Domain Name as a Model
[Dotcom fiasco to Cybercrime]

For GNSO : 12 April 2020

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The whole Internet arose more than 30 years ago, initiated by the American Department of Defense. From the very beginning, the Internet architecture took into account that it should be able to keep the communication functional even if a part of the infrastructure of the USA were destroyed, i.e., it must be able to do without a destroyed area.

New gTLDs

- The introduction of the New gTLD [generic Top-Level Domain] Program in 2011.

- The EU General Data Protection Regulation [GDPR] introduced in 2018.

- Failing to register the right domains could allow a third party to register a domain that can be used to spoof your website, redirect online traffic, conduct online fraud, steal personal information, or sell products through unauthorized channels.

- Domain name resolution offers the ability to connect visitors around the world to content that is relevant to them.

- Making good use of this capability requires careful thought about how to use specific URLs to ensure visitors are presented with content relevant to them.

- Domains that are not pointed to live content may be redirected by ISPs or browsers to other content.

- **Is Registering every possible permutation of a brand name though highly expensive an method ?**

New Vulnerabilities & Threats

- **Internationalized Domain Name homographs [**To the human eye, they look the same when viewed quickly; however, they are coded differently within the Domain Name System (DNS)]

- **Look-alike website**

- The decentralized domains based on blockchain technology associated with cryptocurrencies **do not use ICANN coordinated DNS** and do not resolve to content in the way of normal web domains. They allow for online activities such as enabling cryptocurrency holders to connect to their "wallets."

- Highly targeted **"cryptophishing"** say the "Wallets".

- **Unintentionally Inappropriate** Domain Names

- **Domain Expirations.** The "Terminate and Stay Resident [TSR]" beginning of Computer Virus should never be forgotten.
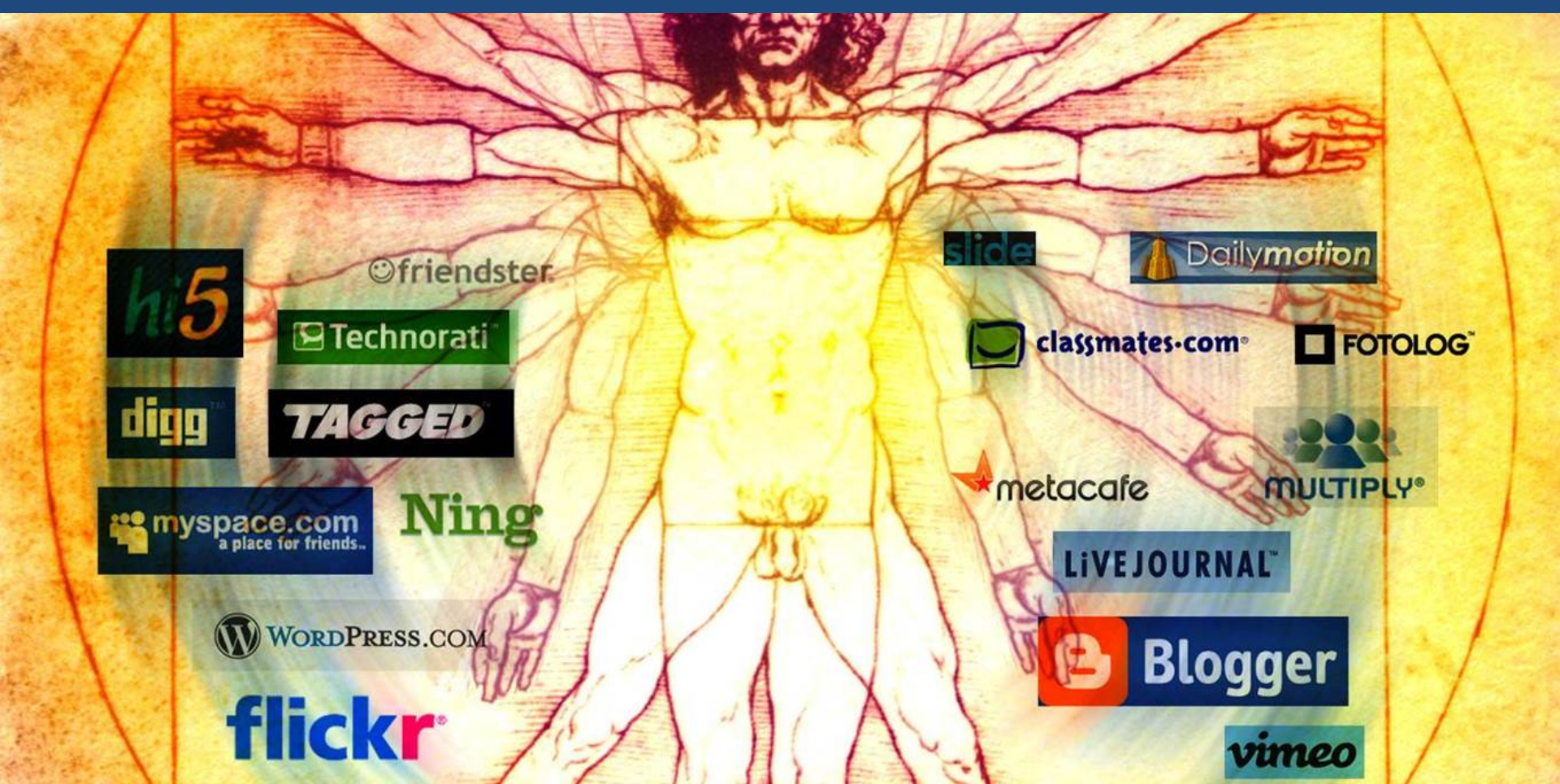
NET WORLD

