

WHAT IS CLAIMED IS:

1. A method of facilitating offsite access to an enterprise computer network,
5 the method comprising:
initiating, by an agent executing on a computer behind a firewall on an enterprise
network, a hypertext transport protocol (HTTP) connection with a cloud-based gateway outside
of the firewall;
upgrading the HTTP connection to a WebSocket protocol connection;
10 receiving, from the cloud-based gateway, by the agent over the WebSocket
protocol connection, a first request for data stored on a server behind the firewall on the
enterprise network, wherein the first request has a WebSocket format compliant for the
WebSocket protocol connection;
reformatting, by the agent, the first request received from the cloud-based
15 gateway from the WebSocket format into an HTTP format to create a second request;
sending, from the agent, the second request to the server on the enterprise
network;
receiving, by the agent from the server, a first response to the second request, the
first response having the HTTP format;
20 creating, by the agent, a second response having the WebSocket format, wherein
the second response is created based on converting the first response from the HTTP format to
the WebSocket format; and
sending, by the agent over the WebSocket protocol connection to the cloud-based
gateway, the second response.
- 25 2. The method of claim 1 wherein the upgrading of the HTTP connection to
the WebSocket protocol connection is automatically triggered by the initiating of the HTTP
connection.
3. The method of claim 1 or 2 further comprising:
receiving, at the cloud-based gateway, a third request from a mobile device;

reformatting, at the cloud-based gateway, the third request from the mobile device into the first request for data over the WebSocket protocol connection;

receiving, at the cloud-based gateway, the second response from the agent;

creating, at the cloud-based gateway, a third response from the second response

5 from the agent; and

sending the third response to the mobile device.

4. The method of any one of claims 1 to 3 further comprising:

packaging, by the agent, the first response from the server into a string, binary object, or ArrayBuffer of the WebSocket response before sending the second response.

10 5. The method of any one of claims 1 to 4 wherein the server is a local web server.

6. The method of any one of claims 1 to 5 wherein the server is running an enterprise application.

15 7. The method of any one of claims 1 to 6 wherein the WebSocket protocol connection is a secure WebSocket protocol connection.

8. The method of any one of claims 1 to 7 further comprising:

checking, by the agent with the cloud-based gateway, for an update of agent software;

downloading, to the agent, a software update; and

20 installing, at the agent, the downloaded software update.

9. The method of claim 8 further comprising:

determining a time window acceptable or unacceptable for the software update;

and

performing the checking, downloading, or installing based on the determined time

25 window.

10. The method of claim 8 or 9 further comprising:

rolling back the installation of the downloaded software update to a previous version of the agent software.

11. A machine-readable non-transitory medium embodying information indicative of instructions for causing one or more machines to perform operations comprising:

5 initiating, by an agent executing on a computer behind a firewall on an enterprise network, a hypertext transport protocol (HTTP) connection with a cloud-based gateway outside of the firewall;

upgrading the HTTP connection to a WebSocket protocol connection;

10 receiving, from the cloud-based gateway, by the agent over the WebSocket protocol connection, a first request for data stored on a server behind the firewall on the enterprise network, wherein the first request has a WebSocket format compliant for the WebSocket protocol connection;

reformatting, by the agent, the first request received from the cloud-based gateway from the WebSocket format into an HTTP format to create a second request;

15 sending, from the agent, the second request to the server on the enterprise network;

receiving, by the agent from the server, a first response to the second request, the first response having the HTTP format;

20 creating, by the agent, a second response having the WebSocket format, wherein the second response is created based on converting the first response from the HTTP format to the WebSocket format; and

sending, by the agent over the WebSocket protocol connection to the cloud-based gateway, the second response.

12. The medium of claim 11 wherein the upgrading of the HTTP connection to the WebSocket protocol connection is automatically triggered by the initiating of the HTTP connection.

13. The medium of any one of claims 11-12 wherein the medium includes instructions further comprising:

receiving, at the cloud-based gateway, a third request from a mobile device;

reformatting, at the cloud-based gateway, the third request from the mobile device into the first request for data over the WebSocket protocol connection;

receiving, at the cloud-based gateway, the second response from the agent;

creating, at the cloud-based gateway, a third response from the second response

5 from the agent; and

sending the third response to the mobile device.

14. The medium of any one of claims 11 -13 wherein the medium includes instructions further comprising:

checking, by the agent with the cloud-based gateway, for an update of agent

10 software;

downloading, to the agent, a software update; and

installing, at the agent, the downloaded software update.

15. The medium of claim 14 wherein the medium includes instructions further comprising:

15 determining a time window acceptable or unacceptable for the software update;

and performing the checking, downloading, or installing based on the determined time window.

16. A system for facilitating offsite access to an enterprise computer network, the system comprising:

20 at least one processor; and

a memory operatively coupled with the at least one processor, the at least one processor executing instructions from the memory for:

initiating, by an agent executing on a computer behind a firewall on an enterprise network, a hypertext transport protocol (HTTP) connection with a cloud-based gateway outside
25 of the firewall;

upgrading the HTTP connection to a WebSocket protocol connection;

receiving, from the cloud-based gateway, by the agent over the WebSocket protocol connection, a first request for data stored on a server behind the firewall on the

enterprise network, wherein the first request has a WebSocket format compliant for the WebSocket protocol connection;

reformatting, by the agent, the first request received from the cloud-based gateway from the WebSocket format into an HTTP format to create a second request;

5 sending, from the agent, the second request to the server on the enterprise network;

receiving, by the agent from the server, a first response to the second request, the first response having the HTTP format;

10 creating, by the agent, a second response having the WebSocket format, wherein the second response is created based on converting the first response from the HTTP format to the WebSocket format; and

sending, by the agent over the WebSocket protocol connection to the cloud-based gateway, the second response.

15 17. The system of claim 16 wherein the upgrading of the HTTP connection to the WebSocket protocol connection is configured to be automatically triggered by the initiating of the HTTP connection.

18. The system of any one of claims 16-17 wherein the instructions from the memory further comprise:

20 receiving, at the cloud-based gateway, a third request from a mobile device; reformatting, at the cloud-based gateway, the third request from the mobile device into the first request for data over the WebSocket protocol connection;

receiving, at the cloud-based gateway, the second response from the agent;

creating, at the cloud-based gateway, a third response from the second response from the agent; and

25 sending the third response to the mobile device.

19. The system of any one of claims 16-18 wherein the server is a local web server.

20. The system of any one of claims 16- 19 wherein the server is running an enterprise application.