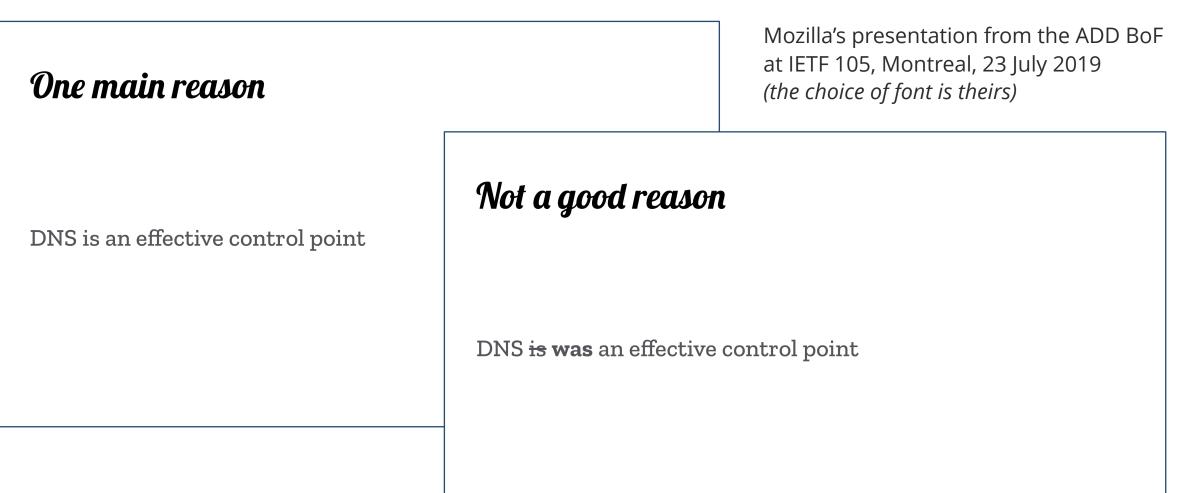
DNS-OARC 31

Vittorio Bertola, Head of Policy & Innovation Austin, 1 November 2019



This all started at IETF 105...





Even if this is a fallacy...



It doesn't always work ≠ It doesn't work!





If the DNS is not a control surface...

...what's the DNS, anyway?



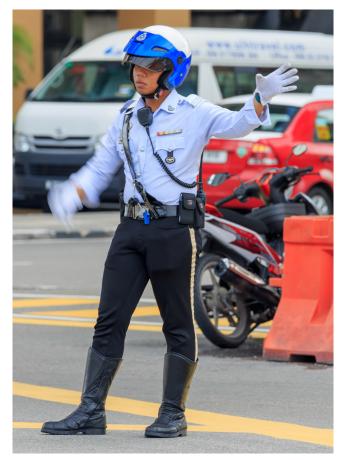


- RFC 1034 gives no definition just a description of its components.
- RFC 8499 («DNS Terminology») starts with «The Domain Name System (DNS) is defined in literally dozens of different RFCs.», but does not provide a pointer to a definition.
- It then says «The Domain Name System (DNS) is a simple query-response protocol whose messages in both directions have the same format.» *(is really the DNS just a protocol?)*
- Namecheap says «The domain name system (DNS) connects URLs with their IP address.»
- PC Magazine says «The Internet's system for converting alphabetic names into numeric IP addresses.»
- Wikipedia says «The Domain Name System (DNS) is a hierarchical and decentralized naming system for computers, services, or other resources connected to the Internet or a private network.» *(which is actually a better definition than anything the DNS community has ever produced)*
- DNS gurus, when asked, tend to mention «a distributed database».