What's in a Domain Name?

Esther Dyson

Esther Dyson, CEO of EDventure Holdings, is an active investor in a variety of start-ups around the world. Her interests include information technology, health care, private aviation, and space travel.

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www.project-syndicate.org

Domain Name Server (DNS) in Application Layer

- In the beginning it was in the Transport Layer.
- There are not many secure coders in the Application Layer. Lot of applications extract and parse the domain name.
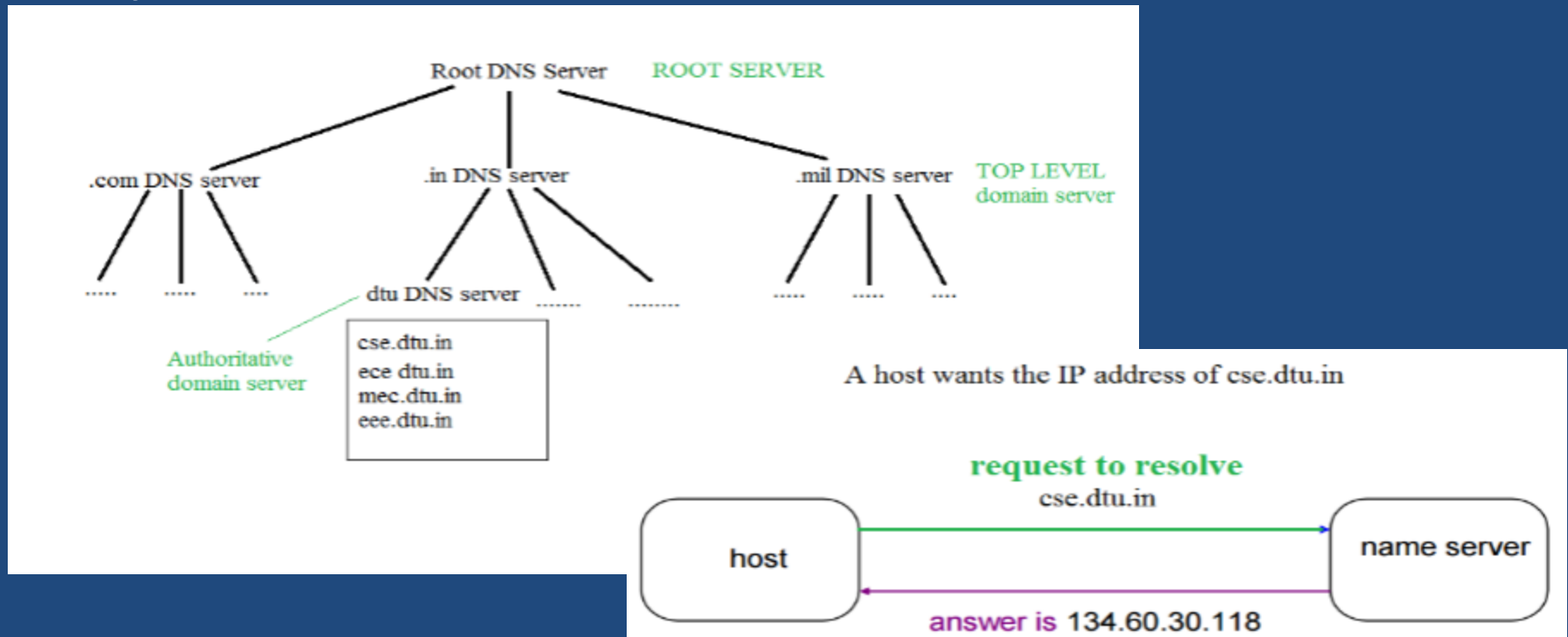
The field of global Internet governance

