83rd IETF meeting

NETCONF over WebSocket

(http://tools.ietf.org/html/draft-iijima-netconf-websocket-ps-02)

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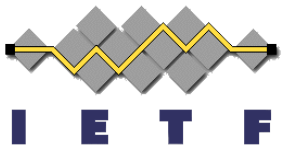
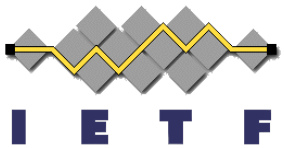


Objective of this I-D

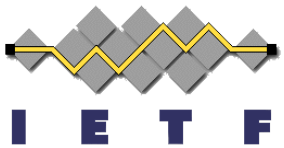
- To propose a way of sending NETCONF over WebSocket protocol.

- But, we do not intend to make this proposal as mandatory.♪



Changes since the last IETF meeting

- As per comments received at the last IETF meeting, we've made following changes.
  - Added description about NETCONF username authentication.
    - Proposed the use of Cookie for NETCONF username at the time of WebSocket opening handshake.
  - Added description that this proposal is not limited to browser-based NMS. If implemented as application-based NMS, this I-D can be used for managing large network.



Cookie for NETCONF username

- Advantage of Cookie is “ease of use.”
  - To set Cookie field at NETCONF client…
    - document.cookie = "netconf_username=" + “foo”;
  - To get Cookie field at NETCONF server…
    - There’re APIs provided by WebSocket server implementations.
- “Cookie Name” of something like “netconf_username” should be defined.
- “Cookie Value” should be set by NETCONF client as “foo,” for example.
- Above data should be sent at the time of WebSocket opening handshake from NETCONF client, and should be used for NETCONF user name authentication at NETCONF server .

NETCONF message

NETCONF Client♪ | WS Client♪ | WS Server♪ | NETCONF Server♪

Load html file

- Set NETCONF username
- Start WebSocket (API)