Is it really a database?

| | | | | | • |
|--|--|--|--|--|--|
| | abor Whenevert | Forteg | tionen i Christiania dep 2 | Obe Kovember 1880. | |
| 1. Books Brief Dire. Crist splatter | OPT TERMINIANS OPT TERM | | | States & Eperd. Reproducting 11 Torod, Spring in Hours & Statestift reportation (Salasian of Devicitation (Salasian Spring), Spring States, p. 20-3, 10-5, States, S. K. & Garage, S. Salasian, S. Salasian, S. Salasian, Spring, Sp | 1. Cámer, Dor. Bentferning & Pate- |
| unt Barffich, Ein & Cognition for Pro- poles, Died Designies, Streaml e | Badyers, 10. 2-10. Bedefregen, Dhur, Durinformening I. Beadlin, Veculus, Halopa of Reprintler, Ord 2-0, Bolo, & et Bregen Oche, 8-46, and | bebefftug, balte ig rup i bangelente, Cuil y Drangride, Dat & Ratepolente, Cuil y Debast Bale 53, 5-1. | Rjeftmab, Birtin & Co. Co. gedau, Open of freehit Cell, herablandig beaut Gerungen, Dilangaten, 3-art, au-1, 700 lag 2-4. | idhau Spir, Bolep, 37, the Capt. 1, 1-2, 4-7. | 43. Culd. C. C. Legr en gree al Mundur, Dates & Derenter, Deigen Gabe e. 8-5, Ledeg 8-3. |
| ning Gal Depart Only C. 3. Wynddadd, Don Chargan N., Stath- tanthonest mbail In R. 5 Jonn M. 5 | Gina Meite Diraggeri, Rabbergs. 1. 8-7. Gina administ. Beautherittenstelligtes | nergeben 18. Gentbell & Gen, Digballei & Digban 8. Id, Bilderfields Gjelden, Dableige- ben 20. 82. 8-7. | 5. Black, 2. C. Offenryler, Operation for Support Vider Barr Daushadt 5. 11 | 10.5 Miller, D. Y. & Gr. Tgorne, & Gen- mittentetzening. <i>Reprintment</i> 3, 2 - forming & Star Rollation on The 1-shi flower and 2 per, Reprint, Genetic, Bondi, Unit M. Dynamic, Genetic, Bondi, Starburg, Barbarn, Tgorins, In Kruth- leitherstellung, "Orders, Program and Bu- phia Jr. Dynamic, Ternitophen & Table (http://dx.Sci | 14. Cmill, Birte, Tape, Dietagefonts 197, |
| Chem. Ryndeland in a ber | (Baudeuri), Bidepoles 20, 21, 2-2, 4-7, 36, Okto Fraggett, Warbeiteries 7, 14-1, 45 | bu 20, 22, 8-7. Ballerscog, R. J. Typtac & Gen 5 mitfautjerting, Tenesinget Outr 14 | a Verlan & dia abatantar bu an dia. | this in a Darfon. Tout in Furth in Furth | tor Brige and & at, 45. CirroTr Regintfert (15. Can). 25 |
| | | | Deidherbeing en pen. Dichers, bat og Minendunblebet, bast Lufteffjerer, Dige allebet anseitieft Direbene, Bangst menn Paters Parafenile, Reft Parafenie | Derm & Gan Gano. 118 Striefels LeubBicholt, Canudy 30 | ter, Beffielt, C. St. Petarbelig foller Bhre- berg. Teffinien 1, |
| 1. Raberies, Onn. Etc., iftmenditable. Dem fedaretting. Weldinstrate Wit. 2. 3-4 | Eleficials Zeventheticst, E. (e. 18). being & 21.0. http://dx.eleficial.com/ rest Electromyce Sectors Res (et al. 1977) rest Electromy | Galesien, R., Sajainpas Dabaugline- miter, Deltaupig i Cardings, Trins- belly & Gene, Tedesdylatgile Rs. 6, Banbarier, 3: O., Stererfer, Veleting | the Print, 8-7, 55 Refer to the State | | 147. Bunte, D. E. Frincholg unfetergaben (1, Commentes. |
