# System Requirements

## Call-flow-Diagram



**Open Port**
TCP 80/443 HTTP(S) for Web and e-signature
and WSS for whiteboard and text chat

Whitelist following IPs and/or URLs
37.61.222.224/27 (live environment)
146.0.229.160/27 (Backup Data Center)
".flexperto.com"

&

**Open Port**
TCP 80/443 HTTP(S) for Media Server
and WSS for STUN/TURN
Open port 3478 TCP/UDP - Highly Recommended
and TCP/UDP 5349 for TLS - Highly Recommended

Whitelist the following URLs:
".opentok.com" and ".tokbox.com"

**Web, Text-Chat, Signature, Whiteboard**

**Video, Audio, Screenshare**

SEC10 — LOAD BALANCING

SEC10 — RTC / RTC / RTC

SEC50 — APPLICATION / APPLICATION / APPLICATION

SEC50 — APPLICATION / APPLICATION / APPLICATION

SEC100 — DATA / DATA / DATA

**DataCenter 1 - Frankfurt - ISO 27.001**

**DataCenter 2 - Amsterdam - SOC2 (SAS70)**

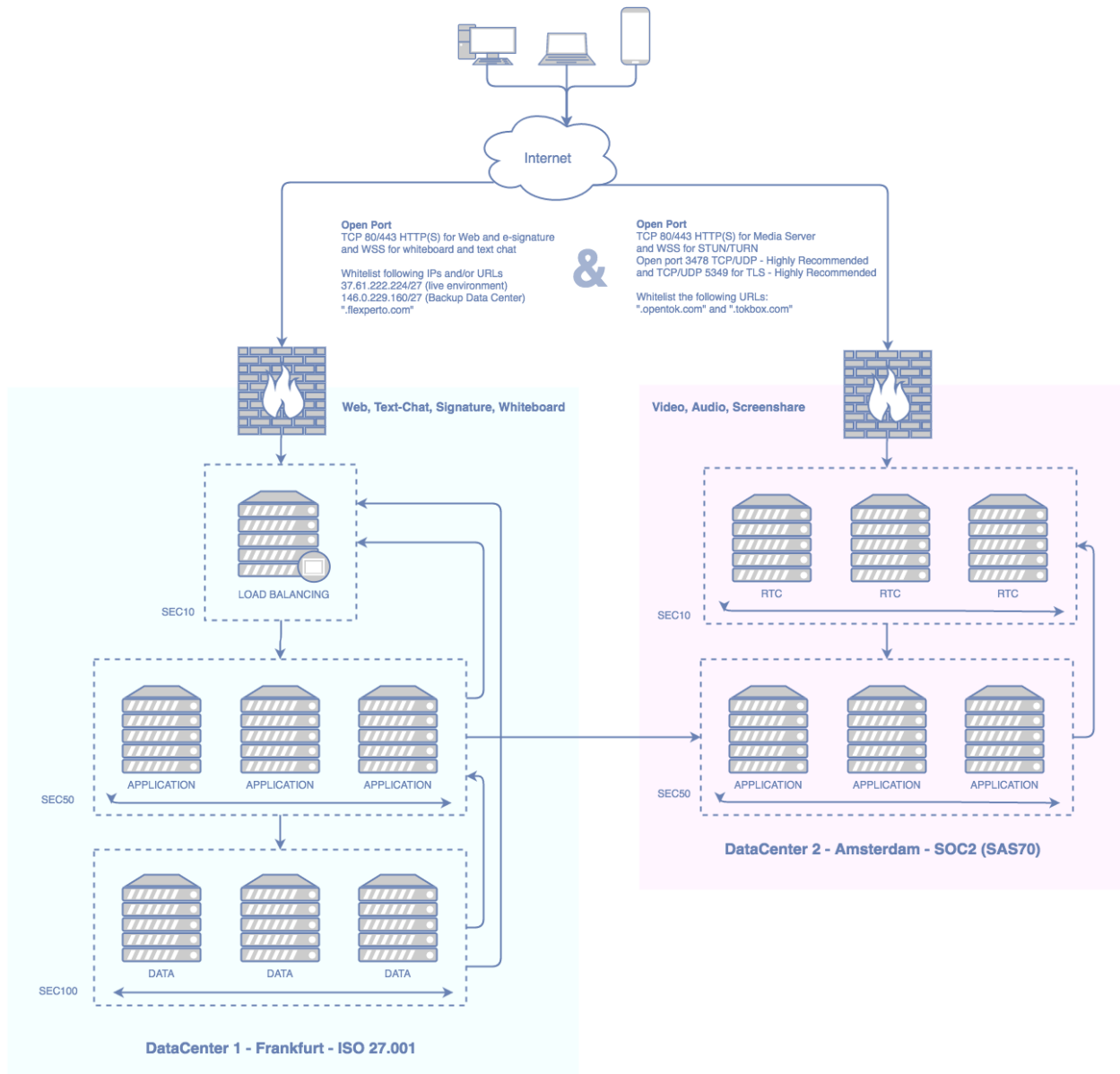## Network Requirements:

Using the Flexperto platform requires allowing access to its services over specific ports in order to work. A network administrator in your organization can configure these firewall settings.

