**CMT 413**

**NETWORK AND SYSTEM ADMINISTRATION**

**Applying technology in an environment**

→ The key task of network and system administration is to build the hardware configurations and the other is to configure software systems

→ Both of these tasks(Hardware and Software configure software systems

→ Both of these functions presents their own challenges i.e hardware configuration challenges and none of these challenges can be considered in isolation

→ The hardware must conform to the constraints of the physical world

→ Such challenges include : power, climate

→ The kind of hardware limits the software that can run on it

→ The hardware constraints affect the performance to basic standards in order to work systematically

→ For software configuration, basic operating system, infrastructure are key to conformance standards

→ Modern software in the context of global network need to interact and survive possible hostilities of the incompatible or inhospitable competitors

→ Today the complexity of multiple software systems sharing a common internet space reaches almost the level of the biological

→ In today’s networks, our focus is not only in the physical environment but the technology environment

→The challenge with the technology environment is that it is constantly changing

→ we apply technology in these changing environments for the purposes of running businesses and other practices

→ The global view presented to us by IT means that we have to think on penetration for the systems that are going to be deployed

→ The extensive filaments of our inter-networked systems are exposed to attacks both accidental and malicious in a competitive jungle

→ If you ignore the environment you expose then organization you IT assets to an immeasurable risk

**The Human Role in Systems**

→ For the part of the human tasks of the system administration is a very careful balancing task

→ This task quires patience knowledge understanding and experience

→ The human tasks in systems can be compared to be equivalent to working in a casualty ward in hospitals

→ despite this diamante system admins work with limited resources and computer systems are subjected to entropy

\* As a system admin you must recognize that answers are not always written down for you to copy

→ One important aspect for a system designer and admin is to remain calm when problems happen and attentive and moreover he/she must continually keep learning because of the changing environment

→ Computing systems require the very best of organization skill at the most professional of attitudes

→ In order for us to become very good system admin we must learn the facts that build confidence through expertise and experience, However you must be aware of our limitations to avoid careless mistakes which are too easy to commit

\*\* Société Générale case (https://en.wikipedia.org/wiki/2008\_Société\_Générale\_trading\_loss)

**System requirements**

Ethic –

Discipline –

**Challenges for System administrators**

→ Deciding what services are needed

→ Designing a network which is logical and efficient

→ Providing a comfortable environment for the users

→ Deploying large no of machines which can be upgraded later

→ Planning and implementing adequate security

→ Developing Ways of fixing errors and problems which occur

→ Keeping track of and understanding use of the enormous amount of knowledge which increases every year

**Top Down Network design**

1 Understanding customer design

2 Logical Network Design

3 Physical Network Design

4 Testing Optimization & documenting your network design

**Understanding customer needs and goals**

**→** Analyzing business goals and constraints

→ Analyzing technical goals and constraints

→ Characterizing the existing inter networks

→ Characterizing Network traffic

when analyzing the system goals which determine your customer needs must incorporate the new and the existing applications

NB It is not necessary that you only design a new network but you can improve on the already existing infrastructure

The key point is to analyze what will affect the network design

**Politics and Policies**

In normal situation there are two things we avoid that’s politics , and religion unfortunately the politics in technology is something we can never escape as designers

In case of office politics the best bet is to listen rather than talk

Your goal as a network designer is to understand the hidden agenda , tag wars biases group relations or history behind a project

Be sure to find out if your project will cost any jobs to be eliminated

NB Suppose a similar project was tried and never worked tread on that project carefully and identify reasons why the project failed

pay attention to Personnel issues that could affect your project

Investigate the managers who started the project and how much stake they had then

Some network design projects involve automating tasks that were once done by highly paid workers , such workers would work so hard to ensure your project fails

Investigate whether there exists a strategic business or it plan

Your role as a designer is to ensure that the solution mast map to the overall strategic plan of the org

to do this you ask yourself some fundamental qn such as

→ Does my network design need to fit in the overall architecture that is based on strategic planning

→ Are The external regulatory or govt pressures affecting your design

Be prepared for possibility of formidable office politics

If your design/solution involves merging data and voice

Voice experts and data experts have traditionally lived a world apart and the greatest misfit between these two is mistrust

Understand the nature of the client and gain a feeling fr the client business style

You must know the client business style

Skills to develop

Humanistic skill

conceptual skill

Technological skill

**Budgetary and Staffing Constraints**

Your network design must fit the customers budget

Budget must include

→ Equipment purchase

→ Software license

→ Maintenance and support agreement

→ Testing

→ Training

→ Staffing

→ Consulting fees

→ Outsourcing expenses