| 1996 Bildgest of A C Titransi Re- berbest, Taugiter Fr. 2, 3-3, 4-7, | un Barta Belbagelabelt, Jumian 0-3. 4a. 00. Gbr.a Belbagelabelt, Dumian 0-3. 4a. | Discharg, 2. 1-9. Sunterfer, 3. Qbr, Roy & SolenyBri. Dier Bulgate 4. 7-16. | Barfen, Dopel, Verman, Veineteig Ru- folospielt, Orghdungen. Barfen, O. E. Reboljemming, Gas 20- bart 05. Sponster Diastragen, 19-7. | Refeleries of 34 68454 Die Bantiplan, 36 Beelliner fer Minschuebs, Rafanger og bantjocktik, Binescharbiger, Benjar | Differ Oute Ste 6. 3-5. 4-7. |
| 1. Mabuder, S. R. & Co. Participation | to 11. 8-34 (a. Toba- | Sandriger, 3 Ch., Pep & NitraySri, Shin Budgate 4, 7-4, Gannefleb, C. & D. Opto Belle og Ben- bleg, Marbinstein 30, 32, 6-7, Bald, I. & G. Charganha 25, | Parfer, D., Parfanage, Dutningest On. 34, 5-8. Parfer, T. R., Colonid, Con. & Paraba. | N. Cpleasing of Bills, But, 208 o. b. L. Bontos (Ballespiles (So. 8, Ortgang Lyn.), martes Zonstaffnerst Bart, 5-11 | Tuttine Outo So. 7 R. # |
| bentet, Bagbinter & Discardink, Zopfrei- m. m. Gast Jahren Oats 52, 3. 8-8. | Barth Samol, Samol Sam | Gall, I. & Gr. Chungaber 20. Qall, E. & Gr., Brentring i Mirfincier og Binales. Jershaufreret 1. 9-7, 6-7. | 10 Parfer T. H. Colonis, Co. & Pumbe- nistionening, Radiury 4, 2-10 In- ing 24-9. | 121. Nuch, 28. C., 34 Diagofe, Babel, Cape & Printfulig, Discolatorer St. P2. | fant Meinarfrager, Ofennigh, 17 U. 2-3, 6-7. |
| (c.), Priesbeig Ritzein S). 12. Rfbr & Co. Orbertring, Raferate, & | Sume, Clader ig meige Begelte bet 22. Compten, Ontanie, Tarfibete o. Mgen- ter & Depr al V. D. Diarg & Gat Variet | Balterfen, Dr. Martan & Convertions- brutting, Offiprighten, Di. of Trieffant | Jag 20-5. 30 Triffers, S. 4. Veyr expression and clarif & hard format, detraway, Belley Mr. Byn. A. 2019 on their Cyling of Str. Grant etc. m. Cogist Work S. 50–7. 300 Differ, G. T. Ondonerszing, Belley July, C. T. Ondonet, También (9), 15. | Printery, Biordenson St. 92. Breter, Brastleybiopticka, Astep. 18, 19-6. Biolasti and, Bertfirth, Staffanettin, Jordanettin, Jonator, Proc. of Displaying St. Neural Ast. 9-1, 3-6, 7004 pp2. | 151 Teftiffr Butten, Japonies Sup 2018 Quftefft Monaparation, Talour, Dago- mun. Gaugesture for Charlengin Dis- mun. Competence for Charlengin Dis- tence for Charlengin Distence for Charlengin Dis- tence for Charlengin Distence for Charlengin Dis- tence for Charlengin Distence for Charlengin Distence for Charlengin Dis- tence for Charlengin Distence for Charlengin |
| Banta für Starbeites Raffeller, 34 pm. Banbannter i Pfr. Bebiltene of 200- boben. Rubeite Ste 5. 5-2, 4-7. | (blas Diral, Topy & Specie i als Bear Number, Towneth Oppert, Sciencepet 77, Only 13, 5-2, 4-7. | Balaurfen & Barjen, Papitantel au gune, Renterstanten, Papitatet & Trittetit. | Constitution of Cognit Water 5, 19-7, | 125. Rulestid met, Bertfirt, 35dimmetten, Jourfaber, Den- og Zenfiddinggel, Zar- tel &. 2-1, 3-6. inden 0-2. | manber, plaque applemteten. Beiger Be- teren i elle Trate. Ebbere alle Chapt Leg- ninger, Reber Chabtabe 13, 8-2, 4-6. |
| | | | 11. St. F. R. Oakiers. Tambest Co. 15. | 114 Elfen, Parmanh, Garl Johans Co. pi al | of Dashdeustreim es Defermines. |
