

Load testing using WebRTC pulling

- [Overview](#)
- [Testing](#)
- [CDN Edge server load testing](#)
 - [Quick manual on Edge server testing](#)
- [Tuning recommendations](#)
- [Known issues](#)

Overview

WebRTC stream pulling from another WCS server may be useful to load testing according to the following test scenario:

1. Stream is [published](#) on server 1.
2. Server 2 makes a specified number of Websocket connections (100 for example), as a standalone browser client.
3. Server 2 [pulls](#) a specified number of copies of stream published on server 1, as a viewer.

Testing

1. For the test we use:


- two WCS servers: [demo.flashphoner.com](#) и [wcs5-us.flashphoner.com](#);
- web application [Two Way Streaming](#) to publish the stream;
- web application [Console](#) to make test;
- Chrome browser with [Allow-Control-Allow-Origin](#) extension to make Console application to work.

2. Open Console application over HTTP (not HTTPS!) <http://demo.flashphoner.com:9091/client2/examples/demo/streaming/console/console.html>


Node ip/domain name	Add node	#	CPU	MEM	TH	CONN	IN	OUT


3. Install ACAO extension, allow Cross-Origin-Resource-Sharing

Settings


Enable cross-origin resource sharing 

Access-Control-Expose-Headers
comma-separated list of headers ...

Intercepted URLs or URL patterns 



-///*



4. Enter server name [wcs5-us.flashphoner.com](#) and press 'Add node'. The server will be a subscriber which pulls streams. Then, add [serverdemo.flashphoner.com](#) which will be a stream source to test.

demo.flashphoner.com
Add node

wcs5-us.flashphoner.com
demo.flashphoner.com

#	CPU	MEM	TH	CONN	IN	OUT
wcs5-us.flashphoner.com	14.47	3717416	66	0	0	0
demo.flashphoner.com	9.32	1870944	85	4	2	1

Pull stream
Pull RTSP stream
Pull streams
Register
Unregister
Call
Hangup
Stress Register
Stress Call
Stress Play Stream

Show All Apply

#	NAME	TECH	STATUS	TYPE	AUDIO	VIDEO	ACT
---	------	------	--------	------	-------	-------	-----

5. Open Two Way Streaming application https://demo.flashphoner.com/client2/examples/demo/streaming/two_way_streaming/two_way_streaming.html, then publish the stream from web camera

