Pexip Infinity version 36 Specifications and Requirements

The Pexip Infinity platform is designed to use industry-standard servers from any vendor to provide high-quality, scalable and efficient conferencing. The following tables cover the platform, Connect apps, audio and video (including codecs), host hardware, capacity and hypervisor specifications and requirements.

Pexip Infinity platform

Feature	Description
Application deployment and management	• Software-based, virtualized application architecture, running on industry-standard servers. • Management using industry-standard tools, including VMware vSphere, Microsoft Hyper-V and KVM, and the ability to deploy onto generic hypervisors and orchestration layers. • Ability to deploy on Microsoft Azure, Amazon Web Services (AWS), Google Cloud Platform (GCP) and Oracle Cloud Infrastructure cloud platforms, including dynamic bursting into Azure, AWS or GCP services when primary conferencing capabilities are reaching their capacity limits. • Support for booting VMs via BIOS or UEFI. • Integration with the Pexip Private Cloud, where your entire deployment can be hosted privately and securely by Pexip on your behalf. • Flexible deployment model allowing customers to deploy the platform in the way that is most appropriate for them without needing to consume additional software licenses or purchase dedicated hardware. • Ability to seamlessly increase capacity by deploying new, updated, or additional hardware resources. • Management API supporting configuration, status reporting and call control. • Support for Russian, Korean, Traditional Chinese and Simplified Chinese language in the Pexip Infinity Administrator interface.
Distributed architecture	• Efficient distribution to reduce bandwidth consumption over expensive WANs. • Able to deploy dedicated Proxying Edge Nodes to handle all external connections, and leave the conference media processing to privately-addressed Transcoding Conferencing Nodes. • Keeps media as local to each endpoint as possible, reducing the negative impacts of latency, jitter, and packet loss commonly experienced on centralized deployments. • Able to overflow capacity between nodes and locations, providing support for conferences that span multiple physical boxes. • Industry-leading resilience and redundancy capabilities. • A flexible licensing model that allows you to pool conference resources and quickly increase capacity in response to current local requirements.

Feature	Description
Intelligent conference management	• Upscaling all connected participants to provide a seamless experience to all. • Ability to respond dynamically to fluctuating network conditions by downspeeding and upspeeding individual participants, and support for endpoint-based packet loss recovery and adaptation methodologies (such as packet loss concealment and dynamically adapting bandwidth), thereby protecting the user experience in the event of information loss. • Bandwidth-optimized content sharing towards the Connect apps for crisp image at low bandwidth. • Full support for individual transcoding and transrating of both main stream video and audio, and dual stream content. • Direct media capabilities (end-to-end encrypted calls) between any two WebRTC-based participants. • Simple conference management and interaction for conference participants using the Connect apps, including the ability for Host participants to add, disconnect, mute and unmute other participants. • Advanced conference management and interaction for administrators (using the web-based Administrator interface or the management API). • Optional tagging of services to allow service providers to track VMR use in CDRs and logs.