| the Bap. 1-17, 4-1. 4. Denfe Denge Dapimelle, Both Oute. | big Ceb Oute Ib. *17, 37. 2 memors & Bullpefer, Evidences algorithm, Tripende of Conneces algorithm, Tripende Oute 4, 87. 15 Tripidden, Toult, Friend, Well Chyn. W. Borneth Stocknes og Spelidar, Weinshig Unreihenset, 80, 78, 78, 78, 78, 78, 78, 78, 78, 78, 78 | Dittefferenieg, Steber St. 1. 2-4. 1 Darfen & Elfen, Erlerialiersteup er gran | 12. Lithegrafisha Actiobolapet 1 Norr- köplags Aldellagskunder. W. Swat Gent. Tenst Sp. 5. 1-7]. | 155 Erfam Cief, tage af Roome Bragt Ormfelenet & nd. Berfint Babeltes | Denfen & Chiert, Die & Dertens- nig in prin. Eftprift. 20. Dien, K. 1. Bief Verfich, Benfeler Unallates, RoblerSuga, Rybellenbe I. |
| 5. Beatfe Bragi Sonter & tager. Rengent * | 1. Dirftiffen, Danit, Lutnant, Harff Chriter, & Deprethenbel Wolathon og Spoticion, Directula (Benefittion 13 augt 7 auffe | Cour Chanhgabe No. 6. 8-7. Dange, D. D. Gebelefterriting un gran. 1 Berifen So. 12. 8-54. | reifeg an gen Zummigen Babe 11. 9-5 4-5 | tale. Synn 4. 15. Paulles, Sote Tauteursieg & Pro- ndelnie, Cat Odass Oute So. 16. | Dinaffartes, Roberts, Robellantes a untaripert Ralagge. Disationantes, D |
| 5 Mers. 0. Zurphaftabri, Ormifes 7. | Sett Ju 3-5. Test, Soul, Goold, Ryster & Con., millionforming Westingals 5, 9-13. S. 47. Differentiall, Pass & Gr. Fin. & Gr. 73. | Canarbinflarens (Caster, Chr. Tapabe Osle 10. 23-2. | 114 Fanth . P. A. de. funtelma Walter. | inferfereit, Eust Delaus Male So. 16. ; 8-24. | if Bullgein, 9-1, 3-6. 155 Zlepfer & @Dingfen, Betman at gene |
| Berning, Carl Debers Oule, Di el Cars Bangale, TVR. | t. Diferaball, Dos & Co. Zim & dor 75. | | Bilfmigedin et slir Clapt. Denten- trent 95. 4 B. 1-2. 2 atterfet. Owig. Etmbagget, Tablog. 6. Tebi from & Gast State. | Horaldon, C. H. O., Jerrisong i Zorich, Bol, Orn. Col. Grant, Older Can. & On the Oricid Englished Can. & On the Oricid Englished Can. & Strand Oct. 31, 2010. | prpeirer 204 14 10-2. 4-2% |
| set & Tautes, Cal. Johnst Outr, Q. of a Statement, The-T. | Differsball, Pose & Co. Fin. & do. 75. Localizating, Zoffnetgates St. 17, 7-0. Zaffmah, Omit. Franzoszychica, Open- hurze, Controlfin. & Openin. Perin. | the 1 | Di Terrentidet Jonates 21 | 12+. Paulfen, D. H. D. Ruftert. | 157. Millip, Dogn. Dienstein Debaufterlig 2040 |
| 19 (014 - Edward Ra 6. 8-1. 3-6. | 1. Tubmak, Dast. Smilegt & Comments. | birt, Begrings & Jeathumabrabe, Con 305, Bolleys, Outstand 22, 87. | 107. Rappad. (9. 07. 2006-8). & Istormung, Statutere, Zum Recht Babe. (8). af Zumpt. 102. 47. | 129. Peleris Els, Rop & Co. Courdeting, | 13r. 22mes & Bress, Spatio & Granit |
| 11. Bierfant, 3. 0. Mindianes, Depr af 1 Dantiere, Bibliche, Rie i Bider, Per & | 50. Spheub, Jacob E. 13. Tulmat & Can. 43 and 698., Peel & Burdberning, Gee | Debfelberg, R. & Ge. Rgenter & Cape 1 fer Dens Deni & Co. United Solice With an Orich Rad & Perel Part, Part | ter Bagent Obr & Gu Banbel und Bin og Orlanisferer, diegt og Erforablir, Pariadforetelne i De Rade Denast be | (r. d 2-bingers, 9-r. | 133. Erbald, C. Sparta: A Submachandring |
