





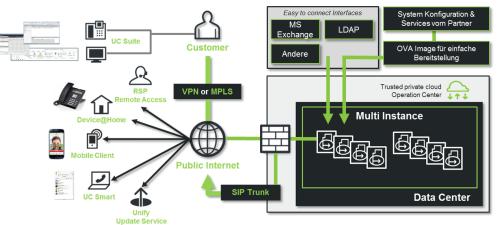
- OpenScape Business S in hosted/Cloud Deployments
 - Introduction
 - Scenario Overview
 - Scenarios
 - Multi Instance
 - Data Center Deployment
 - Technical Requirements
 - General Hints
 - Bandwidth
 - Firewall

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OpenScape Business S in hosted/cloud deployments - Highlights

 Full featured OpenScape Business S operated out of a Datacenter

- Multi Instance Solution hosted by a Partner or Customer
- Own virtualized OSBiz S Instance per Customer (private Cloud)
- Easy Deployment (~15min) via OVA (Open Virtualization Appliance)



OpenScape Business S with Pay As You Go – a perfect business model for Partners to offer a flexible payment model on top of a <u>secure and trustful</u> landscape

OpenScape Business S in hosted/cloud deployments – Key Advantages

- Lower costs due to specialized provider and less own hardware
- High flexible IT resources and all-time up-to-date infrastructures
- Resilience and high physical safety for your hosted/cloud solution
- Seamless moving of server infrastructures
- OVA Open virtual Appliance (setup within 15 minutes)
- one Image only: "All in one Solution" incl. UC, CC, Fax, Conference
- easy Cloud Setup, deploy OVA, IP Configuration via yast2 or script
- one secure OSBiz S Instance per customer
- easy interface connection (MS-Exchange/LDAP.....)
- Cloud Setup without WBM
- System and User Data Provisioning is part of Reseller.

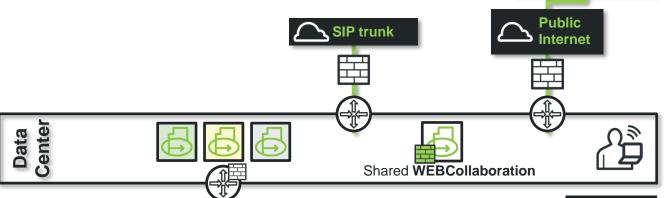
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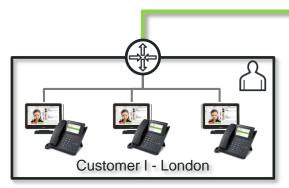
OpenScape Business cloud scenario overview



Simple Deployment

- One VM Instance for each customer for all services
- Flexible license model
- Only Web Collaboration is a Shared Service
- Local Gateway supports trunks (BRI, PRI),
 DECT(important in Europe) and analog a/b Ports
- Single Management for Server and Gateway Web based







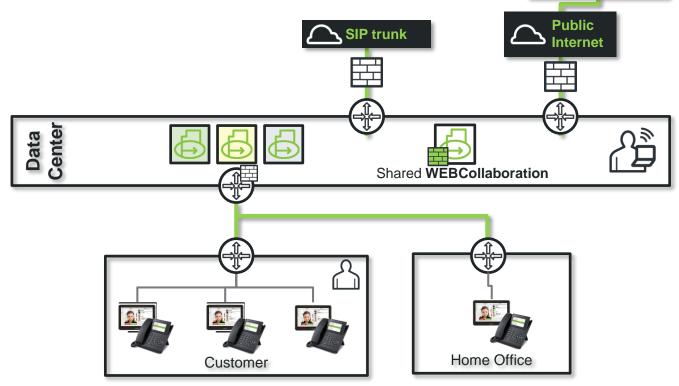


OpenScape Business cloud Scenario overview device@home



Simple Deployment

- One VM Instance for each customer for all services
- Flexible license model
- Only Web Collaboration is a Shared Service
- analog a/b Ports via SIP Adapter
- UC with UC Smart via HTTPS
- UC Suite only via My Portal WEB Edition



Hints Payload

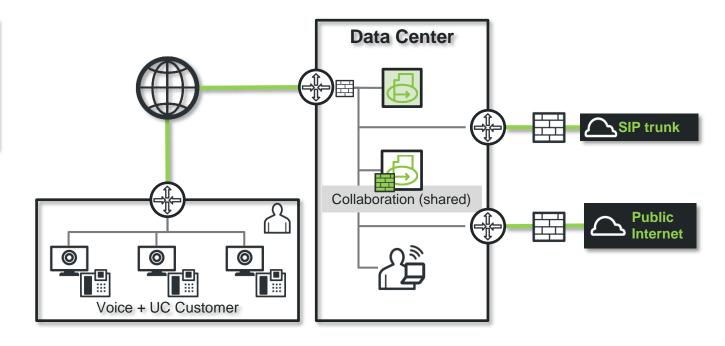
- for device@home payload routed via OSBiz S because the flag SBC must set for device@home users.
- for other users if connected e.g. via VPN from different locations will be routed direct between locations. Please ensure that the routing for direct payload is possible and set in the Network scenario.
 Means if a User in location A will call a User in Location B or other Locations must be ensured the routing for speech channels (payload) must be configured in the Network.

