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(54) **SECURING ACCESS TO NETWORK
DEVICES UTILIZING AUTHENTICATION
AND DYNAMICALLY GENERATED
TEMPORARY FIREWALL RULES**

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(57) **ABSTRACT**

A network security system provides portals which enable automatic creation of a dynamic one-time port forwarding rule for an authorized user's current IP address following two factor authentication of the authorized user. Such a dynamic one-time port forwarding rule is utilized to set up a connection, at which point the dynamic one-time port forwarding rule is removed, preventing any attacker from subsequently taking advantage of it. Such a methodology is advantageous as compared to conventional port forwarding in that it is much more secure. Such a methodology is advantageous as compared to traditional port forwarding with access control both in that a user does not always have to utilize the same device with a static IP address, and in that the port forwarding rule representing or exposing a potential vulnerability is deleted after a connection is established.

User receives an invitation with
a link to enroll.

Email	
From:	admin@example.com
CC:	
Subject:	Gatekeeper: Invitation for Doe, John
<p>Welcome to Gatekeeper, John Doe</p> <p>Your administrator has invited you to use your applications and network devices securely, via two factor authentication (2FA). Install an authenticator app on your phone, smart device, or computer, and proceed to:</p> <p>https://gatekeeper.example.com/gk/invite?token=abcdef123456</p> <p>Follow the on-screen instructions and you should be ready to get started!</p> <p>Reminder: You'll need the enrollment password that your administrator should have already shared with you (via other means).</p>	
<div>Reply</div> <div>Reply All</div> <div>Forward</div>	