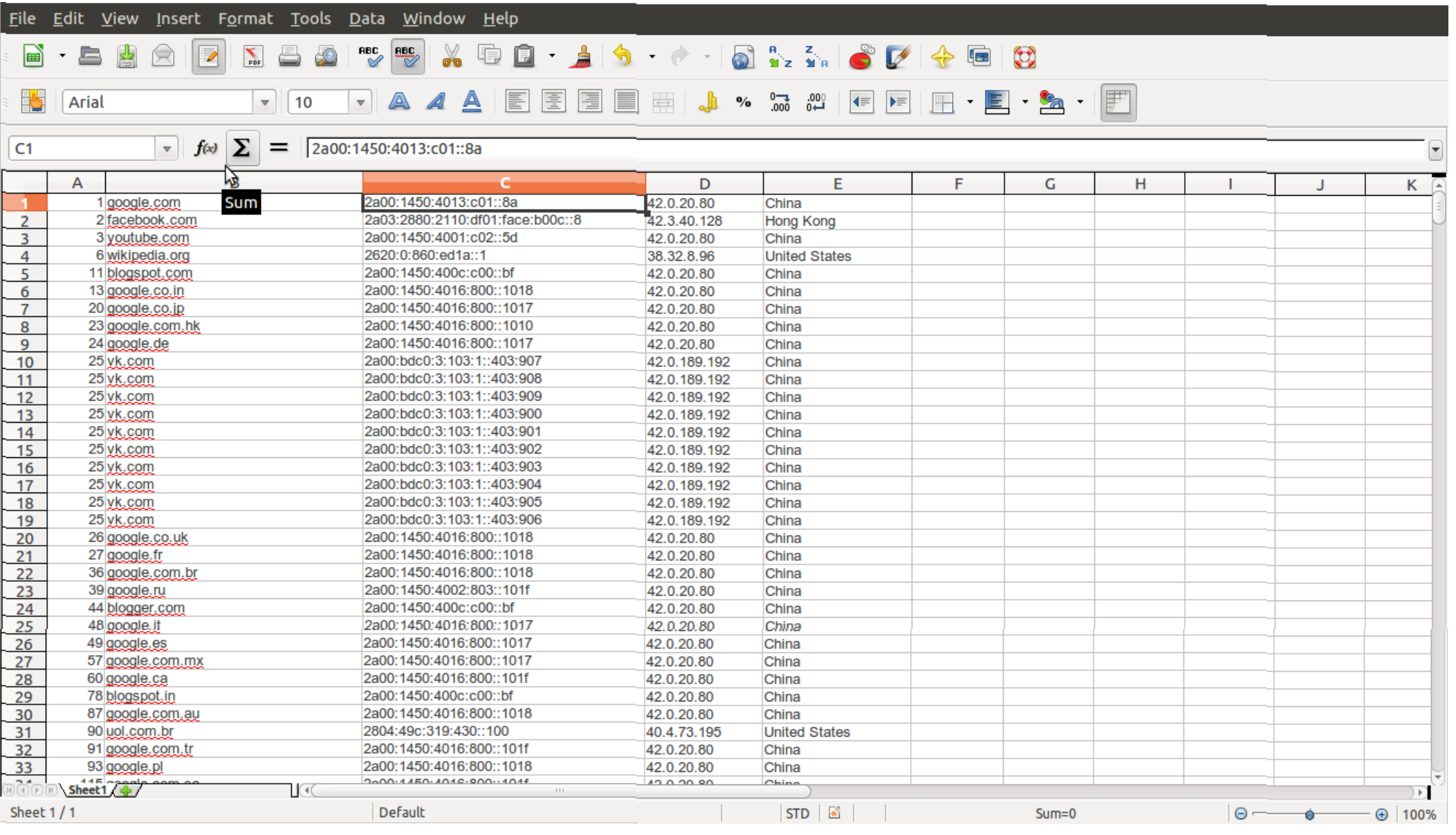

File Edit View Insert Format Tools Data Window Help

Arial 10

C1 | Σ | = | 2a00:1450:4013:c01::8a

Sum

	A		C	D	E	F	G	H	I	J	K
1	1	google.com	2a00:1450:4013:c01::8a	42.0.20.80	China						
2	2	facebook.com	2a03:2880:2110:df01:face:b00c::8	42.3.40.128	Hong Kong						
3	3	youtube.com	2a00:1450:4001:c02::5d	42.0.20.80	China						
4	6	wikipedia.org	2620:0:860:ed1a::1	38.32.8.96	United States						
5	11	blogspot.com	2a00:1450:400c:c00::bf	42.0.20.80	China						
6	13	google.co.in	2a00:1450:4016:800::1018	42.0.20.80	China						
7	20	google.co.jp	2a00:1450:4016:800::1017	42.0.20.80	China						
8	23	google.com.hk	2a00:1450:4016:800::1010	42.0.20.80	China						
9	24	google.de	2a00:1450:4016:800::1017	42.0.20.80	China						
10	25	vk.com	2a00:bdc0:3:103:1::403:907	42.0.189.192	China						
11	25	vk.com	2a00:bdc0:3:103:1::403:908	42.0.189.192	China						
12	25	vk.com	2a00:bdc0:3:103:1::403:909	42.0.189.192	China						
13	25	vk.com	2a00:bdc0:3:103:1::403:900	42.0.189.192	China						
14	25	vk.com	2a00:bdc0:3:103:1::403:901	42.0.189.192	China						
15	25	vk.com	2a00:bdc0:3:103:1::403:902	42.0.189.192	China						
16	25	vk.com	2a00:bdc0:3:103:1::403:903	42.0.189.192	China						
17	25	vk.com	2a00:bdc0:3:103:1::403:904	42.0.189.192	China						
