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## PROCEDURE OF ESTABLISHMENT, ERASING OF PATHS AND FORWARDING FRAMES FOR TCP TRANSPORT CONNECTIONS AND NETWORK BRIDGE

**Patent**  
ES2540595

**Code**

TIC\_UAH\_25

### Application areas

- Information and Communication Technologies



### Type of Collaboration

- Technical cooperation
- Commercial agreement and Technical assistance
- License agreement

### Main Researchers

Dr. Guillermo Ibáñez Fernández

### CONTACT



OTRI Universidad de Alcalá  
Escuela Politécnica Superior  
Campus Científico-Tecnológico  
28805, Alcalá de Henares  
(Madrid)  
(+34) 91 885 45 61  
otriuah@uah.es



@otriuah



OTRI Universidad de Alcalá

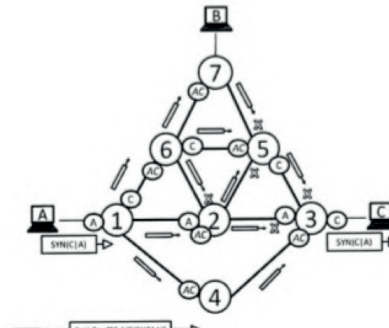


Figura 3

Figura 3: Muestra la búsqueda de un camino TCP-Path tras la recepción de un segmento de transporte TCP con SYN activado (Path Request)

### ABSTRACT

The Telematic Services Engineering research group of the University of Alcalá, in collaboration with IMDEA NETWORKS, has developed a mechanism for advanced TCP-Path Ethernet switches that explores a network of transparent bridges to establish a specific path for each new TCP connection established between two terminals. The main applications of this Ethernet switch technology are networks of data centers and computer networks in general, audio-video bridges and other types of transparent Ethernet bridges.

The group is looking for companies in the telecommunications sector with the aim of reaching technical collaboration agreements, commercial agreements or patent licenses.

### ADVANTAGES AND INNOVATIONS

This invention allows the paths between terminals to be established with TCP connection granularity: one path per connection, improving the distribution of load in the network. Roads are not needed to be calculated, they are obtained by exploration in the network, finding the path less loaded at each moment.

In addition, the path establishment, path clearing and frame forwarding mechanisms described can be implemented in a network bridge that has the corresponding tables to associate the ports to tuples formed by MAC address pairs and origin and destination transport ports. They can also be implemented in bridges with OpenFlow and SDN (Software Defined Networking) capability.

The TCP-Path model can create as many additional paths as transport connections exist at any time.

It presents commercial potential at an international level, focused mainly on the markets of the US, Europe, Australia and Japan with reasonable difficulty and cost of implementation.