	Authoritative rule-setting	Provision of public/collective goods
Internet services	States: laws and regulations	Civil society: e.g. creative commons, open source
Internet infrastructure *logical (TCP/IP)*		
application layer (e.g. HTTP, FTP, DNS)	ICANN: DNS	IETF, W3C: Standards
transport layer (e.g. TCP, UDP)	—	IETF: Standards
network layer (e.g. IP)	—	IETF: Standards
network access layer (e.g. Ethernet)	—	IEEE, ITU: Standards
physical		
cable, router, server (IXPs, ISPs)	States: laws and regulations	IETF, IEEE: Standards

✓**Law enforcement and security agencies often want to use existing weaknesses in the DNS for their purposes.**

✓**"Chokepoints" are a Security Threat**

✓**Market incentives for cable operators are in tension with the economic needs of developing countries.**

✓<u>**Is Authoritative Rule-setting by ICANN a Way Out?**</u>

<u>**Concern#1:**</u> **Domain names are the lynchpin of modern business**

Concern #2: Is this Adequate ?

- A .CODES domain name could be used to refer to programming code, video game tips and tricks, codes of conduct, or anything else related to the word "code."

- It's an open domain extension with no restrictions.

- The New gTLDs are Keyword based. They are programmable, searchable, toolable and error prone.

- Are we inflating the Cybercrime?