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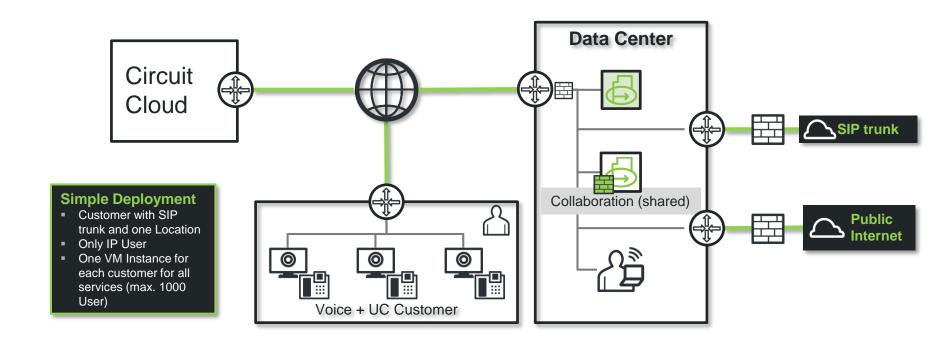
OpenScape Business - Scenario 1 Standard

Simple Deployment

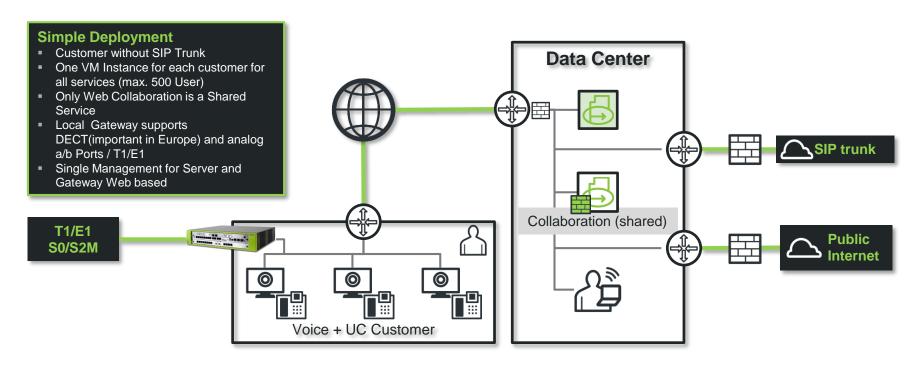
- Customer with SIP trunk and one Location
- Only IP User
- One VM Instance for each customer for all services (max. 1000 User)



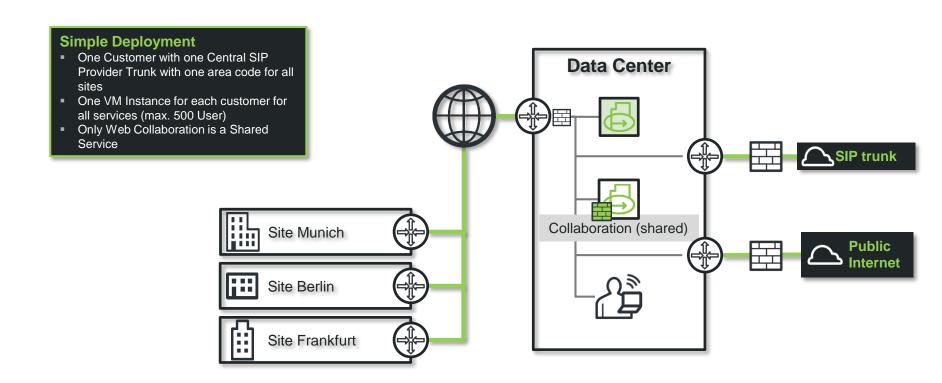
OpenScape Business - Scenario 2 Standard with Circuit



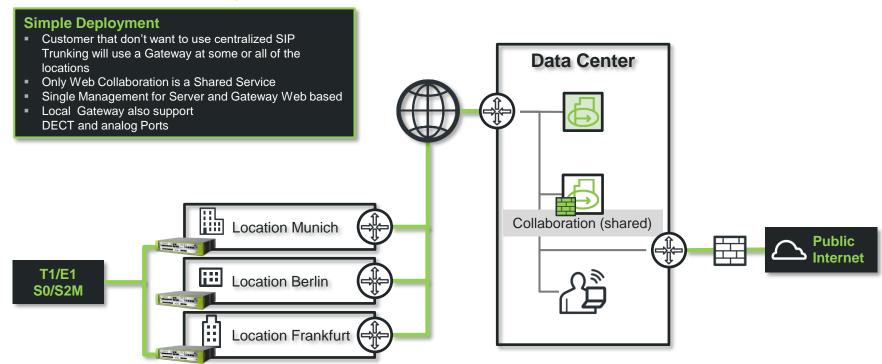
OpenScape Business - Scenario 3 Including Gateway



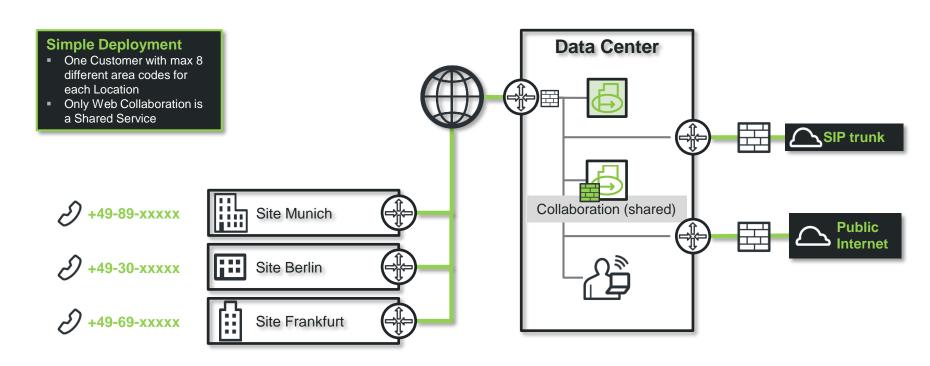
OpenScape Business - Scenario 4



OpenScape Business - Scenario 5 Multi-Gateway



OpenScape Business - Scenario 6 Multi-Site separate area code on each site



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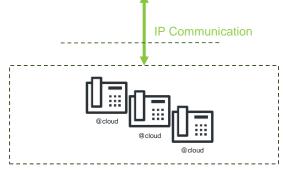
Multi-Instance vs. Multi Tenant Approach

