LOCAL NETWORKS

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Areas/ Need to know

Easiest
Types of networks

Hardest
Topologies

Most Engaging
Installation and setup

Least Engaging
Elements of a network

*In this unit we are going to see the different ways to **connect** computers so they can share **information***

CALPS

Prior

- Host
- Terminal
- Port
- Data
- Packet
- Network
- Internet
- WIFI
- Bluetooth

New

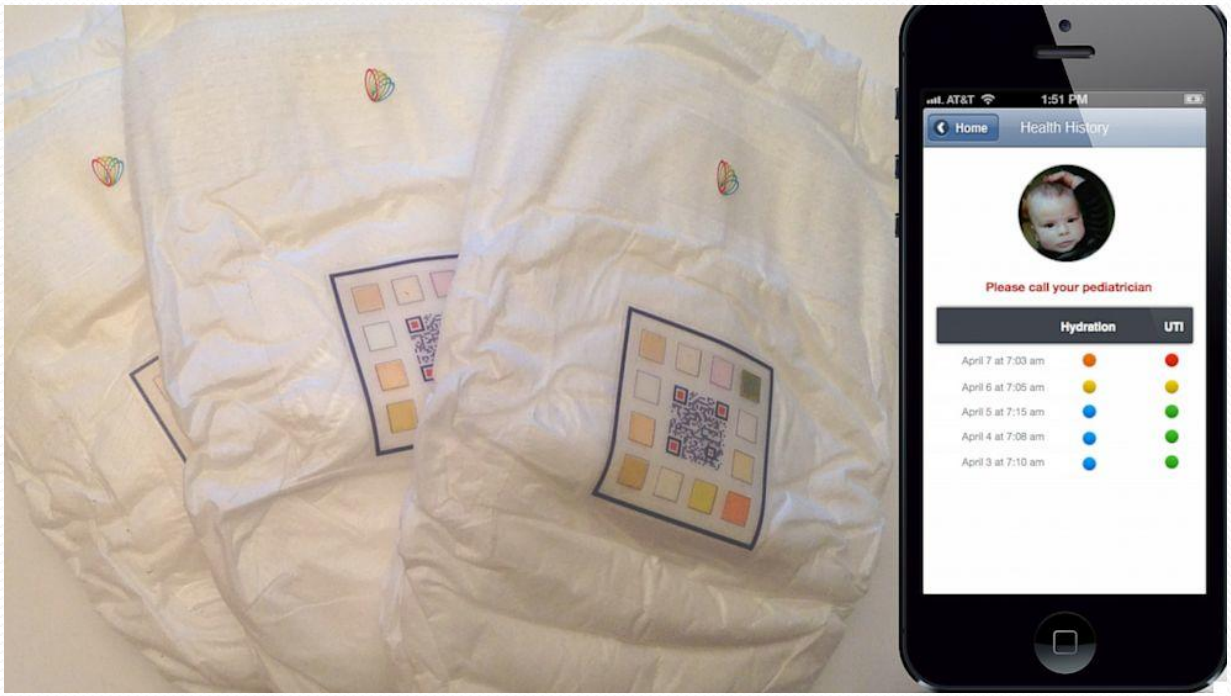
- Ethernet
- Node
- Interface
- Topology
- Transmission media
- Transmission modes

Advance Organizer

Cool gadgets that make use of local networks

Smart Diapers

Disposable diapers with in-built sensors that parents and paediatricians can use to track a child's health.



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Find out more...

Bikn

Thumb-sized electronic tags which you can attach to any of your possessions, and then locate them through your phone's GPS.

