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NETCONF over WebSocket

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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

- Set NETCONF username
- Start WebSocket (API)

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

HTTP/1.1 101
upgrade: WebSocket
protocol: NETCONF

WebSocket handshake

<hello>
<hello>
<create-subscription>
<notification>

Cookie: netconf_username=foo

authentication

NETCONF messages on a single session
Implementation example of NETCONF username authentication


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.