Datacenter

Traditional Cloud Offering

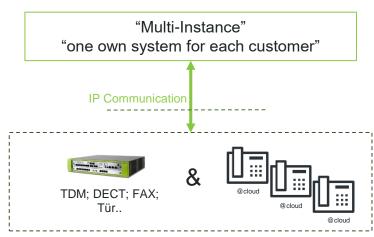
"Multi-Tenant" Communication Infrastructure

"one shared system for multiple customer"



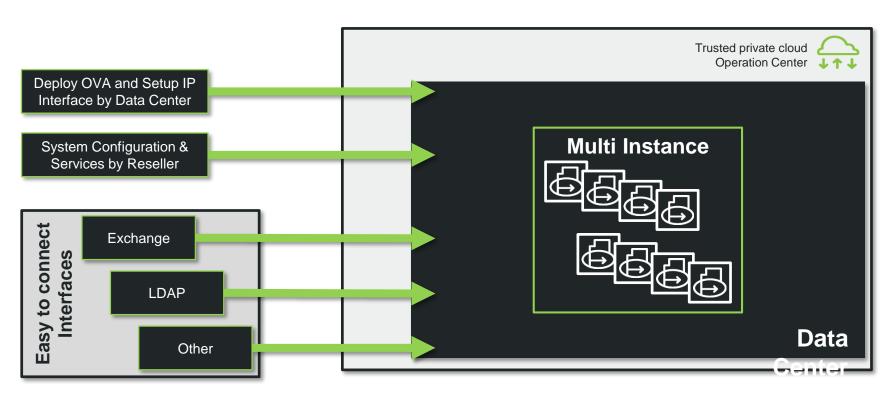
"only" IP based

OpenScape Business Multi Instance

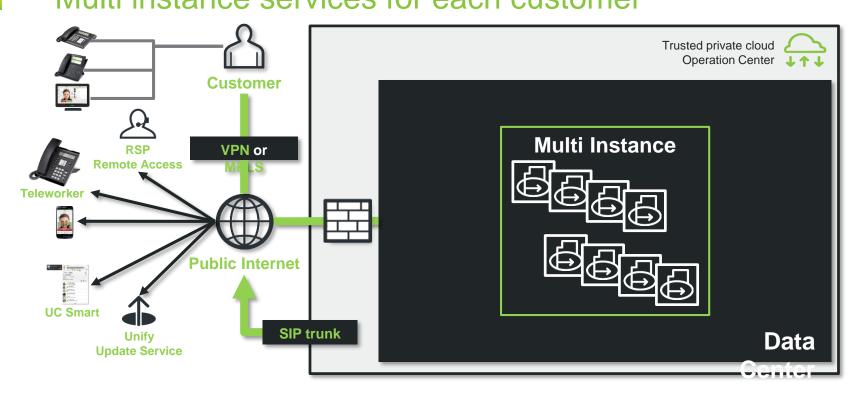


IP based, but also the possibility to use TDM, fully flexibility

OpenScape Business hosted/Cloud Multi instance approach deployment, setup and connectors



OpenScape Business hosted/cloud Multi instance services for each customer

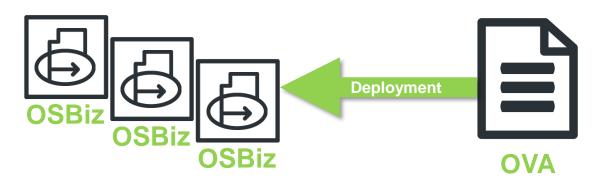


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Virtualization VMware OVA/OVF SLES with OpenScape Business

For deployment of individual VMware instances in the data center you can download the VMware OVA/OVF* file from the Partner Portal / SWS.

Login credentials and some hints will be found after opening the OVA with VMware in the Info Field.

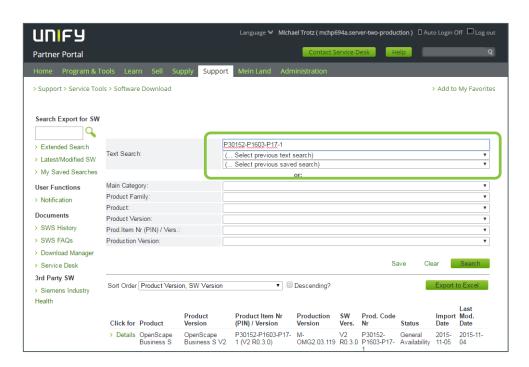


* OVF Open Virtualization Format

* OVA Open Virtualization Appliance

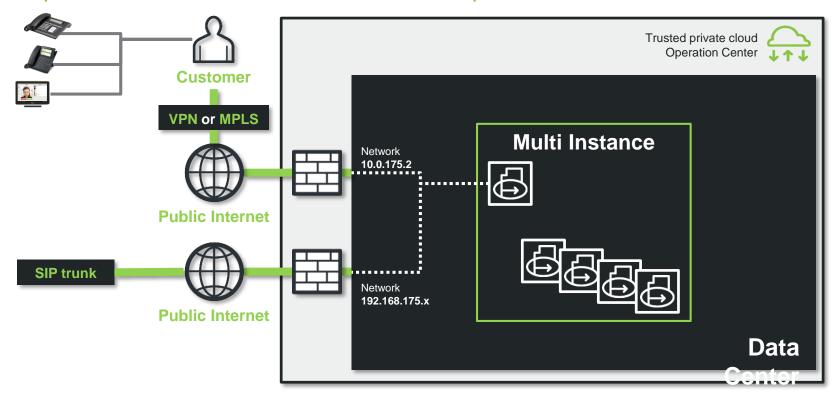
OVA File download via Unify Partner Portal

