

# Microsoft Teams Voice Engineer: Plan and Configure Teams Phone

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Planning and Designing a PSTN Solution



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# Course Overview

**Planning and Designing a PSTN Solution**

**Designing and Configuring Emergency Calling**

**Managing Microsoft Teams Phone Numbers**

**Configuring Phone Policies**

**Configuring Auto Attendant and Call Queues**

**Configure Direct Routing**

**Configure Audio Conferencing**



# Exercise Files



# Overview



## **Identify requirements for Calling Plans, Direct Routing, and Operator Connect**

- **Identify Licensing Requirements**
- **Choosing a PSTN Solution**

## **Plan for Certified Contact Center Solution**

## **Plan Network Topology**

## **Install Microsoft Teams PowerShell Module**



# Microsoft Teams PSTN Connectivity

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# Teams Phone System



**Enables PBX Functionality in the Cloud**

**Enables Features Like:**

- Call Transfer
- Call forwarding and simultaneous ringing
- Call Park and retrieve
- Caller ID
- Cloud Voicemail
- And many more!

**Requirements for any Teams PSTN solution**



# PSTN Connectivity Options

## Calling Plans

Use Microsoft Cloud Infrastructure for PSTN Connectivity

## Direct Routing

Bring your own carrier using Session Border Controller (SBC)

## Operator Connect

Third-party solution that brings PSTN connectivity to Teams



# Calling Plans

**An all-in-the-cloud solution where Microsoft is your PSTN provider**

**Available in two plans**

- Domestic Calling Plan
- Domestic and International Calling Plan

**Available in multiple countries**

- Availability depends on the user's location, not tenant's location



# Calling Plan Minutes Example

## U.S Domestic

3000 minutes

## U.S Domestic and International

3000 domestic minutes  
600 International minutes

**Minutes are pooled at the tenant level**



# Breaking Down Calling Plan Minutes

## **Domestic**

- 10 users in the United States
- 10 users x 3,000 minutes
- Users share 30,000 minutes

## **Domestic and International**

- 5 users in the United States
- 5 users x 3,000 domestic minutes
- 5 users x 600 international minutes
- Users share 15,000 domestic and 3,000 international minutes

