Control of Access to the Half

 The regulation of the placement of plots of data in the means is known as control of access to the half.

 He control of access to the half is he equivalent to the traffic rules that regulate the entrance of vehicles to a highway. The absence of a control of access to the half I would be he equivalent to vehicles ignoring he rest of the traffic and entering to the path without have into account to the others vehicles.

Control of Access to the Half

- There is different forms of regular the placement of plots íthe means.

- The protocols in the layer of link of data define the rules of access to the different means.

- Some methods of control of access to the half They use highly processes controlled for ensure that the plots HE place with security in the media.

- These methods HE define through protocols sophisticated, that require mechanisms that introduce overloads to the grid.

Methods of control of access to the half

He method of control of access to the half depends of:

Half shared:

Y e a h   and how the nodes share the half
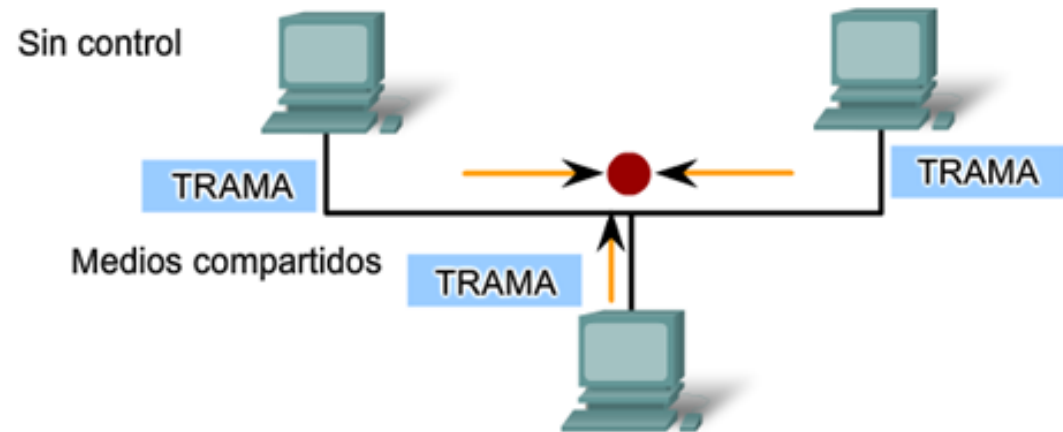
T o p o l o g y :

A s the connection between the nodes HE sample to the layer of data link
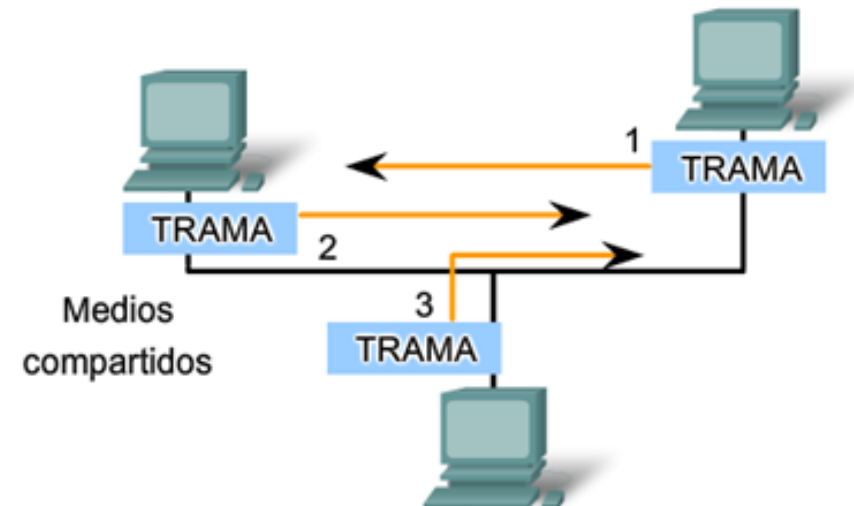
Métodos de control de acceso al medio

Si no se realiza ningún control, se producirían muchas colisiones. Las colisiones producen tramas corruptas que deben volver a enviarse.