 Can be found within UNIFY Partner Portal Software Download Server



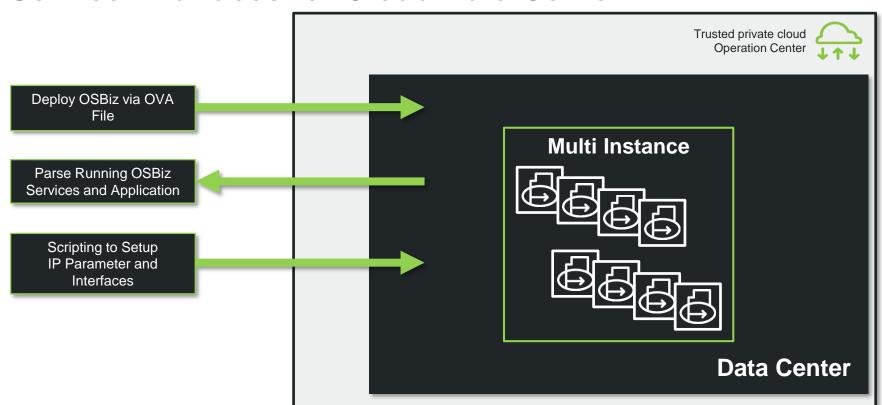
Deployment Second LAN Interface

seperates the Customer Network from public SIP Provider Network



OpenScape Business

Service Interfaces for Cloud Data Center



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OpenScape Business Harddisk Size for S

Hard disc Size

up to 50 User 15 GB root partition, 40 GB home partition, 2-4 GB Swap partition (overall 60GB)

up to 100 User 15 GB root partition,80 GB home partition, 4 GB Swap partition (overall 100GB)

more than 100 Users and Contact Center 15GB root, 180 GB home, 4 GB Swap partition (overall 200GB)

more than 500 Users and Contact Center 15GB root, 480* GB home, 4 GB Swap partition (overall 500GB)

(Sizing of home partition must be setup in VMWare, for second disk)

Hardware Requirements OpenScape Business S

The OpenScape Business S can be installed on a Linux server. The SLES 12 SP5 64-bit version can be used as the operating system. The OpenScape Business S / may also be run in a virtual environment with VMware vSphere.

The server PC must satisfy the following minimum requirements:

- Certified by the PC manufacturer for SLES 12 SP5 64 bit
- The communication software for OpenScape Business must be the only application running on the server (excluding virus scanners)
- At least a dual-core processor with 2.0 GHz per core or more up to 500 Users; 8 cores for more than 500 users
- At least 2 GB RAM (recommended: 4 GB RAM)
- Hard disk (recommended: 60GB [up to 50 users]; 100GB [up to 100 users]; 200 GB [up to 500 users] or more)
- Screen resolution: 1024x768 or higher
- Min 4 vCPUs and 8GB RAM for up to 1000 users

The RAM requirements for the server PC are dependent on the OpenScape Business System expansion and functions used. For the following functions a minimum of 4 GB of RAM (recommended 4 Cores CPU) is a requirement:

- Fax
- OpenScape Contact Center Multimedia Business
- more than 100 users

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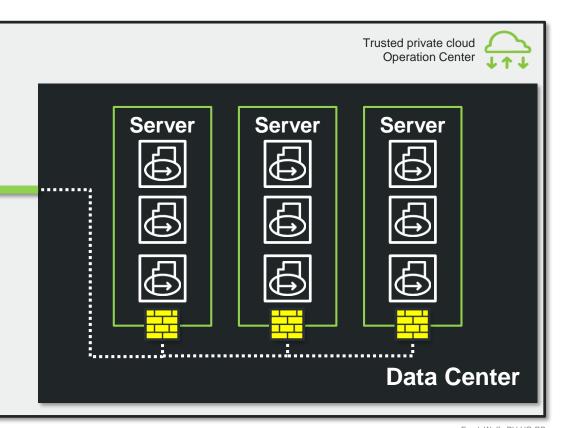
Good to know:

Firewall

OpenScape Business S requires a firewall on the server where installed!



Public Internet



Good to know:

Licensing with Advanced Locking ID (ALI)

The following parameters are necessary for the licensing:

- IP Address of the virtual instance from the system
- DNS Server Address
- Default Gateway
- Hostname
- Time zone

Please note: A change of one or several of these parameters requires a license "rehost" on Central License Server

Good to know:

Supported Virtualization Platforms

VMWare

OVA File exist and can be used or manual installation (for details look into our documentation: administration OpenScape Business S)

Microsoft Hyper V

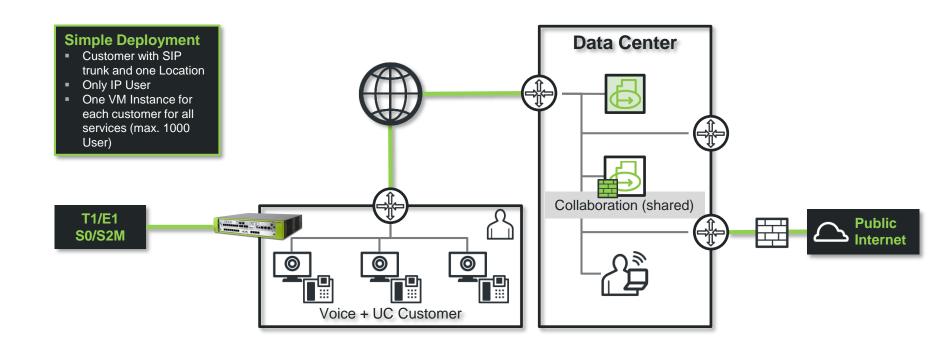
manual installation (only static mode) (for details look into our documentation: administration OpenScape Business S)