- What if only the gTLD is enabled to be separated from the rest of the URL at the Application Layer?
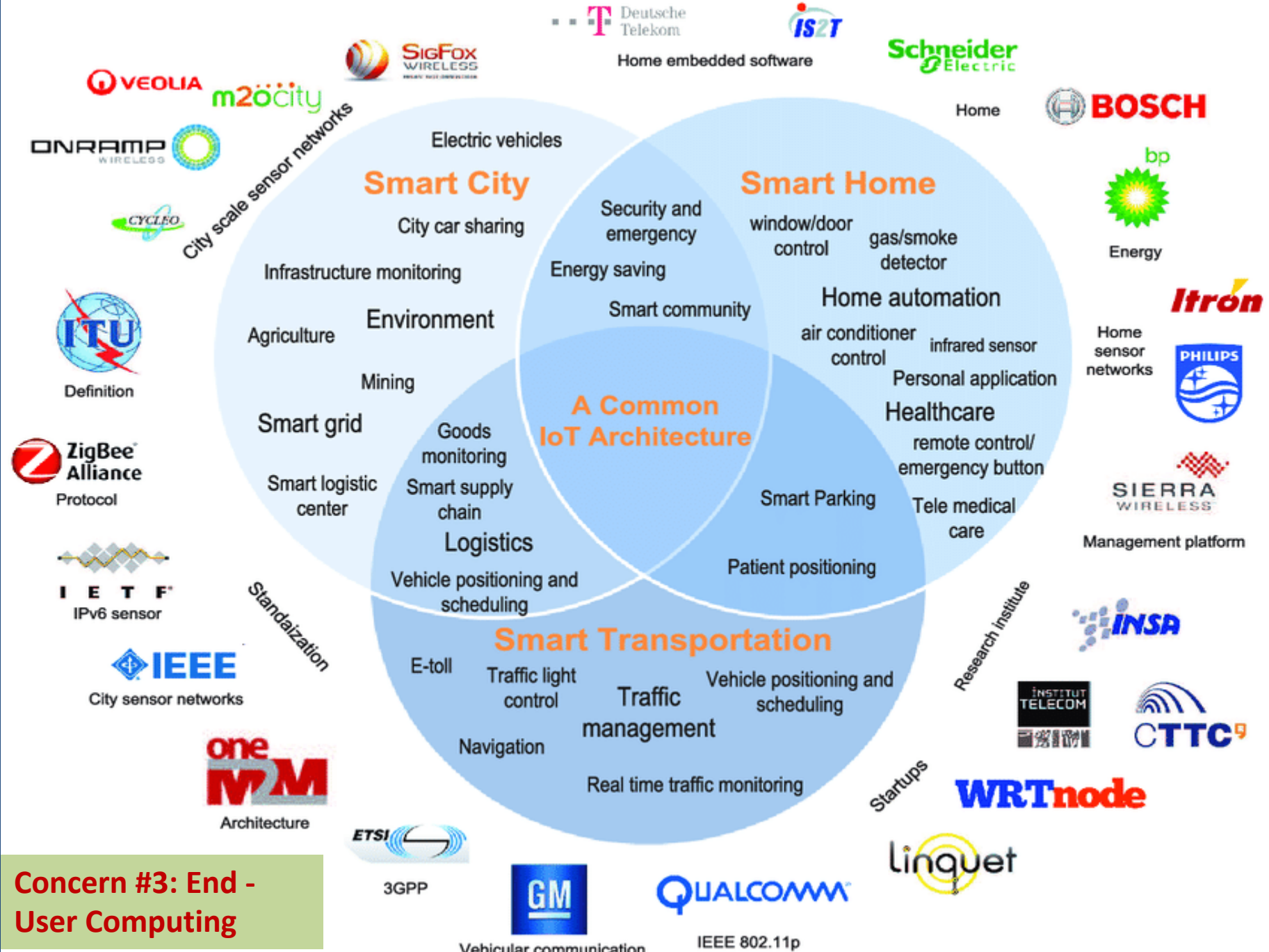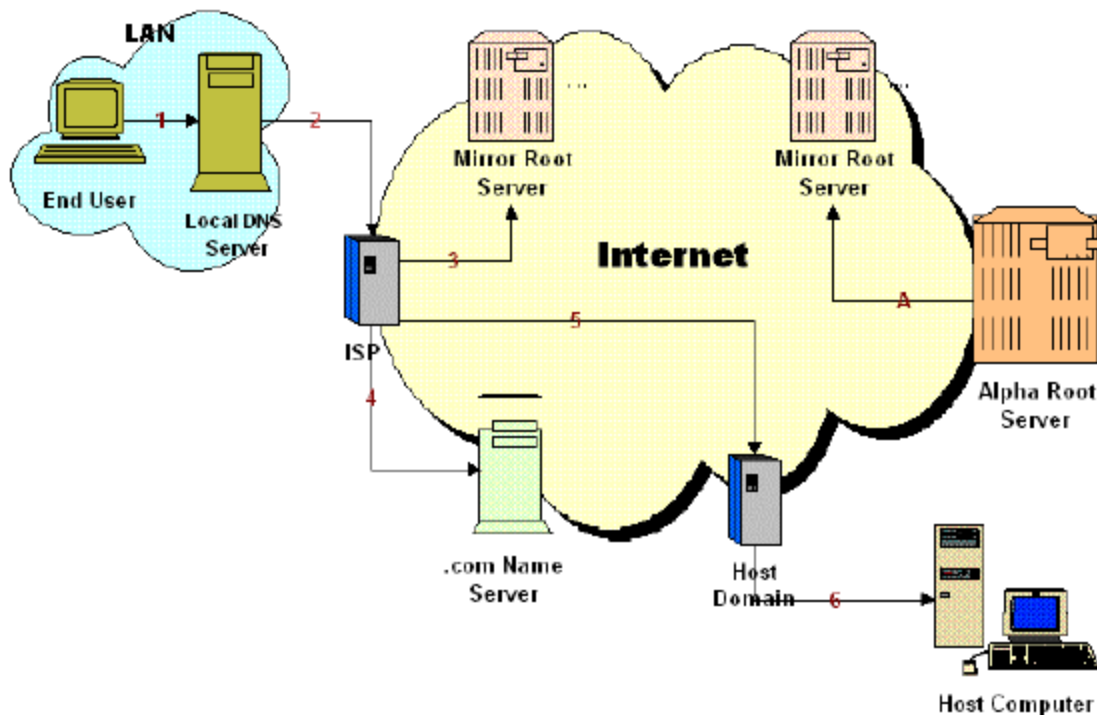
Concern #3: End - User Computing

