

# **Implementacja i testy skalowalności systemu wideokonferencyjnego**

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# Wdrożenie Jitsi

# Konfiguracja Jitsi

jitsi-values.yaml

```
1  publicURL: "jitsi.google.sex.pl"
2
3  jvb:
4    useHostPort: true
5    stunServers: 'turn:158.101.210.198:3478?transport=tcp,turn:158.101.210.198:3478?transport=udp'
6    publicIPs:
7      - '158.101.210.198'
8    service:
9      enabled: true
10   type: ClusterIP
11   externalTrafficPolicy: ""
12
13 prosody:
14   transcriber:
15     enabled: false
16   extraEnvFrom: |
17     - secretRef:
18       name: jitsi-turn-secret
19
20 web:
21   extraEnvsFrom:
22     - secretRef:
23       name: jitsi-turn-secret
```

# Uruchomienie Jitsi

turn-secret.yaml

```
1  apiVersion: v1
2  kind: Secret
3  metadata:
4    name: jitsi-turn-secret
5  type: Opaque
6  stringData:
7    TURN_CREDENTIALS: "abcdefghijklmnopqrstuvwxyz012345"
8    TURN_HOST: "158.101.210.198"
9    TURN_PORT: "3478"
1 # postawienie samego jitsi
```

```
2
3  kubectl apply -f turn-secret.yaml
4  helm install myjitsi jitsi/jitsi-meet --values values.yaml
```

Udostępnienie Jitsi bez publicznego adresu IP

# Pangolin - Tworzenie zdalnego dostępu

The screenshot shows the 'Create Site' page in the Pangolin web interface. On the left, a sidebar lists various organization management options like Server Admin, GENERAL, ACCESS CONTROL, and ORGANIZATION. The main area is titled 'Create Site' and contains several sections:

- Site Information:** Fields for 'Name' (K8s) and 'Site Address' (100.90.128.4). A note specifies the IP must be within the organization's subnet.
- Tunnel Type:** Options include 'Newt Tunnel (Recommended)' (selected), 'Basic WireGuard', and 'Local'.
- Newt Credentials:** Details how Newt will authenticate with the server. It includes fields for 'Newt Endpoint' (https://pangolin.google.sex.pl), 'Newt ID' (abcdefgijklmn), and 'Newt Secret Key' (abcdefghijklmnopqrstuvwxyz0123456789abcdefgijkl).
- Save Your Credentials:** A note stating you will only be able to see this once and should copy it to a secure place.
- Buy Supporter Key:** An orange button.
- Community Edition:** Version v1.1.1 information.
- Install Newt:** A link at the bottom.

# Pangolin - Uruchomienie zdalnego dostępu

newt-cred.env

```
1 PANGOLIN_ENDPOINT=https://pangolin.google.sex.pl
2 NEWT_ID=abcdefghijklmnop
3 NEWT_SECRET=abcdefghijklmnopqrstuvwxyz0123456789abcdefghijklmn
4
```

values-newt.yaml

```
1 newtInstances:
2   - name: main
3     enabled: true
4     auth:
5       existingSecretName: newt-cred
6       keys:
7         endpointKey: PANGOLIN_ENDPOINT
8         idKey: NEWT_ID
9         secretKey: NEWT_SECRET
10
11 # dodanie repo
12
13 helm repo add fossalrial https://charts.fossalrial.io
```

# Pangolin - Zdalny Dostęp

## Manage Sites

Allow connectivity to your network through secure tunnels

Manage Sites								
Name	Online	Site	Data In	Data Out	Connection Type	Exit Node	Address	
Local	● Online	lorem-ipsum-dolor	21.37 GB	21.37 GB	Newt	Exit Node /f9o+o2	1.2.3.4	... <button>Edit →</button>
Local-No-Newt	-	sit-amet-consectetur	-	-	Local	-	5.6.7.8	... <button>Edit →</button>
K8s	● Online	adipiscing-elit-donec	21.37 GB	21.37 GB	Newt v1.5.0	Exit Node /f9o+o2	9.10.11.12	... <button>Edit →</button>
TrueNAS	● Online	blandit-turpis-nulla	21.37 GB	21.37 GB	Newt v1.5.2	Exit Node /f9o+o2	13.14.15.16	... <button>Edit →</button>

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# Pangolin - Tworzenie Zasobu

## Create Resource

[See All Resources](#)

Follow the steps below to create a new resource

### Resource Information

Name

jitsi

This is the display name for the resource.

