

Visions for Future Communications Summit



23rd, 24th October 2017

ISCTE - University Institute of Lisbon, Lisbon (Portugal)

Organized by Networld2020 with the support of 5G Infrastructure Association, European Commission, IEEE and National Science Foundation

IPv6-Based

**NEW
INTERNET**

Internet Generations

ArpaNET

**InterNET
InterNAT**

New InterNET

NCP 2^8

IPv4/NAT 2^{32}

IPv6 2^{128}

Pioneers

Innovators
NAT engineers

EveryOne
Everything

Email, FTP

WWW- Client/Server

Wireless, Streaming
Media, P2P, GRID

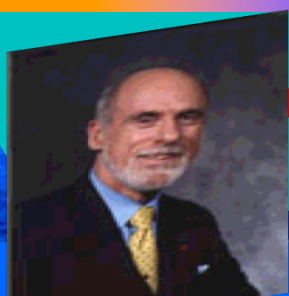
TOURISTS

RESIDENTS

Gov. Internet

ic Int

Global Internet



WEB Generations

WEB 1.0

WEB 2.0

WEB 3.0

W o T

IPv4

IPv4/NAT

IPv6

HTTP

HTML

XHTML

WoT

WWW

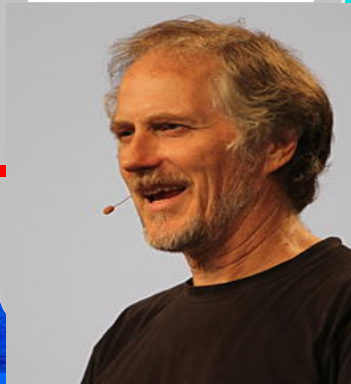
Interactive

Semantic Web

Tim Berners-Lee

Tim O'Reilly

Dave Raggett



W3C

Vision 2020

Wireless Generations

0G	1G	2G	3G	4G	5G
Non-IP			IPv4/NAT		IPv6
Analogue		GSM	WCDMA	OFDM	MIMO/ mmWAVE
Voice	Voice	Digital V	WAP	IMS	IOT?
Surprise: Fax & Modem	Eaves- dropping	SMS	WEB	Youtube WhatsApp	?
			Public Internet		W. Internet

IoT Generations

IoT 1

IoT 2

IoT 3

Non-IP

IPv4/NAT

IPv6

IP

Technology

**RFID/KNX
BackNet**

**One-Way
Gateways**

**Two-Way
Things-2-Things**

Media

**Network
of Things**

**IoT
devices**



**IPv6 Sensors
...**

Kevin Ashton



Global IoT Internet

DATA Generations

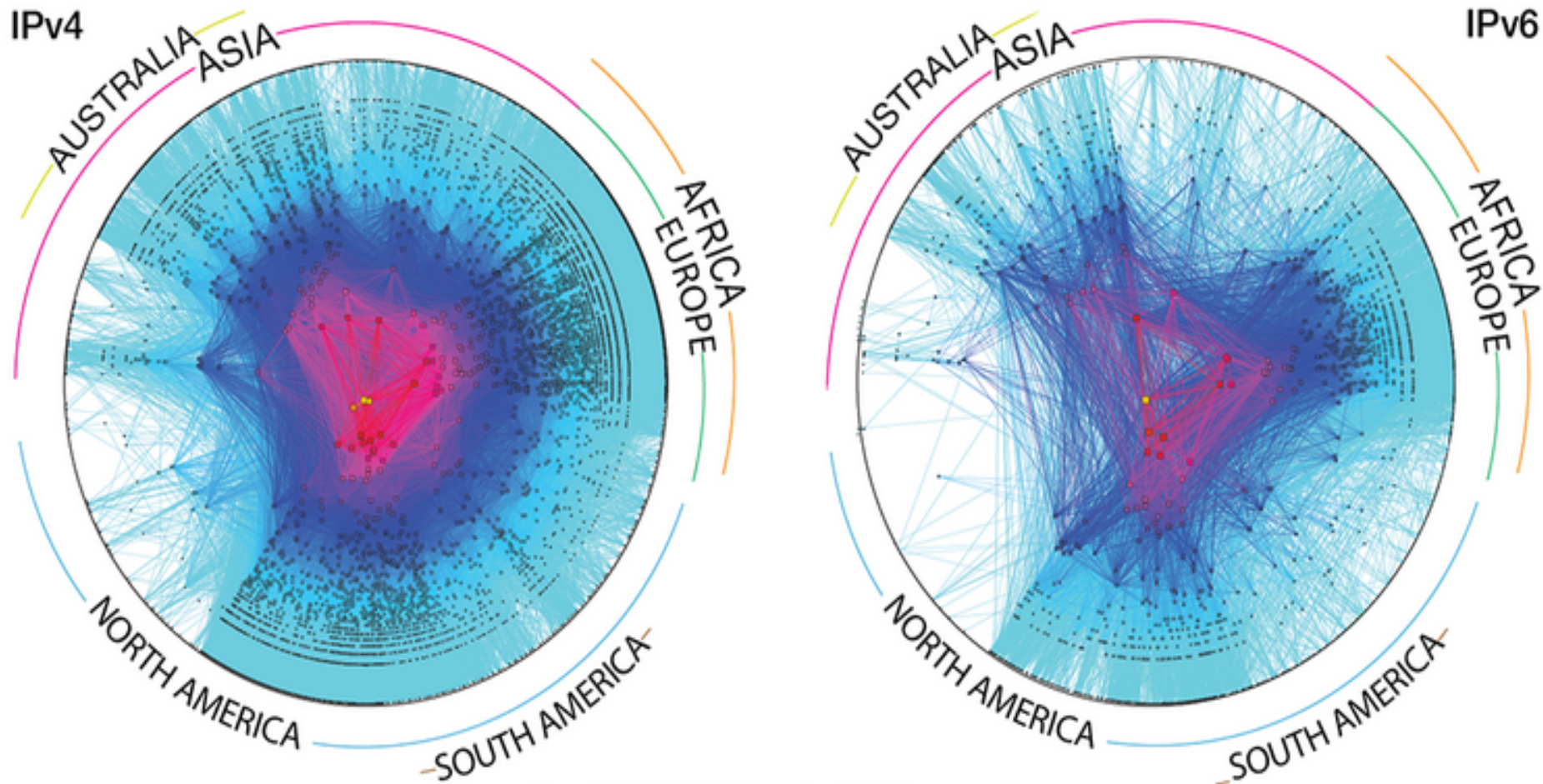
	DATA	BIG DATA	BIG IoT DATA
IP	Non-IP	IPv4/NAT	IPv6
Technology	Telex, Fax Telegraph	Hadoop Gateways	Mix GW 6LowPAN-Roll
Media	-	All	Sensors IoT Devices
Volume		 Global Data	.. HB Global IoT Data