Location of Root Servers - 12 April 2020

Deconcentration is NOT Enough
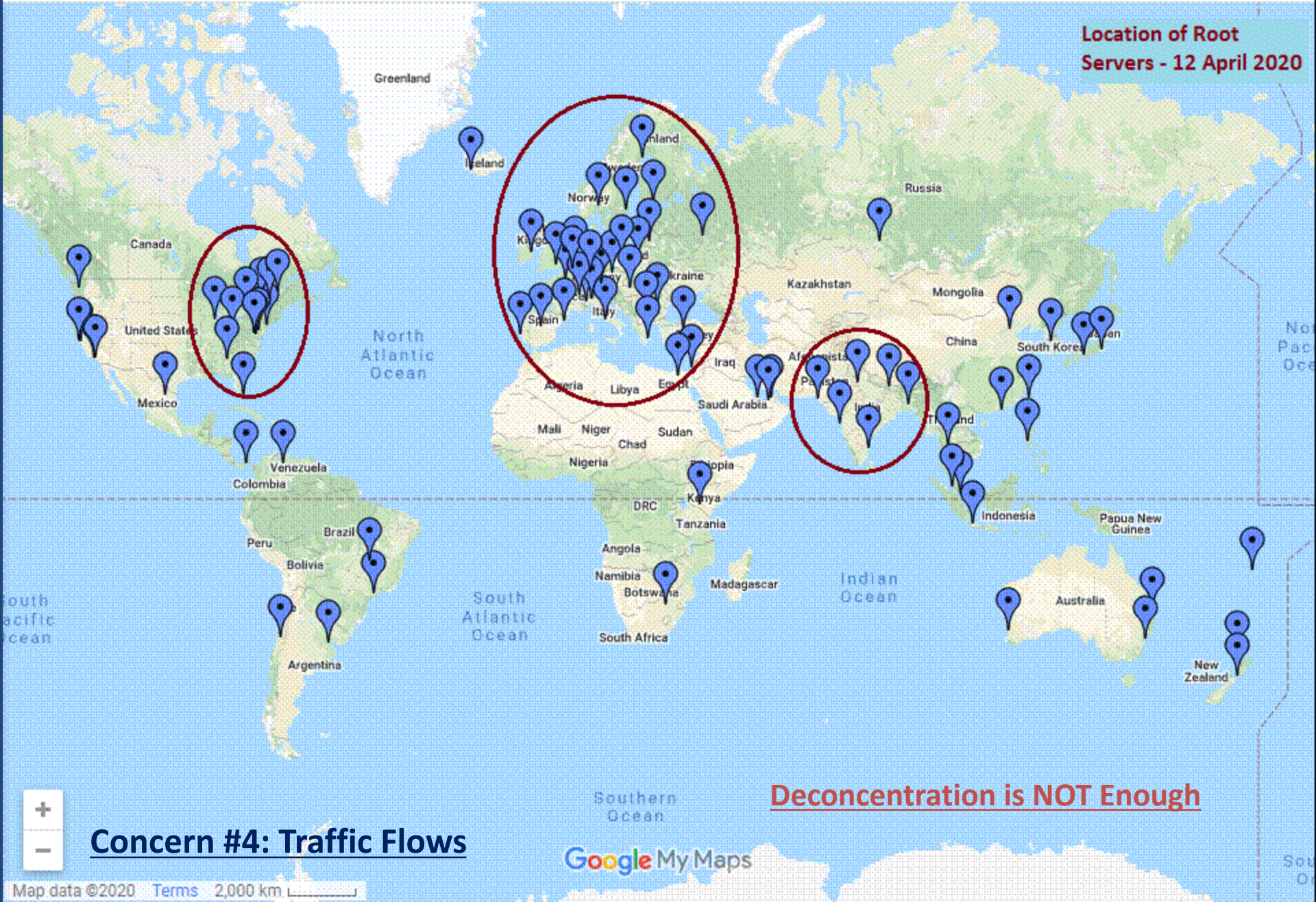
Concern #4: Traffic Flows