**Ports**

*Minimum Requirement:*

The minimum Requirement is that TCP ports 80/443 HTTP(S) are open. Some firewall/proxy rules only allow for SSL traffic over port 443. You will need to make sure that non-web traffic can also pass over this port and that WSS (Proxy HTTP 1.1) can be used. In addition, due to browser limitations, you should configure your proxy to not require HTTP Basic Authentication when accessing URL's and IP's listed in the whitelist further down.

> **McAffee WebGateway**
>
> If you are using the McAffee WebGateway Proxy in version >= 7.2, "SSL inspection" on Port 443 has to be disabled for traffic towards the listed IPs and Domains further down. This is a known issue in the WebGateway: https://community.mcafee.com/thread/59536?tstart=0

In addition TCP/UDP port 3478 should be open. This connection is bidirectional but always initiated from the corporate network/client so it is not possible for an external entity to send malicious traffic in the opposite direction.

Without port TCP/UDP 3478 open and NAT/Proxies in place it is likely that the public facing NAT/Proxy IP can not be discovered and communication across the borders of the corporate network could fail.

*Best Experience:*

For the best possible experience, we recommend that TCP/UDP ports 5349 is open.

**Whitelisting of IP's and URL's**

The following IP's **must** be whitelisted in any case:

| IP | Description |
|---|---|
| 37.61.222.224/27 | Network Connectivity - FX DC Main |
| 146.0.229.160/27 | Network Connectivity - FX DC FailOver |
| 95.172.85.0/25 | Network Connectivity - Streaming |

64.95.96.0/25       Network Connectivity - Streaming

35.158.127.224/28 Network Connectivity - Streaming

The following domains **must** be whitelisted in any case

| Domain | Description |
| --- | --- |
| flexperto.com | Platform - General connectivity |
| *.flexperto.com | Platform - General connectivity |
| *.*.flexperto.com | Platform - General connectivity |
| *.*.*.flexperto.com | Platform - General connectivity |
| ajax.googleapis.com/ajax/libs/jquery/* | CDN (Fonts, CSS, JS Libraries) |
| fonts.googleapis.com | CDN (Fonts, CSS, JS Libraries) |
| fonts.gstatic.com | CDN (Fonts, CSS, JS Libraries) |
| www.google.com/recaptcha/* | Frontend - Login Bot Challenge Protection |
| www.gstatic.com/recaptcha/* | Frontend - Login Bot Challenge Protection |
| *.opentok.com | Platform - Streaming connectivity |
| *.tokbox.com | Platform - Streaming connectivity |

The following IP's **should** be whitelisted:

| IP | Description |
| --- | --- |

all IPs included in https://whitelist.tokbox.com/whitelist.json Platform - Global Streaming connectivity

The following Domains **should** be whitelisted:

| Domain | Description |
| --- | --- |
| *.hotjar.com | Anonymous User Tracking (Hotjar) |
| api.mixpanel.com | Anonymous User Tracking (Mixpanel) |
| cdn.mxpnl.com | Anonymous User Tracking (Mixpanel) |
| *.gstatic.com | CDN (Fonts, CSS, JS Libraries) |
| *.ggpht.com | CDN (Fonts, CSS, JS Libraries) |
| *.googleapis.com | CDN (Fonts, CSS, JS Libraries) |
| www.google.com | CDN (Fonts, CSS, JS Libraries) |
| player.vimeo.com | Help Desk (Zendesk - embedded help video) |
| www.youtube-nocookie.com | Help Desk (Zendesk - embedded help video) |
| *.zopim.com | Help Desk (Zendesk) |
| assets.zendesk.com | Help Desk (Zendesk) |
| ekr.zdassets.com | Help Desk (Zendesk) |
| flexperto.zendesk.com | Help Desk (Zendesk) |
| static.zdassets.com | Help Desk (Zendesk) |
| notify.bugsnag.com | Fronted Anomaly Detection and Reporting |
| sentry.io | Fronted Anomaly Detection and Reporting |

**Calender Integration**

Flexperto supports the integration of calendars that are hosted on Microsoft Exchange Servers (Office 365, managed or self-hosted), Outlook.com, iCloud and Google through our integration partner Cronofy.

