

CT 1502

Planning and Design of Communication Networks

Network Planning

Methods

Chapter 6

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Outlines

- Planning Concepts
- Planning Steps and their Requirements
- Implementation Plans and Projects

Planning Concepts

General Concepts

- **Planning:** preparing a sequence of action steps to achieve some specific goal
- **Strategy:** art of troop leader(قائد قوات); office of general, command, generalship is a high level plan to achieve one or more goals under conditions of uncertainty(مشكوك فيها)
- **Strategic Planning:**
 - Long term goals
 - Define direction to achieve those goals
- **Strategic Unit:** Institution, company or group has an independent entity and perform a specific function to produce a product or service

Strategic Planning for Information Systems

- Strategic Planning Unit:
 - Define the unit goal
 - Depending on the unit special capabilities to achieve that goal

Strategic Planning for Information Systems

- Information systems and networks planning:
Must be integrated with Strategic planning unit, define technical architecture that meet the strategic unit requirements

ITU Planning

- **ITU:** International Telecommunications Union
- Present special communications networks planning principles
 - Strategic planning
 - Implementation Planning
 - Plans types
 - Execution technique

Strategic Planning

- Define goals and directions
- Define the general job requirements frame
- Define technical requirements general structure (networks, information systems, information technology, etc)
- Conceder the standard specifications

Implementation Planning

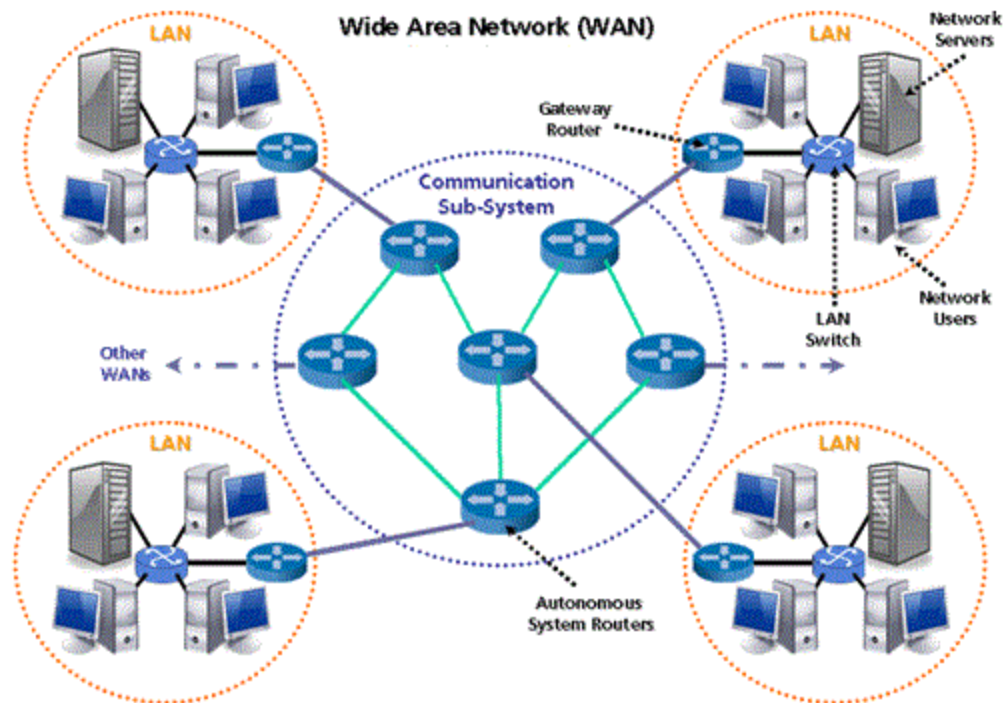
- Executive plans specification
- Including “projects” to achieve strategic requirements.

Plans Types

- **Development Plans:** define “the quantity of requirements, tools and equipments” to achieve goals
- **Technical Plans:** to choose the right equipments and tools, how to assemble, operate and test.

Execution Technique

- Dividing the plans according to areas while keeping on the integration



Planning Steps and their Requirements

ITU Planning Steps

- Four steps:
 - Evaluate the current status
 - Opportunity and requirements study
 - Planning
 - Execution and development

SPIN: Strategic Planning for Information Networks

- Set Strategy
- Feasibility Study
- Requirements analysis
- Network design
- Execution
- management

Set Strategy

- Set the network general structure to guaranty the flowing:
 - The main network components positions
 - Connections between network components in their positions

Feasibility Study

- Primary definition of requirements elements quantities
- Cost study
- Benefits(الأرباح) analysis
- Network decision

Requirements analysis

- A total analyze of network requirements, or development requirements for existing network

Network Design

Execution

- Set a period of time to implement the suggested design and schedule tasks in “tasks’ schedule”
- Set period of time to import requirements and assemble them within the main “tasks’ schedule “

Management

- Define and execute management functions
- Follow management standards
- Use the necessary tools to manage the network effectively(database programs, hardware, software, etc)

Implementation Plans and Projects

Technical Issues

- Preparation and primary studies
- Traffic loads and network capacity
- Remarks
- Service and pricing

Preparation and Primary Studies

- Studying of expected calls and traffic loads
- Set the network primary design (Conceptual Design) :
a design that plan for the executive design that
define the necessary equipments and tools
- Define the requirement standard specification
- Financial requirement study
- Define requirement human skills

Traffic and Capacity

- Users cause “traffic”
- Service provider provides “capacity”
- Performance level is measure the balance between the traffic load and capacity

Remarks

- User addresses, control equipments
- Sending, receiving equipments and network channels

Service and Pricing

- Provide service, and its reliability and security
- Determine services prices

Implementation Plans According to Time Scale

- Long-term plan
- Medium-term plan
- Short-term plan

Master Plan(long-term plan)

- Determine budget
- Determine network positions and requirements
- Determine human experiences requirements
- Estimates expected traffic and use
- Determine capacity
- Determine standard specifications
- Determine tools and equipments

Medium Term Plan

- Kicks off from long-term plan
- Describes Medium-term projects

Short-term Plan

- Kicks off from medium-term plan
- Scheduled tasks

Execution of Projects

- Request for Proposals (RFP):
 - Conceptual Design: determine requirements
- Proposals:
 - Practical Design: determine equipments and tools and its requirements

Thank you!