CLAIMS

1- A method for managing node communications in a mobile ad-hoc network, wherein~~characterized in that~~ at least a node in the said network performs the following steps:

- identifying if it is a Potentially Disruptive Node (PDN) or a non-PDN node, the~~a~~ PDN node being a node that has a number of connected 1-hop neighbouring nodes greater than a predetermined value K, K being an integer of value 1 or greater;
- when the node is identified as the~~a~~ PDN node, selecting a subset of the~~its~~ 1-hop neighbour nodes, the selected nodes being ~~the~~ only the 1-hop neighbour nodes that are allowed to communicate directly ~~(400, 401, 402, 403, 404)~~ with the PDN node, the selected nodes being called Bridge Nodes (BN), non-BN nodes being called Regular Nodes (RN), the ~~said~~ RN nodes being able to communicate with PDN nodes via the selected BN nodes.

2- A method according to claim 1, wherein a node is identified as a PDN node if its number of 1-hop neighbours is α times greater than the mean number of 1-hop neighbours of its 1-hop neighbours, α being a predetermined real value with $\alpha > 1$.

3- A method according to ~~one of the preceding~~ claim~~s~~ 1, wherein the predetermined integer value K is chosen as $K \geq 3$.

4- A method according to ~~one of the preceding~~ claim~~s~~ 1, wherein the PDN node identification and the BN nodes selection are performed periodically.

5- A method according to ~~any of the~~ claim~~s~~ 1 ~~to 3~~, wherein the PDN node identification and the BN nodes selection are performed each time the number of 1-hop and/or 2-hop neighbours of a node is changing.

6- A method according to ~~one of the preceding~~ claims 1 wherein a PDN node comes back to a non-PDN status if at least one of the two following conditions is not fulfilled:

- $T < K'$
- $f = \frac{T}{M} < \alpha'$, with $\alpha' > 1$

where:

K' is a predetermined integer value that can be different from K with $3 \leq K' \leq K$;

α' is a predetermined real value that can be different from α with $1 < \alpha' \leq \alpha$.

7- A method according to ~~one of the preceding~~ claims 1, wherein BN nodes are uniformly distributed in the mobile ad-hoc network

8- A method according to ~~one of the preceding~~ claims 1, wherein BN nodes are selected so that a BN node has no BN node in its connected β-hop neighbourhood, β being a configurable parameter.

9- A method according to claim 8 wherein BN nodes are selected so that a Regular Node RN has at least one BN node in its connected β-hop neighbourhood.

10- A node belonging to a mobile ad-hoc network, ~~characterized in that it~~ comprisinges means to implement the method according to ~~one of the preceding~~ claims 1.

11- A node according to claim 10, comprising a PDN Topology Control module, the said module ~~being capable of~~ making links between a PDN node and its RN nodes not allocable for data exchange, in order to decrease the high

number of links allocable for data exchange between a PDN and its connected 1-hop neighbours.

12- A mobile ad-hoc network, ~~characterized in that it~~ comprisinges~~s~~ a plurality of nodes according to ~~any of the~~ claims 10 ~~or 11~~.