### Resource Type

Determine how you want to access your resource

**HTTPS Resource**

Proxy requests to your app over HTTPS using a subdomain or base domain.

**Raw TCP/UDP Resource**

Proxy requests to your app over TCP/UDP using a port number. This only works when sites are connected to nodes.

### HTTPS Settings

Configure how your resource will be accessed over HTTPS

Subdomain

jitsi

Base Domain

google.sex.pl

### Targets Configuration

Set up targets to route traffic to your backend services

Address

TrueNAS http :// myjitsi-jitsi-meet-web.default.svc.cluster.local

: 80

Unknown

Health Check  
Enabled



Delete

# Pangolin - SSL + Wyłączenie SSO

## Jitsi Settings

Configure the settings on your resource

### Authentication

Not Protected

### URL

<https://jitsi.google.sex.pl>

### Visibility

Enabled

General

Proxy

Authentication

Rules

## Users & Roles

Configure which users and roles can visit this resource

Use Platform SSO

**Save Users & Roles**



Set up targets to route traffic to your backend services

### Address

MH-K8s



http

::/

myjitsi-jitsi-meet-web.default.svc.cluster.local

: 80

**+ Add Target**

## Additional Proxy Settings

Configure how your resource handles proxy settings

# Tailscale - Czemu wyłączyć SSO?

A screenshot of a web browser window titled "Auth - Pangolin". The address bar shows "pangolin.google.sex.pl/auth/login". The main content is a dark-themed login form for "PANGOLIN". The form includes fields for "Email" and "Password", a "Forgot your password?" link, a large orange "Log in" button, and a "Continue with security key" option. Below the form, it says "OR CONTINUE WITH" and lists "Authentik". At the bottom, it asks "Don't have an account? [Sign up](#)". The browser interface includes standard navigation buttons, a search bar, and a toolbar with various icons.

PANGOLIN

Log in to get started

Email

Password

Forgot your password?

Log in

Continue with security key

OR CONTINUE WITH

Authentik

Don't have an account? [Sign up](#)

# Tailscale - Pliki konfiguracyjne

tailscale-secret.yaml

```
1  apiVersion: v1
2  kind: Secret
3  metadata:
4    name: tailscale-auth
5  stringData:
6    TS_AUTHKEY: tskey-auth-abcdefghijklmnopq-rstuvwxyz1234567890abcdefghijklmn
```

# Tailscale - pliki konfiguracyjne cz. 2

```
tailscale-rbac.yaml
1  apiVersion: v1
2  kind: ServiceAccount
3  metadata:
4    name: tailscale
5
6  —
7
8  apiVersion: rbac.authorization.k8s.io/v1
9  kind: Role
10 metadata:
11   name: tailscale
12 rules:
13   - apiGroups: []
14     resourceNames: ["tailscale-auth"]
15     resources: ["secrets"]
16     verbs: ["get", "update", "patch"]
17
18  —
19
20 apiVersion: rbac.authorization.k8s.io/v1
21 kind: RoleBinding
22 metadata:
23   name: tailscale
24 subjects:
25   - kind: ServiceAccount
26     name: tailscale
27 roleRef:
28   kind: Role
```