Two-way Streaming

Local

d809
Stop

Player

d809
Play
Available

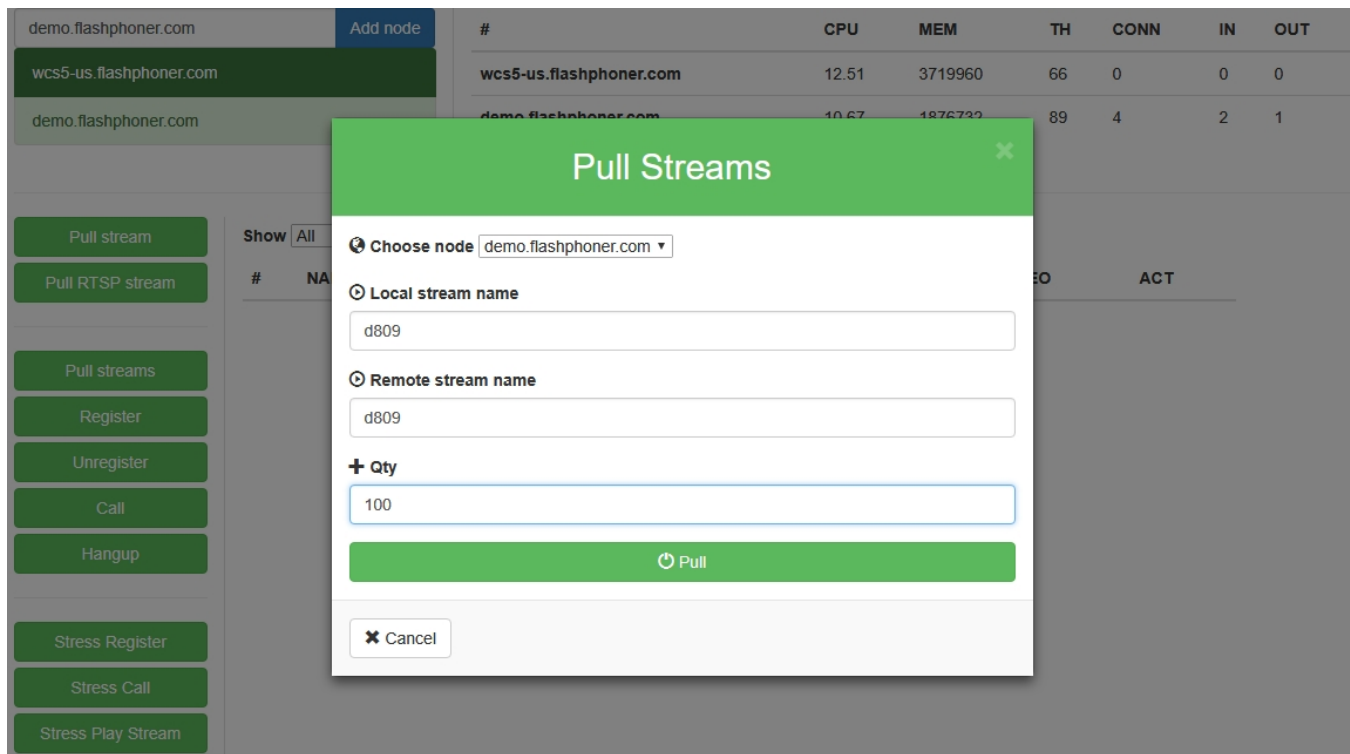
PUBLISHING

wss://demo.flashphoner.com:8443
Disconnect

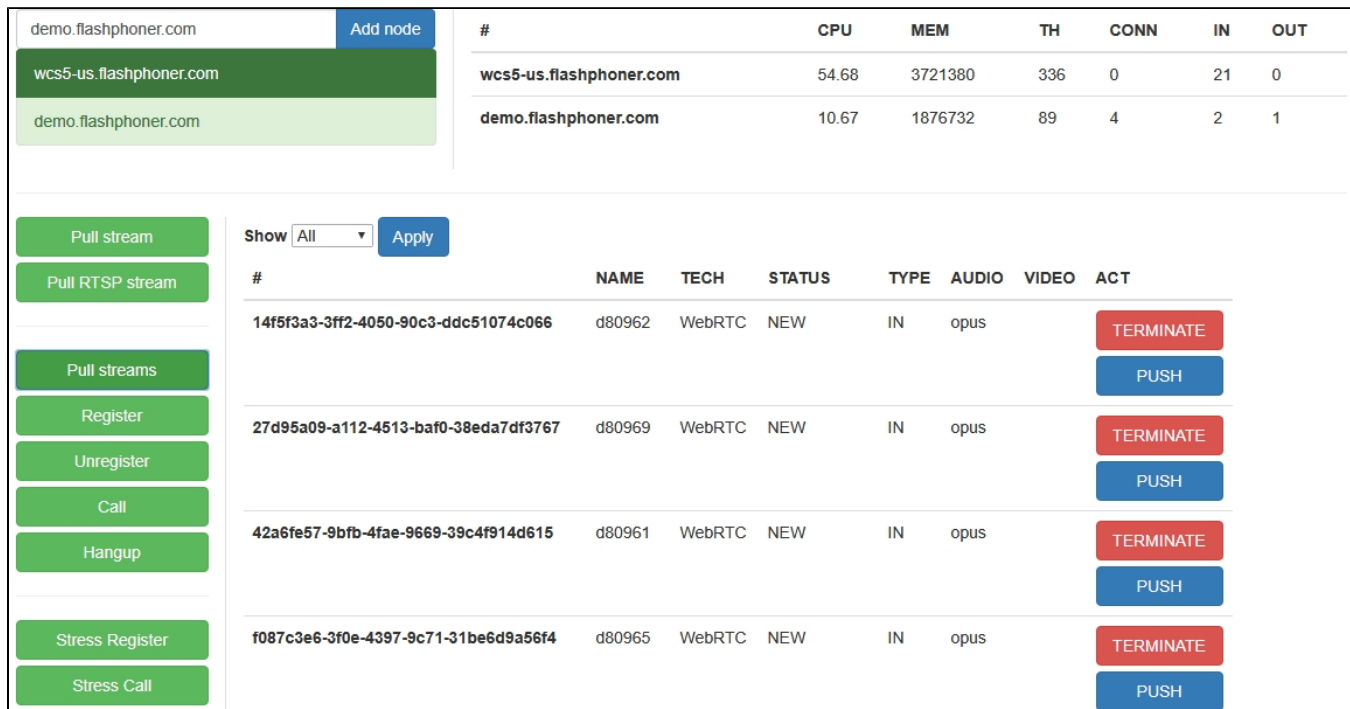
ESTABLISHED

6. Select wcs5-eu.flashphoner.com in Console application, press 'Pull streams' button, set the test parameters:

- Choose node - choosedemo.flashphoner.com server to test
- Local stream name, Remote stream name - set the stream published name
- Qty - set the viewers quantity (100 for example)



7. Press 'Pull' button. The test begins.



8. Select demo.flashphoner.com server. The page displays a list of media sessions in which the published stream is played. Current server load information is displayed at top right corner.

demo.flashphoner.com

Add node

wcs5-us.flashphoner.com

demo.flashphoner.com

#	CPU	MEM	TH	CONN	IN	OUT
wcs5-us.flashphoner.com	75.18	3721736	1078	0	100	0
demo.flashphoner.com	20.79	1962612	795	104	2	101

