



## TECHNOLOGY

# Method for Efficient Source Authentication for Multicast Communications in Hybrid Satellite/Wireless Networks

## OVERVIEW

Large wireless networks have the ability to provide rapid connectivity in disaster areas or military fields, or to inter-connect users in far-flung geographical locations. An addition of a satellite overlay to the wireless networks leads to a great improvement in the network performance. In the above hybrid wireless networks, security is a necessary parameter to protect the communication amongst user nodes from unauthorized access or unauthorized modifications.

Due to the limited processor power, storage capacity, and available energy of nodes in a hybrid wireless network, conventional schemes for authentication in group communication such as public-key cryptography, are not feasible. Therefore, authentication protocols based on symmetric cryptographic primitives like MAC are preferable. However, designing authentication protocols for group communication using symmetric cryptography is a significant challenge.

Researchers in the Institute of Systems Research at the University of Maryland, College Park have developed a novel source authentication protocol for hybrid networks that uses TESLA certificates. The proposed scheme is secure, fast, has low processing overhead, and consumes much less energy than digital signature algorithms. The protocol also avoids the assumption that the user nodes have some sort of security association established a priori, as many other conventional protocols assume.

Advantages: In comparison to a public-key based signature schemes such as DSA, our scheme has:

- Reduced processing delay overhead by at least three orders of magnitude
- Reduced energy consumption by at least three orders of magnitude

Applications:

- Secure authentication services for hybrid networks
- Low-energy certificates for authentication/message integrity

Status:

Patent pending; seeking commercial partner to license.

## CONTACT INFO

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## Additional Information

## INSTITUTION

University of Maryland, College Park

## **PATENT STATUS**

Patent(s) pending

## **LICENSE STATUS**

Available for exclusive or non-exclusive license

## **CATEGORIES**

- Microelectronics
- Aerospace
- Information Technology

## **EXTERNAL RESOURCES**

- [US Patent 8,397,062](#)

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