Microsoft

Teams Voice Scenarios and Integration Concepts
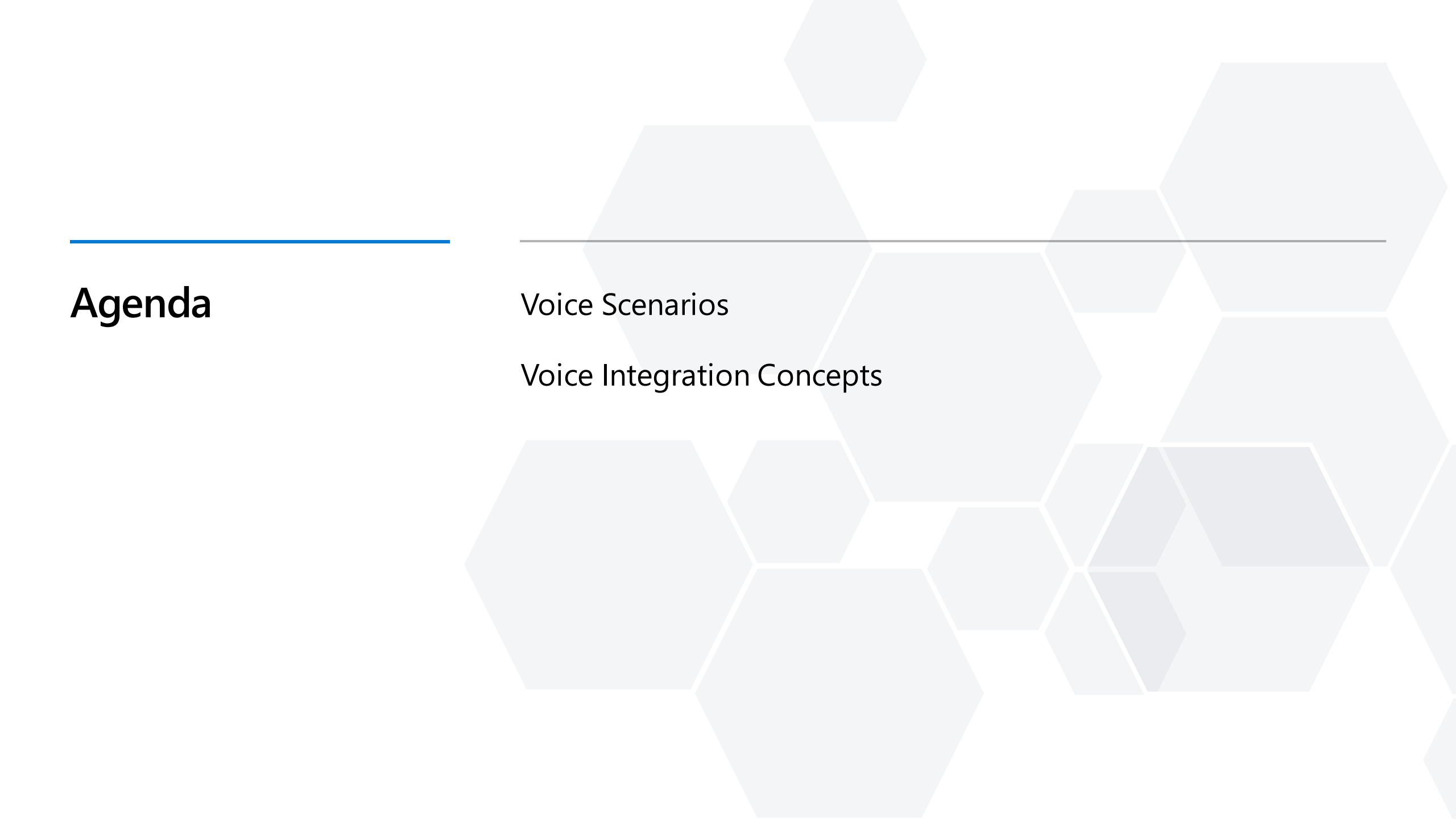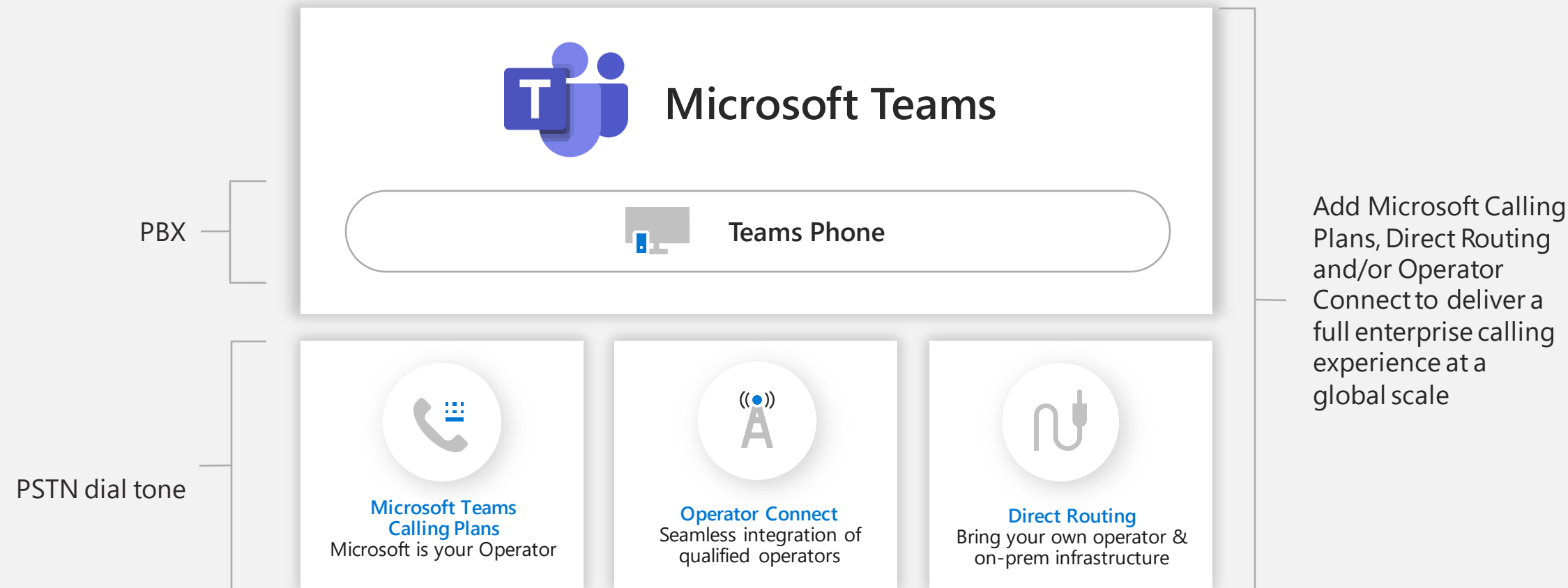
Agenda

Microsoft Teams Voice
Scenarios Overview

Simplify Calling Enablement and Migration with Microsoft Teams

Teams Calling Plans

What are Microsoft Teams Calling Plans?

When combined with Microsoft Teams Phone, Calling Plans can become your complete phone system.

Calling Plans provide employees with a primary phone number (either new or existing) and lets them make and receive phone calls outside of the organization.

Users can be assigned existing phone numbers or get new ones.

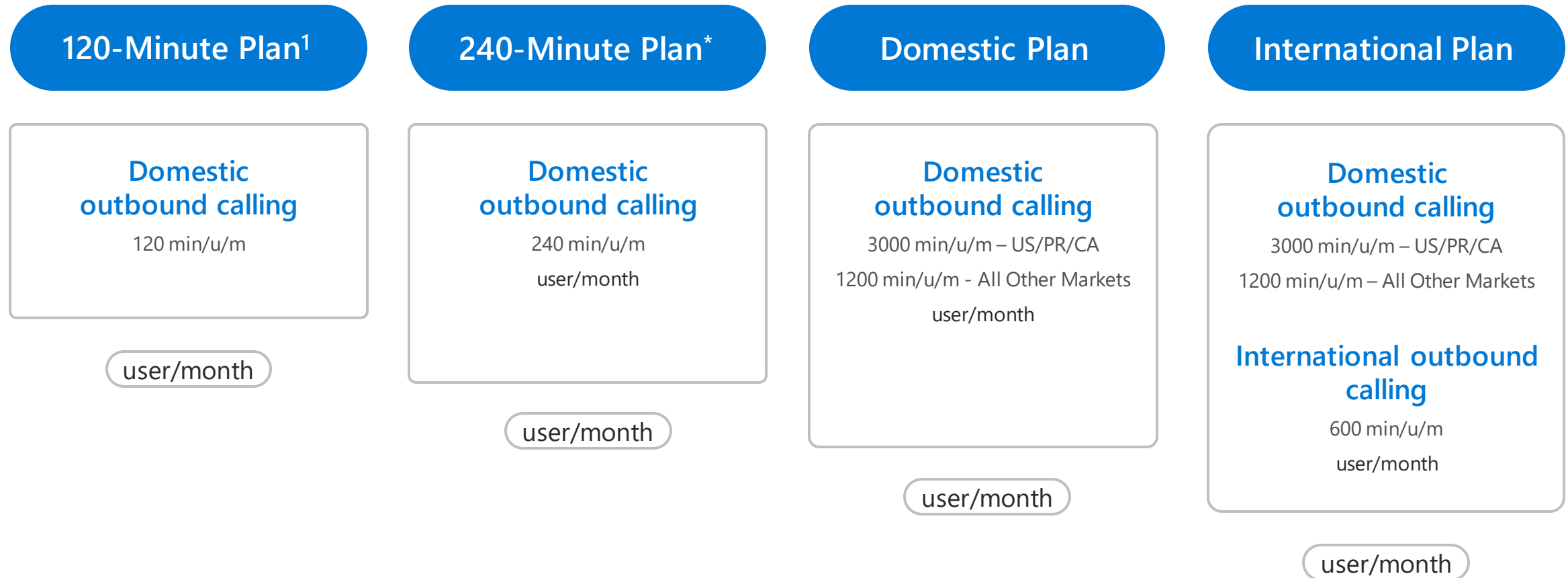## Calling Plans features:

International Calling Plan

Licensed users can call out to numbers located in the country/region where they are assigned in Office 3651 and to international numbers in [196 countries/regions](#).