# Tailscale - Pliki konfiguracyjne cz. 3

tailscale-proxy.yaml

```
1  apiVersion: v1
2  kind: Pod
3  metadata:
4      name: tailscale-proxy
5  spec:
6      serviceAccountName: tailscale
7      initContainers:
8          - name: sysctler
9              image: busybox:latest
10             securityContext:
11                 privileged: true
12             command: ["/bin/sh"]
13             args:
14                 - -c
15                 - sysctl -w net.ipv4.ip_forward=1 net.ipv6.conf.all.forwarding=1
16      containers:
17          - name: tailscale
18              image: ghcr.io/tailscale/tailscale:latest
19              env:
20                  - name: TS_KUBE_SECRET
21                      value: tailscale-auth
22                  - name: TS_AUTHKEY
23                      valueFrom:
24                          secretKeyRef:
25                              name: tailscale-auth
26                              key: TS_AUTHKEY
27                  - name: TS_USERSPACE
28                      value: "false"
29                  - name: TS_DEST_IP
30                      value: 10.108.40.240
31              securityContext:
32                  privileged: true
```

# Tailscale - Dlaczego Takie IP?

```
root@jitsi-1:/home/student/tailscale# kubectl get services
NAME           TYPE      CLUSTER-IP   EXTERNAL-IP   PORT(S)          AGE
kubernetes     ClusterIP 10.96.0.1    <none>        443/TCP         26d
myjitsi-jitsi-meet-jvb   ClusterIP 10.108.40.240  <none>        10000/UDP       31h
myjitsi-jitsi-meet-jvb-metrics ClusterIP 10.108.15.188 <none>        9888/TCP       31h
myjitsi-jitsi-meet-web    ClusterIP 10.106.197.43  <none>        80/TCP          31h
myjitsi-prosody      ClusterIP 10.108.213.244 <none>        5280/TCP,5281/TCP,5347/TCP,5222/TCP,5269/TCP 31h
root@jitsi-1:/home/student/tailscale# |
```

# Tailscale - uruchomienie

```
19 # dodanie repo
20
21 helm repo add tailscale https://pkgs.tailscale.com/helmcharts
22 helm repo update
23
24 # postawienie tailscale
25
26 kubectl apply -f tailscale-secret.yaml
27 kubectl apply -f tailscale-rbac.yaml
28 kubectl apply -f tailscale-proxy.yaml
```

# Tailscale - Przekierowanie z VPS

MACHINE	ADDRESSES ⓘ	VERSION	LAST SEEN	...
tailscale-proxy	100.105.219.104 ⓘ	1.90.9 Linux 6.12.48+deb13-amd64	Connected	

```
30  # routing w iptables
31
32  iptables -t nat -A PREROUTING -p udp --dport 10000 -j DNAT --to-destination 100.105.219.104:10000
33  iptables -t nat -A POSTROUTING -j MASQUERADE
...
```

# TURN - konfiguracja

⚙ turnserver.conf

```
1 realm=google.sex.pl
2 external-ip=158.101.210.198
3 fingerprint
4 lt-cred-mech
5
6 static-auth-secret=abcdefghijklmnopqrstuvwxyz012345
```

# TURN - docker-compose

docke docker-compose.yaml

▷Run All Services

```
1 services:
2   coturn:
3     image: coturn/coturn:4.6.3      # pin to the current stable tag
4     container_name: coturn
5     restart: unless-stopped
6     ports:
7       # STUN/TURN
8       - "3478:3478"
9       - "3478:3478/udp"
10      # TLS-TURN
11      - "5349:5349"
12      - "5349:5349/udp"
13      # RTP/RTCP relays (adjust range if you need fewer ports)
14      - "49000-49020:49000-49020/udp"
15
16     environment:
17       # Secure long-term credentials (generate once; keep secret)
18       STATIC_AUTH_SECRET: "${TURN_STATIC_AUTH_SECRET}"
19       EXTERNAL_IP: "158.101.210.198"
20
21     volumes:
22       # Bind your custom conf + persistent database & logs
23       - "/gdzie/tylko/chcesz/coturn/turnserver.conf:/etc/coturn/turnserver.conf:ro"
24       - "coturn-data:/var/lib/coturn"
25       - "coturn-logs:/var/log"
26
27     # Use host networking if you prefer not to publish individual ports
28     # network_mode: "host"
29
30   volumes:
31     coturn_data:
```