Los métodos que cumplen con un alto grado de control impiden las colisiones, pero el proceso tiene muchas sobrecargas.

Los métodos que cumplen con un bajo nivel de control tienen pocas sobrecargas, pero hay colisiones con mayor frecuencia.

Sin control

TRAMA

Medios compartidos   TRAMA

TRAMA

Por turnos

1

TRAMA

TRAMA

2

Medios compartidos

3

TRAMA

Access for media shared

 Some topologies of grid share a half common with several nodes. In any moment can have a amount of devices that they try send and receive data using the media of grid. There is rules that govern as those devices share the means.

 There is two methods basics of control of access to the half for shared media :

 Controlled:
Each node has his own time for use he half

 Based in the containment:
All the nodes compete by he use of the half

*Fountain: https://sites.google.com/site/investigacionesitlm/3- lower -layers- of- the- osi- and- tcp- ip- model /3- 2-1- access- control- techniques- to- the- medium

Access Controlled for shared media

 The devices of grid take shifts, in sequence, for access to the half.

 HE it knows as access programmed either deterministic.

 Yeah a device No needs access to the half, the chance to use he half happens to the following device in line.

 Yeah a device places a plot in the media, none another device may do it until that the plot is been delivered and processed by the destination

 He access controlled this good tidy and provides predictable performance , but can be inefficient because a device has what to expect his shift before of can use he half.

Access by containment for shared media

 Also called No deterministic.

 Any device try access to the half always that there is data for send.

 These methods they use a process of Multiple access by detection carrier (**CSMA**) for detect first Yeah the media are carrying a sign.

 Yeah HE detects a sign carrier in he half from other node , means that other device this transmitting.

 When a device this trying convey and note that he media is busy , will wait and will try after of a period of time short. Yes No HE detects a sign carrier, he device transmits their data.

Access by containment for shared media

 CSMA can fail Yeah two devices transmit to the same time. TO this HE it names collision of data , so the data they must to be sent again.

 These methods No have the overload of the methods of access controlled, already that No HE requires a mechanism for analyze who possesses he shift to access to the half.

 Without embargo, the systems by containment No climb well under a use intensive of the means. TO extent that he use and the number of nodes increases, the probability of access to the media with success without a collision decreases.

CSMA

 CSMA is generally implemented together with a method for solve the containment of the half. The two methods commonly used are:

 CSMA/Detection of collision (CSMA/CD) for networks Ethernet

 CSMA/Prevention of collisions (CSMA/CA) for networks wireless

 It exists a third, CSMA/CR is used with he protocol communication Controller Area Networks (DOG), used mainly in machines and cars .

 Carrier Sense (CS): the detection of the state of carrier control that everyone the participants of the grid check that he half is really free. Only so he protocol starts a transmission of data.

 Multiple Access (MA): he access multiple does reference to several participants (computers connected to the grid) that share a medium of transmission.

CSMA/CD

 CSMA/CD comes from of the English Carrier sense multiple access / Collision detection. The detection of collisions (CD) is a improvement of the CSMA

 This algorithm creates a procedure that regulates the shape in the one that should occur **communication inside of a grid with a half transmission shared** .

 Detection of collisions (CD): The improvement introduced regulate also how proceed in case of collisions, is say, when two either more participants they try send packages of data simultaneously through of the half of transmission (Bus) and these interfere between Yeah.