Pull stream

Pull RTSP stream

Pull streams

Register

Unregister

Call

Hangup

Stress Register

Stress Call

Show All

Apply

#	NAME	TECH	STATUS	TYPE	AUDIO	VIDEO	ACT
54f48484-f5a4-42da-8069-a2aadfded2d6	d809	WebRTC	PLAYING	OUT	opus	H264	TERMINATE
dd346b9a-dc52-492d-a434-4e913bd2e0d6	d809	WebRTC	PLAYING	OUT	opus	H264	TERMINATE
917109ad-eb1b-4457-919d-92a0bc08c4bf	d809	WebRTC	PLAYING	OUT	opus	H264	TERMINATE
6c6e0068-cc9f-40df-87b1-9776e3101a57	d809	WebRTC	PLAYING	OUT	opus	H264	TERMINATE

CDN Edge server load testing

CDN Edge server load testing is performed by the following scenario:

- Streams are published on Origin server.
- Testing server makes a specified number of Websocket connections (100 for example) to Edge server, as a standalone browser client.
- Testing server pulls a specified number of copies of all the streams available to Edge server, as a viewer.

Quick manual on Edge server testing

1. For test we use:

- two WCS servers for CDN deployment: test1.flashphoner.com и test2.flashphoner.com;
- WCS server to perform the test demo.flashphoner.com
- Two Way Streaming web application to publish stream on Origin server;
- Console web application to perform the test;
- Chrome browser with Allow-Control-Allow-Origin extension to run Cosole web application.

2. Deploy CDN with the following server roles:

- test1 - Origin
- test2 - Edge

Add the following parameter to Edge server settings

```
wcs_activity_timer_timeout=86400000
```

3. Open Console application over HTTP (not HTTPS!) <http://demo.flashphoner.com:9091/client2/examples/demo/streaming/console/console.html>

Node ip/domain name

Add node

#	CPU	MEM	TH	CONN	IN	OUT

4. Allow Cross-Origin-Resource-Sharing

Settings

Enable cross-origin resource sharing

Access-Control-Expose-Headers

comma-separated list of headers ...

Intercepted URLs or URL patterns

URL or URL pattern

.///*

5. Enter Edge server nametest2.flashphoner.com, press 'Add node'. This server will be tested. Adddemo.flashphoner.com server similarly, this server will be a subscriber which pulls streams.

demo.flashphoner.com

Add node

test2.flashphoner.com

demo.flashphoner.com

#	CPU	MEM	TH	CONN	IN	OUT
test2.flashphoner.com	66.67	1132284	62	0	0	0
demo.flashphoner.com	0.00	NaN	undefined	42	14	14

Pull stream

Pull RTSP stream

Pull streams

Register

Unregister

Call

Hangup

Stress Register

Stress Call

Stress Play Stream

Stress Publish Stream

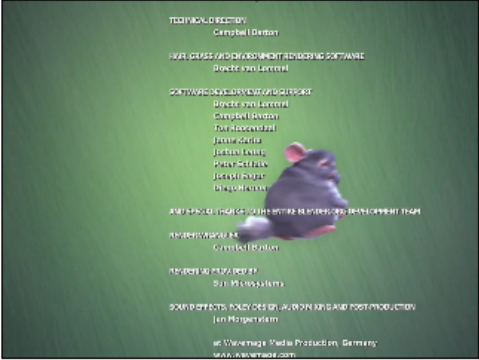
ShowAllApply

#	NAME	TECH	STATUS	TYPE	AUDIO	VIDEO	ACT
---	------	------	--------	------	-------	-------	-----

6. Open Two Way Streaming application, publish stream from web camera


Two-way Streaming

Local



test Stop

Player



85bd Play Available

PUBLISHING


wss://test1.flashphoner.com:8443 Disconnect

ESTABLISHED


7. Seletdemo.flashphoner.com server in Console application, press 'Stress play stream', set the following test parameters:

- Choose node - select server for testingtest2.flashphoner.com
- Choose test mode - select Random
- CDN - set the checkbox
- Max streams - set the number of viewers (100 for example)

Stress Play Stream

 Choose node


test2.flashphoner.com ▼

 Choose test mode


Random ▼

In this mode stream name will be fetched randomly from target node


☒ CDN

 Stream life time


1 min ▼

 Fake stream requests

0 % ▼


 Max streams

100

 Rate

1

Start

 Cancel

7. Press 'Start'. The test begins.

Tuning recommendations

If the load test was failed, it is recommended to change the following server settings.

1. In [flashphoner.properties](#) file extend range of UDP ports and disable fast streaming video decoder start:

```
media_port_from = 20000
media_port_to = 39999
streaming_video_decoder_fast_start=false
```

2. In [wcs-core.properties](#) file extend heap memory limits. It is recommended to set the limit in half of physical RAM, for example, set 16 Gb while physical RAM is 32 Gb. Make sure you have enough RAM:

```
-Xmx16g -Xms16g
```

Known issues

1. By default, no more than 1000 streams are pulled

Symptoms: if subscribers quantity set to more than 1000, only 998 streams are pulled

Solution: maximum agent ports number is limited to 999 by default:

```
wcs_agent_port_from=34001  
wcs_agent_port_to=35000
```

To expand this limit, the following parameter should be increased

```
wcs_agent_port_to=35000
```

[inflashphoner.properties](#)file.