Domestic Calling Plan

Licensed users can call out to numbers located in the country/region where they are assigned in Office 365.1.

[1]Within select countries; see the service terms for details. Domestic Calling Plan is bundled with Business Voice in select markets.

Microsoft Teams Calling Plans

120-Minute Plan[1]

Domestic outbound calling

120 min/u/m

user/month

user/month

240-Minute Plan*

Domestic outbound calling

240 min/u/m

user/month

user/month

Domestic Plan

Domestic outbound calling

3000 min/u/m – US/PR/CA

1200 min/u/m - All Other Markets

user/month

user/month

International Plan[1]

Domestic outbound calling

3000 min/u/m – US/PR/CA

1200 min/u/m – All Other Markets

user/month

International outbound calling

600 min/u/m

user/month

user/month

Minute limits are applied toward outbound minutes per user per month and pooled at the tenant level by plan and geography type.
Only assigned licenses count towards total pooled minute limit, not the total number of purchased licenses.
For more information, please see the Which Calling Plan is right for you? article.

Calling Plans : Minute Pooling Example

One plan per user. Minutes are pooled at plan and country level.

UK Domestic

5 Users

6,000

1,200 min/u/m
X 5 users
= 6,000 minutes

US Domestic

5 Users

15,000 mins

3,000 min/u/m
X 5 users
= 15,000 minutes

US Domestic & International

5 Users

15,000 domestic mins

3,000 international mins

3,000 min/u/m
X 5 users
= 15,000 dom. Mins

600 min/u/m
X 5 users
= 3,000 int'l mins

⚠ Cannot share pooled mins

⚠ Cannot share pooled mins

⚠ Whichever is reached first

Note: Pool size is based on *assigned* licenses and not on purchased licenses.

International Plan: Where can you call?

196+ countries included in International Plan

Not included in calling plan*

Antarctica	Kiribati	Seychelles
Burundi	North Korea	Sierra Leone
Chad	Liberia	Solomon Islands
Cook Islands	Madagascar	Somalia
Cuba	Maldives	St. Helena
East Timor	Mauritania	Tokelau
Falkland Islands	Niue	Tonga
(Malvinas)	Papua New Guinea	Tunisia
Gabon	Samoa	Tuvalu
Gambia	Sao Tome and	Vanuatu
Guinea-Bissau	Principe	

***Calls to these countries require consumption (Communication Credits) and are billed per minute.**

For current list of available dial-in and dial-out countries, please visit our countries list.

Communications Credits

Communications Credits enable additional capabilities beyond what is included in the **Audio Conferencing** and **Calling Plan** subscription plans.

Communications Credits uses a **pre-paid billing model** and can be enabled on any tenant licensed for Audio Conferencing or Calling Plans.

Communications Credits provides:

Audio Conferencing

Toll free dial-in conferencing

Dial out conferencing to pay-as-you-go countries

Dial out conferencing to Included/zone A countries after monthly allocation of minutes has been consumed*

Calling Plan
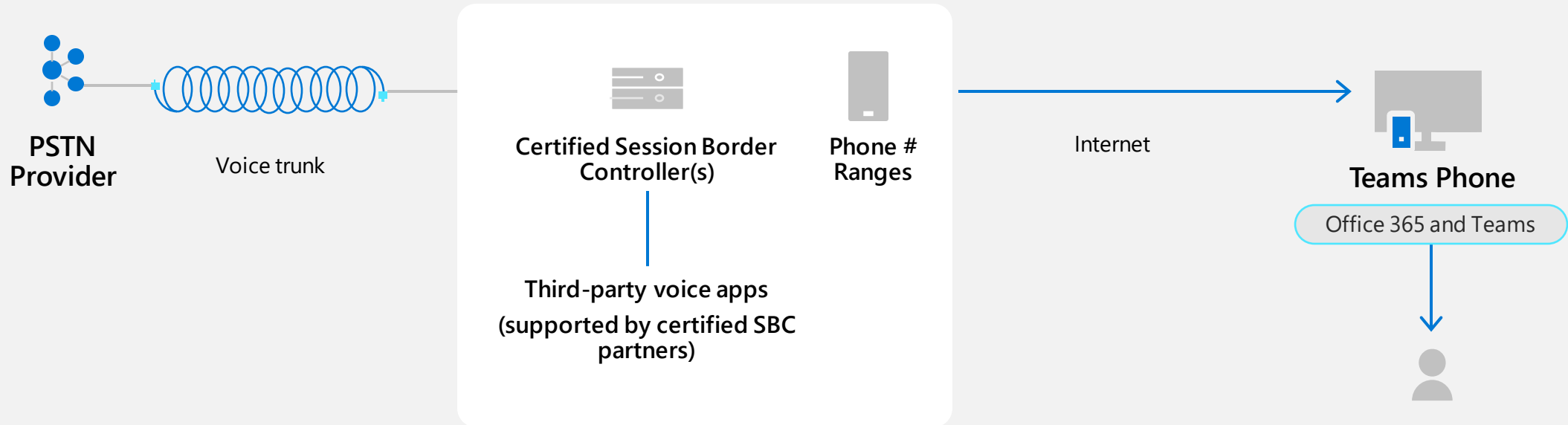
International outbound calling (for Domestic Calling Plans)

International outbound to any country not included in base service plan (for International Calling Plans)

Ability to overrun subscription plan minutes per month and pay per minute over the monthly allotment

Teams Direct Routing
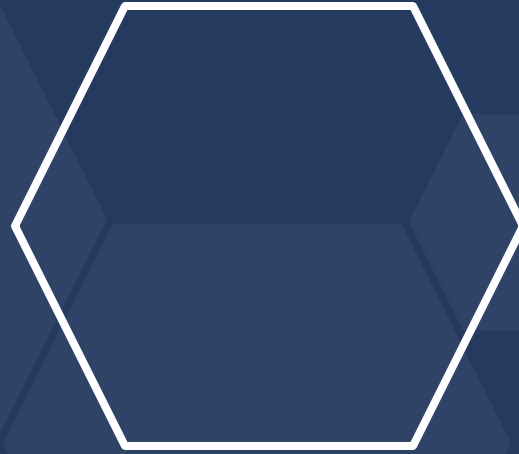
Direct Routing

Directly route dial tone to Microsoft Teams users

Direct Routing in Microsoft 365 allows customers to connect their SIP trunks directly from their network. Customers can work with their local telecommunications provider to enable Microsoft Teams users to make and receive telephone calls. No porting required – keep your numbers.

Interoperability with third-party systems

Direct Routing allows customers with users in the Microsoft cloud to continue using third-party systems such as PBXs, call center, and analog telephony adaptors (ATA) helping preserve key investments.

Session Border Controllers (SBCs) certified for Direct routing

Microsoft partners with selected Session Border Controllers (SBC) vendors to certify that their SBCs work with Direct Routing
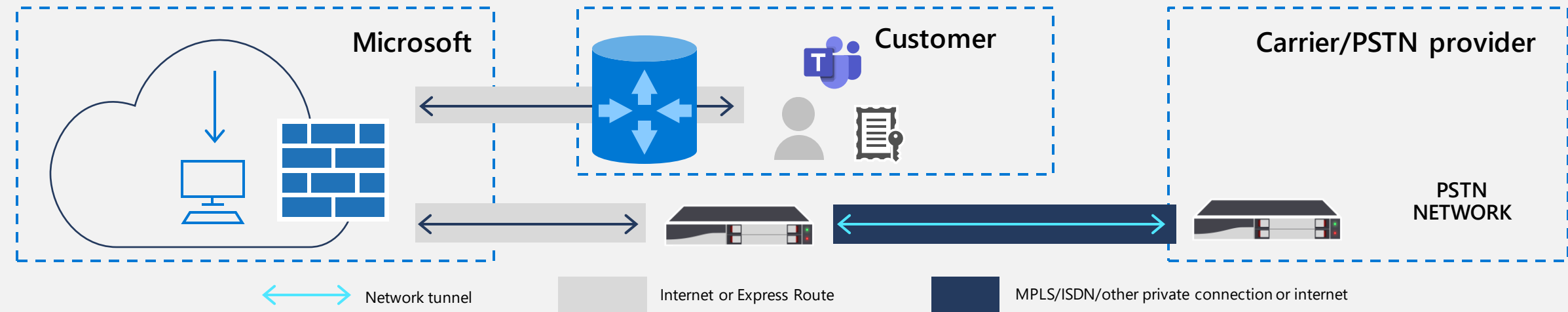
Microsoft works with each vendor to:

- Jointly work on the SIP interconnection protocols.