# Efekt - Działające (nierożproszone) Jitsi

The screenshot shows a Jitsi video conference interface. On the left, there's a sidebar with a 'Chat' section containing messages from users 'popple' and 'Chryba' at 14:29, and 'test' and 'dziadek' at 14:29. Below that is an 'Everyone' section. At the bottom, there's a message input field with placeholder 'Type a message...' and a red send button. The main area shows a video feed of a participant with their face blurred. To the right of the video is a developer tools console window titled 'Elements' with the URL 'http://localhost:4321'. The console displays several log entries in JSON format, primarily from the 'jitsi' and 'RTC' namespaces, detailing video encoding statistics and quality controller operations.

```
2025-11-08T13:29:39.452Z [DEBUG] [qc:QualityController]
<Du__processOutboundRtpStats>: Encode stats for localTrack[2, time=17, 565121412#0#3517, resolution=720, qualityLimitationReason=<anonymous>>; Compute pressure state changed: [{"source": "cpu", "state": "nominal", "ownContributionEstimate": 0.2080000002}]

2025-11-08T13:29:39.944Z [INFO] [rtc:BridgeChannel] <e.onmess
SenderSourceConstraints: b8a1810c-v0 - 360
2025-11-08T13:29:39.944Z [DEBUG] [qc:SendVideoController]
<Eu_onGenderConstraintsReceived>: Sender constraints for sour
maxHeight: 360
2025-11-08T13:29:39.944Z [INFO] [xmpp:JingleSessionPC]
<11 setSenderVideoConstraint>
JingleSessionPC[session=JVB, initiator=false, sid=54a1guq45s1lb]
360, sourceName: b8a1810c-v0
2025-11-08T13:29:39.945Z [INFO] [rtc:TraceablePeerConnection]
<b4_updateVideoSenderEncodings>
maxHeight=360, encodings=[{"active": true, "adaptivePrime": false,
"clockRate": 90000, "mimeType": "video/AV1", "sdpFingerprint": "level
idx=5;profile=0;tier=0"}, {"maxBitrate": 300000, "networkPriority"
"bilityMode": "LIT3 KEY", "scaleResolutionBy": 2}, {"targetBitrate": 150000, "w
"clockRate": 90000, "mimeType": "video/AV1", "sdpFingerprint": "level
idx=5;profile=0;tier=0"}, {"maxBitrate": 8, "networkPriority": "low
"active": false, "adaptivePrime": false, "codec": "code
"clockRate": 90000, "mimeType": "video/AV1", "sdpFingerprint": "level
idx=5;profile=0;tier=0"}, {"maxBitrate": 8, "networkPriority": "low
2025-11-08T13:29:40.223Z [DEBUG] [rtc:BridgeChannel] <e.onmess
Connection stats: bwe=18656000 bps
2025-11-08T13:29:40.442Z [DEBUG] [qc:QualityController]
<Du__processOutboundRtpStats>: Encode stats for localTrack[2, time=17, 32511210762332, resolution=360, qualityLimitationReason=<anonymous>>; Compute pressure state changed: [{"source": "cpu", "state": "nominal", "ownContributionEstimate": 0.30800000075}]

2025-11-08T13:29:40.451Z [DEBUG] [qc:QualityController]
<Du__processOutboundRtpStats>: Encode stats for localTrack[2, time=5, 671052631578959, resolution=360, qualityLimitationReason=<anonymous>>; Compute pressure state changed: [{"source": "cpu", "state": "nominal", "ownContributionEstimate": 0.30800000075}]
```