18	25	vk.com	2a00:bdc0:3:103:1::403:905	42.0.189.192	China						
19	25	vk.com	2a00:bdc0:3:103:1::403:906	42.0.189.192	China						
20	26	google.co.uk	2a00:1450:4016:800::1018	42.0.20.80	China						
21	27	google.fr	2a00:1450:4016:800::1018	42.0.20.80	China						
22	36	google.com.br	2a00:1450:4016:800::1018	42.0.20.80	China						
23	39	google.ru	2a00:1450:4002:803::101f	42.0.20.80	China						
24	44	blogger.com	2a00:1450:400c:c00::bf	42.0.20.80	China						
25	48	google.it	2a00:1450:4016:800::1017	42.0.20.80	China						
26	49	google.es	2a00:1450:4016:800::1017	42.0.20.80	China						
27	57	google.com.mx	2a00:1450:4016:800::1017	42.0.20.80	China						
28	60	google.ca	2a00:1450:4016:800::101f	42.0.20.80	China						
29	78	blogspot.in	2a00:1450:400c:c00::bf	42.0.20.80	China						
30	87	google.com.au	2a00:1450:4016:800::1018	42.0.20.80	China						
31	90	uol.com.br	2804:49c:319:430::100	40.4.73.195	United States						
32	91	google.com.tr	2a00:1450:4016:800::101f	42.0.20.80	China						
33	93	google.pl	2a00:1450:4016:800::1018	42.0.20.80	China						

Sheet1

Sheet 1 / 1 | Default | STD | Sum=0 | 100%

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So, we did it on the Alexa top1000000 domains....

Only 43500 have IPV6....