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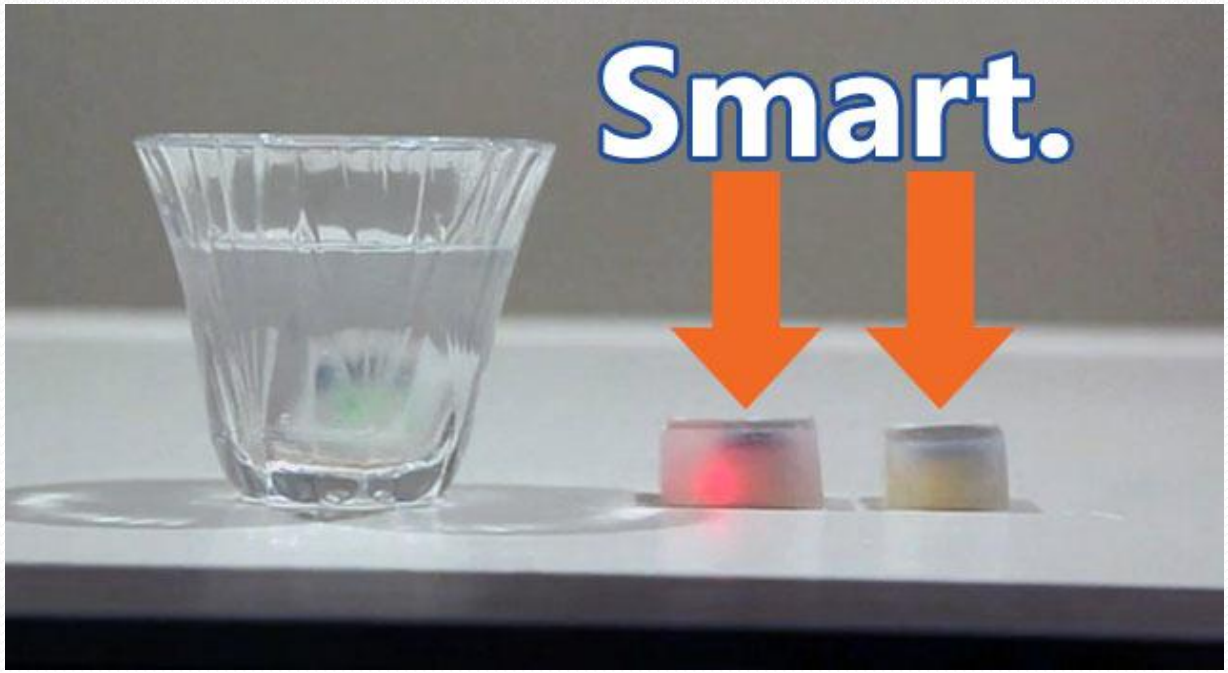
Find out more...

Smart Ice Cubes

Smart ice cubes that pulse to the beat of the music but most importantly monitor how much and how fast you are drinking.



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Find out more...

Driving Question

How can we connect different computers so they can share information?

Project goal

- To design a network and write a SOW (Statement of Work) to connect some kind of vehicles to a central database so they can share information (GPS location, number of passengers, traffic information …): the buses in a bus line, the trucks in a transport company, cars in a karting circuit…

Exemplars of SOW

Sample Statement of Work for Services

This an example and your Statement of Work may vary given your specific requirements and the related IBM engagement.

IBM Implementation Services for Power Systems – IBM Systems Director

1. Scope of Work

Under the IBM Implementation Services for Power Systems – IBM Systems Director ("Services"), IBM will install and configure IBM Systems Director on a designated management server in an AIX environment and configure up to four endpoints to be monitored by IBM Systems Director.

IBM will identify the details relating to the Services in the Schedule for IBM Implementation Services for Power Systems – IBM Systems Director ("Schedule") which accompanies this Statement of Work

General Services Administration
Connections II
[Communications Cabling] Statement of Work (SOW)
[Client Agency Name]
Order Identification Number [XX###XXX#T5]

1 Project Description

[Project Name]

Note: Text boxes contain informational material that should be deleted by the Agency when finalizing this document. Please delete the box and use this space to give a short overview of the Project named above.