Feature	Description

Conferencing services	• Virtual Meeting Rooms providing personal meeting spaces for everyone within the organization.
	• Virtual Auditoriums designed to hold larger lecture-style conferences.
	• Virtual Reception IVR (Interactive Voice Response) service.
	• Media Playback Service that allows you to play prerecorded video content to consumers.
	• Infinity Gateway interoperability enables endpoints to:
	  ◦ Call into an externally-hosted conference, such as a Microsoft Teams or Skype for Business meeting, or Google Meet.
	  ◦ Make point-to-point calls to other endpoints that use different protocols and media formats (e.g. from Microsoft Teams Rooms or WebRTC to H.323 or SIP). Includes DTMF support.
	• VMR Scheduling for Exchange enables Microsoft Outlook desktop and Web App users to schedule meetings using Pexip VMRs as a meeting resource.
	• One-Touch Join enables the "click to join" functionality available in VTC endpoints.
	• VMRs, devices and users can be bulk-provisioned from directory information contained in a Windows Active Directory LDAP server, or any other LDAP-accessible database.
	• Pexip VMR self-service portal that allows end-users to manage their personal Virtual Meeting Room without having to send requests to their administrator to change the configuration or branding of their VMR.
	• Choice of layouts: select from a range of classic layouts, Pexip's AI-driven Adaptive Composition layout featuring real-time automatic face detection and framing, or design your own custom layouts.
	• Conference participants can chat and share messaging content.
	• Can output a dedicated multimedia stream to enterprise CDN (Content Delivery Network) streaming and recording services such as Wowza, Quickchannel, Qumu, VideoTool, Microsoft Stream and Azure Media Services, and to public streaming services such as YouTube and Facebook.
	• Live captions: the meeting audio can be converted to a readable text overlay (live transcription).
	• Can integrate with Epic telehealthcare providers.
	• Ability to manage conferences and participants:
	  ◦ Require participants to authenticate in order to join a conference.
	  ◦ PIN-protect conferences and differentiate between Hosts and Guests.
	  ◦ Lock a conference to prevent any further participants from joining.
	  ◦ Split up a meeting into breakout rooms where participants can talk, present, and chat with each other.
	  ◦ Change the layout during a conference.
	  ◦ Transfer a participant to another conference.
	  ◦ Limit the number of participants in a conference, on a per-conference basis.
	  ◦ Limit the bandwidth used by each participant, on a per-conference and/or global basis.
	• Ability to re-brand with your own images and voice prompts, on a per-conference basis.
	• Ability to re-brand the Connect app, and to offer multiple differently-branded web app experiences within your environment.
	• Ability to integrate Connect app (WebRTC) functionality with third-party applications via our client REST API and with websites via the PexRTC library.
	• Call policy decisions can be taken by an external system or a local policy script.
	• Test call service that allows users to check their connectivity and the quality of their video and audio.

Feature	Description
Broad interoperability and protocol support	• Full support for existing industry-standard protocols (SIP, H.323), as well as other technologies (HTML5, Microsoft Skype for Business, RTMP, WebRTC). • Integration with Microsoft Teams and Teams Rooms. • Integration with Google Meet. • Integration with Microsoft Exchange and Office 365. • Ability to enable and disable support for individual audio and video codecs. • Easy integration with existing SIP and H.323 call control solutions including Cisco UCM, Cisco VCS, Polycom CMA, Polycom DMA, Avaya Aura, Skype for Business and others. • Conferencing Nodes can act as SIP registrars and as H.323 gatekeepers; nodes in the same system location act as alternate gatekeepers for the purposes of H.323 registration. • Support for automatic call escalation (Cisco VCS), call transfer capability (Cisco UCM), and CCCP to a Microsoft Skype for Business meeting. • Support for presence and customizable avatar published to a Microsoft Skype for Business client. • Support for automatic dial-out to audio bridges, including automatically issuing conference aliases and pass codes via DTMF tone generation. • IPv4 and IPv6 support. • Support for Far-End Camera Control (FECC). • Support for Cisco One Button to Push (OBTP) and Poly One Touch Dial (OTD). • Ability to tag management, call signaling, and media packets independently with DSCP QoS support. • Support for Forward Error Correction (FEC), downspeeding, bandwidth throttling, and other packet loss concealment technologies. • Unicode support (SIP, Connect app, Administrator interface).
Firewall traversal	• Static NAT support. • Support for static routes. • Conferencing Nodes can be deployed with dual network interfaces. • Web proxy support. • Far-end NAT traversal (media latching). • Support for media over a TCP connection to assist with firewall traversal.
Security and monitoring	• Designed to comply with US Federal security requirements. • TLS certificate management, HSTS, certificate signing requests (CSRs). • DTLS support. • Active Directory / LDAP / OIDC / OAuth integration for administrator account authentication and authorization. • SNMPv2c and SNMPv3 support. • Support for multiple roles of access. • Authenticated SIP trunks. • Limit Infinity Gateway calls to registered devices only.

Connect apps

The Connect apps are a suite of free client software allowing users to connect to Pexip Infinity services from a web browser, installable desktop client, or mobile device.

