November 2017

2017 Jonathan B. Postel Service Award

Internet Society

Jonathan B. Postel

- First editor of the IETF RFC Series
- Authored or co-authored more than 200 RFCs
- First director of IANA
- Member of the IAB (1990-1993)
- Chair of the IRTF (1992-1995)
- First member of the Internet Society (1992)

Photo from Jacques Coghen
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Be conservative in what you do,

be liberal in what you accept from others.

- Robustness Principle, RFC 793

The Jonathan B. Postel Award was established by the Internet Society to honor individuals or organizations that, like Jon Postel, have made outstanding contributions in service to the data communications community.

Awardees are recognized with a crystal trophy and a USD 20,000 prize.

Jonathan B. Service Award Past Honorees

1999: Jon Postel (posthumously)

2000: Scott Bradner

2001: Daniel Karrenberg

2002: Steve Wolff

2003: Peter Kirstein

2004: Phill Gross

2005: Jun Murai

2006: Bob Braden and Joyce K. Reynolds

2007: Nii Quaynor

2008: La Fundación Escuela Latinoamericana de Redes

2009: CSNET

2010: Prof. Jianping Wu

2011: Prof. Kilnam Chon

2012: Pierre Ouedraogo

2013: Elizabeth "Jake" Feinler

2014: Mahabir Pun

2015: Rob Blokzijl

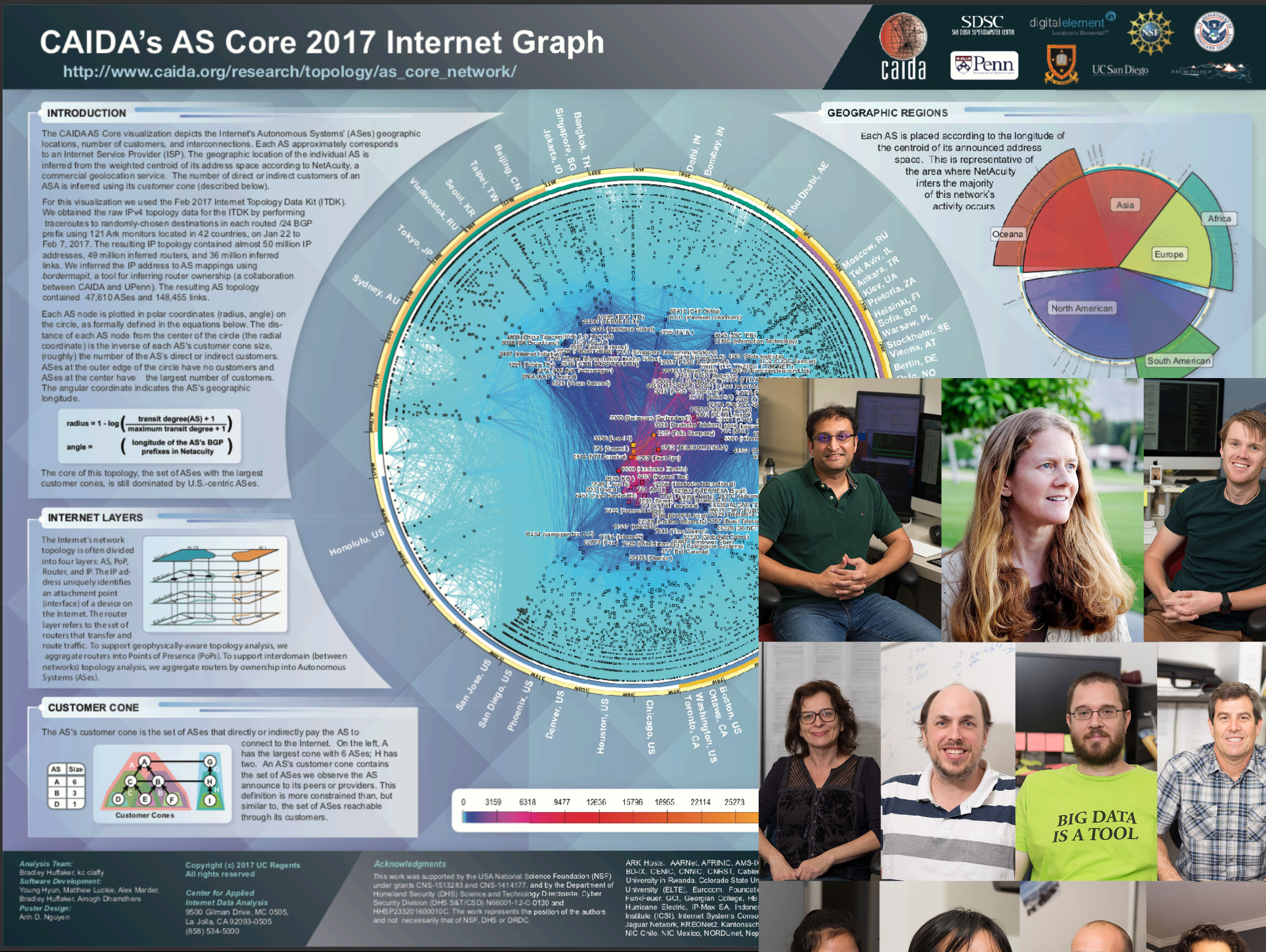
2016: Kanchana Kanchanasut

Jonathan B. Postel Award

2017 Honoree

kc claffy

For her pioneering work on Internet measurement through the development of infrastructure and methodologies for data collection, analysis, and sharing around the world.


CAIDA's AS Core 2017 Internet Graph
http://www.caida.org/research/topology/as_core_network/
caida
SDSC
digitalelement
NSF
Penn
UC San Diego
INTRODUCTION
The CAIDA AS Core visualization depicts the Internet's Autonomous Systems' (ASes) geographic locations, number of customers, and interconnections. Each AS approximately corresponds to an Internet Service Provider (ISP). The geographic location of the individual AS is inferred from the weighted centroid of its address space according to NetAcuity, a commercial geolocation service. The number of direct or indirect customers of an ASA is inferred using its customer cone (described below).
For this visualization we used the Feb 2017 Internet Topology Data Kit (ITDK). We obtained the raw IPv4 topology data for the ITDK by performing traceroutes to randomly-chosen destinations in each routed /24 BGP prefix using 121 Ark monitors located in 42 countries, on Jan 22 to Feb 7, 2017. The resulting IP topology contained almost 50 million IP addresses, 49 million inferred routers, and 36 million inferred links. We inferred the IP address to AS mappings using bordermapit, a tool for inferring router ownership (a collaboration between CAIDA and UPenn). The resulting AS topology contained 47,610 ASes and 148,455 links.