**Users share minutes based on local and Calling Plan Type**

**Minutes are for outbound calls**



# Direct Routing



## **Bring-Your-Own-Carrier**

**Use certified Session Border Controller (SBC)**

**Keep phone numbers with current carrier**

**Integration with existing infrastructure**

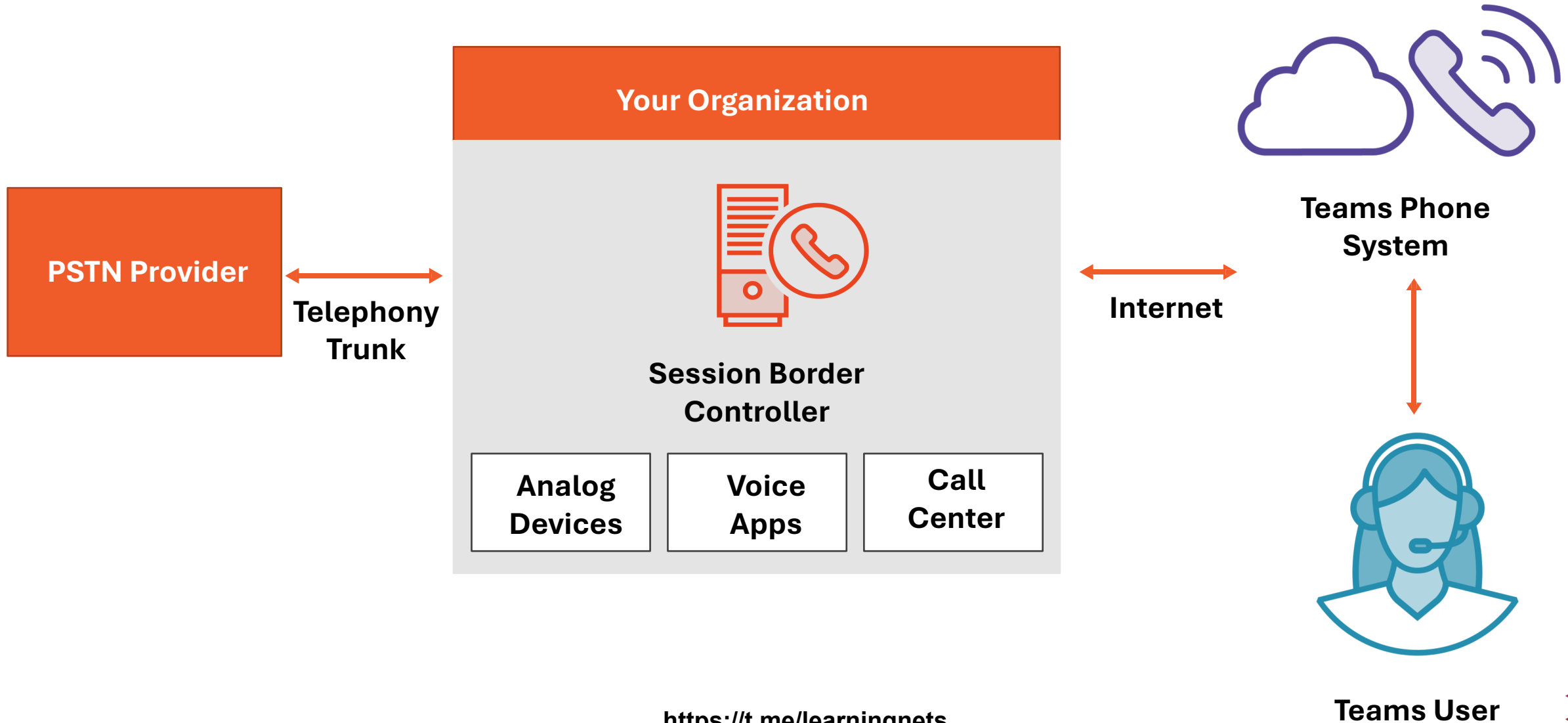
- Analog devices
- PBX or Call Centers

## **Scenarios**

- Calling Plans not available in country
- Backup or supplement to Calling Plans



# Direct Routing Infrastructure



# Operator Connect

## **Telephone carrier manages SBCs and PSTN connectivity**

- “Direct Routing as a Service”

## **Microsoft Operator Connect Program**

### **Useful if:**

- Calling Plans not available in region
- Preferred carrier participates in program
- Find a new carrier integrated with Teams



# Microsoft Teams Voice Licensing

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# Phone System



**Enables PBX capabilities in Teams**

**Requires user to have a “base” Teams License**

- Included in SKUs like
- Microsoft 365 Business Premium
- Microsoft 365 Business Standard
- Microsoft 365 Business Basic
- Microsoft 365 F3
- Office 365 E3

**Teams offered separately since 1<sup>st</sup> October 2023**

- E5 Includes Phone System but not “base” Teams

**Required for both Calling Plans and Direct Routing**



# Calling Plans



## Domestic

Allows outbound calls to the user's same location  
Combine with Phone System license



## Domestic and International

Allows outbound calls to all locations  
Combine with Phone System license



Direct Routing requires a Team license and a Phone System add-on license



# Microsoft 365 Business Voice

## **Small business (under 300 users)**

### **Voice license bundle:**

- Phone System
- Audio Conferencing
- With or without Calling Plan

### **Can be combined with:**

- Microsoft 365 Business
- Microsoft 365 Enterprise E1, E3, E5



# Teams Phone with Calling Plan

## New SKU

**Replaces Microsoft 365  
Business Voice for SMBs**

## Single Package

**Phone System and Domestic  
Calling Plan**



# Communication Credits

Pay As You Go Licenses

Pay for additional  
calling minutes

Minute pool  
depletion

Domestic users  
make international  
calls

Consumption billing

Unlimited licenses

Toll-free calling



Communication Credits have been upgraded to “Pay As You Go” Option Recently



# Audio Conferencing

## **Enables dial-in number on Teams meetings**

### **Scenarios:**

- Teams app is not available
- Meeting is audio only
- Internet connectivity is limited
- Dial-out to add users (call-me-at)