Concern #5: Clustering of Root Servers from the standpoint of Physical Security

THE DNS SYSTEM

LAN

End User

Local DNS Server

1

2

ISP

4

3

Mirror Root Server

Internet

Mirror Root Server

5

A

Alpha Root Server

.com Name Server

Host Domain

6

Host Computer

Karl M. Manheim and Lawrence B. Solum, "An Economic Analysis of Domain Name Policy (2004)", *University of San Diego Law and Economics Research Paper Series. 1.*

Concern #6: The Root Server System Is an Economically Scarce Resource
The Root Name Space Is an Economically Scarce Resource [The Name Space as a logical construct [bound on the number of characters] needs specification.
Should there be Upper Bounds on the Number of Domain Names based on "Geopolitics".

Concern #7: Subsidiarity

How it works from small scale to big scale

- Ensures contributive justice on the lower, local levels; individuals/families/ must work to ensure their well-being
- Allows for real difference among communities
- Allows for quick, authentic human responses to human problems; avoids the scourges of bureaucracy

How it works from big scale to small scale

- Preserves the state's overall efficiency saving it from spending resources in the wrong places
- Allows for bigger units of society to focus on larger ideas and problems; state is free to observe and eliminate systemic injustices (example: Civil Rights' movement and laws of 1960s)

"Problems should be solved at the smallest and most intimate level possible"

