# Battlefield Using MWSN Surveillance System

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**ABSTRACT**—In modern war, the weapons and equipments are more and more advance, the early detection and tracking for the enemy advanced weapons such as aircrafts and missiles become a very important problem to deal with. To provide early warning of enemy targets. The approach supports limited information disclosure about implementation details on be-half of the providers, scalability, heterogeneity, and a migration path from currently deployed infrastructure technologies to future network implementations Parameter estimation of enemy aircrafts and missiles based on MWSN. The first problem is the integration among multiple battlefield surveillance system based on cloud networking. The second problem is the parameter estimation (it may contains the direction and polarization information. The direction information to evaluate the type and the model of the enemy targets) of enemy aircrafts and missiles based on MWSN.

**KEYWORDS—** ***Mobile wireless sensor network(MWSN), Battlefield surveillance system, polarization information, aircrafts.***

## INTRODUCTION

In recent years, cloud computing is continuing to have an important impact on communication networks, which is gradually becoming a promising technology Over the past two decades communication networks have experienced tremendous growth and expansion all over the world. The explosive growth of many types of mobile devices such as smart phones, variations of tablet computers, and laptops, has fueled the demand for more bandwidth with varying Quality of Service (QoS), with pervasive connectivity and at affordable costs [1]. These mobile devices are generally very powerful in themselves with ever more innovative user interfaces, better information security and privacy, capability for higher end-to-end data transfer rate, streaming or interactive communications, and many other features [2]. Mobile wireless network generally encompasses wireless sensor networks, ad-hoc and mesh networks and infrastructure based cellular networks. These groups of networks can service a wide array of application areas such as the ubiquitous broadband access [3], mobile peer-networks, and to-peer, wifi, hot-spots, vehicular networks, sensor.

Linear array (ULA) [13]. In order to reduce computational complexity, the multiple dimensional searching is replaced by polynomial rooting. This method has been extended to non-uniform array based on spatial interpolation. However, this method is only suitable for 1D angle estimation. Based on this method, an L-shape array method has been proposed, the 2D DOA and polarization estimations have been achieved [14]. However, the parameter pairing is needed. The methods proposed in [15] and [16] can obtain 2D DOA and polarization estimations accurately and rapidly based on (estimate parameter via rotational invariance technique) ESPRIT algorithm with uniform rectangular array (URA). Then this method has been extended to arbitrary array configurations [17]. However, the direction and polarization of the sensor nodes have to be identical. Based on the manifold separation technique (MST) [18], the 2D root DOA and polarization estimation algorithm has been proposed with arbitrary array configurations and element directions [19].However, the main problem of this method is to solve the high order dual nonlinear equations, which has a large computational complexity.

## 1. RELATED WORK

The cloud networking provides more powerful ability to analyse and process data than single cloud. An architecture that supports seamless virtual infrastructures deployed on-demand across multiple providers, including data centre and network operators was described. Our cloud networking in SAIL [1] follows the experience of 4WARD [10] which developed a layered architecture for network virtualisation. The concept of in-network management introduced in 4WARD is to a large extent the foundation of our management processes as we also follow the principles of decentralised operation, addressing the challenges of scalability, adaptability, control, reliability and resource usage efficiency. The transport services provide functions for reliability, flow control and message framing.

## 2.CLOUD NETWORK ARCHITECTURE

We assume an environment with multiple infrastructure service providers including network operators. The providers may chose to collaborate to some extent in order to implement virtual infrastructures that span their domains. They implement virtual resources and can connect their resources at their boundaries to give the impression of a single virtual infrastructure. The user is presented with a single service control interface and propagation of the user's infrastructure and its control is managed collaboratively by the providers.

The hospital system architecture is made up of patients (mobile node, a set of sensors), Mobile sensor system (local gateway or border router), Internet gateway, Hospital Information System (HIS) and users (physicians, surgeons and nurses). As shown in Fig. 1, each part of the hospital such as operating theatre, observation rooms and wards are organised as a PAN is under network coverage to keep the connectivity within nodes and the Internet.

