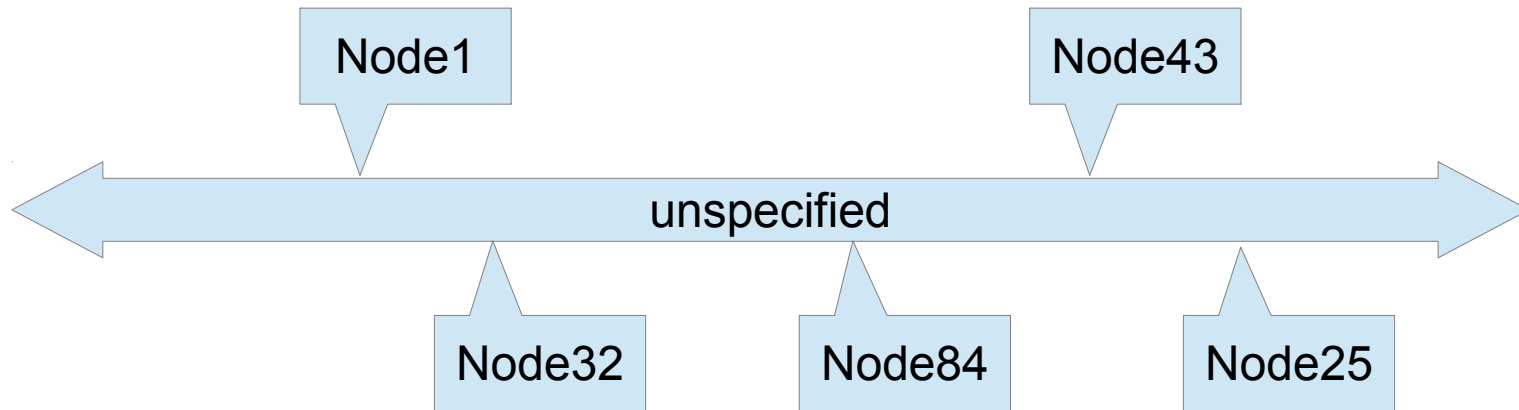


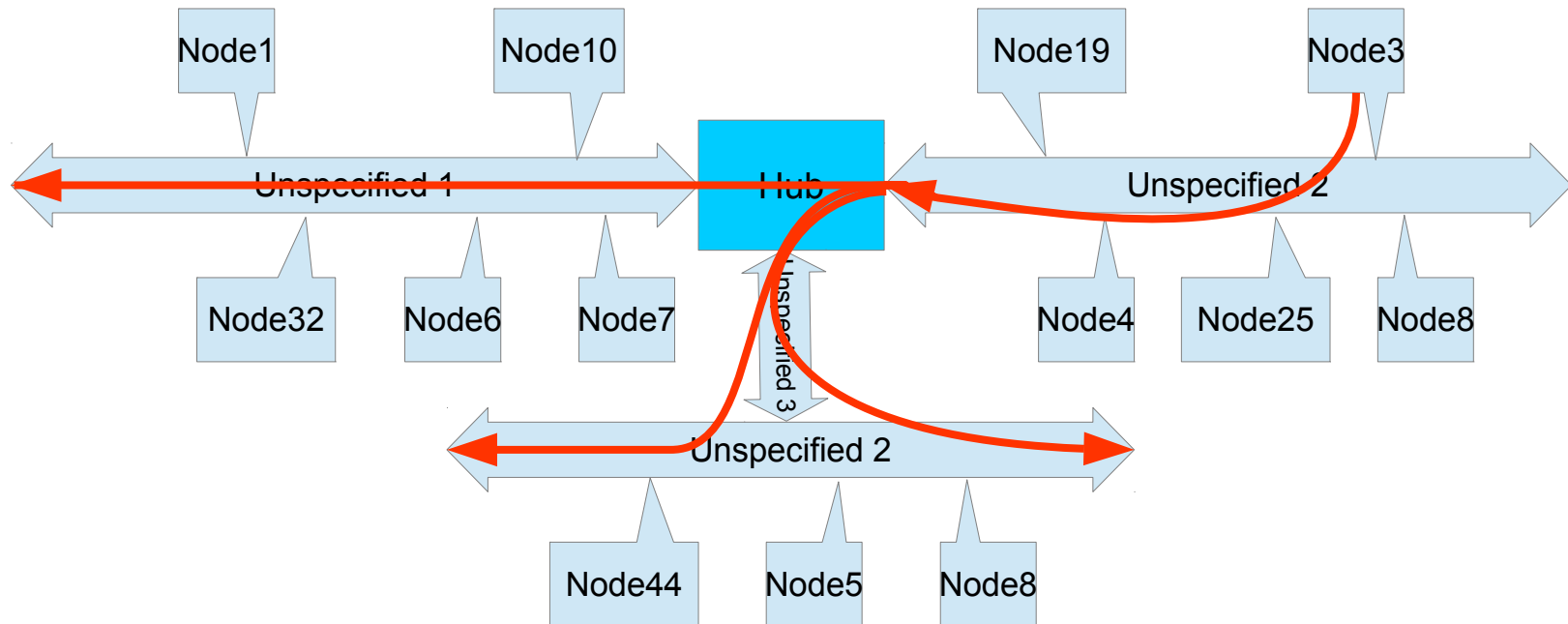
Topology and joining segments

The protocols are designed to work over an unspecified transport. This can include one or more segments, and one or more transports, such as CAN, ethernet, Wifi, etc. Each node had a unique NodeID.