GET
upgrade: WebSocket
protocol: NETCONF
Cookie: netconf_username=foo

WebSocket handshake

HTTP/1.1 101
upgrade: WebSocket
protocol: NETCONF

Cookie: netconf_ username=foo

authentication

<hello>

<hello>

<create-subscription>

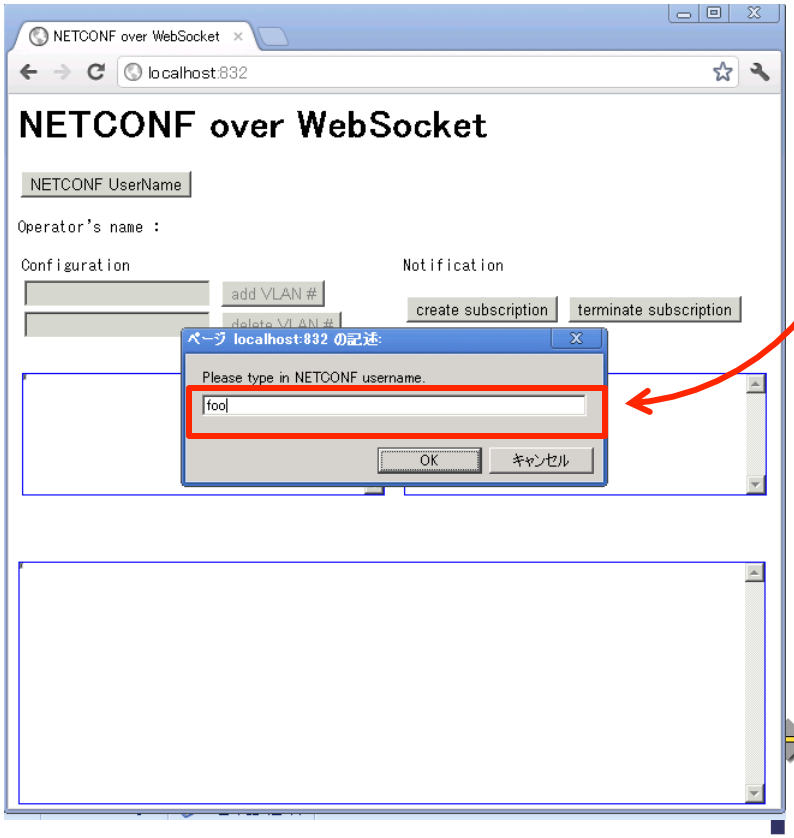
<notification>

NETCONF messages on a single session

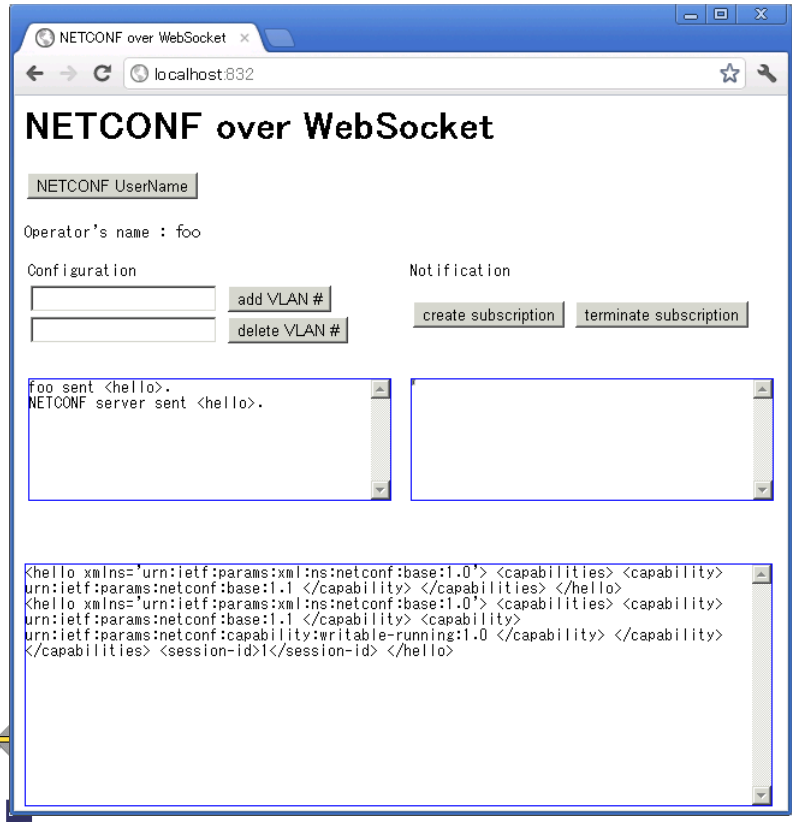
IETF

Implementation example of NETCONF username authentication

1. Load html file.
Set NETCONF username here.
Send it during WebSocket handshake.

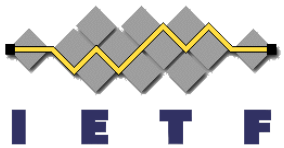


2. After NETCONF username authentication and WS handshake, initiate NETCONF message exchange.

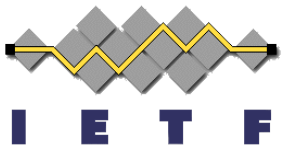


Conclusions

- We proposed a way of sending NETCONF over WebSocket protocol.
- We proposed a usage of Cookie for NETCONF username authentication.
- Does WG have interests?
- If YES, should this I-D move forward as an Experimental I-D?



backup



My opinions about REST♪

- REST-based NETCONF seems interesting and worth doing.
  - Quantum API of OpenStack is providing REST/XML- and JSON- based API to control network interfaces (through OpenFlow controller).
- But, it might be better being discussed as another topic. It might stray from current NETCONF specification and require lots of discussion.
  - REST can work without WebSocket.
  - Notification can't be provided with REST+HTTP.
- As far as our I-D is concerned, we try to comply with current NETCONF specifications. And, at the same time, we try not to limit how NETCONF messages are exchanged.