Feature	Description
Standard features for all Connect app clients	• Can be used to join conferences as a full audio/video participant, an audio-only participant, or as a presentation and control-only participant. • Can be used to make point-to-point calls in conjunction with the Infinity Gateway. • Provides conference control to Host participants. • Allows participants to share and view content, whether or not they are connected with video and/or audio. Supported formats are JPEG, BMP, PNG, GIF and PDF. • Connect desktop app and Connect web app via Chrome or Firefox users can share their screen in addition to sharing images and PDFs. • Chat (Instant Messaging) support. • Supports sending of DTMF tones.
Connect web app	• Allows participants to join a Virtual Meeting Room or Virtual Auditorium, or make a call via the Infinity Gateway, using a web browser as their video endpoint. The web app is supported in: • Google Chrome version 126 and later (64-bit only) on Windows, Linux, macOS, iOS*, and Android* • Mozilla Firefox version 128 and later on Windows, Linux, macOS, and iOS* • Microsoft Edge version 126 and later (64-bit only) on Windows and iOS* • Apple Safari version 15.4 and later on macOS and iOS* * For the best experience on mobile devices, we recommend using the Connect mobile apps. ⓘ We strongly recommend using the latest publicly-released version (i.e. "stable version" or "supported release") of a browser.
Connect desktop app	• Allows a participant to join a Virtual Meeting Room or Virtual Auditorium, or make a call via the Infinity Gateway, using a lightweight client on any PC with any operating system. • Allows users to register their clients in order to receive incoming calls and use directory services. • Can be integrated with Active Directory Federation Services (AD FS), allowing users to register their clients using their AD credentials. Supported on: • Microsoft Windows 10 • macOS 10.11 and later • Ubuntu Linux 16.04 and later • Citrix virtual desktops • Citrix virtual apps Note that 32-bit operating systems are not supported with the Connect desktop app.
Connect mobile app	• Allows a participant to join a Virtual Meeting Room or Virtual Auditorium, or make a call via the Infinity Gateway, using a client downloaded onto their mobile device. • Enables participants to view presentations on their mobile device, regardless of whether they are a video, audio-only, or presentation and control-only participant. Available versions: • Connect mobile app for iOS (requires iOS 15.2 or later) • Connect mobile app for Android (requires Android 7.0 or later)

Audio and video specifications and codecs

Feature	Description
Supported protocols	• H.323 • SIP • WebRTC • RTMP • Microsoft Skype for Business • Individual protocols can be administratively enabled and disabled.
Audio codecs	• G.711(a/μ) • G.719 (this product is covered by patent rights licensed from Telefonaktiebolaget LM Ericsson) • G.722 • G.722.1, G.722.1 Annex C (SIP only) (licensed from Polycom®) • Siren7™, Siren14™ (licensed from Polycom®) • G.729, G.729A, G.729B • Opus • MPEG-4 AAC-LD (MPEG-4 video technology licensed by Fraunhofer IIS) • Speex • AAC-LC
Video codecs	• H.261 • H.263, H.263+ • H.264 AVC (Constrained Baseline Profile, Baseline Profile and High Profile), H.264 SVC (UCIF Profiles 0, 1) • VP8 • VP9 (for connections to Conferencing Nodes with processors using AVX2 or later)
Content sharing	• H.239 (for H.323) • BFCP (UDP for SIP) • VbSS (for Microsoft Teams and Skype for Business) • RDP (for Microsoft Skype for Business) • PSOM (for presenting PowerPoint files from Microsoft Skype for Business clients) • VP8, VP9 (for WebRTC high frame rate) • JPEG (for apps and web).
Bandwidth	• Connections from 8 kbps per participant (G.729, audio-only), up to 6 Mbps per participant (will vary depending on the deployment environment, video resolutions, etc).
Other audio and video features	• Video resolutions from QCIF to Full HD 1080p (1920 x 1080); 4:3 and 16:9 aspect ratios. • Content resolutions up to 1920 x 1200 (depending on remote side capabilities) • Frame rates up to 30 fps. • Customizable video watermarking and content classification indicators. • Pexip StudioSound™ for recording-studio audio quality. • Wideband audio mixing. • Automatic gain control. • Control individual audio via Connect app clients. • Support for AES (128-bit and 256-bit key size), DTLS SRTP, and H.235 for H.323 media encryption.

