Potential Topics that can be chosen in PI-Grau

You can choose any other topic that you may think and it is not in this list. However, it has to be related to the course topic.

1. **IPv4 to IPv6 transition mechanisms and advantages/disadvantages with IPv4**

   What are the mechanisms that are proposed to change from IPv4 to IPv6 in an easy way? What will the impact of these transition mechanisms.

2. **Content Distribution Networks (CDN) services.**

   Describe what services provide some of the CDN, e.g. AKAMAI, Movistar, others. It is to say, what services see a customer that goes to AKAMAI or other CDN.

3. **CAIDA (The Cooperative Association for Internet Data Analysis): Customer Cone y AS-ranking tables.**

   Go deeper in the ranking of AS's using CAIDA tools.

4. **CAIDA (The Cooperative Association for Internet Data Analysis): Tools.**

   Describe the CAIDA tools for measuring and monitoring Internet.

5. **RIR (Regional Internet Registries): RIPE.**

   Explain in more detail what are the functions of a RIR such as RIPE. What are the difference between different RIR's (look what they do in their webpages).

6. **ISP's: services**

   Look at some ISP's and show what services offer. Compare medium/large ISP services.

7. **CPD (Data Processing Center)**

   Look information about big Data Centers characteristics (e.g. google DC).

8. **Challenge Networks: DTN (Disruptive Tolerant Networks)**

   Architecture. Example- Interplanetary networks, but also other examples cover opportunistic networks.

9. **Challenge Networks:Wireless Sensor Networks (IoT: Internet of Things)**

   Describe what it is a sensor network and for what it is.

10. **Challenge Networks: Wireless Mesh Networks**

    Describe what it is a Mesh network from the architecture point of view.

11. **Challenge Networks: Vehicular Networks (applications)**

Describe what it is a Vehicular network, main trends in these networks, applications, ….

12. Challenge Networks: Vehicular Networks (protocols and technologies)

Describe what are the main technologies and protocols stacks involved in Vehicular network

13. Exchange Points

A comparative study on several exchange points around Europe. Services, conditions to be a LIR, etc.

14. Overlay Networks (P2P)

Describe and define what an overlay network is and how it works and its architecture. In this case, we define overlays as P2P user networks.

15. Cloud Computing

Describe and define what is cloud computing and how it works. Examples of business models, etc.

16. Web Services

Describe and define what a Web Service is and how it works (architecture), try to be different from what explained in class, for example explaining other architectures/programming paradigms such as REST and JSON.

17. Virtualization of services

Describe and define what Virtualization is and how it works and its relationship with CPD's.

18. Commercial Routers

Show different router products and if they are used in the CORE of internet or in the Corporative network depending on the capabilities they offer

19. Wireless Community networks

Show what is a community network, size, equipment, purpose → examples in Spain are **guifi.net** but you also have them in UK, Austria, Germany, Greece, …

20. Neutrality in Internet

"Neutrality in the net" describes what is the treatment that the traffic should have in Internet. In the last years there has been a great controversial on this topic. The idea is describe what neutrality is, what are the problems, solutions, …

21. Onion Routing/Deep Web

It is a technique for anonymous communication over a computer network. Among others it is used by pederastian/terrorism/drugs-dealers, etc. It forms part of what it is called Deep Web.

22. Internet Censorship

Some countries censor Internet access or internet content. Explain how it works and how these countries censor internet.

23. Smart grids

Define what is a smart grid (distributors of electricity, green networks, etc) and the future of communications in this kind of environments.

24. Big data

Define and explain what is big data and the implications of big data in the ITC area.

25. Other proposals ….

Feel free to propose any topic of your interest