| Campy of Dieb, Distinguister, Jun- pieter, Den, Class, Robbyrn, T.San, | Inglinki, Tenri Yu, Z. +-7. Shykek, Jonn E. U. Steins & Gam. and Bib. Nucl. 4: Doctimizing, Ger Julian Gan, K. 5-5. Grafferten, Z. Schementh, Jan- Ungling and Kanger, T1, 2-7. Graffen, Ein, Bertymmight and Schemer, T tiol Stationg in S. Station & Gamming Institutional Science of Control of Control Control Science, Tenriform & Gamming Control Science, Tenriform | be me pros mit Richts & Jereman, mit geff ben, Dienflo, Ginninfor di, Reeb- | Tongh, 16-2, 4-7. Long Bagnak, Go, & Go, Qualet and Bin ng Columbiners, shong ng Zolombin Specialterating i The body Japan for Open. Gail Jatant Oute 31. 21-9. NOS Bailingft: Begintfirth, Colleg 19 & X. 8-12, 2-7. | (r. of Zelbeitgeben, DE. 2011, Dauffer, G. & Co. Colonist, Bin- & Promoniaffurming, Statigation Ha. C. 2A. Spatig 72. | ton Berteris Betet, Naubhabgaben Do. #. |
| tafd Die eg Dr. Stinn eg Ombegge- berbe in. m. e. Omssty St. 7 & e. | 11. Briffen, Ete. Brofinsteing en gron er: Tile Brungebr 8. | Dietth, R., Legin et Dieffinder og ein in Bege Dieffensprifte, Durife, Berefaun, | A. 20. 4-12. 2-1. Bellink, Des. Zeurfbergeber, Yele Bagen, S6. Billander, A. Gegin, Yape & Corell Des Corel, Ordy, Core, Days, Jourdand Radda, Icar South, og anschafte Den Corpetite & Une n. n. Zimmigutes, N2, 1-0. | TA. 1994q 73. T. Winglink, 2016. Oversidgend in Paul- & Unit-Object/Data Thingoal & Evid- ter & Ohier, Hystel In "Stradylath ChristPaper(data, Ryster, Consolited) Strate, Ranking, 5 N. 312, 47. Hingset & Call Respons, Tay Dyna On Dyn. 2, 4-7. | Berniriteller fo. 11. Denter, 9-2. 162. Berner, Col C. & Go, Bennftei, Per |
| 12. Wand, C., Peterges & Sante an greit & an datel mit berit ternte Kella. | fantfanntag i tenfte Reider, fagt af Gannt og Zeigten Tiefelber Babe 8. 3 -7. | Subman, Full a. m. Orthoping (m. Odios Taudidiste) | 111. Milanber & Bleger, Yupr ef Cereff Jere Cinel, Odefte, Can, Coipr, Jempides & | Cabaffragifeftib", Rgenter, Commiften & Smutfe, Raubfadg, 5 3. 5-18. 4-7. | gut fubrit. Rutens i Ripfin 8-1 33-2. |
| | | Citis Darerti Regener 59. 13. 5-1". 3-4. | Coupline & there as 2 mention of a second parts of the second part | | Tuathat Bate No. 6 20x @ber 9-8 |
| 25. Bufer, Der Op. Gebnidiusseing an | Ten Branger 6. Gildsterg 8. En Statut 6 Generia instruming i studie Radio. Upp al Game of Spring. Failure Data. S. art. Game of Spring. Failure Data. S. art. Belfand. Ceru Comparito: N. J. S. art. Belfand. Ceru Comparito: N. J. S. art. Der Conjut Anna Schladersbringe Actifishing i Bersink. Into the Conjut Anna Schladersbringe Actifishing i Bersink. Into Sprin Comparison. Content, Statut 2, Statut 1, Statut 2, Statut 2, Statut 1, Statut 2, Statut | Tropptes So. J D. +1-6, tange, | 117. Regenfen. 3. figette & Cronisticie forming Derivatives (d. 1. 14)-17 133. Robn, Gie P., Taffarerffin, Tentan | 134 Ruger, 3nn: Colonidanes, Fin, Cigure, 2ngin m. m. Col 3chard Oals, D. al Badgates, p 8. | 164. Billumfen & Jeffen, Rosterning en gres. Ville Dualigite Upunefer Lebte bent Tuffel, 32, 4-2. |