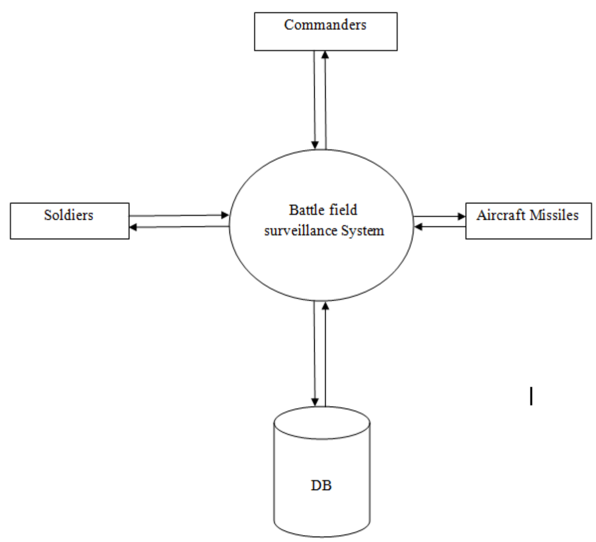


Fig1:System Architecture

One needs a solution that distributes the cloud (and its main benefits, on-demand availability of computing and storage with massive benefits of scale) more deeply into the network and disperses the cloud closer to the end user to reduce latency: one might talk about mist computing instead of cloud computing (Fig. 4). Moreover, these "misty" resources need to be flexibly net-worked across a backbone network, with isolation and security in place, the allocation of storage, computation, and networking connectivity between them becoming an integrated problem applications can only be mapped onto a part of a cloud, when the required networking resources are in place, both to other parts of a cloud and to the end-user population the cloud part is intended to serve. The approach pro-posed here intrinsically takes the finer level of granularity needed in order to implement an infrastructure into account, which is highly responsive and provides a tighter integration of virtualization features at computing and net-working levels, possibly trading off computing and networking against each other (e.g., use slower computing nearby vs. fast computing far away).

## 3. LOCALIZATION MODELS IN MWSNS

In this paper, we consider that anchor nodes are mobile while unknown nodes keep static in an MWSNs. In our localization models, the DV-hop localization algorithm is implemented in an MWSN. The specific MWSN pattern is determined by the mobility model of nodes. Here, three mobility models are taken into account. Therefore, the DV-hop algorithm combined with mobility models is a novel localization model. We mainly study three localization models, which are DV-hop+ RWP, DV-hop+ RD and DV-hop+ RPGM localization model. In a localization model, anchor nodes are turned into mobile anchor nodes (MANs) and move in the form of a mobility model.

Both static path planning models and dynamic path planning models are designed for improving localization performance. A static path of the MN can be planned in advance and is suitable for regular terrain, whereas a dynamic path is decided in real-time and is more efficient. It seems that both of them perform quite well. However, path planning just realizes local optimum and each model more or less has its own disadvantage or restriction.

## 4. WIRELESS SENSOR NETWORK

In an MWSN, both anchor nodes and unknown nodes are randomly deployed. The default energy value of each node is set as 20kJ. The network size is set to be $500m * 500m$ in the simulation. The number of anchor nodes is at least set as 3 because a valid localization can be achieved with at least three non-collinear messages. Unless mentioned otherwise, the default values in Table I are used. Based on these settings, we implemented Net Topology simulator for evaluation.

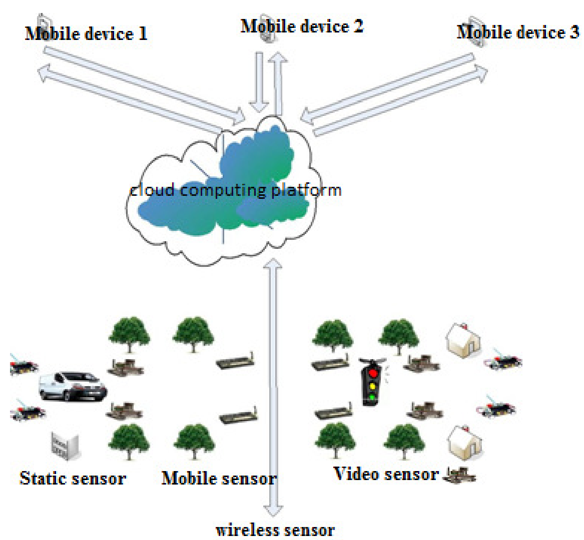


Fig2:Wireless Sensor Network

## EXISTING SYSTEM

To detect 1Dimensional direction of arrival it is human attacks in the system. So Time consuming and High Failure rate of detecting an air craft . The existing system attack the one direction system. The root multiple signal classification(Root-MUSIC)-like algorithm is proposed for estimating the 1-D DOA and a polarization parameter with a uniform linear array. **Aircraft Navigation is the art and science of** getting from a departure point to a destination in the least possible time without losing your way. Some of this information can be obtained from the aircraft operation handbook. Also, if taken into consideration at the start of the aircraft design they help an aeronautical engineer to develop a better aircraft. Thus, my aim to construct a battlefield surveillance system exploiting the advantage of cloud networking. The first problem is the integration among multiple battlefield surveillance systems based on cloud networking. The second problem is the parameter estimation (it may contains the direction and polarization information. The direction information can be used to monitor the enemy targets, and the polarization information can be used to evaluate the type and model of the enemy targets.) of enemy aircrafts and missiles based on MWSN.

