Lab - Research Networking Standards

Objectives

- **Research Networking Standards Organizations**
- **Reflect on Internet and Computer Networking Experiences**

Background / Scenario

Using web search engines like Google, research the non-profit organizations that are responsible for establishing international standards for the internet and the development of internet technologies.

Required Resources

Device with internet access

Instructions

Step 1: Research Networking Standards Organizations

In this step, you will identify some of the major standards organizations and important characteristics, such as the number of years in existence, the size of their membership, the important historical figures, some of the responsibilities and duties, organizational oversight role, and the location of the organization's headquarters.

Use a web browser or websites for various organizations to research information about the following organizations and the people who have been instrumental in maintaining them.

You can find answers to the questions below by searching the following organizational acronyms and terms: ISO, ITU, ICANN, IANA, IEEE, EIA, TIA, ISOC, IAB, IETF, W3C, RFC, and Wi-Fi Alliance.

1. Who is Jonathan B. Postel and what is he known for?

   - The Internet's early standards and protocols were significantly shaped by Jonathan B. Postel, often known as Jon Postel, who was a key actor in the development of the Internet. He was a computer scientist and the series editor for the Request for Comments (RFC) publication, which details the Internet's protocols and specifications. The Internet Engineering Task Force (IETF) and the Internet Assigned Numbers Authority (IANA) were both founded in large part because to Postel. He was well-respected for his knowledge and contributions to the creation of network protocols and was well-known for his dedication to maintaining the stability and integrity of the Internet's infrastructure. Sadly, Postel departed away in 1998, leaving behind a significant legacy in the area of Internet standards and governance.

2. Which two related organizations are responsible for managing the top-level domain name space and the root Domain Name System (DNS) name servers on the internet?

   - Internet Corporation for Assigned Names and Numbers (ICANN) and Internet Assigned Numbers Authority (IANA)

3. Vinton Cerf has been called one of main fathers of the internet. What internet organizations did he chair or help found? What internet technologies did he help to develop?

   - One of the founding fathers of the internet, Vinton Cerf, has been active with a number of organizations. He served as the chairman of the Internet Engineering Task Force (IETF), the Internet Corporation for Assigned Names and Numbers (ICANN), and co-founded the Internet Society (ISOC). The TCP/IP

protocol, the fundamental foundation of the internet, was developed with a lot of help from Mr. Cerf. Additionally, he helped to develop and publicize IPv6, the Internet Protocol's sixth generation.

4. What organization is responsible for publishing Request for Comments (RFC)?
   - Organization publishing RFC: Internet Engineering Task Force (IETF).
5. What do RFC 349 and RFC 1700 have in common?
   - They both Request for Comments (RFC) publications unites them.
6. What RFC number is the ARPAWOCKY? What is it?
   - Lewis Carroll's "Jabberwocky" is parodied in a humorous poem called "The ARPAWOCKY," which was released as RFC 527. It is a hilarious piece of writing that shows the inventive and fun side of the RFC series rather than a technical definition or protocol.
7. Who founded the World Wide Web Consortium (W3C)?
   - Tim Berners-Lee
8. Name 10 World Wide Web (WWW) standards that the W3C develops and maintains?
   1. XML
   2. XHTML
   3. SKOS
   4. SISR
   5. RDF Schema
   6. CGI
   7. Canonical XML
   8. CDF
   9. CSS
   10. DOM
9. Where is the Institute of Electrical and Electronics Engineers (IEEE) headquarters located and what is the significance of its logo?
   - New York City and the right hand grip rule is depicted in Benjamin Franklin's kite in the IEEE logo, which is a diamond-shaped design.
10. What is the IEEE standard for the Wi-Fi Protected Access 2 (WPA2) security protocol?
    - IEEE 802.11i
11. Is the Wi-Fi Alliance a non-profit standards organization? What is their goal?
    - The Wi-Fi Alliance is an association for the wireless industry that seeks to advance interoperability and wireless technologies. Products that meet the Alliance's requirements for Wi-Fi interoperability, security, and application-specific protocols are also certified.
12. Who is Hamadoun Touré?
    - A well-known name in the technological and telecom fields is Hamadoun Touré. He is a Malian engineer who served as the International Telecommunication Union's (ITU) Secretary-General from 2007 until 2014.
13. What is the International Telecommunication Union (ITU) and where is it headquartered?
    - Governments and the business sector work together to coordinate worldwide telecom networks and services at the ITU, which has its headquarters in Geneva, Switzerland. The ITU is the top source for information on telecommunications technology, rules, and standards.

14. Name the three ITU sectors.
    - Radiocommunication Sector.
    - Telecommunication Standardization Sector.
    - Telecommunication Development Sector.
15. What does the RS in RS-232 stand for and which organization introduced it?
    - The EIA's Radio Sector first released the RS-232 in 1962; the "RS" stands for "recommended standard."
16. What is SpaceWire?
    - A spaceship communication network called SpaceWire is based in part on the IEEE 1355 communications standard.
17. What is the mission of the ISOC and where are its headquarters located?
    - The aim of ISOC is to ensure and perpetuate an open development, usage, and evolution of the Internet for the benefit of all members and users across the globe. The main ISOC headquarters are located in Geneva, Switzerland, and close to Washington, D.C.
18. What organizations does the IAB oversee?
    - The Internet Engineering Task Force (IETF) and the Internet Research Task Force (IRTF) are under the direction of the Internet Architecture Board (IAB).
19. What organization oversees the IAB?
    - Internet Society (ISOC)
20. When was the ISO founded and where are its headquarters located?
    - Geneva, Switzerland serves as the headquarters base for the International Organization for Standardization (ISO), which was established in 1947.

Step 2: Reflect on Internet and Computer Networking Experiences

Take a moment to think about the internet today in relation to the organizations and technologies you have just researched. Then answer the following questions.

1. How do the internet standards allow for greater commerce? What potential problems could we have if we did not have the IEEE?
    - By providing a common set of protocols and guidelines that guarantee compatibility and interoperability between various systems and devices, internet standards enable more commerce. They facilitate e-commerce and online company operations by enabling smooth communication, data exchange, and transactions across the internet. Without the IEEE, there could be issues such a lack of standardized technologies and protocols, which would cause fragmentation, incompatibility, and reduced interoperability across a number of companies and sectors that depend on IEEE standards.
2. What potential problems could we have if we did not have the W3C?
    - Without the World Wide Web Consortium (W3C), issues with inconsistent and incompatible web technologies and standards would occur. This could result in websites and applications not working properly on various platforms and browsers, creating a fragmented web experience. Lack of standards could impede the growth and evolution of the web, thwart innovation, degrade user experience, and erect obstacles for users, businesses, and content producers.
3. What can we learn from the example of the Wi-Fi Alliance with regard to the necessity of networking standards?
    - The Wi-Fi Alliance serves as an illustration of the need for networking standards. The Wi-Fi Alliance ensures that devices from various manufacturers may easily connect and communicate with one another over wireless networks by creating and promoting the Wi-Fi standards. This standardization promotes

interoperability, streamlines user interaction, and hastens the uptake and expansion of Wi-Fi technology. Without these standards, compatibility problems would arise between Wi-Fi devices, reducing their utility and impeding the wide adoption of Wi-Fi technology.