Other on project specific request

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Bandwidth between Data Center und Customer Location

ISDN Gateway at Customer Location (Scenario 1)



Bandwidth between Data Center und Customer Location ISDN Gateway at Customer Location

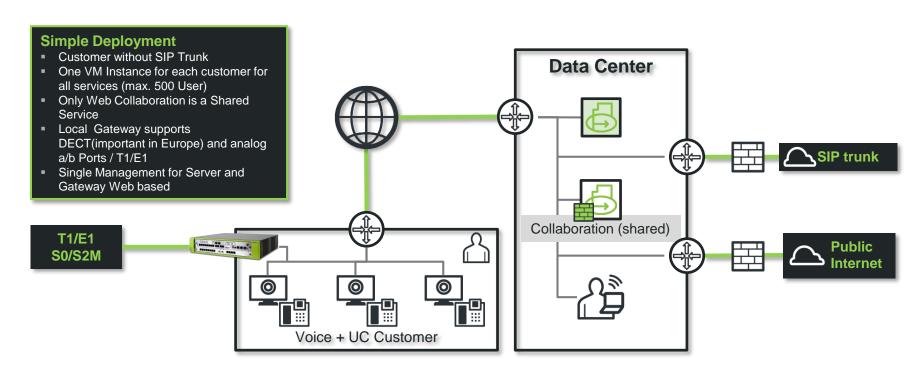
Boundery conditions

- 1. ISDN Gateway at Customer Location(!)
- 2. Prioritization Real time Information / QoS must be available; Latency and Packet loss accordingly Unify Guideline for VoIP
- 3. All values are for G.711 Codec and default Packet Size
- 4. All values for Standard Voice Mail usage (Message and length)
- 5. Bandwidth must be symmetrical available (in both directions)
- 6. Bandwidth deficits can have effects on existing connections, not only for new connections
- 7. Other hosted applications, additional to OpenScape business may have effects on Bandwidth (e.g., E-Mail, Web Collaboration, File Space, Terminal Server, Virtual Desktops, ...) it is necessary to calculate additional bandwidth for this services

Bandwidth between Data Center und Customer Location ISDN Gateway at Customer Location

User on Location Site	Standard Normal Traffic (0,15 Erl.) 50% Voice Only 50% UC (myPortal) 50% use Voice Mail No Personal Fax No Contact Center Less conferences	Power User High Traffic(0,18 Erl.) 25% Voice Only 75% UC (myPortal) 75% use Voice Mail 25% use Personal Fax No Contact Center Many conferences	Standard + CC Normal Traffic (0,15 Erl.) 50% Voice Only 50% UC (myPortal) 50% use Voice Mail No Personal Fax 10% CC Agents Less conferences	Power + CC High Traffic (0,18 Erl.) 25% Voice Only 75% UC (myPortal) 75% use Voice Mail 25% use Personal Fax 10 % CC Agents Many conferences
10	0,34 Mbit/s	0,40 Mbit/s	0,46 Mbit/s	0,50 Mbit/s
20	0,44 Mbit/s	0,50 Mbit/s	0,63 Mbit/s	0,69 Mbit/s
50	0,76 Mbit/s	0,87 Mbit/s	1,15 Mbit/s	1,25 Mbit/s
100	1,18 Mbit/s	1,40 Mbit/s	1,88 Mbit/s	2,08 Mbit/s
150	1,57 Mbit/s	1,88 Mbit/s	2,55 Mbit/s	2,84 Mbit/s
200	1,94 Mbit/s	2,33 Mbit/s	3,21 Mbit/s	3,58 Mbit/s
400	3,33 Mbit/s	4,07 Mbit/s	5,70 Mbit/s	6,41 Mbit/s

Bandwidth requirements btw. datacenter and customer site ISDN gateway or SIP connection in the Cloud (Scenario 2)



Bandwidth requirements btw. datacenter and customer site ISDN gateway or SIP connection in the Cloud

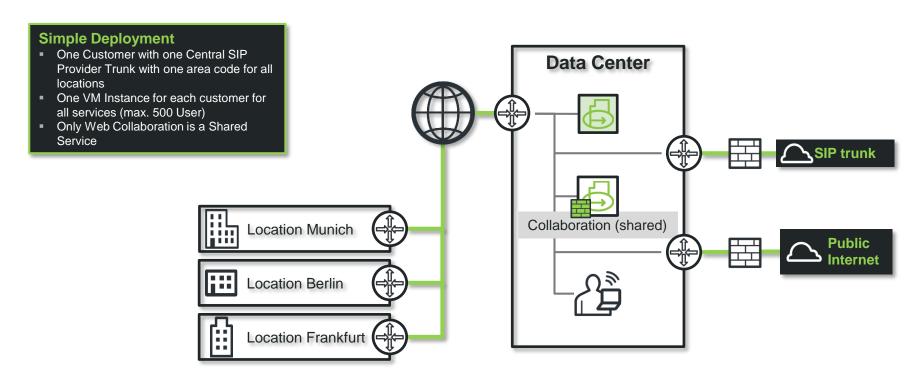
Boundery conditions

- 1. ISDN Gateway or SIP connection in the Cloud (!)
- 2. Prioritization of real-time information / QoS must be available; Latency and packet loss corresponding to the Unify requirements for VoIP
- 3. All mentioned values are for G.711 Codec and Standard package size
- 4. All values are for a standard usage of voice mail (Message traffic and retrieval, number and length of messages)
- 5. The mentioned symmetrical bandwidth must be available (in both directions)
- 6. Bandwidth deficits may also affect existing connections, located not only on newly started or under start conditions
- 7. Are in the data center additional OpenScape Business Application Server hosted further more (eg E-Mail, Web Collaboration, File Server, Terminal Server, Virtual Desktops, etc.) increases the bandwidth required to meet the requirements of these services

