| CSF421- Computer Networks-SFQ | _ |
|--|---|
| decture 04 - Application dayor (& | lectronic Hail +DNS) |
| Flectronic Hail - 3 components -> (1 | Juser agouts (11) wall servers (111) SUTP |
| | elian puibroard, puibor, puitibo, puiso |
| (i) (a) millox - incoming messages | s for the user harden + mail at |
| (b) message queue - outgoing u | client - souding mail server |
| (111) SMIL POTEN Way source of songer | gemails a supposed brown (11) |
| 77777777777 | server - raceving mailserve |
| Electronic mail uses TCP to reliably. | transfer emails from C to 8. (port 25) |
| & direct transfer - Sending sorver | (C) to Receiving server (S). |
| Ture phoses of tramper - (1) SMTP | |
| (I) SUTP | transfer of messages |
| | P closure posses without place (V) - williams |
| * SMTP - uses persistent come ction | 18 happolicand was to the |
| | in 7-bit ASCHIPSA FIRM PORTSHIPSA FIRM-F NI |
| | ne and of mecsage. |
| Mail- (1) Header - To, From & Sub | |
| (11) Body- nessage | Case-ol: cheut Appu to send receive |
| Hail Access Protocols - | 1 an email - SMTP |
| * Alice composes her email and so | it to her own dedicated mail sorver |
| to the mail server she is connect | ed to. The moil is stored in the server's quer |
| 4 This is done by SUTP. (WA | to Mail Server's queue, dient-to-server comm |
| * The mail from the server is more so | ut to Bob's dedicated mail serves & stored |
| in his server's mailbox. , fuel | A protocol. |
| SV 25/2, 21 min n m manus and \$100m 1977g | queue to Mailbox, server-to-serve commy) |
| * Then the mail is retrived from the | re server, pull protocof. |
| * This is done by POP3, IMAP an | ATTH STILL STILL BY |
| | LE SOIVER. PUIL PROTOCOP. IN HTTP POP3/MAR/HTTP |
| 7 5000 | Bob's Mail - VA - Bob |
| Alice - UA > Alice's Mail> | Server |
| (Queue) | (Matthox) |
| Will List Luntership from bush - | - mor stand mit staten straden |
| Cace-02: Browser- qualicon - | HTTP (UA [lorouser] to mail server) |

4 server-to-server - SMTP

| | Date: |
|--|--|
| Differences ? | Chiques Tal Tio |
| PAME | 19A - 120 W 1224 |
| | scage Access Protocol |
| | ails at the server in one |
| | -radione (a) (a) |
| حسر – مام سر | a special of the |
| (III) Luttipe von | lety of devices. |
| | |
| | reate delete update |
| | on the mall serves of |
| 97149 Games alle | • Francisco E • Francisco E |
| Change of to | ider hierarchy of mailion |
| grue (ii) | ider hierarchy of mailio |
| arrs (ii) | . , |
| (V) Wor con for | rtially read the message |
| (U) Wor can par before dono | rtially read the message |
| (U) Wor can par before dono | rtially read the message |
| (vi) Keptin server | rtially read the message whooling. |
| (vi) Keptin server | rtially read the message |
| (vi) Keptin server | rtially read the message whooling. |
| (vi) Keptin server | rtially read the message whooling. |
| (vi) Keptin server | rtially read the message whooling. |
| (vi) tys | rtially read to message wooding. I loss winorable to virus - 1000 (1) |
| (vi) Keptin server | rtially read to message wooding. I loss winorable to virus - 1000 (1) |
| (vi) tys con por before doub (vi) kept in server (vii) 143 moted Cls servi | rtially read the message wooding. These various ble to simulation in the second secon |
| (vi) tys | rtially read the message wooding. These various ble to simulation in the second secon |
| (vi) tys con por before doub (vi) kept in server (vii) 143 moted Cls servi | rtially read the message wooding. These various ble to simulation in the second secon |

| , 5 90 yrs | Jian batawa | ab received they man of ac- | 145-164-1-1 | - N.TO - |
|------------------|-------------|-----------------------------|---------------|----------|
| | C SOUN | IP -> TCP HTTP | The Alline | 10 45 |
| فالمشاكد بسيطاني | (60) | | JOSEPH | |
| | ب المحاصل | - Person and have have | to di lia ann | |

[전도 D. \$ 15 의미달 #

Part.