Skalowanie jvb

# Co zostało dodane do values.yaml?

- Aby przeskalać jvb, następujące wartości zostały dodane:

jvb:

```
## Set JVB instance count:  
replicaCount: 2  
## Expose JVB interface port to the outside world  
# only on nodes that actually have it:  
useHostPort: true  
## Make every JVB pod announce its Node's external  
# IP address and nothing more:  
useNodeIP: true
```

octo:

```
## Enable OCTO support for both JVB and Jicofo:  
enabled: true
```

# OCTO - co to?

- OCTO to mechanizm multi-bridge routing, który pozwala rozproszyć uczestników jednego spotkania między wiele instancji Jitsi Videobridge (jvb).
- Bez OCTO każde spotkanie musi być obsługiwane przez jeden jvb; gdy osiągnie limit CPU/bitrate - jakość spada.
- Z OCTO spotkanie może używać kilku jvb jednocześnie.

# Przed skalowaniem jvb

```
Context: kubernetes-admin@kubernetes [RW]
Cluster: kubernetes
User: kubernetes-admin
K9s Rev: v0.50.16
K8s Rev: v1.32.9
CPU: n/a
MEM: n/a

          <0> all      <a>     Attach
          <1> monitoring <ctrl-d> Delete
          <2> default    <d>     Describe
          <e>     Edit
          <?>     Help
          <shift-j> Jump Owner
```



pods(default)[4]							
NAME	PF	READY	STATUS	RESTARTS	IP	NODE	AGE
myjitsi-jitsi-meet-jicofo-6fff848dfc-hf5d8	●	1/1	Running	0	10.2.161.95	jitsi-2	5d21h
myjitsi-jitsi-meet-jvb-5f599db5c8-74t8z	●	2/2	Running	0	10.2.161.86	jitsi-2	5d21h
myjitsi-jitsi-meet-web-86c6d94bf-bxmr4	●	1/1	Running	0	10.2.161.69	jitsi-2	5d21h
myjitsi-prosody-0	●	1/1	Running	0	10.2.161.107	jitsi-2	2d16h

# Po skalowaniu jvb

```
Context: kubernetes-admin@kubernetes [RW]
Cluster: kubernetes
User: kubernetes-admin
K9s Rev: v0.50.16
K8s Rev: v1.32.9
CPU: n/a
MEM: n/a
```

```
<0> all           <a> A_   _____
<1> monitoring    <ctrl-d> Del| / \ - _ \ _____
<2> default        <d> Del| \ \_ / \ _ \ /
<e> Ed| \ \ / \ \_ \
<?> He| \ \ \ \ \_ \
<shift-j> Ju| \ \ \ \ \_ \

```

```
pods(default)[6]
```

NAME	PF	READY	STATUS	RESTARTS	IP	NODE	AGE
myjitsi-jitsi-meet-jicofa-d4978ffdb-w2nkn	●	1/1	Running	0	10.2.161.105	jitsi-2	22h
myjitsi-jitsi-meet-jvb-778dfb5469-c74sx	●	2/2	Running	0	10.2.161.75	jitsi-2	22h
myjitsi-jitsi-meet-jvb-778dfb5469-ghklw	●	2/2	Running	0	10.2.63.188	jitsi-3	22h
myjitsi-jitsi-meet-web-86c6d94bf-82fsp	●	1/1	Running	0	10.2.161.68	jitsi-2	22h
myjitsi-prosody-0	●	1/1	Running	0	10.2.63.190	jitsi-3	22h
tailscale-proxy	●	1/1	Running	0	10.2.161.79	jitsi-2	22h