Occam's Razor: "Entities should not be multiplied without necessity."
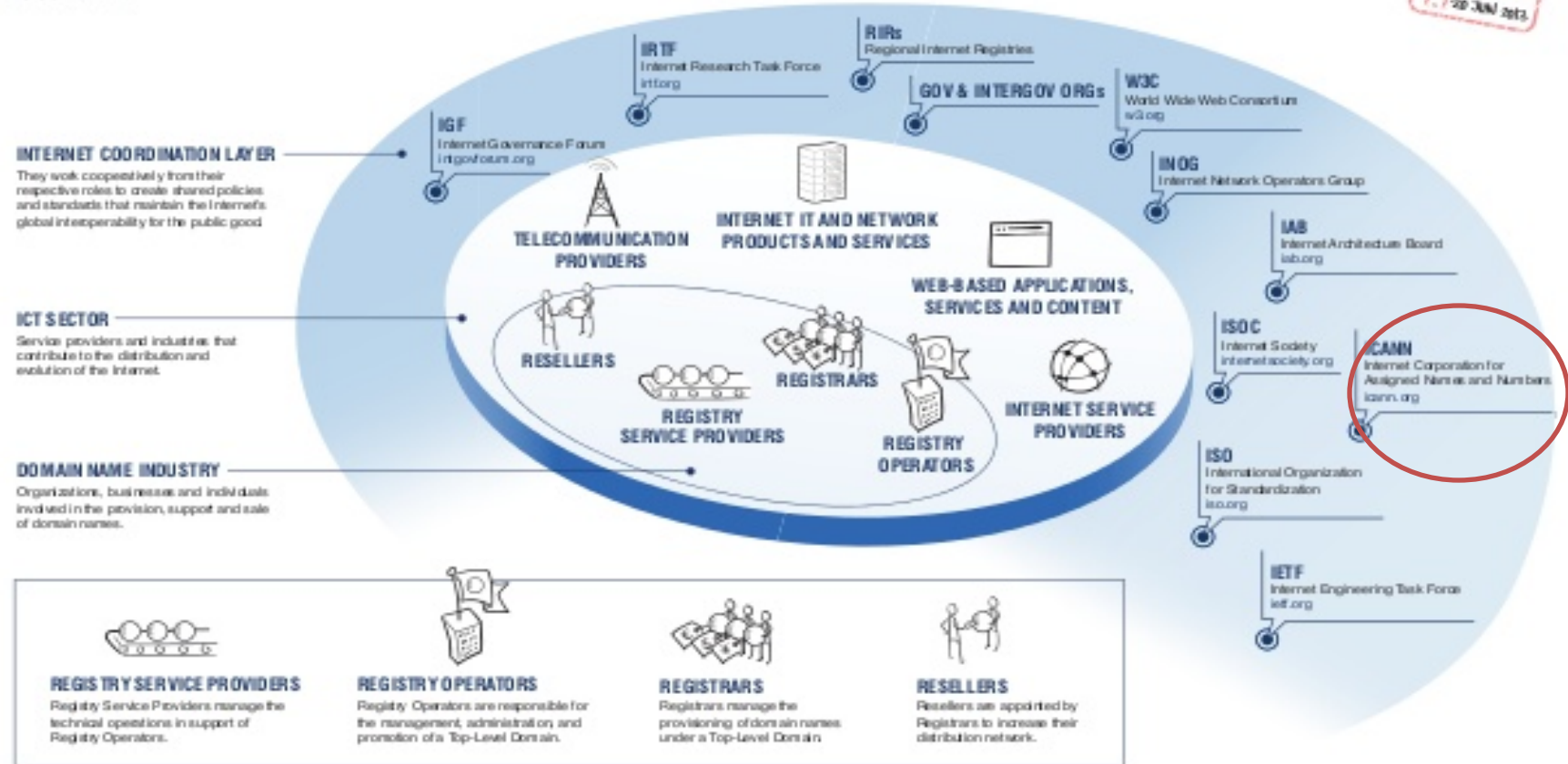
Concern #8: Need to specify the Collaborators i.e simply stating multi-stakeholder is not sufficient
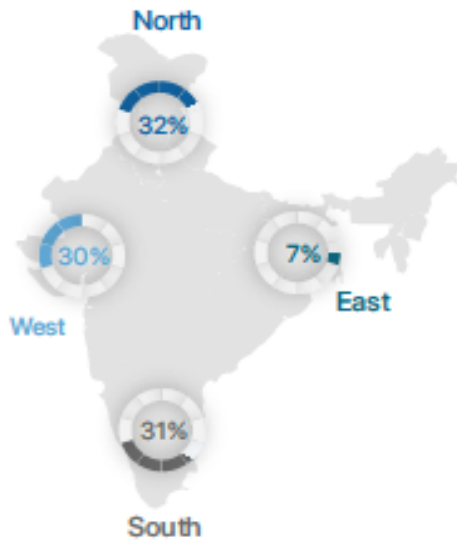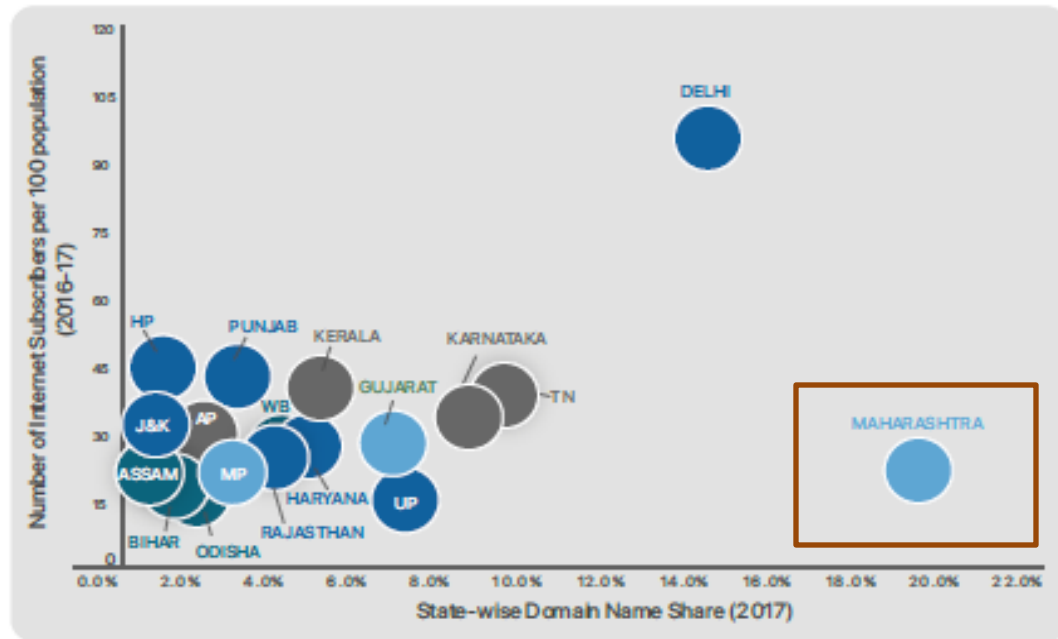
Domain Name Industry in India Crossed the 5 Million Mark, Growing by 7.1%