Bandwidth requirements btw. datacenter and customer site ISDN gateway or SIP connection in the Cloud

User on Location Site	Standard Normal Traffic (0,15 Erl.) 50% Voice Only 50% UC (myPortal) 50% use Voice Mail No Personal Fax No Contact Center Less conferences	Power User High Traffic(0,18 Erl.) 25% Voice Only 75% UC (myPortal) 75% use Voice Mail 25% use Personal Fax No Contact Center Many conference	Standard + CC Normal Traffic (0,15 Erl.) 50% Voice Only 50% UC (myPortal) 50% use Voice Mail No Personal Fax 10% CC Agents Less conferences	Power + CC High Traffic (0,18 Erl.) 25% Voice Only 75% UC (myPortal) 75% use Voice Mail 25% use Personal Fax 10 % CC Agents Many conferences
10	0,43 Mbit/s	0,58 Mbit/s	0,64 Mbit/s	0,78 Mbit/s
20	0,62 Mbit/s	0,86 Mbit/s	0,99 Mbit/s	1,21 Mbit/s
50	1,09 Mbit/s	1,58 Mbit/s	1,86 Mbit/s	2,31 Mbit/s
100	1,76 Mbit/s	2,64 Mbit/s	3,16 Mbit/s	3,99 Mbit/s
150	2,39 Mbit/s	3,65 Mbit/s	4,41 Mbit/s	5,61 Mbit/s
200	2,99 Mbit/s	4,62 Mbit/s	5,62 Mbit/s	7,18 Mbit/s
400	5,29 Mbit/s	8,38 Mbit/s	10,31 Mbit/s	13,31 Mbit/s

Bandwidth requirements btw. Datacenter and two customer location (Scenario 3)



Bandwidth requirements btw. Datacenter and two customer location

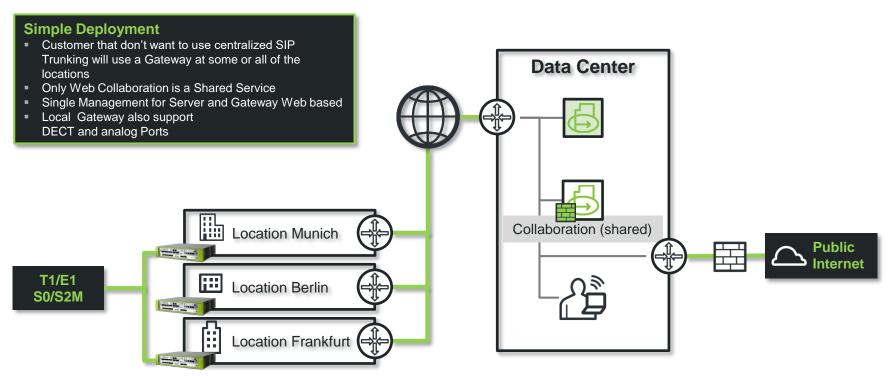
Boundery conditions

- 1. ISDN Gateway or SIP connection in the Cloud (!)
- 2. Prioritization of real-time information / QoS must be available; Latency and packet loss corresponding to the Unify requirements for VoIP
- 3. All mentioned values are for G.711 Codec and Standard package size
- 4. All values are for a standard usage of voice mail (Message traffic and retrieval, number and length of messages)
- 5. The mentioned symmetrical bandwidth must be available (in both directions)
- 6. Bandwidth deficits may also affect existing connections, located not only on newly started or under start conditions
- 7. Are in the data center additional OpenScape Business Application Server hosted further more (eg E-Mail, Web Collaboration, File Server, Terminal Server, Virtual Desktops, etc.) increases the bandwidth required to meet the requirements of these services

Bandwidth requirements btw. Datacenter and two customer location

User on Location Site	Standard Normal Traffic (0,15 Erl.) 50% Voice Only 50% UC (myPortal) 50% use Voice Mail No Personal Fax No Contact Center Less conferences	Power User High Traffic(0,18 Erl.) 25% Voice Only 75% UC (myPortal) 75% use Voice Mail 25% use Personal Fax No Contact Center Many conference	Standard + CC Normal Traffic (0,15 Erl.) 50% Voice Only 50% UC (myPortal) 50% use Voice Mail No Personal Fax 10% CC Agents Less conferences	Power + CC High Traffic (0,18 Erl.) 25% Voice Only 75% UC (myPortal) 75% use Voice Mail 25% use Personal Fax 10 % CC Agents Many conferences
10	0,42 Mbit/s	0,45 Mbit/s	0,70 Mbit/s	0,73 Mbit/s
20	0,60 Mbit/s	0,64 Mbit/s	1,06 Mbit/s	1,10 Mbit/s
50	1,01 Mbit/s	1,09 Mbit/s	1,99 Mbit/s	2,06 Mbit/s
100	1,62 Mbit/s	1,74 Mbit/s	3,40 Mbit/s	3,51 Mbit/s
150	2,18 Mbit/s	2,34 Mbit/s	4,75 Mbit/s	4,90 Mbit/s
200	2,72 Mbit/s	2,92 Mbit/s	6,07 Mbit/s	6,26 Mbit/s
400	4,78 Mbit/s	5,13 Mbit/s	11,17 Mbit/s	11,51 Mbit/s

Bandwidth requirements btw. Datacenter and two customer location ISDN Gateways or SIP in the Cloud (Scenario 4)



Bandwidth requirements btw. Datacenter and two customer location ISDN Gateways or SIP in the Cloud