# Jak to wygląda w logach jicofo

```
jicofo 2025-11-29 11:49:51.313 FINER: [279] {room=jvbbrerwy@internal-muc.meet.jitxi} ChatroomImpl.doProcessPresence#679: Presence received <presence xmlns='jabber:client' xml:lang='en-US' to='focus@auth.meet.jitxi'/focus> from 'jvbbrerwy@internal-muc.meet.jitxi' priority='0'/><priority>0</priority><status xmlns='http://jitsi.org/protocol/calibri'><stat name='incoming_loss' value='0.0' /><stat name='outgoing_loss' value='0.0' /><stat name='overall_loss' value='0.0' /><stat name='packet_rate_download' value='0' /><stat name='packet_rate_upload' value='0' /><stat name='local_active_endpoints' value='0' /><stat name='bit_rate_download' value='0' /><stat name='bit_rate_upload' value='0' /><stat name='packet_rate_download' value='0' /><stat name='packet_rate_upload' value='0' /><stat name='rtt_aggregate' value='0.0' /><stat name='num_eps_overseeding' value='0' /><stat name='octo_conferences' value='0' /><stat name='inactive_conferences' value='0' /><stat name='p2p_conferences' value='0' /><stat name='endpoints' value='0' /><stat name='participants' value='0' /><stat name='receive_only_endpoints' value='0' /><stat name='inactive_endpoints' value='0' /><stat name='octo_endpoints' value='0' /><stat name='endpoints_sending_audio' value='0' /><stat name='endpoints_sendng_video' value='0' /><stat name='largest_conference' value='0' /><stat name='octo_receive_bitrate' value='0' /><stat name='octo_receive_packet_rate' value='0' /><stat name='octo_send_bitrate' value='0' /><stat name='octo_send_packet_rate' value='0' /><stat name='endpoints_with_suspended_sources' value='0' /><stat name='total_conferences_created' value='0' /><stat name='total_conferences_completed' value='0' /><stat name='total_conference_seconds' value='043' /><stat name='total_participants' value='6' /><stat name='total_visitors' value='0' /><stat name='total_keyframes_received' value='0' /><stat name='total_layering_changes_received' value='0' /><stat name='total_video_stream_milliseconds_received' value='0' /><stat name='stress_level' value='0.0011889926077940989' /><stat name='conferences' value='0' /><stat name='visitors' value='0' /><stat name='local_endpoints' value='0' /><stat name='total_data_channel_messages_received' value='115' /><stat name='total_data_channel_messages_sent' value='109' /><stat name='total_colibri_web_socket_messages_received' value='0' /><stat name='total_colibri_web_socket_messages_sent' value='0' /><stat name='total_bytes_received' value='2947828' /><stat name='dtls_failed_endpoints' value='0' /><stat name='total_bytes_sent' value='53300' /><stat name='total_packets_received' value='26824' /><stat name='total_packets_sent' value='1025' /><stat name='total_bytes_received_octo' value='61984' /><stat name='total_dominant_speaker_changes' value='1' /><stat name='preemptive_krf_sent' value='0' /><stat name='preemptive_krf_impressed_value' value='994' /><stat name='total_packets_sent_octo' value='24728' /><stat name='total_dominant_speaker_change' value='1' /><stat name='preemptive_krf_impressed_value' value='0' /><stat name='total_icc_failed' value='0' /><stat name='total_icc_succeeded' value='0' /><stat name='total_icc_impressed_value' value='0' /><stat name='relay_id' value='10.2.63.108' /><stat name='muc_clients_configured' value='1' /><stat name='muc_clients_connected' value='1' /><stat name='mucs_configured' value='1' /><stat name='mucs_joined' value='1' /><stat name='endpoints_with_spurious_remb' value='0' /><stat name='healthy' value='true' /><stat name='endpoints_disconnected' value='0' /><stat name='endpoints_reconnected' value='0' /><stat name='version' value='2.3.259-g2288ff7d' /><stat name='region' value='all' /><stat name='current_timestamp' value='2025-11-29 10:49:51.308' /><stat name='total_ice_failed' value='0' /><stat name='total_ice_succeeded' value='0' /><stat name='total_ice_impressed_value' value='0' /><stat