Number

Name - (1) Post office Protocol

Location (11) Maildownloaded at work

update (IV) boes not allow work to

Readability - (V) only read the message once

an an

(VI) Kept in workstation.

* download and texp : copies of

(*) Donain Name System (DNS)

messages on different clients

Station + doloted from the

(111) Accorded who we downe at

create delete mobility

lions of no sexodlions

it has been downloaded.

Juluerable to vious

POP3 V/S IMAP & Scenario Based Differences ?

In any network internet, to identify the devices we use a unique address could the "IP Address" - required to communicate of the device fuel server I However, we cannot remember the IP Address so we usually use UPLs (text) i.e. epecific address like google.com - device munot unforstant this was no existence - 1P Address exists -> whatever happens in between is done by the DNS server.

| | Date: |
|--|--|
| Address (google com) -> Translation. | that is mapped to the URL specific |
| + DNS server contains entries of suc | UN URLS of their corresponding ips |
| HOLLING THE IT Address to the Chien | PUADYO: 2114 MOS. |
| (chent they contacts up the web . | server of TCP connection, HTTP and so |
| Steps - User devices runs the circut | side of the DNS Appr. May object |
| -to the DNS client. | from the URL and passes the hostnam |
| | Manufacep. wirk |
| La La Server A 91 and was | of containing the nostrame to a DNS |
| Spale Clearat acceptance in | AUAGOS ENG DVIETE CONVEYA (A) |
| Brown marchine 18 a 18 | le 1P Address for the most name was |
| TO HER LITTO CONTRACTOR AND TO | Address from DNS & initiates TCP count |
| 22976 b 91 874 3144 b 99 311 | ted at port 80 at that 1P Address. |
| DNS Sowice source man things | The project that Loral tooling it |
| The track of the 191 Address of smart of the | 2010 1010U 9NA BON 421 NOD > |
| + Host Aligsing + Will Aligsing | 0 - 1000 - 3000 200 200 00 00 00 00 00 00 00 00 00 0 |
| + Host Manne to 1P Address Translation + Host Aliesing + Mail Aliesing + doad Distribution | Sold Strate - North 1050 to Perell Stra (F) |
| > Replicated indivarily and are | S - CONTRACTOR POPULATION P |
| - round robbu method | - many 19s correspond to one name |
| * Why not controlize DNS? | AD OCCUPATION OF TO USEY |
| - single point of failure | Lost Carlost Carlost |
| - distance contralized autoba | |
| - traffic volm | 91 of the to |
| - maintenance | 29Y00A 4 |
| - does not scale | 100 0 3 0 0 0 1 1 1 1 1 1 1 1 1 1 1 1 1 |
| * Solution - Distributed Databa | E DILL HOME KINGLINGON - ROLLINGING CYLL |
| (1) Pool BAIC Comment and BOTANO | The therewould be married and to |
| CI) ROOF DING SERVER - CONTAINS | the root zone is a ust of 71Ds. |
| (11) Top devel Domains (TID) |) - com, Met, org etc. |

* Buts provid good at appear levels of higherterit - sout pos or the pringer.