- Perform intense tests using a third-party lab. Only devices that pass the tests are certified.

- Run daily tests with all certified devices in production and pre-production environments. Validating the devices in pre-production environments guarantees that new versions of Direct Routing code in the cloud will work with certified SBCs.

- Establish a joint support process with the SBC vendors.

- SBCs can be physical appliances, or deployed in the cloud.

- List of supported SBCs: https://aka.ms/dr-sbc

Session Border Controllers certified for Direct Routing

Notional Direct Routing Deployment Model

| Network tunnel | Internet or Express Route | MPLS/ISDN/other private connection or internet |

Requirements to each involved party:

Microsoft	Customer	Carrier
Teams Phone Teams client Support (including incident transfers been Microsoft and SBC vendors) Configuration guidance/documentation	"E5" or "E3 + Microsoft Teams Phone licenses" Contract with carrier The supported SBC (including the support contract) Access to the SBC from the Office 365 Public IP FQDN Certificate Configuration of SBC with Office 365 and carrier	Telephony trunk Support

Configuration and support includes interaction between four entities: Microsoft, SBC vendor, customer support and consultants, carrier

Survivable Branch Appliance with Direct Routing

A Survivable Branch Appliance (SBA) provides the ability to survive telephony connectivity for Microsoft Teams clients in case the connection between Microsoft and the customer premises is not available

Components of an SBA

Tenant data sync service

Keep alive interface

Router

NGC to SIP protocol converter

Registrar

Lightweight routing engine

CDR service

Supported vendors

Audiocodes

TE-Systems

Oracle

Ribbon

Survivable Functionality when in Offline Mode

✓ Available

- Inbound PSTN call

- Outbound PSTN call

- Mute/Unmute

- Hold/Unhold

- DTMF

- Call history during outage updated once online

- Up to 24-hour limit for offline mode

✗ Not Available

- VOIP calls

- UX features: Add/Remove contact, Search, Add/Remove to speed-dial, voice mail

- In Call: call escalation to multiparty

- Complex enterprise features: Call forwarding, call queue, merge, consult transfer, delegation, call queues, and auto attendants
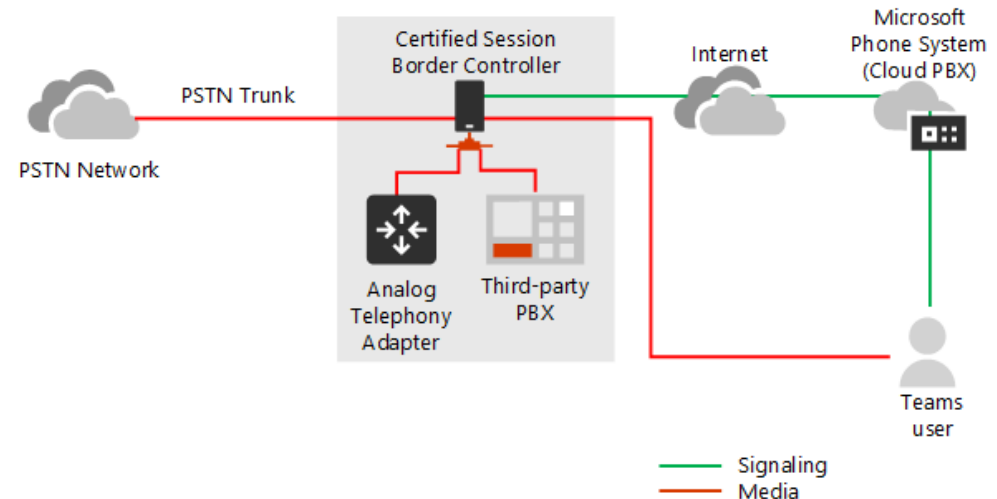
- More than 24-hours outage

Direct Routing with Media bypass:

- Teams user needs access to the public IP address of the SBC (even from internal) unless utilizing local media optimization

- Recommended when user is in the same physical building/network as the SBC

- Signaling (SIP/TLS) is always through the Microsoft cloud

Call flow without media bypass
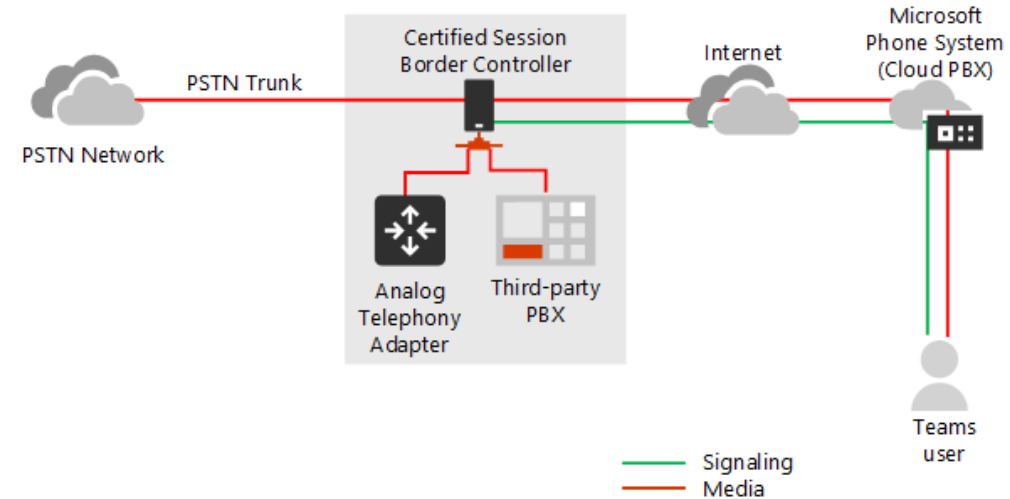
Call flow with media bypass

For additional details, please refer to: https://docs.microsoft.com/en-us/microsoftteams/direct-routing-plan-media-bypass

# Direct Routing with Local Media Optimization:

Proxy SBC

- Has a public IP address
- Deployed in the same manner as any SBC for Direct Routing
- Can be targets of Online Voice Routes

Downstream SBC

- Does not have a public IP address assigned
- Paired to the service with association to Proxy SBC
- Can be targets of Online Voice Routes

Call flow with Local Media Optimization

For additional details, please refer to:
https://docs.microsoft.com/en-us/microsoftteams/direct-routing-media-optimization
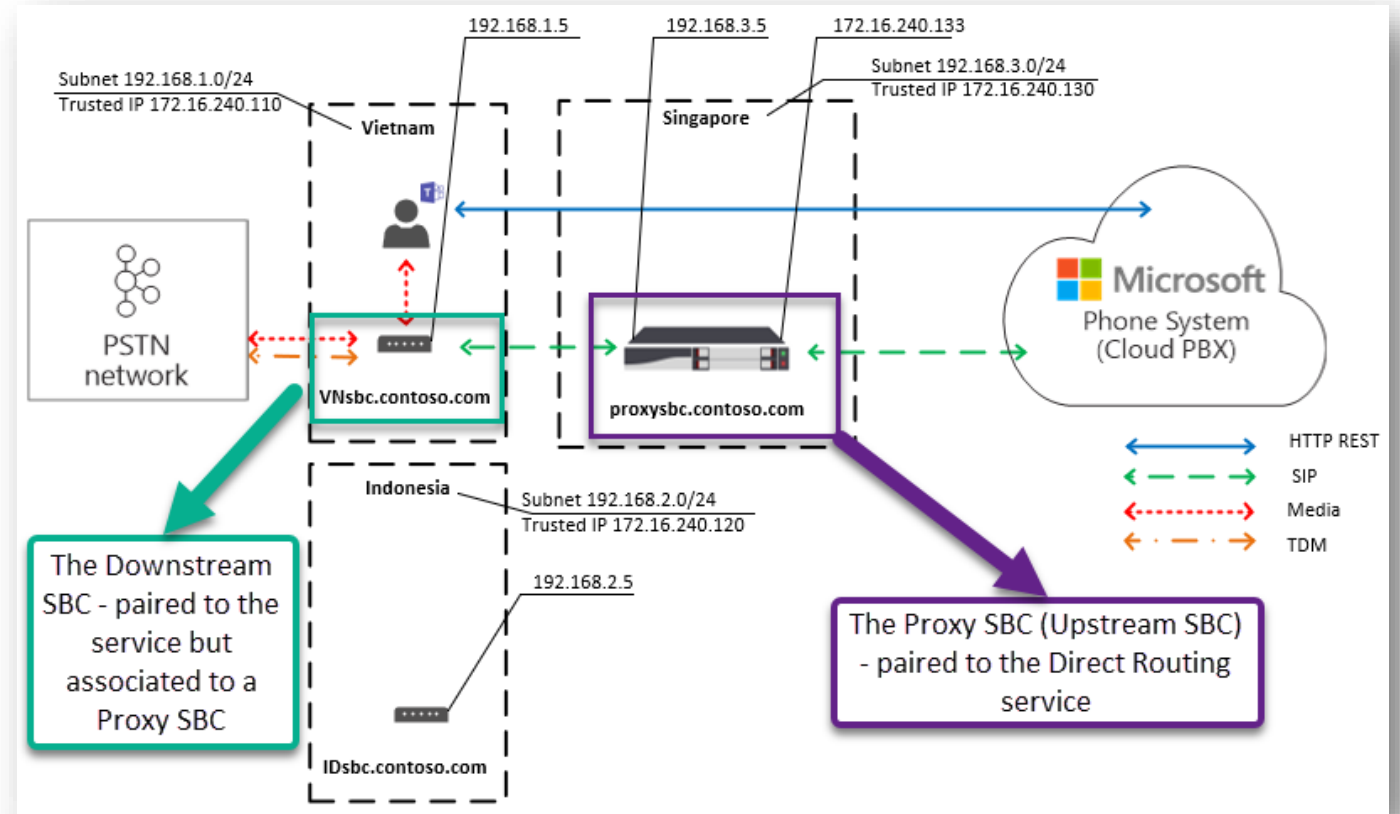
Direct Routing with Location-based Routing:

- In some countries and regions, it's illegal to bypass the Public Switched Telephone Network (PSTN) provider to decrease long-distance calling costs.