Host hardware requirements

Feature	Description

CPU	**Conferencing Nodes**
	• We recommend 3rd-generation (Ice Lake) or newer Intel Xeon Scalable Series Gold processors for Transcoding Conferencing Nodes.
	  ◦ Earlier Intel Xeon Scalable Series processors and Intel Xeon E5/E7-v3 and -v4 series processors are also supported where newer hardware is not available. Machines based on these architectures will work well for Management and Proxying Edge nodes, we recommend prioritizing the newest hardware for transcoding nodes.
	  ◦ Other x86-64 processors from Intel and AMD that support at least the AVX instruction set can be used but are not recommended. Some features are only available on underlying hardware that supports at least the AVX2 instruction set.
	• 2.6 GHz (or faster) base clock speed if using Hyper-Threading on 3rd-generation Intel Xeon Scalable Series (Ice Lake) processors or newer.
	  ◦ 2.8 GHz+ for older Intel Xeon processors where Hyper-Threading is in use
	  ◦ 2.3 GHz+ where Hyper-Threading is not in use
	• Minimum 4 vCPU per node
	• Maximum 48 vCPU per node, i.e. 24 cores if using Hyper-Threading
	  ◦ Higher core-counts are possible on fast processors: up to 56 vCPU has been tested successfully
	  ◦ Slow (under 2.3GHz) processors may require lower core counts
	Management Node
	• Any processor, 2.0 GHz or faster
	• Minimum 4 vCPUs

RAM	**Conferencing Nodes** 1 GB RAM per vCPU, so either: • 1 GB RAM per physical core (if deploying 1 vCPU per core), or • 2 GB RAM per physical core (if using Hyper-Threading and NUMA affinity to deploy 2 vCPUs per core). **Management Node** • Minimum 4 GB RAM (minimum 1 GB RAM for each Management Node vCPU)
Storage	**Conferencing Nodes** • 500 GB total per server (to allow for snapshots etc.), including: • 50 GB minimum per Conferencing Node • SSD recommended • RAID 1 mirrored storage (recommended) **Management Node** • 100 GB SSD
GPU	• Host servers do not require any specific hardware cards or GPUs.
OS	• The Pexip Infinity VMs are delivered as VM images (.ova etc.) to be run directly on the hypervisor. No OS should be installed.
Network	• Gigabit Ethernet connectivity is strongly recommended. • In general, you can expect 0.5-3 Mbps per call, depending on call control setup.

Feature	Description
Multiple VMs sharing the same hardware	• Pexip Infinity Conferencing Nodes and Management Nodes may share the same physical host. • Pexip nodes may also share the same physical host with other virtual machines. • Pexip virtual machines must be configured with dedicated CPU and memory resources, i.e. Pexip virtual machines do not support oversubscription.
Service provider considerations	A Pexip deployment can manage multiple customers in various ways: • **Single Management Node, multiple domains, shared Conferencing Nodes** A single installation with one Management Node and one or more Conferencing Nodes is used by all customers. Call control or DNS sends calls for all domains to the shared Conferencing Nodes. Does not provide dedicated capacity per customer. • **Single Management Node, multiple domains, dedicated Conferencing Nodes** One or more Conferencing Nodes per customer. Allows for dedicated capacity per customer. • **Dedicated Management Node and dedicated Conferencing Nodes per customer instance** Allows for close customer network integration, using VLANs, hosted on a shared server farm with multiple VLANs. The dedicated Management Node allows for customer self-management.

Capacity

Feature	Description
Call capacity	Capacity is dependent on server specifications. Servers that are older, have slower processors, or have fewer CPUs, will have a lower overall capacity. Newer servers with faster processors will have a greater capacity. The use of NUMA affinity and Hyper-Threading can significantly increase capacity.

Hypervisor requirements

Feature	Description
VMware	• Version 36 of the Pexip Infinity platform supports VMware vSphere ESXi 6.7, 7.0 and 8.0. • We recommend at least the **Standard** edition. • The **Enterprise** and **Enterprise Plus** editions have additional features that can be taken advantage of by Pexip Infinity in larger deployments. • The Pexip Infinity platform will run on the **free edition** of vSphere Hypervisor. However, this edition has a number of limitations that mean we do not recommend its use except in smaller deployments, or test or demo environments.
Microsoft Hyper-V	• The Pexip Infinity platform supports Microsoft Hyper-V Server 2019.
KVM	• You can deploy the Pexip Infinity platform in a KVM environment.
Other hypervisors and orchestration layers	• Conferencing Nodes can be provisioned with a configuration document generated independently of a generic VM image. This permits deployment of Pexip Infinity onto unsupported hypervisors as well as onto supported hypervisors that are managed by an orchestration layer. • Pexip Infinity can be deployed on Microsoft Azure, Amazon Web Services (AWS), Google Cloud Platform (GCP) or Oracle Cloud Infrastructure, and on the HPE Helion Openstack® Cloud platform.