Cloud Computing Generations

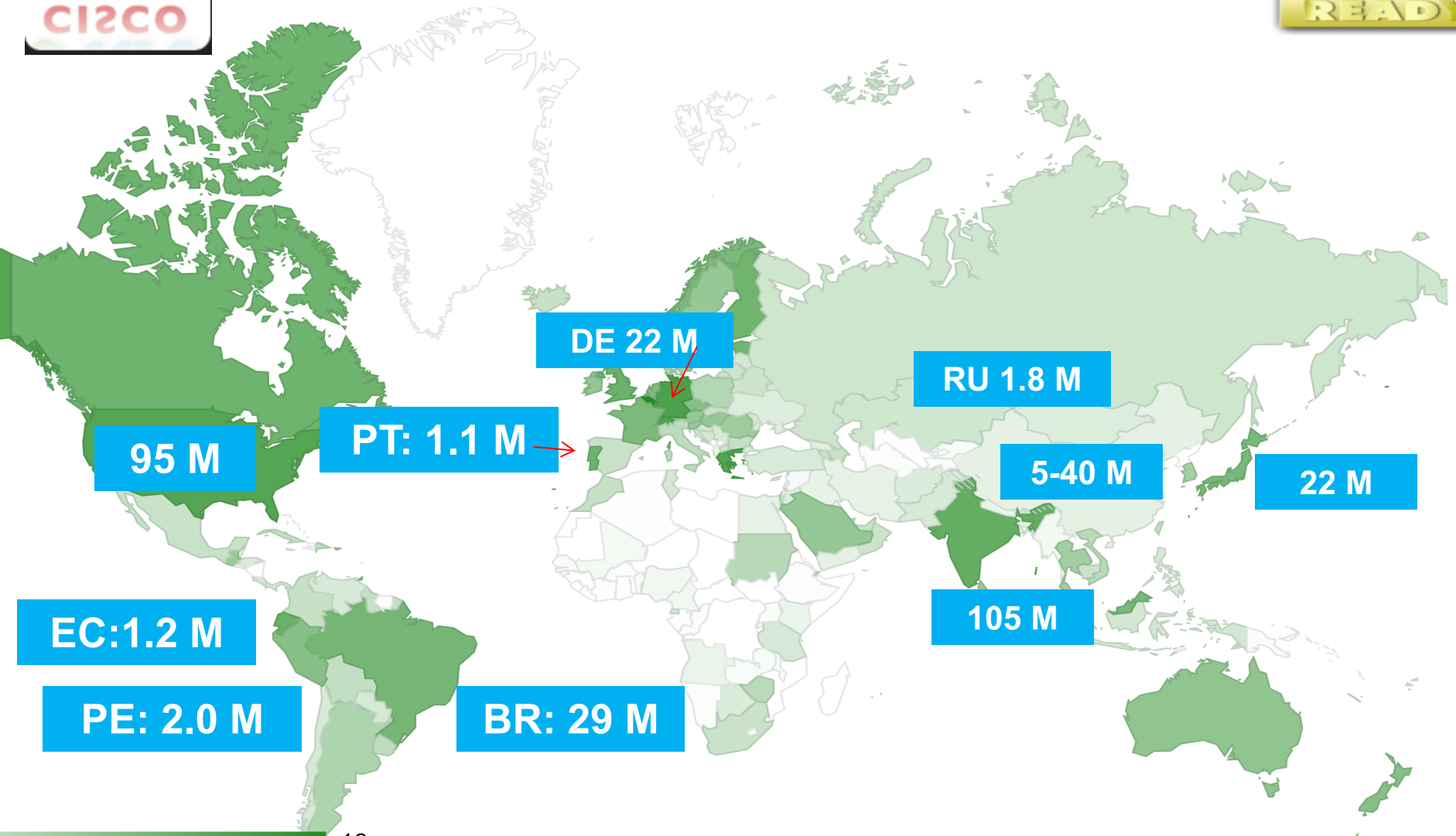
	CC 1	CC 2	CC 3
IP	IPv4/NAT		IPv6
Technology	Shareware	AWS Proprietary	Openstack
Media	-	All	..
Volume	KB	TB	HB
		Proprietary	Global CC