| niduadustang Storng No. 21, 8-1. | 101 5. 3-2. 4-2. 16. Biffer, Orige. Zunpffenigentiner & Con- | Ben tenterfeingtette, Retgebo 21. 9-5. 4-7. Infernationale Bell Telephan Comp.'s. | Begenfer, S. Bayrin, & Consoling Sciencing, Derivatives (R. C. 94),vv7 Bole, Gia P., Bieffanethi, C., Stein- Zeupeieffer, Cappellare, Jordan. Bio- Definisti, Dirke, Factorization, Stein 1994, Standares, Ep. Direct Cap (R. 4, 201), 2014. Bintle, Chr. Lage of Papino, Ma | 135. Rel. C. Sombody, Turchty Berb. | |
| Banninghandet, Bol Bolland & Carls manifestandet, Erel Debant Octor 33, 82. | felt og Randen, Danad och fein af Antoning Ra- | Canter, Ormabio 10 Ci of Den Zatt gebr. v7. Battennen auber bie ; Zaper. | St. 1. 3-1. 3-1. | 13. Refetters & Ge, tepensterming On- andigente in Ingarial Firelerennes Cony. Cree Castly No. 1 B. 9-1. | 10. Burge of A. Artenatione and A. Artenation and S. Artenation and S. Artenation and A. Artenation and A. Artenation and A. Artenational Conference of Conference on C |
| begannt, bage ef Cafante, ber gragadth Cyronerage tanb og Refderer, nantfb ; abb og Refderer, nantfb ; | beiten Defter, Binthener, Juffange und | Berffen, Ren, Dogenach, Galdegebo al. Berblen, D., Steffenerfich, Barbe met | 39. 4. July, 2X. 39. 4. July, 2X. 10. Electric, C. Lay, et al. 20, and the Orders, Study Stewart, Chen, Share, et al. 20, interfact, 8 Bernard, Study Study, et al. 20, and provide the Statistical International Conference, Temperature in: Statistical American Study Study, 20, 20, 20, 20, 20, 20, 20, 20, 20, 20 | 117. Rytirrager, Engliss Derichberstning | 164. Beld, Dabum, Coltaid: & Pabras, hantel tant Die & Dombeninffentet, Own |
| Childen by Elvernabilder Banders, 48 Carmilia Tablia, (Dury: Pierdade | A-1. 2-A. Pregarified Rabils Block, 2544 | 310700, Fon Propagat, Orabigeto and Jacobies C., Stellenerfier, Santé mé Yabbagt, og Oblebenefiner fant 25a Gangerfine ei alle Singt. Tongates 11. 0, 30. | ft: Countrate fre Range af Befletans, fainest den einen mit sine Sings Demanate be. Baupr & Dichontrates, | 139. Balemeafen, G. Davretigint, Brint | fer Ste 18 |
| Ramme bie Richnigten bie & B Bieter | Maint C an abuptice that a set of the s | Deafen 3 & 8 & Tell Bound met. Purfich, Canbabanen Sp. 34 - 1 -1 | 115. Soller gein Stelle Remefter Genner | | 16. Berrn, Jund, Beboftin, Didgaber 36 |
| es gran. Ginn Chanaben nung | Bertanne erfegter, Promoto 31 Belet, C. & Zn, cage, of lovel 3m, 2x Date & Graps, Cramationane for 3m, Calaboring Publ. Gram Ground at 25 2-131 | Bebenneten O. A. Gr. Consciout, en: | 13- Siniajes, Paters, Claude Ace. | The A | ten gematt. Besten: tent & Rebenfan- Rinning & Stangton. Sjante, fanisk fe Befpenhales Journey, fant i regelt ber |
| A 2-7, | s-(iff | nthing ber and a state of the s | tennelle & Jenethaber tent auferent Bar reineten, Offennigt, 17 25 af Call Ju Bant Oate, n-R. | Daul Partiers, Ph. In & Tobleter, Ri Co. 33. + & Stanuty St. 3. 9-34. | og Beldin, Romer, Lugant et. Reit hatgaben Ro. 2. 7-2, 4-5, |
| | Gentralkatter | States and | | | |
| | | | edes tan pr. Telephon retbi | | |
| | | aftar Birter Smith as anas | geret fon Compagniets gag | | |