- Location-based routing is a feature that lets you restrict toll bypass based on policy and the user's geographic location at the time of an inbound or outbound PSTN call.

- Location-based routing is intended to provide a mechanism to prevent toll bypass.

- It shouldn't be used as a mechanism to dynamically route PSTN calls based on the location of the user or unintended consequences may result.
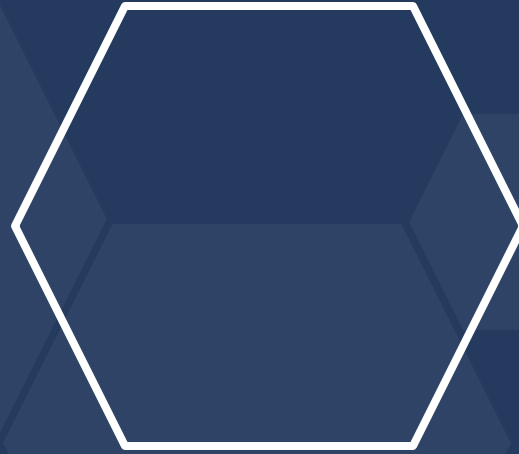
Call flow with Local Based Routing

For additional details, please refer to:
https://docs.microsoft.com/en-us/microsoftteams/location-based-routing-plan
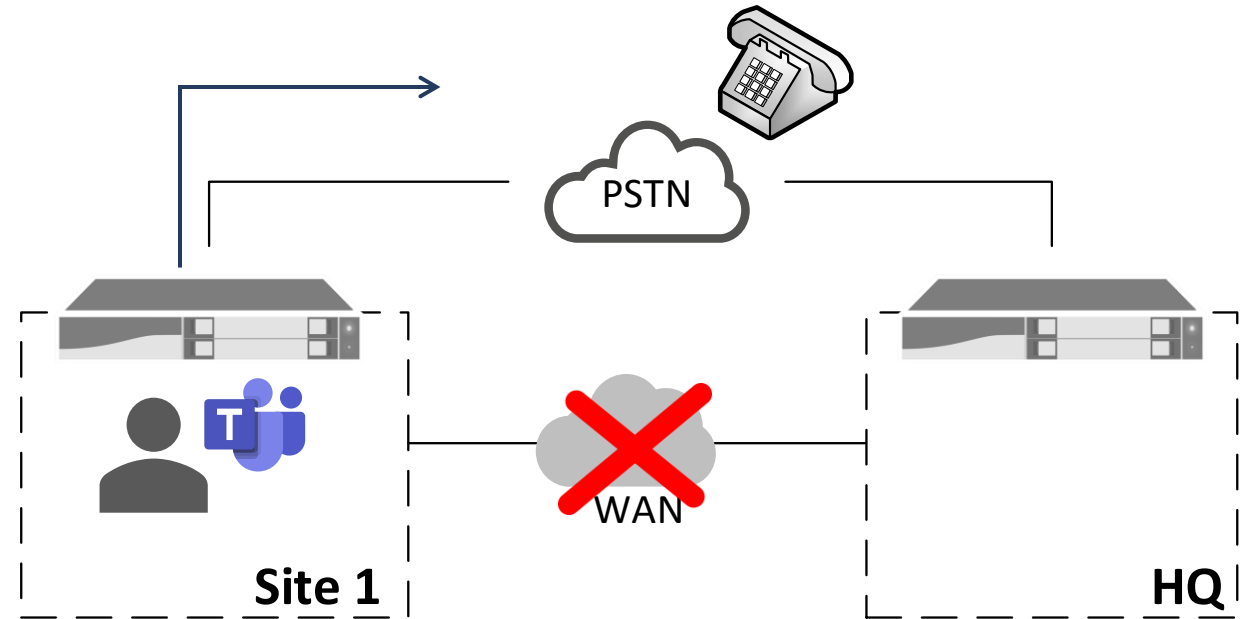
Teams Operator Connect

Operator Connect for Microsoft Teams Telephony

Simply and Seamlessly Enable Calling in Microsoft Teams Using Your Existing Telecom Operator

Bring your own Telecom Operator
Maintain your operator contracts and relationships, while providing users a modern calling experience in Teams.

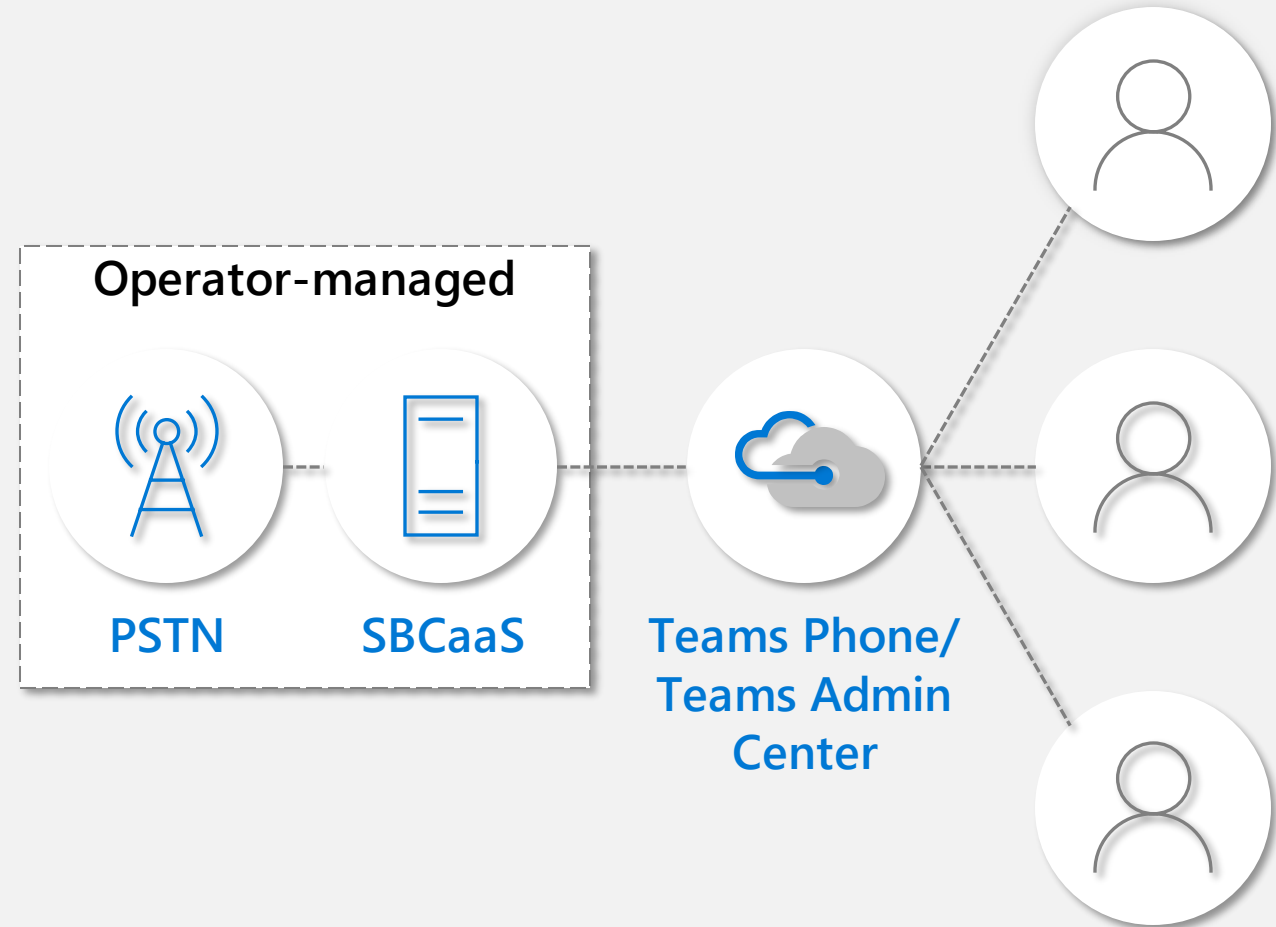### Setup in Minutes; Simplify Provisioning and Management
Establish the connection to your operator, provision users, and assign phone numbers from the Teams admin center.

Save on Infrastructure Purchase and Management
Manage call control in the cloud with Teams Phone, eliminating need to purchase and maintain equipment.

Feel Confident with Enterprise-grade Reliability and Support
Operators provide technical support and service level agreements, and direct peering powered by Azure creates a 1:1 network connection to enhance resilience.