name='occupant_id' value='urn:xmpp:occupant-id@yvB0lqlmu926n0J22nj586-Nq:yvar@IXKNUip2k/B' /><occupant-id=>x xmlns='http://jabber.org/protocol/muc#user'><item affiliation='owner' jid='jvb@auth.meet.jitxi/IE4MyFvV1Llib' role='moderator'></item></x></presence>jicofo 2025-11-29 11:49:52.163 FINER: [279] {room=jvbbrerwy@internal-muc.meet.jitxi} ChatroomImpl.doProcessPresence#679: Presence received <presence xmlns='jabber:client' xml:lang='en-US' to='focus@auth.meet.jitxi'/focus> from 'jvbbrerwy@internal-muc.meet.jitxi' priority='0'/><priority>0</priority><status xmlns='http://jitsi.org/protocol/calibri'><stat name='incoming_loss' value='0.0' /><stat name='outgoing_loss' value='0.0' /><stat name='overall_loss' value='0.0' /><stat name='packet_rate_download' value='0' /><stat name='packet_rate_upload' value='0' /><stat name='local_active_endpoints' value='0' /><stat name='bit_rate_download' value='0' /><stat name='bit_rate_upload' value='0' /><stat name='packet_rate_download' value='0' /><stat name='packet_rate_upload' value='0' /><stat name='rtt_aggregate' value='0.0' /><stat name='num_eps_overseeding' value='0' /><stat name='octo_conferences' value='0' /><stat name='inactive_conferences' value='0' /><stat name='p2p_conferences' value='0' /><stat name='endpoints' value='0' /><stat name='participants' value='0' /><stat name='receive_only_endpoints' value='0' /><stat name='inactive_endpoints' value='0' /><stat name='octo_endpoints' value='0' /><stat name='endpoints_sending_audio' value='0' /><stat name='endpoints_sendng_video' value='0' /><stat name='largest_conference' value='0' /><stat name='octo_receive_bitrate' value='0' /><stat name='octo_receive_packet_rate' value='0' /><stat name='octo_send_bitrate' value='0' /><stat name='octo_send_packet_rate' value='0' /><stat name='endpoints_with_suspended_sources' value='0' /><stat name='total_conferences_created' value='0' /><stat name='total_conferences_completed' value='0' /><stat name='total_conference_seconds' value='013' /><stat name='total_participants' value='9' /><stat name='total_visitors' value='0' /><stat name='num_eps_no_msg_transport_after_delay' value='0' /><stat name='total_relayed_changes_received' value='1' /><stat name='total_video_stream_milliseconds_received' value='03' /><stat name='stress_level' value='5.1805859883713164' /><stat name='packet_rate_download' value='0' /><stat name='packet_rate_upload' value='0' /><stat name='dtls_failed_endpoints' value='0' /><stat name='total_bytes_sent' value='27290' /><stat name='total_bytes_received_octo' value='2793987' /><stat name='total_packets_received_octo' value='994' /><stat name='total_dominant_speaker_changes' value='1' /><stat name='preemptive_krf_sent' value='0' /><stat name='preemptive_krf_suppressed_value' value='0' /><stat name='total_icc_failed' value='0' /><stat name='total_icc_succeeded' value='12' /><stat name='total_icc_impressed_value' value='0' /><stat name='average_participant_stress' value='0.01' /><stat name='threads' value='54' /><stat name='graceful_shutdown' value='false' /><stat name='shutting_down_value' value='false' /><stat name='drain_value' value='false' /><stat name='current_timestamp' value='2025-11-29 10:49:52.155' /><stat name='relay_id' value='10.2.161.75' /><stat name='muc_clients_configured' value='1' /><stat name='muc_clients_connected' value='1' /><stat name='mucs_configured' value='1' /><stat name='mucs_joined' value='1' /><stat name='endpoints_with_spurious_remb' value='1' /><stat name='healthy' value='true' /><stat name='endpoints_disconnected' value='0' /><stat name='endpoints_reconnected' value='0' /><stat name='version' value='2.3.259-g2288ff7d' /><stat name='region' value='all' /><stat name='current_timestamp' value='2025-11-29 10:49:52.155' /><stat name='occupant_id' value='urn:xmpp:occupant-id@yvB0lqlmu926n0J22nj586-Nq:yvar@IXKNUip2k/B' /><occupant-id=>x xmlns='http://jabber.org/protocol/muc#user'><item affiliation='owner' jid='jvb@auth.meet.jitxi/HV2B5icZek' role='moderator'></item></x></presence>
```