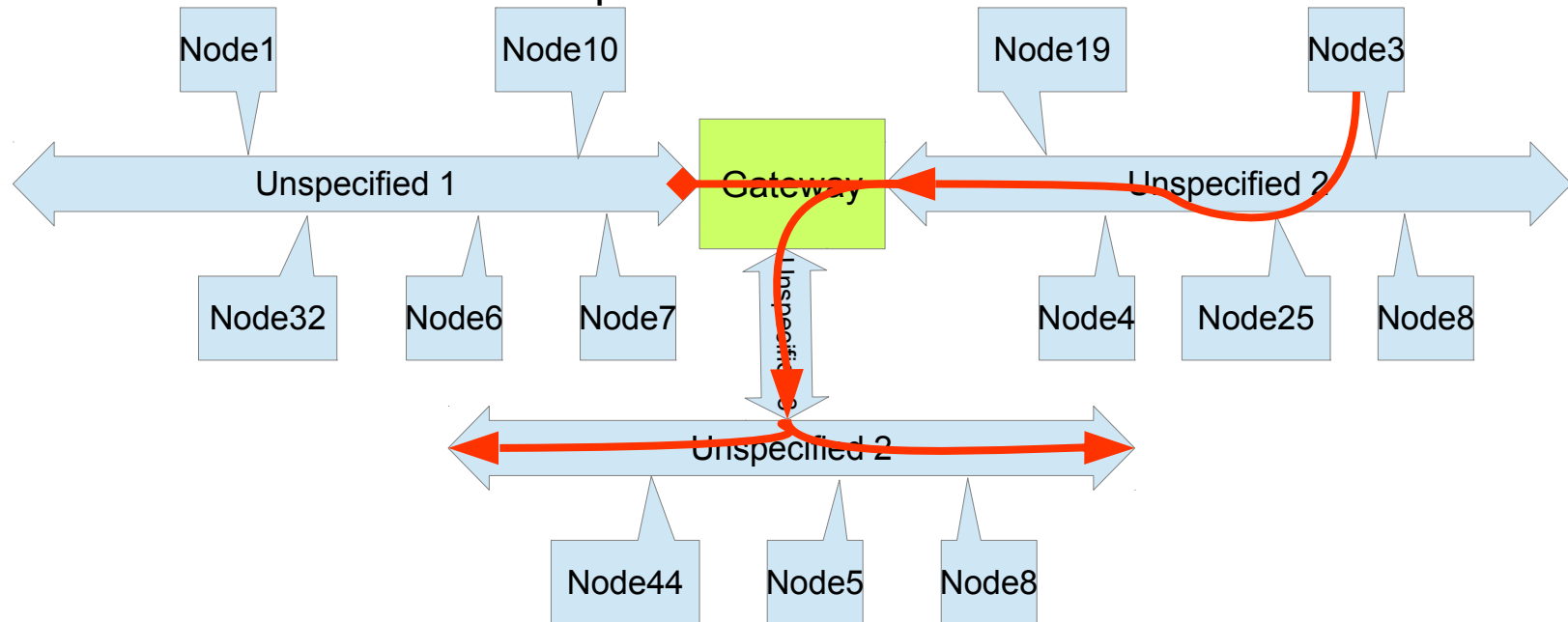
Segments – joined by a Hub

Two segments can be joined in several ways. This diagram shows two joined by a hub. A hub simply send every message received on one segment to all the others, without filtering. All messages go everywhere.



Segments – joined by a Router

This diagram shows three joined by a Router. A gateway sends a message received on one segment only to the others that have need it – ie it filters the traffic. The Routers keep a table of where nodes are located. In addition, it keeps tables of which nodes are interested in specific events.



Router

A Router is quite complicated and needs to keep routing tables. So, when a specific message addressed to a specific node is received, it has to decide where to send the