CLAIMS:

1. A system for managing and distributing of a blacklist of User Equipment ID, UE ID, in a network (200) comprising:

a plurality of groups (1, 2) of the network (200), each of the plurality of groups (1, 2) of the network (200) comprising a blacklist server (220, 221), a plurality of authentication servers (210..213); and a Package Key Generator (260), PKG,

wherein the blacklist servers (220, 221) of the groups (1, 2) of the network (200) are each configured to:

store a blacklist containing UE IDs that are not supposed to gain access to the network (200);

transmit the blacklist to the plurality of authentication servers (210..213) in the same group (1, 2);

receive a message;

determine a content in the message is an order to add a new revoked UE ID in the blacklist;

update the blacklist to include the new revoked UE ID; and

send an update blacklist message to the plurality of authentication servers (210..213) in the same group (1, 2),

wherein the PKG (260) is configured to:

receive an order to add the new revoked UE ID in the blacklist;

determine the groups (1, 2) of the network (200) associated to the new revoked UE ID;

send an update blacklist message to the blacklist servers (220, 221) of the determined relevant groups (1, 2), and

wherein the blacklist servers (220, 221) are further configured to:

receive a query from one of the plurality of authentication servers (210..213) from another group (1, 2), the query containing a received UE ID;

determine whether the received UE ID is in the blacklist; and

transmit a response to the authentication server (210..213) from another group (1, 2) that the received UE ID is not in the blacklist in response to determining the received UE ID is not in the blacklist, or a response to the authentication server (210..213) from another group (1, 2) that the received UE ID is in the blacklist in response to determining the received UE ID is in the blacklist.

2. The system according to claim 1, wherein each of the authentication servers (210..213) are configured to:

store the blacklist in response to receiving the blacklist from the respective blacklist server (220, 221).

3. The system according to claim 2, wherein each of the authentication servers (210..213) is further configured to:

receive an authentication package from a user equipment (250..253), UE, the authentication package comprising the UE ID of the respective UE (250..253);

determine whether the UE (250..253) is in the same group (1, 2) based on information in the authentication package;

transmit a query to the blacklist server (220, 221) belonging to the same group (1, 2) of the UE (250..253) in response to the UE (250..253) not being in the same group as the respective authentication server (210..213);

receive a response from the blacklist server (220, 221) belonging to the same group (1, 2) of the UE (250..253);

determine whether the UE (250..253) is in the blacklist of the blacklist server (220, 221) belonging to the same group (1, 2) of the UE (250..253) from the response; and

proceed with authentication procedure in response to the UE (250..253) is not in the blacklist of the blacklist server (220, 221) belonging to the same group (1, 2) of the UE (250..253).

4. The system according to claim 2, wherein each of the authentication servers (220, 221) is further configured to:

receive an authentication package from a user equipment (250..253), UE, the authentication package comprising the UE ID of the respective UE (250..253);

determine whether the UE (250..253) is in the same group (1, 2) based on information in the authentication package;

determine whether the UE (250..253) is in a local blacklist in response to the UE (250..253) being in the same group (1, 2) as the respective authentication server (210..213); and

proceed with authentication procedure in response to the UE (250..253) is not in the local blacklist.

5. The system according to claim 2, wherein each of the authentication servers (210..213) is further configured to:

receive an authentication package from a user equipment (250..253), UE, the authentication package comprising the UE ID of the respective UE (250..253) and a signature;

proceed with authentication procedure by verifying the signature;

determine whether the UE (250..253) is in the same group (1, 2) based on information in the authentication package in response the successful verifying the signature;

transmit a query to the blacklist server (220, 221) belonging to the same group (1, 2) of the UE (250..253) in response to the UE (250..253) not being in the same group (1, 2) as the respective authentication server (210..213);

receive a response from the blacklist server (220, 221) belonging to the same group (1, 2) of the UE (250..253);

determine whether the UE (250..253) is in the blacklist of the blacklist server (220, 221) belonging to the same group (1, 2) of the UE (250..253) from the response; and

allow the UE (250..253) access to the network (200) in response to the UE (250..253) being not in the blacklist of the blacklist server (220, 221) belonging to the same group (1, 2) of the UE (250..253).