e P

中市中

| | Да | te: |
|------------|---|----------------------------|
| - 72 | DNS | Post Zone |
| | Root-Server | (no jutom |
| | SULT FOR SULT BUS. | TLD |
| W K LILL A | TILL AMERICAN AND AND AND AND AND AND AND AND AND A | (buows AS) |
| | google com 1997 A 2019 and for object the super and some assistable | 2nd level Zovie (AS) |
| JUNIO | drive google com | 3rd level |
| 20 | a a at montone side principanas parupa struce dividio 2110 | Zoue |
| | Authoritative DNS Sonvers (AS) - contains the IP Address | of the actual |
| (B) of a | * Coutoct Local DNS before contacting foot DNS for 1 * Each ISP has one Local DNS (defout name server) | P Addross |
| 6 | * uses DNS cache - caches URL's IP Address (has a | time limit) |
| 4) | DNS Name Resolution - Iterated Query: | |
| W | LOCOP DNS SONOY DNS 3 TID DNS SERVEY HOST PC AS SONOY FEEDS a copy The IP AS SONOY OF the IP | SI C |
| cache 18 | | Aug - Land |
| | racue) R->Local regil ou | behalf of Host |
| ® | DNS Name Resolution - Recursive Query: + puts burden of name resolution on contacted name so | Ner (takes responsibility) |
| | PC = LOCAL DNS = ROOTONS = TLD DN HOST | S AS sewer |
| Ц | * Puts heavy load at upper level & of hierarchy - root has | all the burden. |

Date:06-02-2024.

| CSEY21 - computer Networks - SEQ. | wos fo Lowed - 2000/200 |
|---|---------------------------------|
| | |
| To get the IP Address, you need to request to the | 2 DNS server. |
| Provide an URL and you will get your IP Add | moce |
| * DNS servers are divided- | |
| request first goes to root DNS serve | 275 |
| > root sends you to PLD | |
| Sends you to A-DNS w | |
| * Iterated Query - contacted server replies w | fname of server to contact |
| * Rocursive Query - puts burden of name reso | of on contacted name some |
| G mot DNS. | |
| * Local DNS and resolvers keep a copy ? | u cache. |
| * Ex. braculaciba | |
| 2A ← QIT ← TLD → AS | |
| (ac) (bd) | |
| + DNS Records - | |
| RR format -> (name, value, type, ttl) | |
| | e to live -> keeps the cache in |
| A: Name-Host Name | Local for that time |
| Value - IP Address | (due to server stora |
| | limitations) |
| NS: Name - Domain | |
| Value - Host Name of ANS. | |
| c Name: Name - alias name of real/canoni | teal manus |
| Value - cananical name | TOST PLANTE |
| VAILE (MAINALLES NAVA) | |
| Actual IP/website - type A has to be used. | |
| Mx: Name - Host Name | |
| (only mail server) value - Name of mail server | |

| DOS/BBOZ - British of Xev | vice by Server |
|---------------------------------------|--|
| DNIS Shooting - Quid II | Address Addres |
| - Lexi-civil | 2 1 of the first house with All white are |
| | which it was the war will age to the other than |
| | Charles of the establish to the color of the |
| | design in the State of Asia, the King State of the State |
| 0.1 | V All alma shows look s |
| and the second second | IN SELLA OF MON SHARE SE |
| | to soliger verses botonius - proud between |
| on contacted name | Toper sure of water water of vous viscos |
| | 200 took 4 |
| h. Inne. | |
| 4 - JESS ASSESSED | A Ext passing and resolvery teep a copy in |
| A A | ZA S TIT S CIT S STORY |
| | (هد) (هم) |
| | The state of the s |
| | Con and a second |
| | (thisght, autor, amon) = tomof is |
| to Civi -+ tecop the cast | t shirt to |
| bult ref love ! | A C Nove - Host Nove |
| رغبدين نديي | value - 14 Address |
| Suppositive S | |
| | NS Name Dougly |
| | DUA TO DENOTITION TO DUTCH |
| | |
| · · · · · · · · · · · · · · · · · · · | and a supply of the contract of a supply - |
| | grapa Joseph - Bullet |
| | A STATE OF THE STA |
| | A Committee of the Comm |
| | Actual refusionists to the high in the color |
| | |
| | supply total or supply the |