Boundery conditions

- 1. ISDN Gateway or SIP connection per customer location in the Cloud (!)
- 2. Prioritization of real-time information / QoS must be available; Latency and packet loss corresponding to the Unify requirements for VoIP
- 3. All mentioned values are for G.711 Codec and Standard package size
- All values are for a standard usage of voice mail (Message traffic and retrieval, number and length of messages)
- 5. The mentioned symmetrical bandwidth must be available (in both directions)
- 6. Bandwidth deficits may also affect existing connections, located not only on newly started or under start conditions
- 7. Are in the data center additional OpenScape Business Application Server hosted further more (eg E-Mail, Web Collaboration, File Server, Terminal Server, Virtual Desktops, etc.) increases the bandwidth required to meet the requirements of these services

Bandwidth requirements btw. Datacenter and two customer location ISDN Gateways or SIP in the Cloud

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10	0,52 Mbit/s	0,59 Mbit/s	0,70 Mbit/s	0,79 Mbit/s
20	0,76 Mbit/s	0,91 Mbit/s	1,09 Mbit/s	1,25 Mbit/s
50	1,39 Mbit/s	1,71 Mbit/s	2,11 Mbit/s	2,44 Mbit/s
100	2,29 Mbit/s	2,93 Mbit/s	3,66 Mbit/s	4,27 Mbit/s
150	3,15 Mbit/s	4,07 Mbit/s	5,14 Mbit/s	6,01 Mbit/s
200	4,00 Mbit/s	5,19 Mbit/s	6,58 Mbit/s	7,73 Mbit/s
400	7,24 Mbit/s	9,52 Mbit/s	12,19 Mbit/s	14,43 Mbit/s

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OpenScape Business hints for external firewall settings

In general all ports should closed from and to OpenScape Business S (and X Models) The document should give some hints and examples to help and understand OpenScape Business S (or X Models) behind a Router / Firewall

Changes and configuration of the Firewall happens on your own risk

In most scenarios, the OpenScape Business is behind a SOHO NAT Router and nothing has to be configured, exception Device@home (for HFA and SIP) and UC Smart or myPortal to go.

On the next page you find the term Client and Server:

Client is the sender to start the session (for e.g. OpenScape Business in some scenarios)

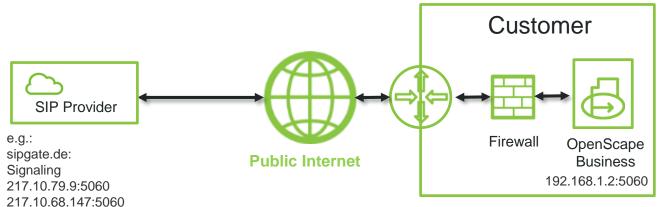
Server is the receiver of the session (for e.g. SIP Provider in some scenarios)

Remote access for Administration via WBM from Internet

For a Secure Remote Access to OpenScape Business Web Based Management (Administration) it is strictly recommended to use Unify RSP – Remote Service Platform instead of using a public IP via https://ip-address

If external WBM access needed, please use OSBiz Software V3

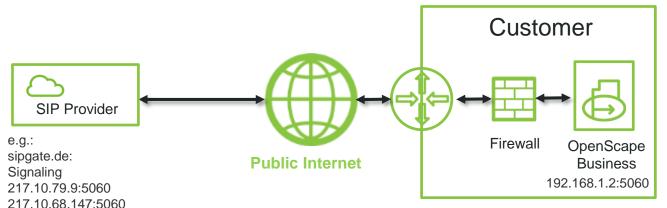
SIP Provider Trunk example for Sipgate



OpenScape Business works as a client and initiate the session to the SIP provider via domain name sipgate.de Port 5060 and can reach different sipgate servers.

Behind standard SOHO NAT routers Firewall should not opened because in this scenario OpenScape Business works as a client and initiate the session.

SIP Provider Trunk example for Sipgate Firewall rules



SIP provider via domain name sipgate.de, port 5060. OpenScape Business RTP/UDP Range 30274:30529* OSBiz X 30528:30887* OSBiz S used for payload. NAT traversal usually via STUN port 3478

If it is necessary to open the firewall from direction SIP provider Port 5060 please use the IP provider addresses, but never "any IP addresses" (**Security**!)

Firewall rule from Internet: Source IP 217.10.79.9 Destination IP 192.168.1.2 Port TCP 5070

Source IP 217.10.68.147 Destination IP 192.168.1.2 Port TCP 5070

...... Get the IP Addresses of all Servers from the Provider, can be much more.

Firewall rule to Internet: Source: IP 192.168.1.2 Port TCP 3478 Destination: Internet

Source: IP 192.168.1.2 Port UDP 29274:30529* Destination: Internet

SIP Provider Trunk hints external Firwall

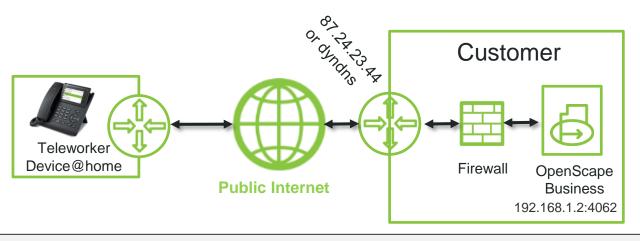
• RTP:

If necessary to add a rule for incoming RTP packages, (Server/SIP Provider) you have to request the UDP Port Range from the SIP-Provider. The incoming RTP/UDP Ports

STUN:

e.g.: If you used Port 3478 from OSBiz (works as Client) it can be the Server answered on a different Port e.g.: Port 3479

Device@Home (HFA)



