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?

   Jonathan Bruce Postel was an American computer scientist who made many significant contributions to the development of the Internet, particularly with respect to standards. He is known principally for being the Editor of the Request for Comment (RFC) document series, for Simple Mail Transfer Protocol (SMTP), and for administering the Internet Assigned Numbers Authority (IANA) until his death.

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?

   The Internet Corporation for Assigned Names and Numbers (ICANN) is the body that is responsible for coordinating the maintenance and methodologies of the root name servers and associated databases of the internet. A lot of this work happens via the The 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?

   Internet Corporation for Assigned Names and Numbers (ICANN) Cerf served as founding president of the Internet Society from 1992-1995, and in 1999 served a term as Chairman of the Board.

4. What organization is responsible for publishing Request for Comments (RFC)?

   Internet Engineering Task Force

5. What do RFC 349 and RFC 1700 have in common?

   They also offer applications that offer link, socket, port, and protocol.

6. What RFC number is the ARPAWOCKY? What is it?
    527, RFC is a parody of Lewis Carroll's nonsense poem "Jabberwocky".

7. Who founded the World Wide Web Consortium (W3C)?
    Tim Berners-Lee founded W3C after he left CERN.

8. Name 10 World Wide Web (WWW) standards that the W3C develops and maintains?
    ActivityPub, CGI, CSS, DOM, EME, GRDDL, HTML, JSON-LD, MathML, OWL

9. Where is the Institute of Electrical and Electronics Engineers (IEEE) headquarters located and what is the significance of its logo?
    They are located in New York.

    As IEEE acronym was already taken by a britanic company, designers decided to illustrate the right-hand rule of electromagnetic forces which is now IEEE logo.

10. What is the IEEE standard for the Wi-Fi Protected Access 2 (WPA2) security protocol?
    It requires mandatory support for CCMP, an AES-based encryption mode.

11. Is the Wi-Fi Alliance a non-profit standards organization? What is their goal?
    Wi-Fi Alliance is a non-profit organisation which goal is to enhance users experience in network surfing.

12. Who is Hamadoun Touré?
    Hamadoun Touré of Mali was Secretary General of the International Telecommunication Union (ITU), the specialized agency of the United Nations dedicated to information and communication technologies (ICTs), from 2007 to December 2014.

13. What is the International Telecommunication Union (ITU) and where is it headquartered?
    The International Telecommunication Union, is a specialized agency of the United Nations responsible for all matters related to information and communication technologies.
    Headquarters:Geneva, Switzerland.

14. Name the three ITU sectors.
    - Radio communication (ITU-R), Standardization (ITU-T), Development (ITU-D).

15. What does the RS in RS-232 stand for and which organization introduced it?
    RS-232C. RS-232 stands for Recommend Standard number 232 and C is the latest revision of the standard. The serial ports on most computers use a subset of the RS-232C standard.

16. What is SpaceWire?
    SpaceWire is a spacecraft communication network based in part on the IEEE 1355 standard of communications.

17. What is the mission of the ISOC and where are its headquarters located?
    The Internet Society (ISOC) is an American nonprofit organization founded in 1992 to provide leadership in Internet-related standards, education, access, and policy. Its mission is "to promote the open development, evolution, and use of the Internet for the benefit of all people throughout the world". It has offices in Reston, Virginia, the United States, and Geneva, Switzerland.

18. What organizations does the IAB oversee?
    It oversees a number of Task Forces, of which the most important are the Internet Engineering Task Force (IETF) and the Internet Research Task Force (IRTF).

19. What organization oversees the IAB?

    Internet Engineering Task Force (IETF)

    Research Task Force (IRTF).

20. When was the ISO founded and where are its headquarters located?

Founded on 23 February 1947, the organization promotes worldwide proprietary, industrial, and commercial standards. It is headquartered in Geneva, Switzerland, and works in 164 countries.

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?

   Each company would development its own protocols and products which may not work with equipment from other companies.

2. What potential problems could we have if we did not have the W3C?

   The guidelines for the Internet and the way it works will no longer be processed enough.

3. What can we learn from the example of the Wi-Fi Alliance with regard to the necessity of networking standards?

   We can learn that greater standards can be achieved when we work together for the greater good