Each AS node is plotted in polar coordinates (radius, angle) on the circle, as formally defined in the equations below. The distance of each AS node from the center of the circle (the radial coordinate) is the inverse of each AS's customer cone size, (roughly) the number of the AS's direct or indirect customers. ASes at the outer edge of the circle have no customers and ASes at the center have the largest number of customers. The angular coordinate indicates the AS's geographic longitude.
radius = 1 - log (transit degree(AS) + 1 / maximum transit degree + 1)
angle = (longitude of the AS's BGP prefixes in Netacuity)
The core of this topology, the set of ASes with the largest customer cones, is still dominated by U.S.-centric ASes.
INTERNET LAYERS
The Internet's network topology is often divided into four layers: AS, PoP, Router, and IP. The IP address uniquely identifies an attachment point (interface) of a device on the Internet. The router layer refers to the set of routers that transfer and route traffic. To support geophysically-aware topology analysis, we aggregate routers into Points of Presence (PoPs). To support interdomain (between networks) topology analysis, we aggregate routers by ownership into Autonomous Systems (ASes).
CUSTOMER CONE
The AS's customer cone is the set of ASes that directly or indirectly pay the AS to connect to the Internet. On the left, A has the largest cone with 6 ASes; H has two. An AS's customer cone contains the set of ASes we observe the AS announce to its peers or providers. This definition is more constrained than, but similar to, the set of ASes reachable through its customers.
AS Size
A 6
B 3
D 1
Customer Cones
GEOGRAPHIC REGIONS
Each AS is placed according to the longitude of the centroid of its announced address space. This is representative of the area where NetAcuity inters the majority of this network's activity occurs.
Asia
Africa
Oceana
Europe
North American
South American
Bangkok, TH
Singapore, SG
Jakarta, ID
Beijing, CN
Taipei, TW
Seoul, KR
Vladivostok, RU
Tokyo, JP
Sydney, AU
Honolulu, US
Delhi, IN
Bombay, IN
Abu Dhabi, AE
Moscow, RU
Tel Aviv, IL
Ankara, TR
Kiev, UA
Pretoria, ZA
Helsinki, FI
Sofia, BG
Warsaw, PL
Stockholm, SE
Vienna, AT
Berlin, DE
San Jose, US
San Diego, US
Phoenix, US
Denver, US
Houston, US
Chicago, US
Toronto, CA
Washington, US
Ottawa, CA
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Poster Design:
Anh D. Nguyen
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BIG DATA IS A TOOL

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