# Przetestowanie skalowania

# Szybkie przypomnienie

- Master Node - maszyna której rolą jest zarządzanie Kubernetes
- Worker Node - maszyna której rolą jest trzymać aplikacje (w podach) użytkownika

# Kubernetes

Co się okazuje:

- Master nie obsługuje ruchu użytkowników.
- Master nie uruchamia Podów aplikacyjnych.
- Master nie streamuje danych, nie przetwarza requestów HTTP, nie robi downloadów/uploadów.

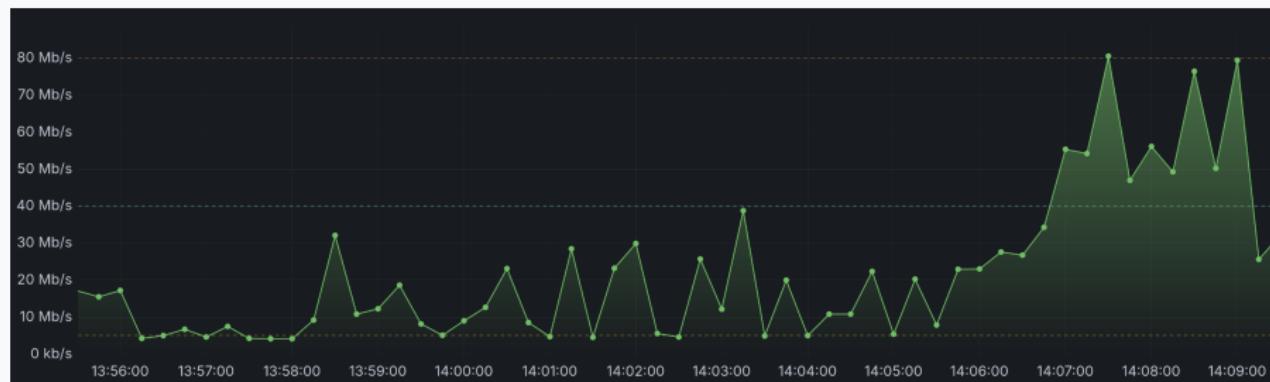
# Kubernetes 2

Nawet jeśli master ma wolny internet (np. 1 Mbps), nie wpływa to na:

- prędkość odpowiedzi aplikacji,
- throughput,
- czas obsługi zapytań HTTP/Websocket/GRPC,
- szybkość pobierania danych przez aplikację.

# Kubernetes 3

To w trakcie stress testowania jitsi, gdy master ma 128kbit/s:



# Czemu nie użyliśmy narzędzi zewnętrznych

Webrtcperf dla jitsi jest całkowicie zepsute.

# No to teraz jak przetestować jitsi...

Jitsi bardzo dobrze się skaluje. Według oficjalnych pomiarów:

- Dla 1056 strumieni wideo z bitrate 550mbit/s zużycie CPU to tylko 20% przy czterordzeniowym procesorze.
- Dla 1056 strumieni wideo Zużycie RAMu nie przekroczyło 1.5GB

# Czemu tak się dzieje?

Jitsi Videobridge jest tylko przekaźnikiem, bez żadnego transkodowania.  
Nie tworzy skomplikowanych reguł, ani nie weryfikuje nic.

Działa trochę jak router.

Demo

<https://jitsi.google.sex.pl>



Dziękujemy za uwagę