message. A table identifies on what interface (sub-net) should the message be forwarded. Event messages are global, but not all segments have nodes which are interested in a specific event. Another table identifies which sub-nets these messages should be forwarded.

Identifying source net

| NodeID | Interface |
|--------|-----------|
| 12 | 1 |
| 137 | 1 |
| 4209 | 2 |
| 5555 | 3 |
| 12432 | 2 |
| 14523 | 4 |
| | |
| | |

Identifying segment interest in specific events

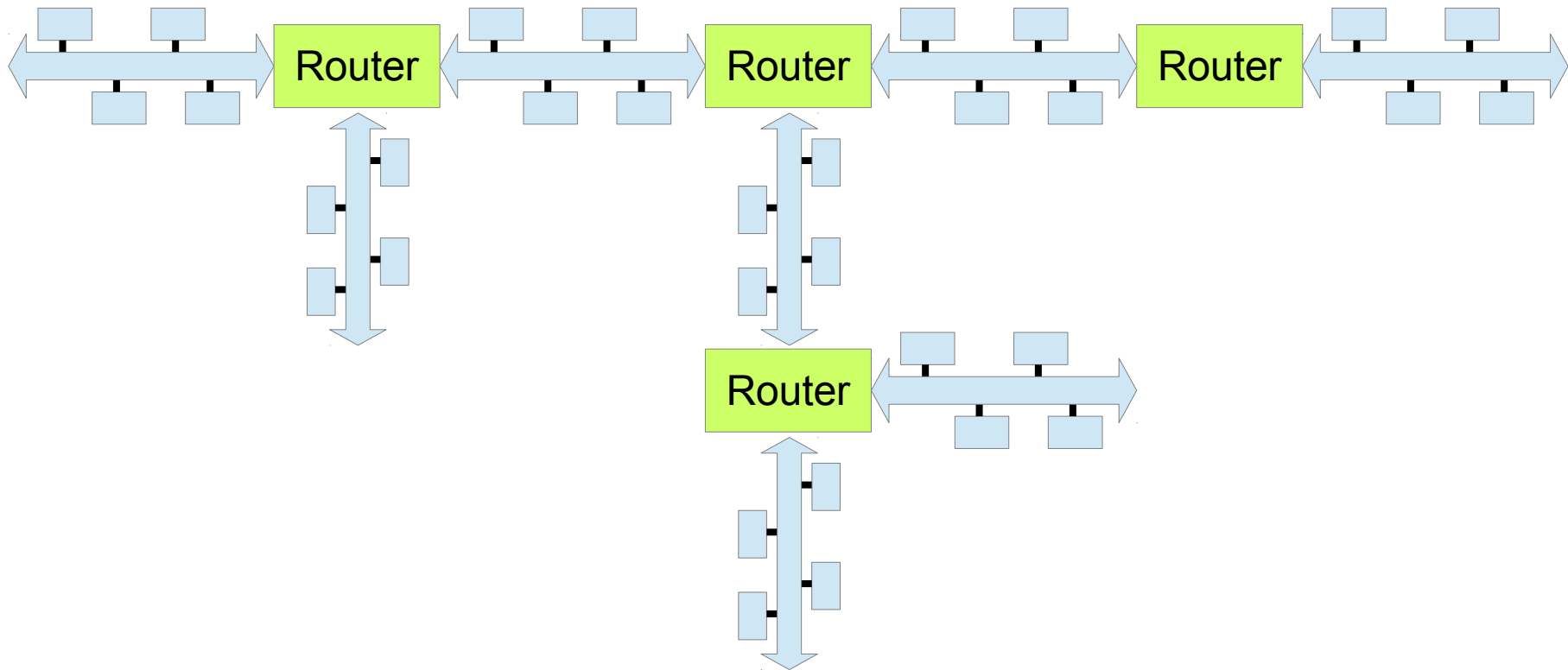
| Event | Interface | | | | |
|--------|-----------|------|------|------|------|
| | Net1 | Net2 | Net3 | Net4 | Net5 |
| 7712 | | x | | | |
| 13702 | x | | x | x | |
| 420977 | x | | x | x | |
| 35555 | | x | | x | |
| 1254xx | | x | | x | |
| | | | | | |
| | | | | | |