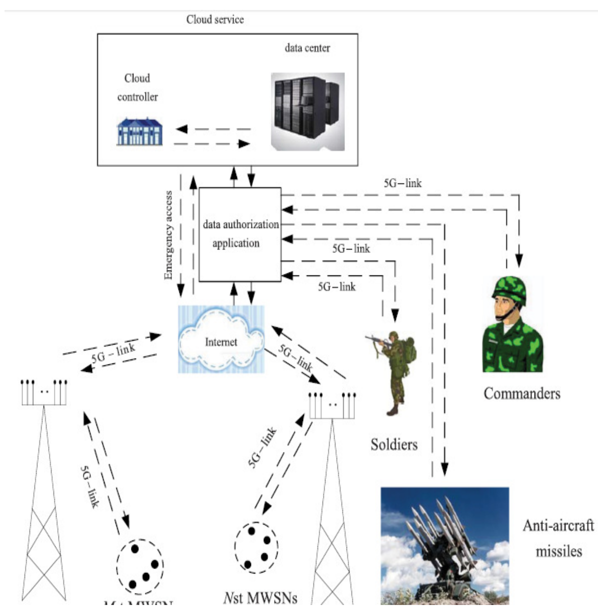


Fig 3. The Construction of single Battlefield Surveillance System

**PROPOSED SYSTEM**

The traditional abnormality diagnostic algorithms are to set the hard threshold value. In the battlefield surveillance system, the most prominent surveillance objects are enemy aircrafts and missiles. Thus mobile nodes can be thrown down by aircraft in the deployment regions, which are far away from the military base. In order to monitor enemy air targets, deployment regions of MWSNs are vitally important to protect the military base. Alerts or warnings would be triggered if the diagnostic value is larger than the hard thresh-old value. The advantage of these algorithms is that they are easy to be actualized in IEWS, the disadvantage is that the false-alarm probability is too high. It is 3D attack system and it is early warning system. It arrival of parallel and polarization parameters to estimation performance. It is early detecting and tracking the enemy targets. To construct the battlefield surveillance system. In this module, our air craft details are stored into database. Periodically aircraft details are checked against database. When unknown aircraft comes, the warning message send to commanders. After receiving enemy air craft details by the commander, they send nuclear attack to missiles which is ready to demolish the enemy air craft.

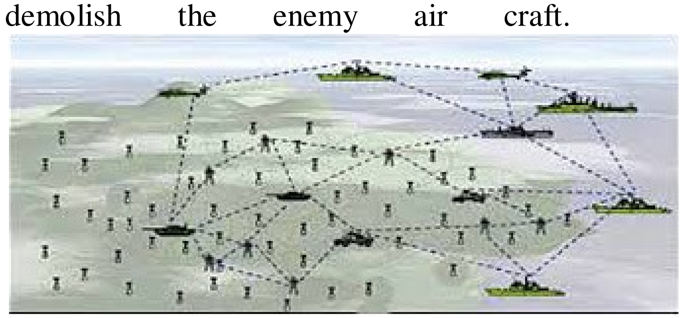

Fig4:Clustering Formation

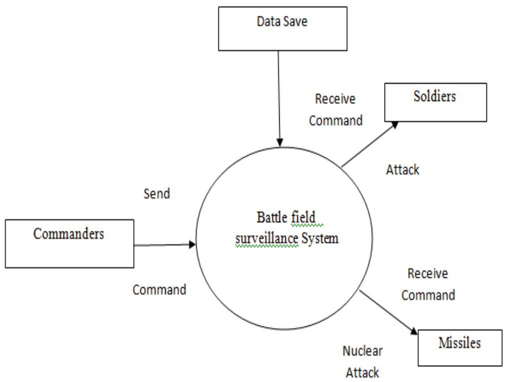


Fig6:Architecture of Battle field surveillance System

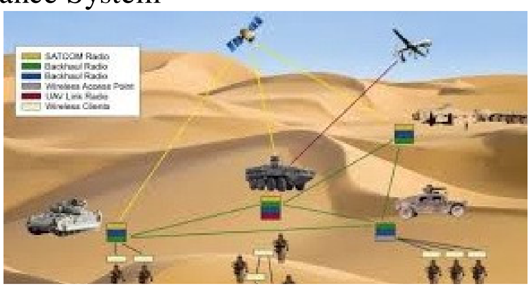

fig7: Sample picture of attacking a another country aircraft

## CONCLUSIONS

The Internet has been based up to now on an architectural model that has coped with a sustained continuous development and provided a good environment for a wide range of applications. Nevertheless, challenges for this model became apparent, namely at the applications level, not only from the technical viewpoint but also from the business one. The FNS is introduced as a network resource type that can be linked across ad- ministrative boundaries, providing the ability to partition virtual infrastructures into isolated administrative domains, and can be realised on multiple network technologies, allowing a migration path to future Internet implementations. The 2D Fourier coefficient matrix can be obtained based on 2D FFT, which has a low computational complexity. Since the environment of the deployment region is complexity, we will extend our previous work [25], [26] about conformal array into the parameter estimation of MWSN.

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