### **Add-on license assigned to individual users**

- No Included in E5

### **Starting March 1, 2022**

- Unlimited dial-in capabilities added to M365 and O365 licenses



# Specialty License

## Microsoft Teams Rooms

Designed for meeting  
room devices

Standard and Premium

## Common Area Phone

Includes Teams and  
Phone System Licenses

## Virtual User Licenses

Call Queue and Auto  
Attendants



# Choosing PSTN Connectivity

## Calling Plans

**Microsoft is your telephony carrier**

**Phone System + Calling Plan Licenses**

**Users share pooled minutes**

**Communications Credits for  
additional minutes**

**Not available in all regions**

## Direct Routing

**Keep existing telephony carrier (BYOT)**

**Phone System License Only**

**No pooled minutes (not required)**

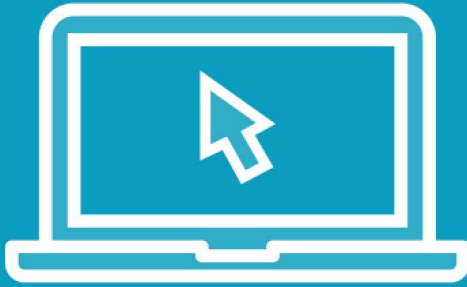
**Integration with other on-premises  
components (analog, contact center)**

**Deploy anywhere**

**Operator Connect**



# Demo



**Review Teams Licensing**

**Add voice licenses for multiple users**

**Set up the Communications Credits balance (Pay As You Go) model**

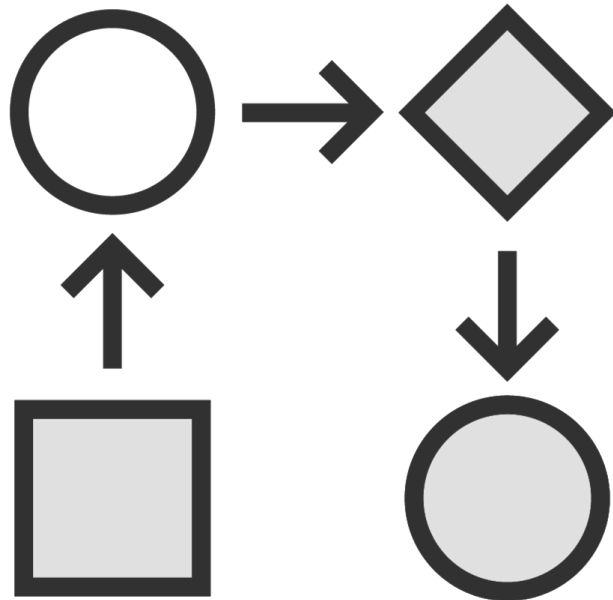
**Add the licenses to users**



# Certified Contact Centers

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**Auto Attendants and Call Queues meet most organization's needs**

**Some organizations need advanced capabilities**

- Integration with business tools and workflows

**Contact Center as a Service (CCaaS)**

**Certified Contact Center Solution providers that integrate with Teams**



# Integration Models

## Connect Model

Uses SBCs and Direct Routing to Connect to provider solution

## Extend Model

Uses Azure Bots and Graph API to create Teams Apps

## Power Model

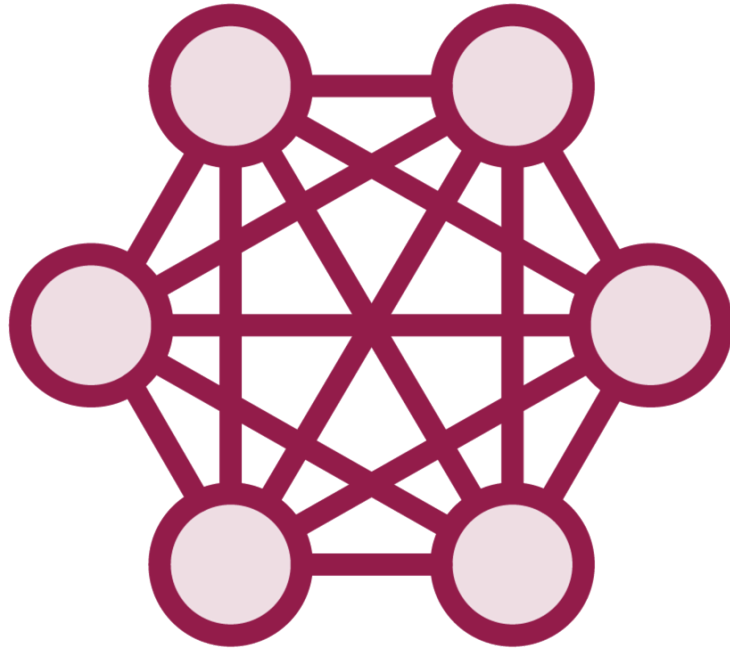
Uses SDK to provide Teams experience inside of custom app