Operator-managed

PSTN   SBCaaS

Teams Phone/
Teams Admin Center

https://aka.ms/OperatorConnect

Operator Connect for Conferencing

Add Telecom Operator Dial-in Numbers to a Microsoft Audio Conferencing Bridge

Bring your own Telecom Operator
Maintain your preferred telecom operator contracts and relationships as you migrate to the cloud

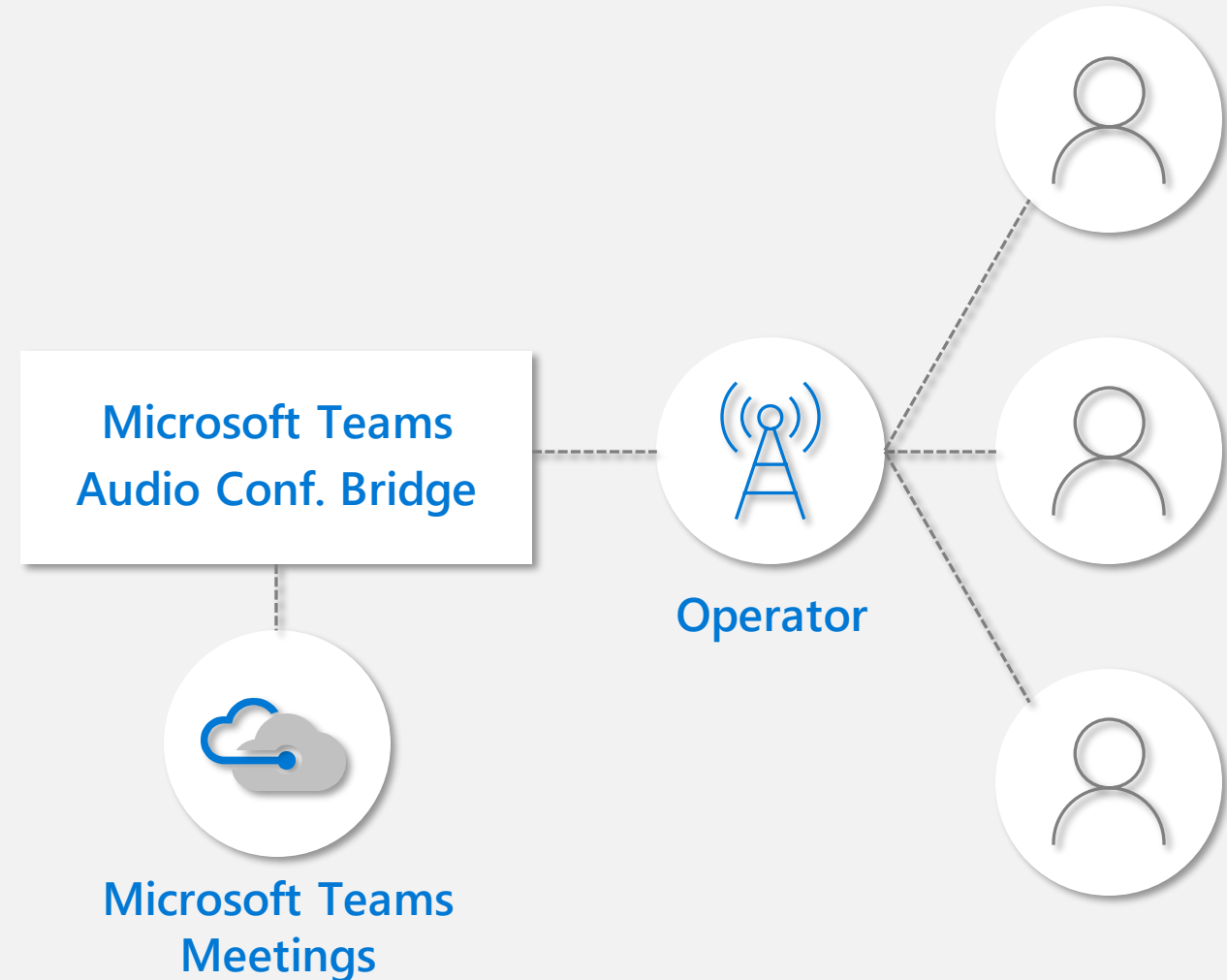**Variety of Telecom Operators Available at Your Fingertips**
Establish the connection to your operator, provision users, and assign phone numbers from the Teams admin center

Expanded Geographic Dial-in Coverage
Manage call control in the cloud with Phone System, eliminating need to purchase and maintain equipment

Feel Confident with Enterprise-grade Reliability & Support
The tight partnership with operator partners provides enhanced technical support and service-level agreements to address reliability

**Coming Soon

Microsoft Teams
Audio Conf. Bridge

Operator

Microsoft Teams
Meetings

https://aka.ms/OperatorConnectConferencing

Operator Connect for Mobile

Simply and Seamlessly Enable SIM-Enabled Unified Calling in Microsoft Teams Using Your Existing Mobile Telecom Operator

Bring Your Own Mobile Operator
Utilize a single SIM-enabled number as your unified number to support all mobile and calling scenarios directly through Teams.
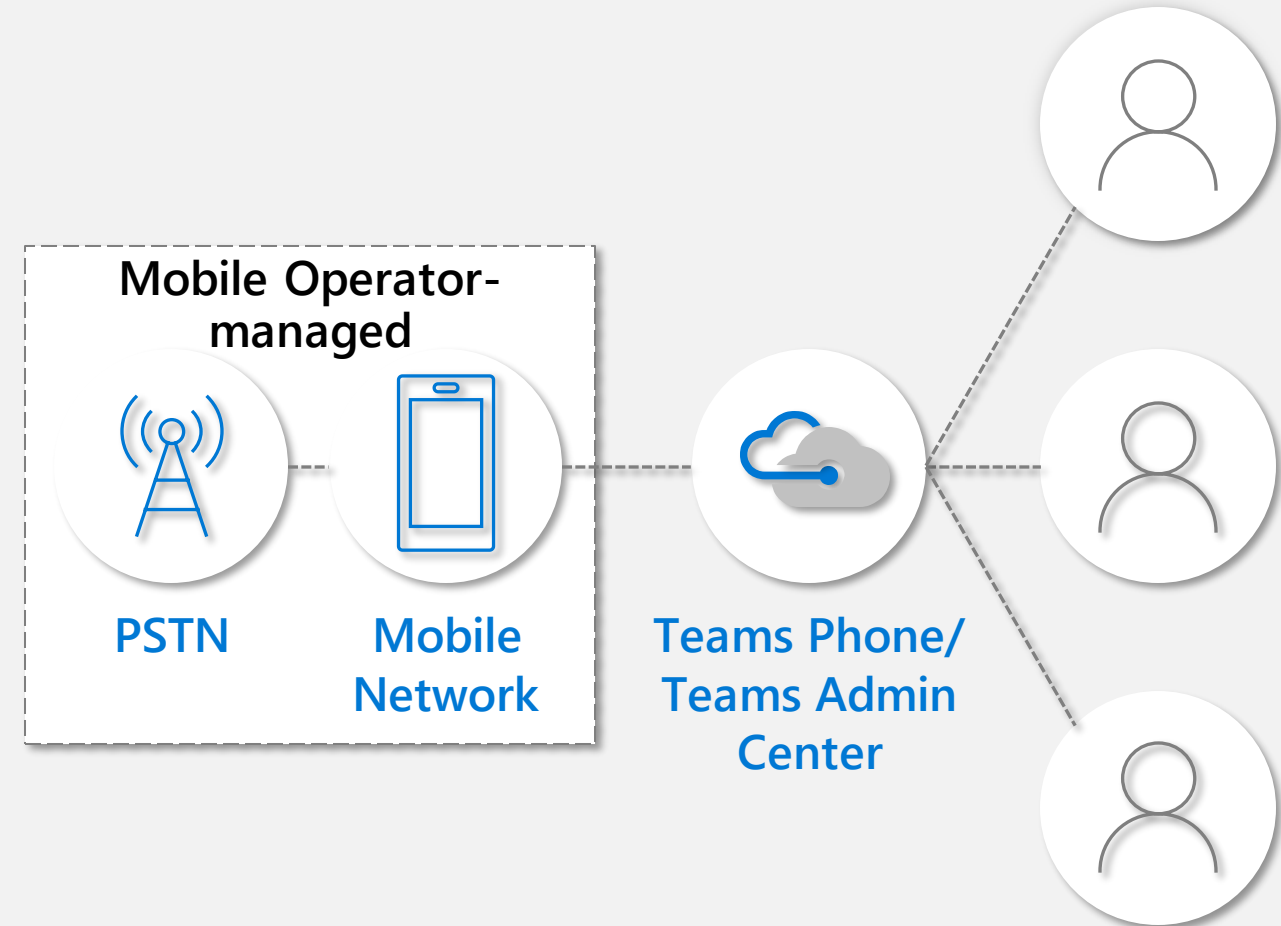
Variety of Mobile Telecom Operators Available at Your Fingertips
Establish connection to your mobile operator via the Teams admin center by leveraging the same familiar Operator Connect experience to provision users and assign phone numbers directly.

Converged Fixed-Mobile Communication Flexibility
Enable flexible communication and collab scenarios through leveraging your mobile phone's native dialer, seamlessly moving calls across networks/devices; enhancing with collaboration (e.g. adding video to an existing call (via VoIP) directly and natively through Teams.