If you use a Microsoft Exchange Server, please make sure that the following IPs have access to the Exchange Web Service interface (EWS):

- 54.93.34.174
- 3.121.21.226
- 3.122.2.191

For the best user experience we also recommend that autodiscover is turned on.

If you use Office 365, your administrator may have to whitelist the "Cronofy Connector" for your organisation. Please contact support@flexperto.com to obtain instructions on how to do this.

## Client Side Requirements

**Hardware**

The client hardware should meet these minimum Requirements:

- Desktop or Laptop Computer, Android Tablet or Android Smartphone
- Processor: min 2 GHz Dual Core
- RAM: min 1 GB
- Web cam (integrated or external)
- Speakers (we recommend USB echo-canceling speakers for meeting room environments)
- Microphone (we recommend a headset with microphone for improved sound quality and privacy)

**Software**

The client software should meet these minimum requirements:

- Google Chrome Version 67 +
- Firefox Version ESR 60 +
- Firefox Version 60+
- Edge 17 (contained in Windows 10 April 2018 Update)
- Internet Explorer 11 (Plugin required)
- on Android Chrome 67 +
- on Android Firefox 60 +
- Safari 11+

**Browser Settings**

JavaScript must be activated.

Your camera must be accessible by and responsive to the browser. You can verify this via this test page https://simpl.info/getusermedia/

Things that can prohibit camera access are:

- For build in cameras: Your camera is deactivated in the BIOS-Settings
- For external cameras: Your PC is configured to not accept USB-Cameras
- Your camera driver is outdated (generally the universal Microsoft driver should work)
- Your Antivirus software (such as Avira or Kaspersky) is configured to block camera access by default
- Especially for Firefox: required features (such as getUserMedia or PeerConnection) are disabled in your browser

**Browser Plugins**

For broadcasting a screen (screensharing) in Chrome, a Flexperto browser plugin needs to be installed.

To receive a screen being shared, no plugin is required.

> In order to interoperate with Safari Browsers (namely using the on this platform only supported h264 codec) Firefox requires a build in Plugin "openh264" to be up to date. In enterprise environment, Firefox is typically configured to not perform automatic updates. Due to the plugin system of Firefox, this causes that openh264 files are out of date. For Safari Support find here a patch which updates the plugin files of Firefox without using Firefox Auto Update features. The archive contains a README with detailed instructions on how to apply the patch: https://flexperto.box.com/s/ctzl7whdgedi05bqzwyeyprqahape28m

> Screensharing (broadcasting) doesn't work on mobile OS Systems. (Android and IOS) Tokbox doesn't support this feature.

**Firefox with updated disabled and Safari Support**

In order to interoperate with Safari Browsers (namely using the on this platform only supported h264 codec) Firefox requires a build in Plugin "openh264" to be up to date. In enterprise environment, Firefox is typically configured to not perform automatic updates. Due to the plugin system of Firefox, this causes that openh264 files are out of date. For Safari Support find here a patch which updates the plugin files of Firefox without using Firefox Auto Update features. The archive contains a README with detailed instructions on how to apply the patch:

https://flexperto.box.com/s/ctzl7whdgedi05bqzwyeyprqahape28m

**Screensharing Mobile OS**
Screensharing (broadcasting) doesn't work on mobile OS Systems. (Android and IOS )
Tokbox doesn't support this feature.

**IE11 Machine Level Installation**
Usage of flexperto on IE11 requires a Plugin Installation. The Platform will automatically attempt a Plugin installation for any user browsing our Meeting Room on IE11. This self-service Plugin installation requires admin level permissions on the client. In case your employees are not equipped with admin level permissions and you do operate a central software provisioning service for your clients, you can install the IE11 Plugin on machine level. The installers are:
for 64 bit systems: https://static.opentok.com/v2/plugin/OpenTokPluginMain_x64.msi
for 32 bit systems: https://static.opentok.com/v2/plugin/OpenTokPluginMain_x32.msi

**Operating System**

The following Operating Systems are supported:

- OSX10.9+
- Windows 8.1 +
- Ubuntu 12 +
- Android KitKat +
  - with Chrome 67 +
  - with Firefox 60 +

**Desktop virtualization software platform**

The following Desktop Virtualization Plattform are supported

- XenDesktop 7.15 +
  - Client
    - Windows 10+
    - Windows Server 2008 R2+

**Internet Bandwidth**

We recommend a minimum dedicated 1.000 kb/s down per downloaded stream, as well as 1.000 kb/s up per uploaded stream to maintain a stable video / audio connection. Please note that the bandwidth is not the only factor for a stable video / audio connection.

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