# Network Topology

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**Network topology includes details about enterprise network**

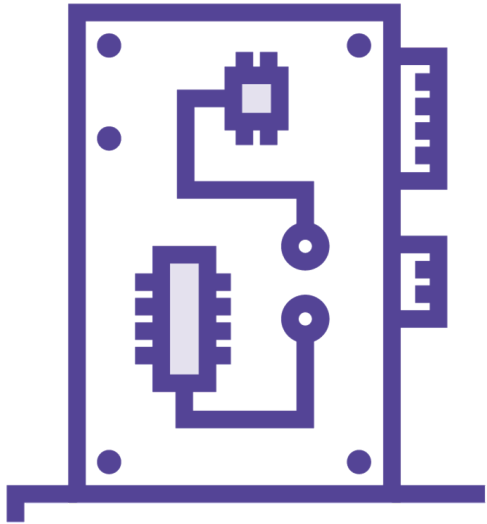
**Network topology is required for:**

- Local-based routing in Direct Routing
- Dynamic emergency calling

**Policy assignments at a network level**

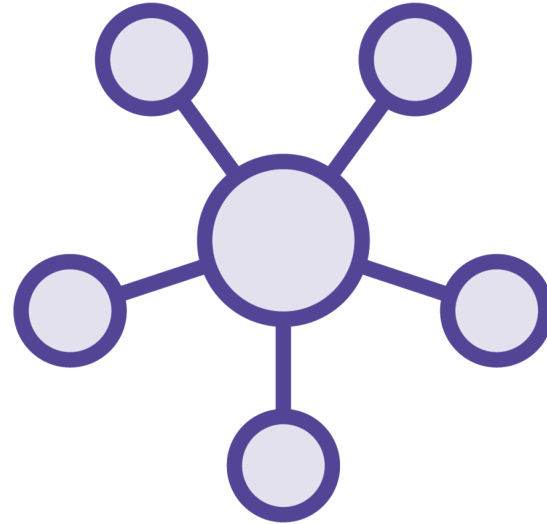


# Network Topology Components



## Network Subnet

Network CIDR ranges where clients are found



## Network Site

Collection of Network subnets representing a physical location



## Network Region

Collection of Network Sites over a geographic region



# Trusted IP Address



## **External IP Address of enterprise network**

### **Determines if user is inside the corporate network**

- If external IP Address is in trusted list, verifies internal subnet
- If no match, then user's location is classified as unknown

### **Helps determine available voice features**



# Demo

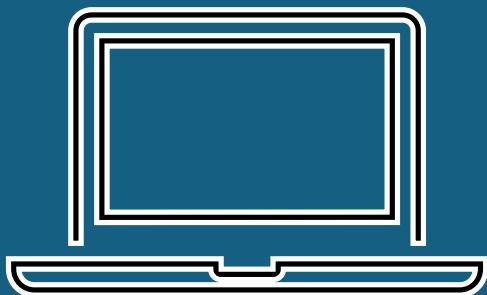


**Install Microsoft Teams PowerShell Module**

**Connect to Microsoft Teams Tenant**



# Demo



**Configure Network Topology in Teams  
Admin Center**

**Configure Network settings using  
PowerShell**



# Summary



## **Identify requirements for Calling Plans, Direct Routing, and Operator Connect**

- Identify licensing requirements
- Choosing a PSTN solution

## **Plan for Certified Contact Center Solutions**

## **Plan network topology**

## **Install Microsoft Teams PowerShell Module**



# Up Next: Designing and Configuring Emergency Calling

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