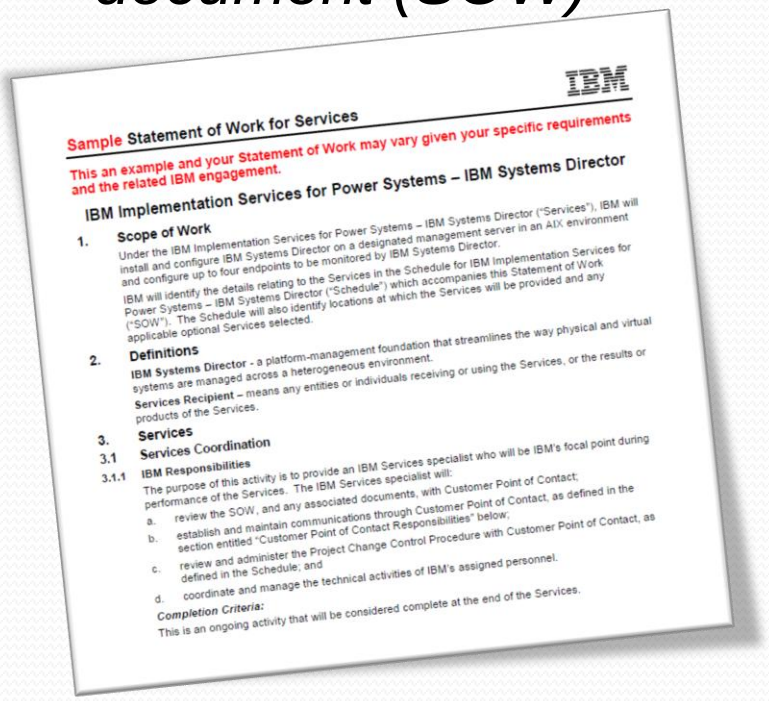
The Connections II Cable and Wiring Project Statement of Work (SOW) Template is provided by General

HOTS:

- Analyze: Network installation SOW (Statement of Work). Common items, index, what information should go in each chapter…
- Evaluate: Decide what task are you going to need to execute to install the network. What items do you need in your SOW? What information are you going to need to complete the SOW?
- Create: A SOW to install the network in a bus line.

Tracking the Project

Progress of the document (SOW)



IBM

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IBM will identify the details relating to the Services in the Schedule for IBM Implementation Services for Power Systems – IBM Systems Director ("Schedule") which accompanies this Statement of Work ("SOW"). The Schedule will also identify locations at which the Services will be provided and any applicable optional Services selected.

2. Definitions

IBM Systems Director - a platform-management foundation that streamlines the way physical and virtual systems are managed across a heterogeneous environment.

Services Recipient – means any entities or individuals receiving or using the Services, or the results or products of the Services.

3. Services

3.1 Services Coordination

3.1.1 IBM Responsibilities

The purpose of this activity is to provide an IBM Services specialist who will be IBM's focal point during performance of the Services. The IBM Services specialist will:

a. review the SOW, and any associated documents, with Customer Point of Contact;

b. establish and maintain communications through Customer Point of Contact, as defined in the section entitled "Customer Point of Contact Responsibilities" below;

c. review and administer the Project Change Control Procedure with Customer Point of Contact, as defined in the Schedule; and

d. coordinate and manage the technical activities of IBM's assigned personnel.

Completion Criteria:

This is an ongoing activity that will be considered complete at the end of the Services.

A draft with the proposed network topology

A folder with the datasheets of the equipment selected for the network

Task-Based Learning

- **Presentation:** Exemplars of several Statement of Work (SOW) from different companies and different applications.
- **Practice:** Work in the index of the document. Select the items that you need for your application. The items selected are distributed among the members of the group and they have to research for the information needed to fill their assigned items
- **Production:** The members of the group share the information about their assigned items to compile the final SOW.

Problem-Based Learning

- **Present the content:** I will present the students with different ways to transmit information. I will introduce them to the communication problems they are likely to find and to some techniques to prevent them.
- **Pose problem:** Your network should work good enough to fulfill your application specifications (budget included). So, how you prevent the communication problems?
- **Solutions:** Find solutions to the more likely communications problems that meet the required specifications and are cost-efficient

Sessions

- **Session 1:** Advance Organizer 15 mins. Content: Introduction to local network.