Or is it a direction system?





A database

always gives back the same response when queried for the same key

A direction system

may give different responses when queried for the same key, depending on who you are, where you are and other relevant factors

Which of the two models describes the DNS better today?



Things that cannot exist, but they do

If DNS were a database, we would not have:

- Local-only / private names
- Split DNS
- DNS-based CDNs
- Resolvers blocking malware and bots
- DNS-based parental controls
- DNS-based law-mandated blocks
- DNS-based censorship

All these things are not censorship, except censorship

All these things are widely in use everywhere today



In a database

it doesn't matter whom you ask to, since everyone always gives you the same reply In a direction system different nodes may give you different responses, so whom you ask to makes all the difference

If the DNS were a database, we would not be arguing over applications choosing a different resolver



In the beginning, the DNS was a database.

Today, the DNS is a direction system.

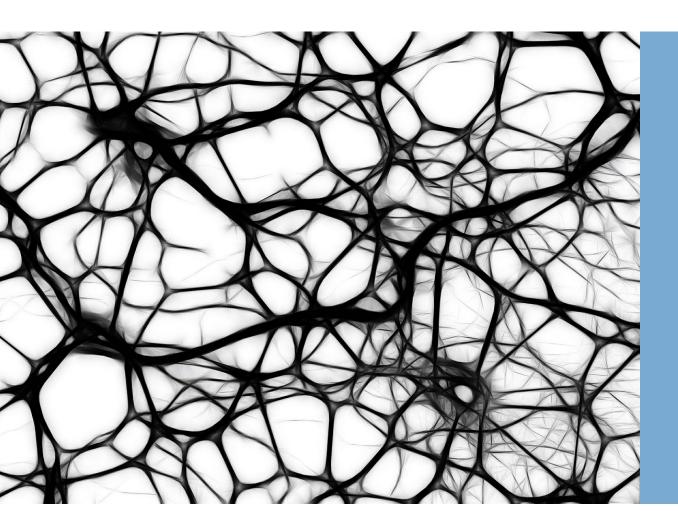
(maybe we are not too happy that it is, but it is)



Properties of DNS as a direction system



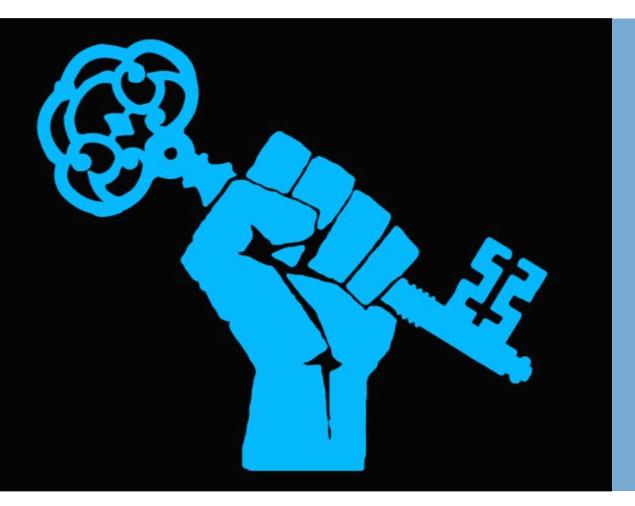
Resolvers are smart



Resolvers are increasingly complex and intelligent
This strains the DNS camel
They do not fit the «dumb network, dumb pipes» model that the OTTs are pursuing