6. A method for managing and distributing of a blacklist of User Equipment ID, UE ID, in a network (200) comprising a plurality of groups (1, 2) of the network (200), each of the plurality of groups (1, 2) of the network comprising a blacklist server (220, 221), a plurality of authentication servers (210..213), and a Package Key Generator (260), PKG, wherein the method comprises the blacklist servers (210..213) to:

storing a blacklist containing UE IDs that are not supposed to gain access to the network (200) in the respective blacklist server (220, 221);

transmitting (1005) the blacklist to the plurality of authentication servers (210..213) in the same group (1, 2);

receiving (1010) a message;

determining a content in the message is an order to add a new revoked UE ID in the blacklist;

updating (1015) the blacklist in the respective blacklist server (220, 221) to include the new revoked UE ID; and

sending an update blacklist message to the plurality of authentication servers (210..213) in the same group (1, 2), further comprising the PKG (260) to:

receiving (802) an order to add the new revoked UE ID in the blacklist;

determining (815) the groups (1, 2) of the network (200) associated to the new revoked UE ID;

sending (820) an update blacklist message to the blacklist servers (220, 221) of the determined relevant groups (1, 2), and

wherein the method further comprises the blacklist servers (220, 221) to:

receiving a query from one of the plurality of authentication servers (210..213) from another group (1, 2), the query containing a received UE ID;

determining whether the received UE ID is in the blacklist; and

transmitting a response to the authentication server (210..213) from another group (1, 2) that the received UE ID is not in the blacklist in response to determining the received UE ID is not in the blacklist, or a response to the authentication server (210..213) from another group (1, 2) that the received UE ID is in the blacklist in response to determining the received UE ID is in the blacklist.

7. The method according to claim 6, wherein the method further comprises each of the authentication servers (210..213) to:

storing the blacklist in response to receiving the blacklist from the respective blacklist server (220, 221).

8. The method according to claim 7, wherein the method further comprises each of the authentication servers (210..213) to:

receiving (905b) an authentication package from a user equipment (250..253), UE, the authentication package comprising the UE ID of the respective UE (250..253);

determining (910b) whether the UE (250..253) is in the same group (1, 2) based on information in the authentication package;

transmitting (915b) a query to the blacklist server (220, 221) belonging to the same group (1, 2) of the UE (250..253) in response to the UE (250..253) not being in the same group (1, 2) as the authentication server (210..213);

receiving (920b) a response from the blacklist server (220, 221) belonging to the same group (1, 2) of the UE (210..213);

determining (923b) whether the UE (250..253) is in the blacklist of the blacklist server (220, 221) belonging to the same group (1, 2) of the UE (250..253) from the response; and

proceeding (935b) with authentication procedure in response to the UE (250..253) is not in the blacklist of the blacklist server (220, 221) belonging to the same group (1, 2) of the UE (250..253).

9. The method according to claim 7, wherein the method further comprises each of the authentication servers (210..213) to:

receiving (905a, 905b) an authentication package from a user equipment (250..253), UE, the authentication package comprising the UE ID of the respective UE (250..253);

determining (915a, 910b) whether the UE (250..253) is in the same group (1, 2) based on information in the authentication package;

determining (923a, 923b) whether the UE (250..253) is in a local blacklist in response to the UE (250..253) being in the same group)1, 2) as the respective authentication server (210..213); and

proceeding (935a, 935b) with authentication procedure in response to the UE (250..253) is not in the local blacklist.

10. The method according to claim 8, wherein the method further comprises each of the authentication servers (210..213) to:

receiving (905a) an authentication package from a user equipment (250..253), UE, the authentication package comprising the UE ID of the respective UE (250..253) and a signature;

proceeding (910a) with authentication procedure by verifying the signature;

determining (915a) whether the UE (250..253) is in the same group (1, 2) based on information in the authentication package in response the successful verifying the signature;

transmitting (920a) a query to the blacklist server (220, 221) belonging to the same group (1, 2) of the UE (250..253) in response to the UE (250..253) not being in the same group (1, 2) as the respective authentication server (210..213);

receiving (925a) a response from the blacklist server (220, 221) belonging to the same group (1, 2) of the UE (250..253);

determining (923a) whether the UE (250..253) is in the blacklist of the blacklist server (220, 221) belonging to the same group (1, 2) of the UE (250..253) from the response; and

allowing (935a) the UE (250..253) access to the network (200) in response to the UE (250..253) being not in the blacklist of the blacklist server (220, 221) belonging to the same group (1, 2) of the UE (250..253).