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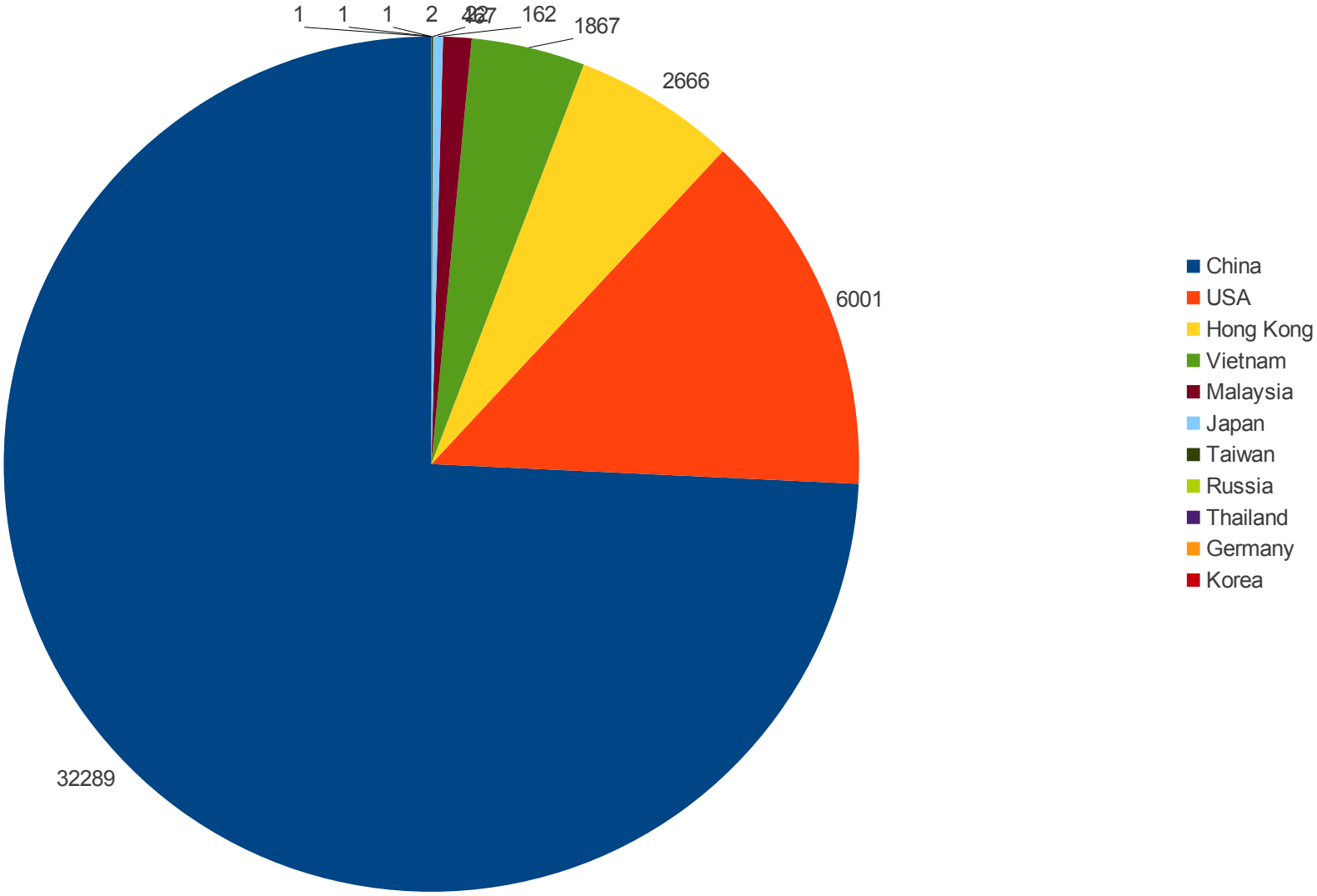

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Data Table

Column 1

	Categories	Y-Values
1	China	32289
2	USA	6001
3	Hong Kong	2666
4	Vietnam	1867
5	Malaysia	467
6	Japan	162
7	Taiwan	22
8	Russia	2
9	Thailand	1
10	Germany	1
11	Korea	1

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So, do you know people that own IP's?

We need your help!!!

@YAFSEC

http://pastebin.com/4zabmBHU