Event ranges can be handled, too.

Note, this is a simplified view, and they are more complicated.

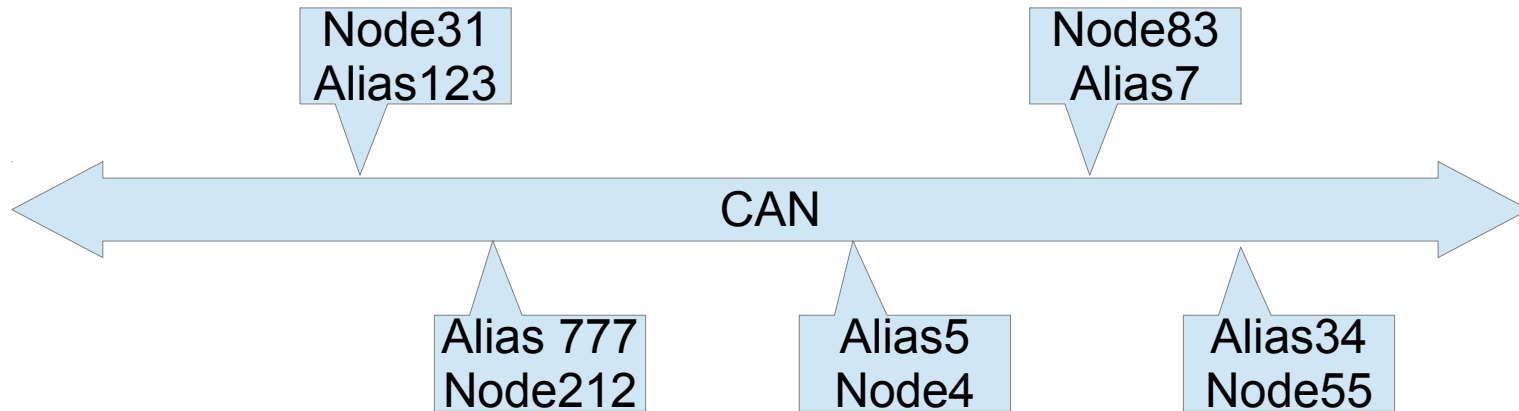
Multiple Routers

Multiple Routers can enable multiple segments.



