**CONCLUSION**

To resist the exhaustion of password attack on the two-factor MAKA protocols, a large number of three-factor MAKA protocols have been proposed. However, almost all three factor MAKA protocols don’t provide formal proofs and dynamic user management mechanism. In order to achieve more flexible user management and higher security, this paper proposes a new three-factor MAKA protocol that supports dynamic revocation and provides formal proof. The security shows that our protocol achieves the security properties of requirements from multi-server environments. On the other hand, through the comprehensive analysis of performance, our protocol doesn’t sacrifice efficiency while improving the function. On the contrary, the proposed protocol has great advantages in terms of the total computation time.