Teleworker Device@Home works as a client and initiate the session to OpenScape Business via IP-Address or dyndns Port 4062 RTP/UDP Range 29274:30529 OSBiz X 30528:30887 OSBiz S used for payload OpenScape Business for STUN works as a Client e.g.: 3478

Firewall rules necessary:

Firewall rule and

Router forwarding from Internet: Source: IP 87.24.23.44 Port TCP 4062 Destination: IP 192.168.1.2 Port 4062

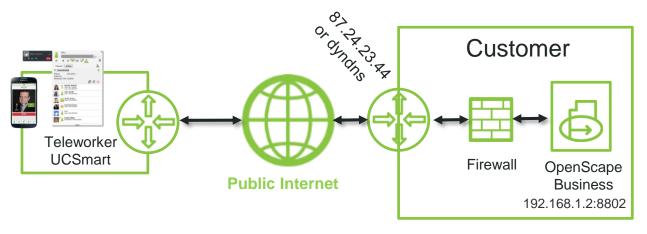
Source: IP 87.24.23.44 Port UDP 29274:30529 Destination: IP 192.168.1.2 Port 29274:30529

Firewall rule to Internet: Source: IP 192.168.1.2 Port TCP 3478 Destination: Internet

A technical configuration guide for Device@Home can be found here:

http://wiki.unify.com/wiki/OpenScape_Business#System.28HFA.29Device.40Home

UC Smart / myPortal to go

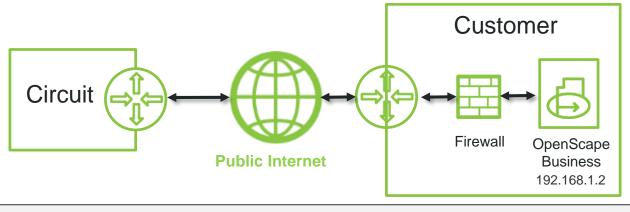


Teleworker UCSmart works as a client and initiate the session to OpenScape Business via https://IP-Adress or dyndns Port 8802

Firewall rule or Router forwarding from Internet: Source Internet Port TCP 8802 Destination IP 192.168.1.2 Port TCP 8802

A technical configuration guide for Device@Home and myPortal to go can be found here: http://wiki.unify.com/wiki/OpenScape Business#System.28HFA.29Device.40Home

Circuit example for Firewall rules if needed



OpenScape Business works as a Client to get the Circuit Parameters for Trunk and Users

RTP/UDP Range 29274:30529 OSBiz X 30528:30887 OSBiz S 10000:49999 Circuit

Firewall rule from OSBiz:

Source 192.168.1.2

Port TCP 443

Destination IP Circuit WEB(domain Name)

Port TCP 443

Firewall rule from OSBiz:

Source 192.168.1.2

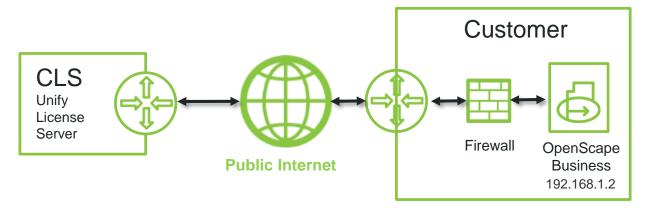
Port TCP ephermal *2)

Destination Circuit hUTC IP

Port 50000

- *1) IMPORTANT: use always the Circuit hUTC IP here! Never configure a portforwarding from "ANY" IP
- *2) hUTC IP/Port can be verified through Expert Mode/Telephony Server/Voice Gateway/Native SIP Server Trunk/Circuit UTC (Cloud)

pay as you go example for Firewall rules if needed

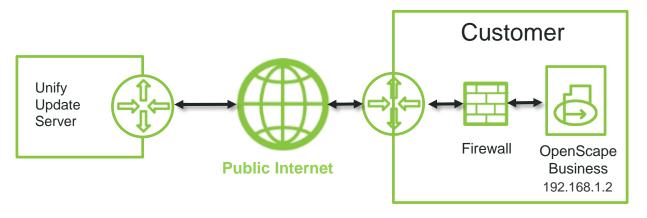


OpenScape Business works as a Client

Behind standard SOHO NAT routers Firewall should not opened because in this scenario OpenScape Business works as a client and initiate the session

Firewall rule from OSBiz: Source 192.168.1.2 Port TCP 7780 Destination IP 188.64.16.4 Port TCP 7780 Firewall rule from OSBiz: Source 192.168.1.2 Port TCP 7790 Destination IP 188.64.16.4 Port TCP 7790

Software Update Server example for Firewall rules if needed



OpenScape Business works as a Client

Behind standard SOHO NAT routers Firewall should not opened because in this scenario OpenScape Business works as a client and initiate the session

Firewall rule from OSBiz:

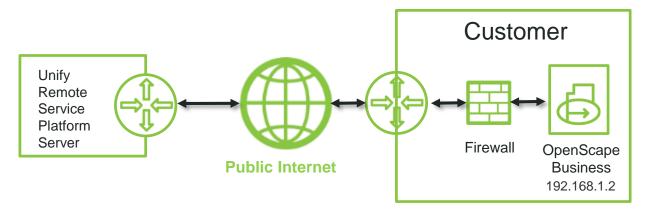
Source 192.168.1.2

Port TCP 443

Destination IP 188.64.17.244

Port TCP 443

Remote Service Platform example for Firewall rules if needed



OpenScape Business works as a Client and open a VPN to the Remote Service Plattform

Behind standard SOHO NAT routers Firewall should not opened because in this scenario OpenScape Business works as a client and initiate the session

Firewall rule if needed:

Port 443

RSP Registrar: 188.64.18.51 und 188.64.17.51 VPN Server: 188.64.18.50 und 188.64.17.50

Any Questions?

We're here to help and support