**Coming Soon

Mobile Operator-managed

PSTN   Mobile Network

Teams Phone/ Teams Admin Center

**Initial partners at launch

BT   ROGERS FOR BUSINESS   swisscom   Telia   verizon✓

https://aka.ms/OperatorConnect

https://techcommunity.microsoft.com/t5/microsoft-teams-blog/highlights-from-enterprise-connect-2022-new-microsoft-teams/ba-p/3263176

Operator Connect: Enhancements

Interconnection >
Direct peering through Microsoft Azure Peering Service (MAPS)
Provisioning APIs and an operator portal for setting up trunk to Microsoft Teams

Number provisioning >
Upload (using API or portal) phone numbers/DID's to the Teams admin center
Display and assign phone numbers/DID's to tenants in the Teams admin center

Management >
Seamless customer provided access (by geography) to operator for management of voice tenant
Operator management portal for customer tenants

Reporting >
API's and reporting for sharing CDR, QoE, telephone numbers, and SLA
Joint customer admin reporting (CQD / CDR)

GTM >
Operator presence in Microsoft Teams admin center, by geography and service
Assignment/management experience for operator numbers and plans embedded in the portal

Operations & communications >
Regular communications for service interface changes and product updates
Regular communications around network SLA and call quality

Support >
Joint back-to-back support model, support-to-support, and engineering-to-engineering
Proactive diagnostic/alerts for trunk setup and health

Dashboard

Teams

Devices

Locations

Users

Meetings

Messaging policies

Teams apps

Voice

Operators

Phone numbers

Emergency policies

Dial plans

Direct Routing

Voice routing policies

Call queues

Auto attendants

Call park policies

Calling policies

Caller ID policies

Policy packages

Analytics & reports

Org-wide settings

Planning

Call quality dashboard

Operators

Here you can manage partnerships with phone number providers. You can only acquire phone numbers from providers you have established partnership with. Learn more

Operator summary

3
My Operators

7
All Operators

All Operators | My Operators

United ⌄ | Calling, Audio conferencing ⌄

Select all 193   Clear

☐ United Arab Emirates

☐ United Kingdom

☑ United States

193 of 193 selected

TelePacific

Available products
✓ Calling,
✓ Audio conference

Served regions
USA, Canada, +3 more

Offer details ⧉

ODAA Corp.

Available products
✓ Calling

Served regions
Albania

Offer details ⧉

Touch Global

Available products
✓ Calling,
✓ Audio conference

Served regions
USA, Canada, + 101 more

Offer details ⧉

ViviTech Comm

Available products
✓ Calling,
✓ Audio conference

Served regions
Italy, Germany, + 2 more

Offer details ⧉

ATP

Available products
✓ Audio conference

Served regions
Albania

Offer details ⧉

SunTech

Available products
✓ Calling,
✓ Audio conference

Served regions
Belgium

Offer details ⧉

Operators

Here you can manage partnerships with phone number providers. You can only acquire phone numbers from providers you have established partnership with. Learn more

Operator summary

3
My Operators

7
All Operators

[All Operators] [My Operators]

Unites States of America ⌄   Calling, Audio conferencing ⌄

☑ Calling
☐ Audio conferencing

Contoso Telecom

Available products
✓ **Calling,**
✓ **Audio conference**

Served regions
USA, Canada, +3 more

Offer details ⧉

TelePacific

Available products
✓ **Calling,**
✓ **Audio conference**

Served regions
USA, Canada, + 101 more

Offer details ⧉

ODAA Corp.

Available products
✓ **Calling**

Served regions
Italy, Germany, + 2 more

Offer details ⧉

Navigation (sidebar)

- Dashboard
- Teams
- Devices
- Locations
- Users
- Meetings
- Messaging policies
- Teams apps
- Voice
  - Operators
  - Phone numbers
  - Emergency policies
  - Dial plans
  - Direct Routing
  - Voice routing policies
  - Call queues
  - Auto attendants
  - Call park policies
  - Calling policies
  - Caller ID policies
- Policy packages
- Analytics & reports
- Org-wide settings
- Planning
- Call quality dashboard ⧉

Phone numbers

To set up calling features for users and services in your organization, you can get new numbers or port existing ones from a service provider. You can manage phone numbers including assigning, unassigning and releasing phone numbers for people or for services like audio conferencing, auto attendants or call queues. Learn more

Numbers Order history

+ Add   ↓ Port   ✎ Edit

Search for phone numbers

✓	Phone number	Number Provider	Location	Number type	Status
	+1 425 555 0001	Contoso Telecom	Seattle, United States	Users	Assigned to user
	+1 425 555 0002	Contoso Telecom	Madrid, Spain	Users	Assigned to user
	+1 425 555 0003	Contoso Telecom	Barcelona/Bartzelona, Spain	Users	Assigned to user

Sidebar Navigation

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- Call quality dashboard

Teams Dynamic (911) Emergency Calling

Overview: Dynamic Emergency Calling

Route emergency calls based on the known location of the Teams client

Call Routing Service included for Calling Plan Users

Direct Routing users must obtain additional service [Emergency Routing Service Providers – see https://aka.ms/dr-sbc]

Direct Routing can also leverage Emergency Location Identification Number [ELIN] gateways [upcoming support – see https://aka.ms/dr-sbc]

Configure security desk notifications

Legislation: Dynamic Emergency Calling (source FCC)

Federal Communications Commission

Browse by CATEGORY | Browse by BUREAUS & OFFICES | Search

About the FCC | Proceedings & Actions | Licensing & Databases | Reports & Research | News & Events | For Consumers
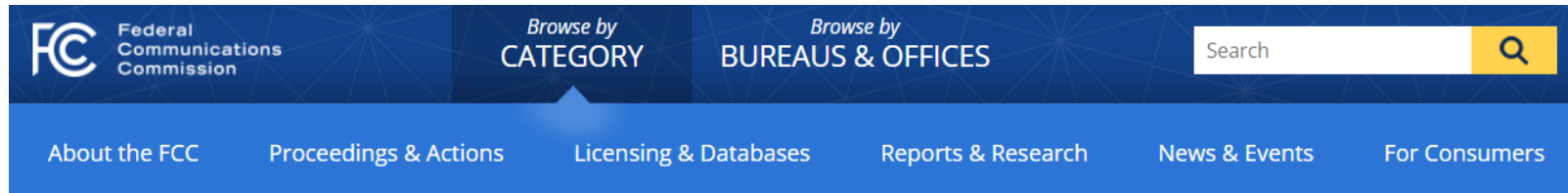
Home / Public Safety / Policy and Licensing Division / 911 Services /

Multi-line Telephone Systems – Kari's Law and RAY BAUM'S Act 911 Direct Dialing, Notification, and Dispatchable Location Requirements

911 Services

Annual 911 Fee Reports

911 Strike Force

911 Master PSAP Registry

Dispatchable Location

PSAP Text-to-911 Readiness and Certification Form

Task Force on Optimal Public Safety Answering Point Architecture (TFOPA)

Indoor Location Accuracy Timeline and Live Call Data Reporting

In August 2019, the Commission adopted rules implementing two federal laws that strengthen emergency calling: Kari's Law and Section 506 of RAY BAUM'S Act.

Kari's Law – Direct Dialing and Notification for MLTS

Kari's Law is named in honor of Kari Hunt, who was killed by her estranged husband in a motel room in Marshall, Texas in 2013. Ms. Hunt's 9-year-old daughter tried to call 911 for help four times from the motel room phone, but the call never went through because she did not know that the motel's phone system required dialing "9" for an outbound line before dialing 911.

Congress responded by enacting Kari's Law in 2018. Kari's Law requires direct 911 dialing and notification capabilities in multi-line telephone systems (MLTS), which are typically found in enterprises such as office buildings, campuses, and hotels. The statute provides that these requirements take effect on February 16, 2020, two years after the enactment date of Kari's Law. In addition, Kari's Law and the federal rules are forward-looking and apply only with respect to MLTS that are manufactured, imported, offered for first sale or lease, first sold or leased, or installed after February 16, 2020.

Under the statute and the Commission's rules, MLTS manufacturers and vendors must pre-configure these systems to support direct dialing of 911—that is, to enable the user to dial 911 without having to dial any prefix or access code, such as the number 9. In addition, MLTS installers, managers, and operators must ensure that the systems support

https://www.fcc.gov/mlts-911-requirements

Dynamic Emergency Calling Configuration Components

Trusted IP's
Identify Corporate Network Connected Clients

Location Information Service (LIS)
Dynamically Determine Emergency Address

Teams Emergency Policies
User or Site Assignment

Network Configuration:
Dynamically Assign Emergency Policies

Emergency Addresses and Locations

LIS Network Identifiers
- Subnet
- Port
- Switch
- Wireless Access Point

CsTeamsCallingPolicy:
Service Desk Notification

CsTeamsCallRoutingPolicy:
Routing of Calls for Direct Routing

Region

Site

Subnet

Dynamic Emergency Calling Considerations: Direct Routing

For Direct Routing, an Emergency Routing Service Provider is required for integration so that emergency calls with a dynamically acquired location will be automatically routed to the Public Safety Answering Point (PSAP) serving that location.