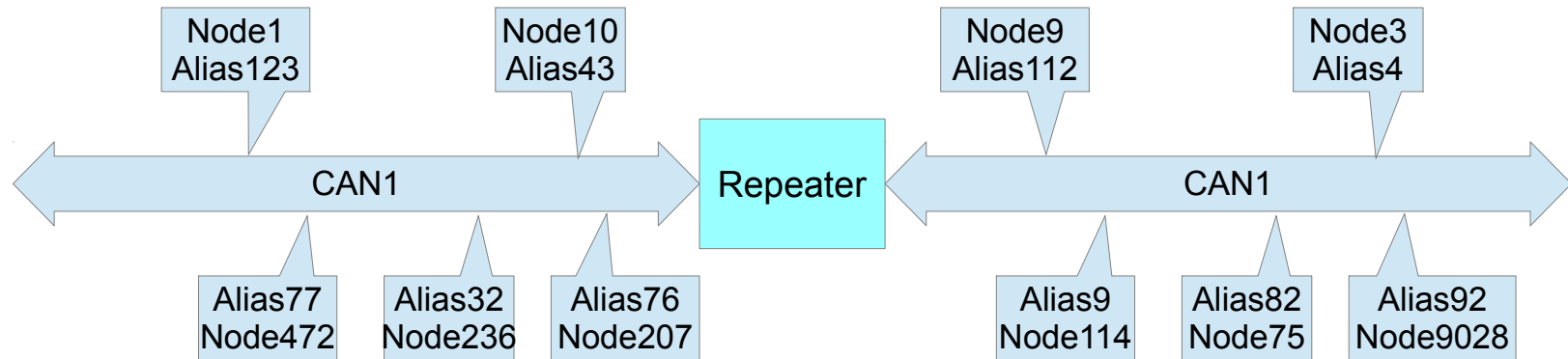
Single CAN Segment

On a single CAN segment, each node obtains a unique Alias, and uses this in its messages as the source field.



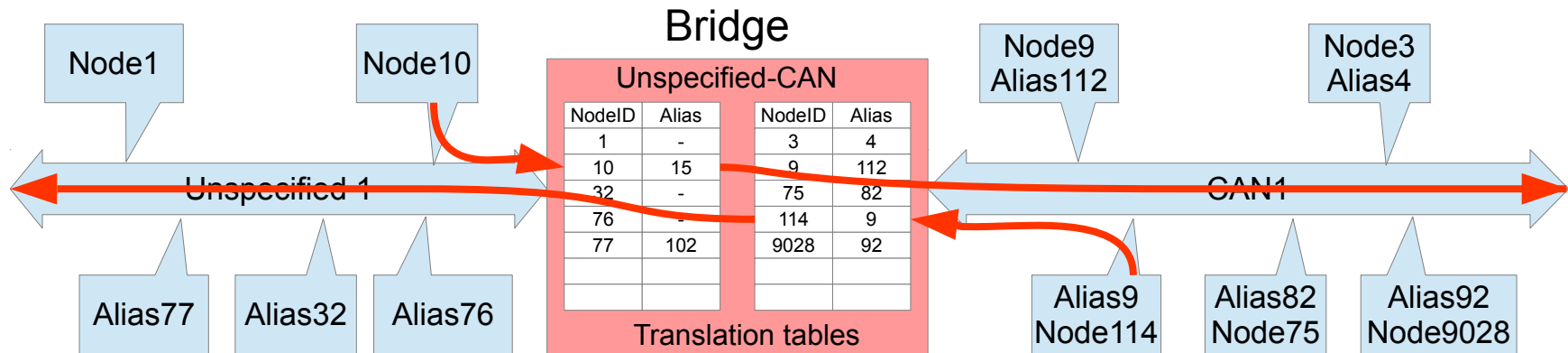
CAN Segments – joined by a Repeater

In this case, each segment is a separate electrical/physical domain is limited by number of nodes and length. However, the two segments form one logical network, and share the assignment of aliases. In this respect, Hubs also form a single logical network from the segments.



Connecting CAN Segments to general network via a Bridge.

A Bridge connects two non-similar network or network segments, and provides translation services between message formats and addressing. In this case it translates to and from CAN.



Multiple Routers, Bridges, Hubs and Repeaters

Complex topologies can be made with multiple segments by using wired and wireless Repeaters, Hubs, Bridges and Routers. This one uses CAN and TCP/IP.