Domain name growth has been the highest in Maharashtra, Tamil Nadu, and Gujarat

Concern #9: Total India is reflected with four concentrators !!

Cyber Society of India

Report of Workshop on
"Security - a Wider Perspective"
at Chennai on 22-July-2014

Cyber Society of India (CySI) organized a workshop in Chennai on "Cyber Security: a wider perspective " as part of its continuing efforts on improving awareness.

The event sponsored by 'Consulsys, Chennai' was held at the Cosmopolitan Club, Chennai, on the 22nd July, 2014 and was well attended and represented from the cross-section by people from the IT industry, banking, practicing professionals and others, to name a few.

The press corps that was in attendance through the event were keen on and got the inputs from the guests and organizers on the topic of discussion, for the day.

Chief guest of the evening, Mr. Richard Marshall, Information Security Consultant and CEO, S-SES consultants, USA enthralled the audience with an insightful lecture on the emerging global scenario of cyber crimes.

Earlier, Mr. Sankara Bhagham, Business information Security officer from Citibank enlightened the attendees with his experiences across the globe on the subject of "Internet Intelligence" and the learned audience was all appreciations for the knowledge shared.

Dr. T.V.Gopal from Anna University eloquently explained on "cyber security- mathematical challenges", providing a different perspective of the issue on hand.

It was an event which was attended in huge numbers, organized with the wholesome cooperation from dedicated members of CySI and well relished by the attendees. CySI endeavors to conduct more such sessions in the days to come, to educate and update the knowledge of general public against cyber insecurities.

Any Questions ?