With Direct Routing, you must further define:

- Emergency calling policy**
- Emergency call routing policy
- Dialplan supporting emergency number routing
- Additional configuration as required for routing emergency calls with certified 911 Provider

Certified 911 Providers for Direct Routing

- Bandwidth Dynamic Location Routing
- Intrado Emergency Routing Service (ERS)
- Intrado Emergency Gateway (EGW)
- Inteliquent

For additional information, please refer to: https://aka.ms/tec

Dynamic Emergency Work From Home Considerations

Dynamic Emergency Calling User Experience
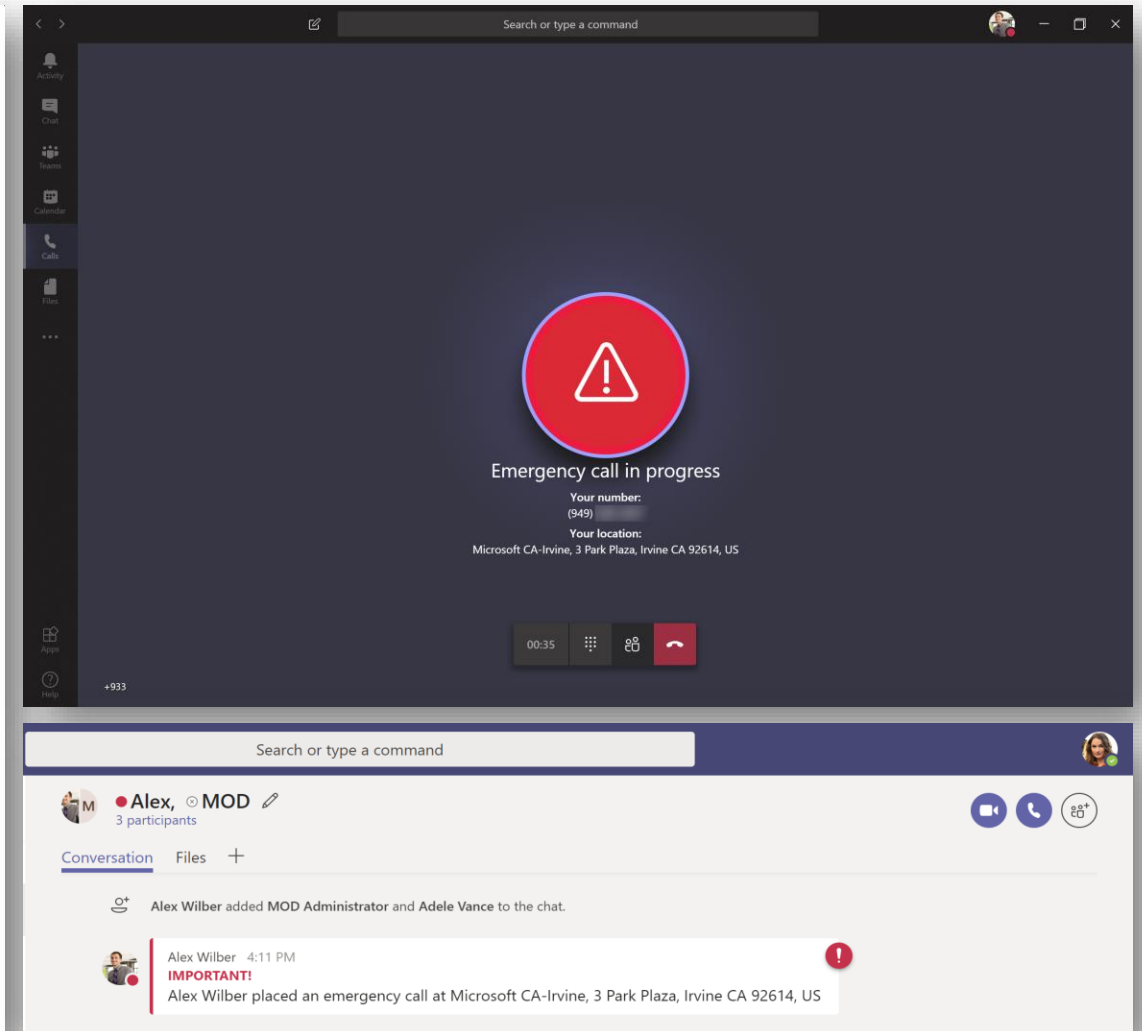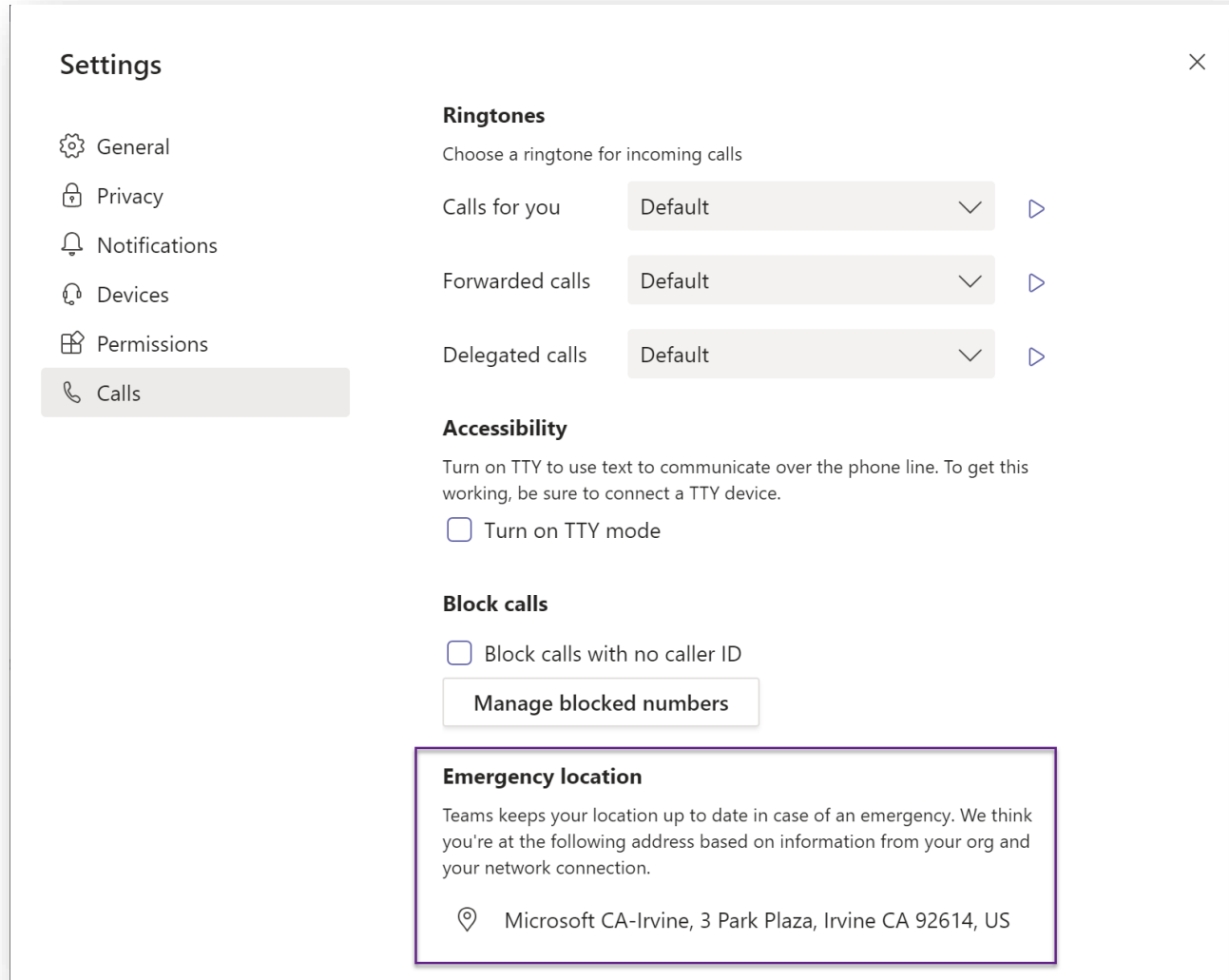
Dynamic Emergency Calling Security Desk Notification (e.g. Conferenced in, but muted)

