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Question: research on 1000 ports.

Considering at least 65,000 ports, this research focuses on 1000 of them.

Transmission Control Protocol, or TCP:

- Reliable: TCP guarantees accurate and precise data transmission in the right sequence.

- link-oriented: Prior to data transfer, a link is made between the devices.

- Typical Applications:

- Email (SMTP) - File transfer (FTP) - Web surfing (HTTP)

- Shaking hands three ways:

1. Request for SYN (Synchronize Sequence Number)

2. The acknowledgment response, or SYN-ACK

3. To establish communication, send an ACK (Acknowledgment).

2. User Datagram Protocol, or UDP:

- Connectionless: Data is transmitted without assurances and no previous connection setup is required.

Faster but less dependable: Gives speed precedence over the integrity of the data.

- Typical Applications:

- Streaming audio and/or video content

- Internet gaming

- Domain Name System (DNS) inquiries

- No handshake: Information is transferred right away without waiting for a response1.

Let's now investigate some

This a project on the 1000 port out of the 65000 or more ports

1. TCP (Transmission Control Protocol):

- Reliable: TCP ensures that data is transmitted accurately and in the correct order.

- Connection-oriented: It establishes a connection between devices before data transfer.

- Common Use Cases:

- Web browsing (HTTP)

- Email (SMTP)

- File transfer (FTP)

- Three-way handshake:

1. SYN (Synchronize Sequence Number) request

2. SYN-ACK (Acknowledgment) response

3. ACK (Acknowledgment) to establish the connection.

2. UDP (User Datagram Protocol):

- Connectionless: No prior connection setup; data is sent without guarantees.

- Faster but less reliable: Prioritizes speed over data integrity.

- Common Use Cases:

- Streaming media (e.g., video, audio)

- Online gaming

- DNS (Domain Name System) queries

- No handshake: Data is sent immediately without waiting for acknowledgment¹.

Now, let's explore some common ports and their services: -Port 80 (HTTP): Used for web browsing (HTTP). -Port 443 (HTTPS): Secure web browsing (HTTPS).

- Port 25 (SMTP): Email sending (SMTP). -Port 110 (POP3): Email retrieval (POP3). - Port 143 (IMAP): Email retrieval (IMAP).

- Port 21 (FTP): File transfer (FTP). - Port 22 (SSH): Secure shell for remote access. - Port 53 (DNS): Domain Name System for translating domain names to IP addresses. - Port 3389 (RDP): Remote Desktop Protocol for remote desktop access.

- Port 8080: Commonly used for web proxies or alternative HTTP servers. A list of common ports and their associated services. Keep in mind that these ports are categorized into three classes:

1. Well-Known Ports (1-1023): - Reserved ports registered with the Internet Assigned Numbers Authority (IANA) for specific services. - Examples: - Port 80 (HTTP): Used for web browsing.

- Port 443 (HTTPS): Secure web browsing. - Port 25 (SMTP): Email sending. - Port 21 (FTP): File transfer.

2. Registered Ports (1024-49151): - Also registered with IANA but not as commonly used.

- Examples: - Port 8080: Commonly used for web proxies or alternative HTTP servers.

- Port 3306: MySQL database server.

3. Dynamic/Private Ports (49152-65535):

- Reserved by IANA for proprietary services or private use.

- These are often dynamically assigned by the system.

- Examples:

- Port 49152: Used for various custom applications.

- Port 50000: IBM DB2 database server.

This are ports from 0-1000

Port 0: Reserved (system-allocated dynamic port)

Port 1: TCP Port Service Multiplexer (TCPMUX) (historic)

Port 2: compressnet (Management Utility)

Port 3: compressnet (Compression Process)

Port 5: Remote Job Entry (formerly socket 5)

Port 7: Echo Protocol (TCP and UDP)

Port 9: Discard Protocol (TCP and UDP)

Port 11: Active Users (systat service)

Port 13: Daytime Protocol

Port 17: Quote of the Day (QOTD)

Port 19: Character Generator Protocol (CHARGEN)

Port 20: File Transfer Protocol (FTP) data transfer (TCP)

Port 21: FTP control (TCP)

Port 22: Secure Shell (SSH) for remote access (TCP)

Port 23: Telnet protocol (TCP) Port 25: Simple Mail Transfer Protocol (SMTP) for email sending (TCP)

Port 37: Time Protocol (TIME)

Port 42: Host Name Server (Nameserver service)

Port 43: WHOIS protocol (TCP)

Port 49: TACACS Login Host protocol (authentication

service)

Port 53: Domain Name System (DNS) for translating domain names to IP addresses (TCP and UDP)1

Port 70: Gopher protocol (historic) 1

Port 79: Finger protocol (TCP) 1

Port 80: Hypertext Transfer Protocol (HTTP) for web browsing (TCP)

Port 88: Kerberos authentication system (TCP and UDP)

Port 110: Post Office Protocol version 3 (POP3) for email retrieval (TCP)

Port 111: Remote Procedure Call (RPC) (TCP and UDP)

Port 113: Ident Protocol (TCP)

Port 119: Network News Transfer Protocol (NNTP) for

Usenet newsgroups (TCP)

Port 123: Network Time Protocol (NTP) for time synchronization (UDP)

Port 161: Simple Network Management Protocol (SNMP) for

managing network devices (UDP)

Port 162: SNMP traps (used for sending alerts from network devices) (UDP)

Port 179: Border Gateway Protocol (BGP) for routing

between autonomous systems (TCP)

Port 194: Internet Relay Chat (IRC) (TCP and UDP)

Port 220: Interactive Mail Access Protocol (IMAP3) (TCP) Port 389: Lightweight Directory Access Protocol (LDAP) for directory services (TCP and UDP)

Port 443: HTTPS (secure web browsing) (TCP)

Port 445: Microsoft-DS (used for Windows file sharing) (TCP)

Port 465: SMTP over SSL (deprecated, replaced by 587) (TCP)

Port 514: Syslog (used for logging and monitoring) (TCP and UDP)

Port 513: Login (used for remote login services) (TCP)

Port 514: Shell (used for remote command execution) (TCP)

Port 515: Line Printer Daemon (LPD) for printing services (TCP)

Port 520: Routing Information Protocol (RIP) for routing

tables (UDP)

Port 523: IBM-DB2 (used for database communication) (TCP)

Port 540: UUCP (Unix-to-Unix Copy Protocol) (TCP)

Port 554: Real-Time Streaming Protocol (RTSP) for multimedia streaming (TCP)

Port 563: Secure NNTP (NNTPS) for Usenet newsgroups (TCP)

Port 666: Doom (historically used for multiplayer gaming) (TCP and UDP)

Port 691: MS Exchange Routing (used for Microsoft

Exchange Server) (TCP)

Port 993: IMAPS (secure IMAP) for email retrieval (TCP)

Port 995: POP3S (secure POP3) for email retrieval (TCP)

Port 1080: SOCKS proxy (used for network communication)

(TCP)

Port 1194: OpenVPN (used for secure virtual private

networks) (UDP) Port 1234: NetBus (historically used for remote administration) (TCP and UDP)

Port 1433: Microsoft SQL Server (used for database

communication) (TCP)

Port 1434: Microsoft SQL Monitor (used for SQL Server monitoring) (UDP)

Port 1521: Oracle database (used for database communication) (TCP)

Port 1701: L2TP (Layer 2 Tunneling Protocol) for VPNs (UDP)

Port 1723: PPTP (Point-to-Point Tunneling Protocol) for VPNs

(TCP)