Visualizing IPv4 and IPv6 Internet Topology

CAIDA's IPv4 & IPv6 AS Core
AS-level INTERNET Graph
Archipelago January 2014



Copyright 2014 UC Regents. All rights reserved.



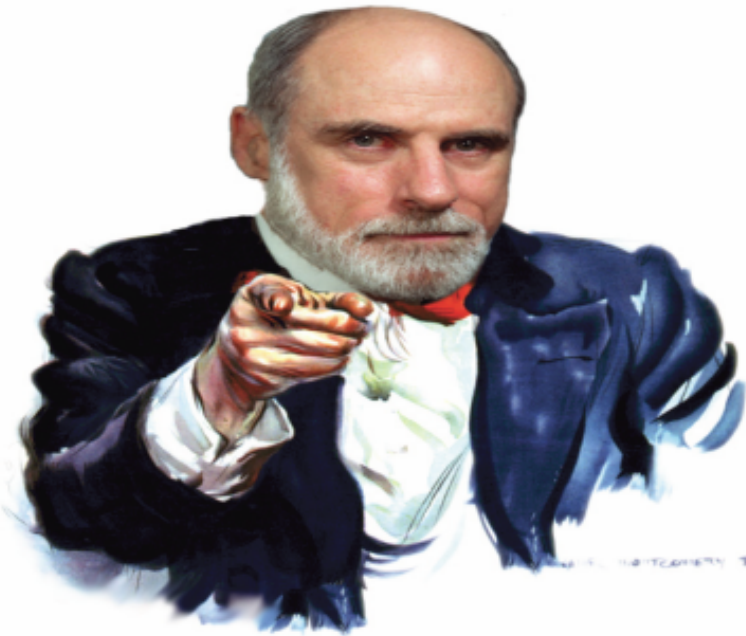
IPv6 Deployment Worldwide



Date: 14 Aug 2017

Index	ISO-3166 Code	Internet Users	V6 Use ratio	V6 Users (Est)	Population	Country
1	BE	10109309	56.23	5684952	11422949	Belgium
2	DE	70971603	42.53	30181175	80649549	Germany
3	IN	465606607	39.84	185507651	1337950022	India
4	US	288324176	35.99	103772556	325790030	United States of America
5	CH	7353067	34.58	2542584	8432417	Switzerland
6	GR	7063611	33.97	2399560	10900635	Greece
7	LU	553892	33.41	185048	581820	Luxembourg
8	PT	6915955	26.62	1841183	10276308	Portugal
9	GB	60555720	24.79	15011887	65394947	United Kingdom of Great Britain
10	JP	114900869	21.78	25029257	126126092	Japan
11	IE	3838543	19.58	751676	4738942	Ireland
12	FR	56039156	19.52	10940765	64860135	France
13	EC	7135628	18.09	1290958	16555983	Ecuador
14	CA	32326774	18.01	5820917	36527429	Canada
15	PE	13141549	17.80	2339390	32052560	Peru
16	EE	1194349	17.29	206514	1306728	Estonia
17	MY	21296431	16.59	3533493	31044361	Malaysia
18	TT	945247	15.98	151072	1367942	Trinidad and Tobago
19	NO	5207437	14.91	776197	5313712	Norway
20	BR	139942445	14.87	20805104	210756695	Brazil

Message From Vint Cerf Honorary Chair IPv6 Forum



**I WANT YOU
TO USE IPv6**

— VINT CERF