Claims

1 - A system architecture for managing resources in a communication network of military ad-hoc type or safety type comprising:

a plurality of radio equipments working in a given frequency band and with identical frequency hopping rules, said radio equipments being software programmed;

a radio equipment comprises at least two of:

a software module to assure a main function of radio communication that supports exchanges on a chain of command, voice and data;

a software module for tapping, monitoring and intercepting radio signals in a communication environment and for recording the radio signals locally in a database;

a module adapted for disrupting non-authorized communications;

a local “3 in 1” management module receiving orders emitted by master device, the “3 in 1” management module being adapted for controlling various modules of said radio equipment; and

a software radio-router module,

wherein said plurality of radio equipments being managed by the master device for implementing “3 in 1” functions provided to the communication network, said master device configured to select one or more most appropriate “3 in 1” capacities such as geographic proximity to sought targets, availability of resources, and best topologies depending on a function to be carried out by the plurality of radio equipments, said master device configured to program the plurality of radio equipments to avoid points of congestion in the system architecture and parallelize an operation of the system architecture,

wherein a coefficient K is chosen such that a performance $Perf_{systdeployment}$ of the system architecture obtained by deploying a plurality of parts of said radio equipment is such that $Perf_{systdeployment}=K.Perf_{equipment}$ where K is chosen for selecting communication relays and bases to minimize end-to-end latency of

communication using the system architecture, wherein $Perf_{equipment}$ is a performance of the radio equipment.

2 - The system architecture according to claim 1, wherein said radio-router module comprises a plurality of functional modules, including a matching and transmission module, a module allowing transmission reliability to be increased, a data transfer module, a routing module, and a local management module receiving data to be stored and then transferred according to criteria and constraints to the master device for data processing.

3 - The system architecture according to claim 1, wherein a software functional module comprises a radiocommunication module carrying out radiocommunications, a module for tapping, monitoring and intercepting radio signals in the communication environment and for recording the radio signals locally in a database, a module suitable for disrupting non-authorized communications, and a local management module receiving orders emitted by the master device, the management module being configured to control the various modules of said radio equipment.

4 – The system architecture according to claim 1, wherein the master device comprises:

a database containing information or data regarding operational and technical constraints;

a database containing geographical data relating to a distribution of a zone of interest;

a database including information regarding communication spectra of interest for said radio communication;

a database containing geographical data regarding receiver geographical positions;

a database containing communication network topologies;

a database of exchange flow states;

an equipment management algorithm; and

a module for communicating with the radio equipment of the system architecture.

5 – The system architecture according to claim 4, wherein the equipment management algorithm is suitable for programming resources of the most appropriate radio units to optimize conjoint operation of functions for monitoring transmissions, originating from radio devices, and radiocommunication functions, in a communication network under quality of service QoS and service level agreement (SLA) constraints.

6 – The system architecture according to claim 1, wherein the system architecture comprises a plurality of transmission networks networked via nodes providing matching, transferring and routing technical functions to particular radio networks.

7 – The system architecture according to claim 1, wherein a radio equipment comprises a local clock and local clocks of the radio equipment present in the system architecture are networked in order to converge to a system time.