Types of networks: How can we classify the different kind of networks

- **Session 2:** Content: Local network topologies.

Topologies: How can we connect the computers to get the better result for each application?

- **Session 3:** Content: Local network elements. Introduction to project. What kind of elements are you going to need for this application?

Elements of a local network: What equipment do I need to create a local network?

HOTS: analyze, evaluate and create

- **Session 4:** Installation and Setup of a Local Network. Statement of Work (SOW)

Installation and setup: How do I physically connect the elements and make them "talk" to each other?

- **Session 5:** Work in the project. Planning the network topology (Peer feedback – students will offer each other feedback on chosen topology). *Problem-Based learning: How you can you prevent communication problems?*
- **Session 6:** Work in the project. Finishing selecting the elements of the network. Feedback on the planned topology.
- **Session 7:** Work in the project. *Task based learning: Writing the Statement of Work*

Checklist

- Presentation:
  - Presentation adjust to the time given (10 mins).
  - Six to ten slides.
  - Slides are clear and orthography is checked.
  - Non-verbal language is correct.
- Content
  - The application:
    - The application makes sense
    - The information to transmit and the timing is properly specified.
    - Proposed transmission means are adequate for the application.
  - Network planning:
    - Network topology meets the application requirements
    - Possible connection problems are enumerated and planned for.
    - Network equipment covers the application requirements.
    - The topology is cost-efficient
  - SOW
    - Scope of the work is properly stated.
    - It includes a detailed sequence of the tasks required for the network installation.
    - It specifies the installer and costumer responsibilities.
    - It included deliverable materials and installation completion criteria.
    - Correct and clear presented budget

Assessment. Presentation (20%)

	Excellent	Good enough	Poor
Time (4%)	Presentation adjust to time given	A little bit short or long	Too short or long presentation
Number of slides (4%)	7 to 10 slides	5 to 6 or 11 to 15 slides	Other
Grammar and clearness (6%)	Grammar is checked and slides are clear	Some grammar errors or some messy slides	Grammar is poor or slides doesn´t help the presentation
Non-verbal language (6 %)	Good posture and eye contact. The presentation is smooth		

Assessment. Content I (80%)

		Excellent	Good enough	Poor
Applicaction (20%)	Application adequateness (5%)	Application is possible and innovative	Application is adequate	Application is not possible or interesting
	Specification (10%	Specification is clear and cover all application aspects	Specifications doesn´t cover all application	Specification is not clear and incomplete
	Proposed Technology (5%)	Technology is good for the project and is well used	Technology doesn´t cover all requirements	Technology is not feasible for the application
Network Planning (30%)	Topology (10%)	Topology is good for the project and cover all requirements	Topology doesn´t cover all requirements	Topology is not feasible for the application
	Robustness (5%)	Network covers all possible problems	Network cover the most probable problems	Network doesn´t help with communication problems
	Meets specifications (10%)	Specifications are meet in every aspect	Specification is meet in the more relevant aspects	Specifications are nor meet
	Efficiency (5%)	Network is cost-efficient	Network is not the best option in terms of efficiency	Cost is not taken into account

Assessment. Content II (80%)

		Excellent	Good enough	Poor
SOW (30%)	Work definition (5%)	Scope of work is properly defined	Some aspect of the work to do are not defined	Scope of work is not clear
	Task schedule (10%)	All task and timing are properly defined	Task mostly are defined and timing is good enough	Task definition or timing is not correct
	Responsibilities (5%)	Responsibilities are properly delimited	Responsibilities are mostly well delimited	There is not clear responsibilities delimitation
	Deliverables/Completion criteria (5%)	Completion criteria and deliverables are clearly stated	Completion criteria or deliverables are not clear stated	There is not completion criteria or deliverables
	Budget (5)%)	Budget is clear and cover all SOW aspects	There are some items missing in the budget	Budget doesn´t cover the installation project