CSMA/CD
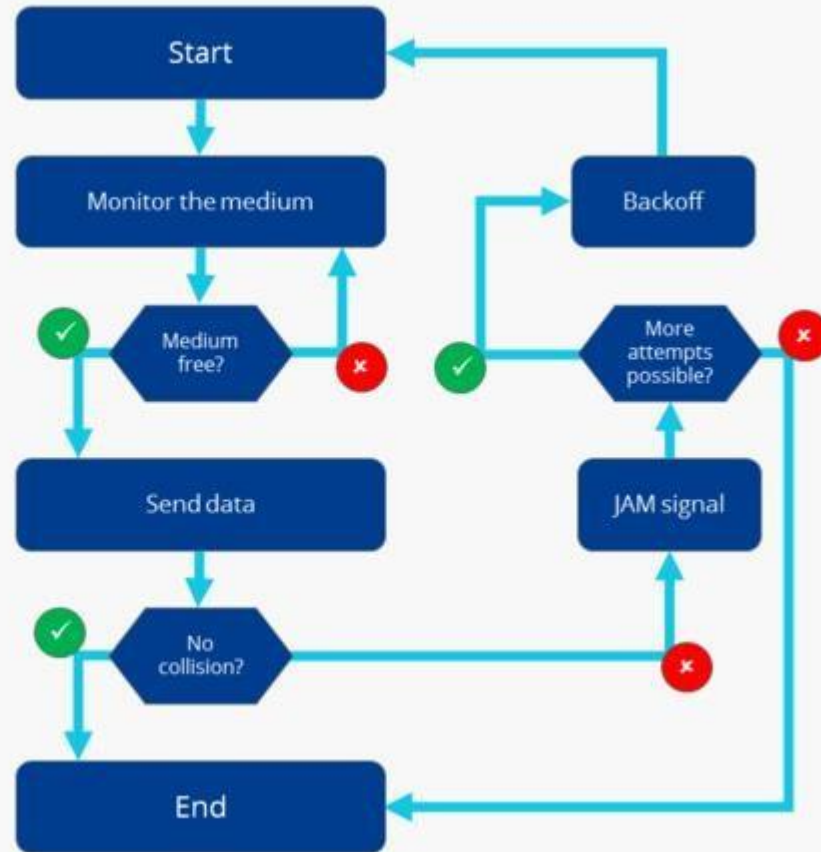
When HE detects a collision, the season that detects it interrupts immediately the transmission and in your place sends a sign of interference (sign JAM), that informs to all the stations of the grid of bliss collision. The station wait a random time (Backoff) and comes back to try the transmission. The **Backoff** has to be random so that No HE produce immediately a second collision. Position that the two seasons select a worth random, the probability of that both stations begin a tried of transmission to same time is low.

*Fountain: https://www.ionos.es/digitalguide/servidores/know-how/csmacd/

CSMA/CA

 Protocol Carrier Sense Multiple Access with Collision Avoidance (access multiple by detection of carrier and prevention of collisions)

 Collision Avoidance (AC): for prevent collisions HE resort to a complex organization of the time that allows avoid that two either more members of a grid begin the transmission to the time. That Yeah, in the case of that the data HE overlap, HE recognizes he problem in the transmission and HE starts of new he shipment.

 The ruler further important to achieve in these processes communication establishes that **two either further devices No can perform shipments to the same time** .

Access for media No shared

 T h e protocols of control of access to the half for unshared media require bit either none control before to place plots in the means.

 T h e s e protocols have rules and procedures simpler for he control of access to the half. Such is he case of the topologies spot to spot.

 I n the topologies spot to spot, the media interconnects only two nodes. In this configuration, the nodes No need to share the media with others hosts neither determine Yeah a plot is destined for that node. By it so much, the protocols of layer of link of data do bit for check he access to media No shared.

Full- duplex and half- duplex

In connections spot to spot, the Link layer of data has that consider whether the communication is half- duplex either full-duplex.

⬥ **Communication half- duplex:** The devices can convey and receive in the means but No they can do it simultaneously.

⬥ **In the communication full- duplex:** the two devices they can transmit and receive in the media to the same time. The layer link of data supposes that the media are available for convey for both nodes in any moment. For this reason so much, No there is need of arbitration of media in the layer of link of data.