Emergency call in progress

Your number:
(949) ▓▓▓▓▓

Your location:
Microsoft CA-Irvine, 3 Park Plaza, Irvine CA 92614, US

00:31

+933

+1 949-▓▓▓▓
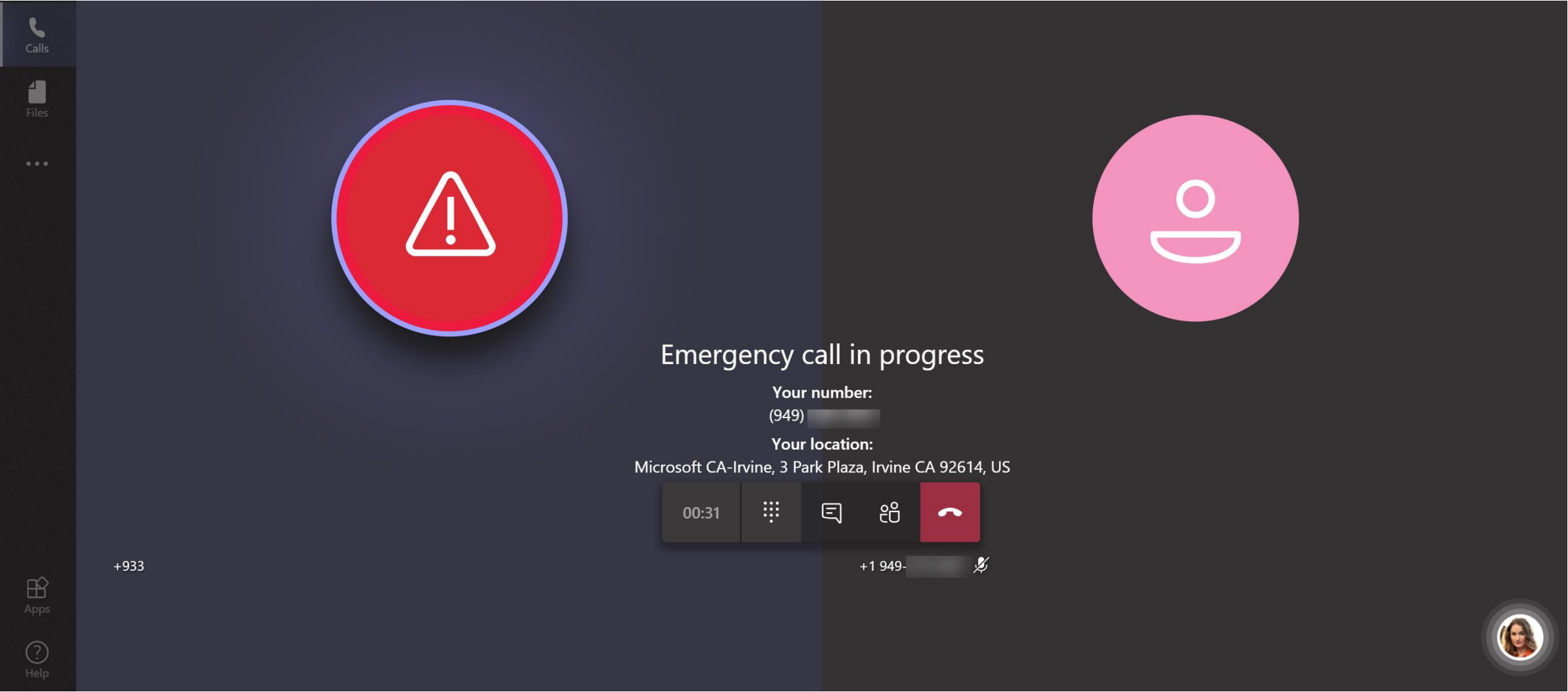
Teams Auto Attendants and Call Queues

Auto Attendant and Call Queues
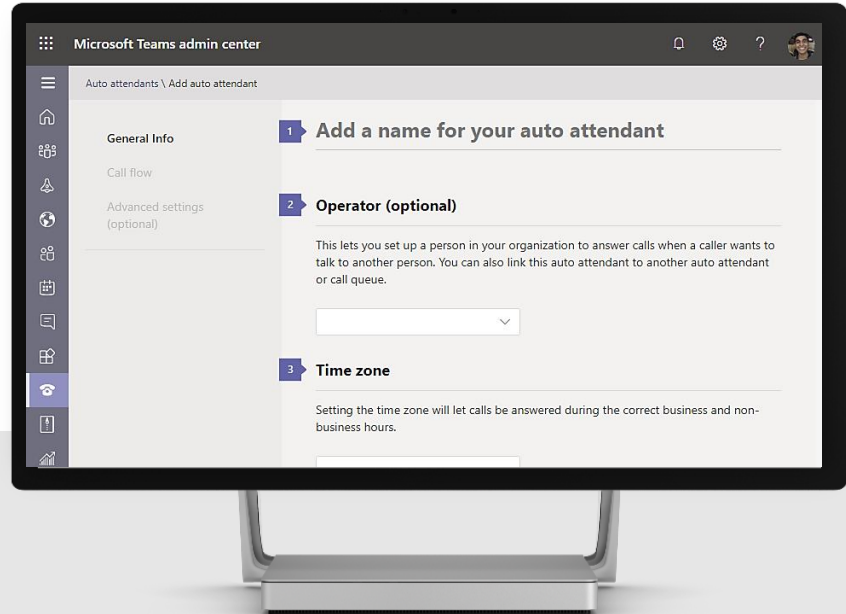
Auto attendant

- Toll-free and local service numbers
- Dial-by-name directory search
- Custom greetings and menus
- Operator option
- Speech recognition in 14 languages
- Admin portal UI and PowerShell cmdlets
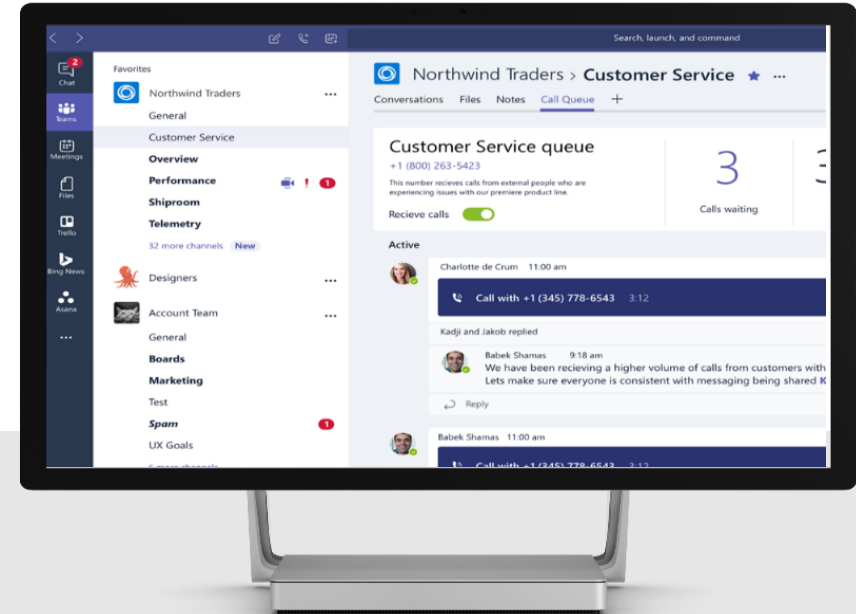
Call queues

- Coordinate teams of people working together in a channel
- Boost collaboration and efficiency with chat and call queues
- Enjoy role-based for supervisor / agents and agent sign-in/out
- Use supervisor listen, whisper, and barge with integrated chat for cross-agent support and teaming

Call queues and auto attendant prerequisites

To configure auto attendants and call queues, you need the following resources:

A resource account for each auto attendant and each call queue

Phone System Virtual User license for each resource account

At least one Microsoft service number, Direct Routing number, or a hybrid number for each resource account that you want to be directly dialable. The service number may be a toll or toll-free number.

Agent prerequisites

Agents who receive calls from the call queues must be Enterprise Voice enabled online or on-premise users

In addition, if the call queues are using Direct Routing numbers, agents who need to conference or transfer calls also require:

1. An online voice routing policy assigned if the call queue uses transfer mode

2. An Audio Conferencing license or online voice routing policy assigned if the call queue uses conference mode

If your agents are using the Microsoft Teams app for call queue calls, they need to be in Teams Only mode

Teams Voice
Device Considerations

Teamwork across spaces and devices

United by Microsoft Teams

Individual workspaces

Individual office or dedicated workspace

On the go or in transit at home

Group workspaces

Small, medium and large meeting rooms

huddle/focus spaces and touchdown spaces

collaboration workspaces

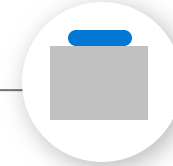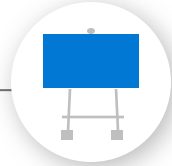**Personal devices**

Audio & video peripherals

PCs and Mobile

Phones

Shared devices

Conference phones

Teams Rooms

Surface Hub

3PIP Gateway (Available today)   EoL: July 31st 2023

Features Supported   ## Features Not-Supported

Authentication
Sign in with user credentials/Web Sign-in
Modern Authentication
Phone lock/unlock
Hot Desking Support

Calling
Incoming/Outgoing P2P calls from/to Teams users
In-call controls via UI (Mute/unmute, hold/resume, blind transfer, end call)
PSTN calls
Visual Voicemail
Static 911 support (e.g. Dynamic 911 not supported)

Device Update and Management
Device Update
In-band provisioning
QoE & Log Upload
Common Area Phone Support

Meetings
One-click Join for Pre-Scheduled Teams Meeting
Meeting Call controls (Mute/unmute, hold/resume, hang up, Add/remove participant)
Meeting Reminders
Add Skype for Business participant to ongoing meeting

Calendar and Presence
Calendar Access and Meeting Details
Presence Integration
Exchange Calendar Integration
Contact Picture Integration
Corporate Directory Access
Visual Voicemail

Native Teams Device Features (e.g. Examples)
Call forwarding*
Setting presence
DND (calls will still land on 3PIP)
Anything not listed as supported is unsupported

For additional information, please refer to : https://techcommunity.microsoft.com/t5/microsoft-teams-blog/skype-for-business-phones-3pip-support-with-microsoft-teams/ba-p/789351

SIP Gateway

Leverage your existing SIP phone investments

User authentication

Core calling features

- Inbound / outbound calls to Teams or PSTN (hold/resume with music, mute/unmute, DTMF)

- Call transfer (single step/blind, consulted transfer)

- Dial in/out from a meeting (audio conferencing)

- Device-only "do not disturb"

- Voicemail and message waiting indicator

Integrated into Teams routing policies/regulations

Device inventory management in Teams admin center

Static emergency calling, static emergency location support with security desk notifications

Compatible SIP phones

Cisco IP Phones with MPP firmware (6821, 6901, 7800 series, 8800 series)

Polycom SIP phones (VVX series 100, 200, 300, 400, 500, 600 etc.)

Yealink (T20 series, T30 series, T40 series, T50 series)

AudioCodes 400 HD series

For additional information, please refer to: https://docs.microsoft.com/en-us/microsoftteams/sip-gateway-plan

Microsoft

Thank you.