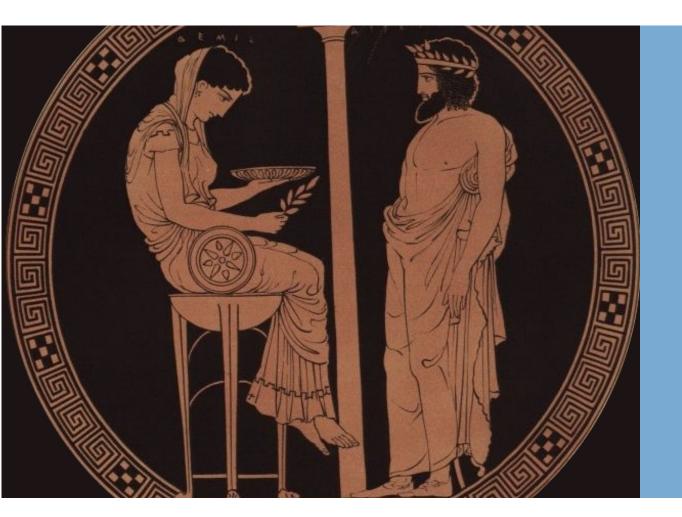
Channel security is vital



Making you talk with a different resolver is an attack
 You need a private, authenticated connection to your resolver



The resolver is the oracle



- There are no lies
- «Truth» is anything your resolver tells you
- The resolver is the source of trust
- The choice of the resolver is super-important



Data integrity in DNS as a direction system



- DNSSEC «to the client» is not necessary any more
 - But it can still be useful, to caution the user against a resolver that should not be trusted
 - But only if implemented in the client application
- DNSSEC is still necessary between the resolver and the authoritatives
 - But only if the resolver wants to abide by the public DNS root
 - And the resolver perhaps could just authenticate the authoritatives in some other way



The resolver is a great control point



...since you are bound to accept whatever the resolver says
The resolver knows both you and the Internet pretty well, so tailoring responses is easy



Local resolvers give you more privacy

(as long that they don't sell your data)

On-device resolvers (running on your own device)

- Make you fully in control of your resolution
- But all queries coming from there are definitely yours
- So it is trivial for an observer to associate all your DNS activities with you

Local resolvers (running on your local access network)

- Can mix your queries among those of others near you
- But can still represent your network position with good accuracy by providing only their own address
- So they can get good directions while making it hard to isolate your queries and associate them with you
- They can also tailor the responses for you without further authentication

Remote resolvers (running somewhere else on the Internet)

- Can mix your queries among those of millions of other people
- But have to disclose your IP address to authoritatives if they are to provide accurate directions for your position
- So they give you less privacy than local resolvers
- They also need you to authenticate to provide tailored services_{Stay Open}.

The resolver is your biggest potential enemy



- You are at your resolver's mercy
- A malicious resolver can deprive you of privacy, phish you, sell you out...



Conclusions for discussion



Consequences of denying reality

By refusing to admit that the DNS is a direction system and not a database:

- We talk past each other, because in our minds we have different concepts for the same thing
- We spend a lot of time arguing about resolver selection, but we cannot really understand why or frame that discussion properly
- We prompt an increasing divide between big resolver platforms with smart capabilities and small dumb resolvers, which will lead to centralization unless the smart features are standardized and made widely available
- We cannot agree on efforts to optimize the DNS for its current reality



In the beginning, the DNS was a database.

Today, the DNS is a direction system.

What do we think it should be tomorrow?



Thank you!

vittorio.bertola@open-xchange.com

Stay Open.

