

Considerations for Skype for Business Cloud PBX

Purpose

This paper outlines the various considerations, including available features, cost, existing investments, quality/performance, environmental readiness, end-user culture, and IT support.

The authors write from experience of over 1400 successful Microsoft Unified Communications and Collaboration (UC&C) projects, ~200 of which had to do with Office 365.

Positioning Statement

Skype for Business provides an elegant platform for collaboration services, including dial tone. Replacing phone systems with hosted voice service isn't a new concept, but using Skype Cloud PBX is a rather recent option.

Takeaway: Replacing existing phone service with Cloud PBX is appropriate for **some** users in all organizations, but it is not yet appropriate for phone service for **all** users in **all** organizations. For those organizations, Skype for Business Server or a hybrid solution may make more sense.

Available Features

Cloud PBX functionality was released in Office 365 Skype for Business in December, 2015. A spike of initial early adopters has been followed by steady growth. What's holding some back? For one, the current release lacks features that some organizations need before moving all PBX functionality to Office 365. In 2016 and early 2017, additional features have been rolled to close the gap, but there are still notable improvements in Microsoft's roadmap. For a full list of what's available today, please see a [table of Skype telephony features](#) available online vs. on-premises.

In general, information workers are the ideal fit for Skype for Business Cloud PBX. The more mobile and collaborative, the more likely they are to want Skype. On the other hand, production workers or contact centers are less likely to be best served by the online release.

Takeaway: The PSTN calling features are in their early stages. However, with quarterly updates, additional use case needs will be met by the Office 365 cloud. Until then, hybrid environments (some users on premises, some in the cloud) will be the norm.

Cost

Cloud PBX is licensed on a per month/per user basis. It can be procured as part of the E5 bundle (\$15 at retail/list price) or a la carte.

PSTN Conferencing allows cell phone and landline callers to join multimedia Skype for Business conferences. This eliminates the need to have trunks coming into an organization's own data center for conference calls, and eliminates the need to have a third-party conference provider as a separate service – such as WebEx or GoToMeeting.

Cloud PBX provides dial tone/call control. There needn't be aren't any on premises Skype servers, and users are configured in the organization's 365 tenant.

| New Office 365 Add-ons | Price |
|----------------------------------|---|
| Advanced Threat Protection | \$2 |
| Customer Lockbox | \$2 |
| Delve Analytics | \$4 |
| Power BI Pro | \$10 <small>Available Standalone</small> |
| Equivio Analytics for eDiscovery | \$8 |
| Cloud PBX | \$8 |
| PSTN Conferencing | \$4* |
| PSTN Calling | \$24** |

Figure 1: A la carte Costs of Features in E5 Bundle

With Cloud PBX, there are two choices for where an organization's phone calls can terminate:

- 1) Calls can enter/exit your organization's facilities on premises through SIP trunks or through an existing PBX. Microsoft calls this option *Cloud PBX with On-Premises PSTN Trunking*.
- 2) If you prefer a 100% cloud model, a Microsoft Calling Plan allows calls to enter/exit through an Office 365 data center. In the table above, the \$24/user/month is the flat fixed rate to provide nearly unlimited domestic and international minutes. A more common subscription consists of \$12/month for domestic, with *metered* (by the minute) international calls for users who aren't making regular international calls.

Users can be mixed/matched within the same organization. Additional info can be found at: <https://technet.microsoft.com/en-us/library/mt631191.aspx>

Additional costs to consider include: headsets/handsets, network improvements, bandwidth, adoption, training, e911 service, contact center services, PBX integration equipment, and tech support.

Takeaway: Skype PSTN conferencing can not only save organizations money when compared to WebEx, PGi, AT&T Connect, etc. but in most cases will also be more efficient than running telco trunks into an on-premises Skype for Business server. To date, Cloud PBX PSTN Calling plans are less widely adopted.

Existing Investments

Most organizations have an on-premises PBX and try to maximize the lifespan of that capital expense. They also wish to minimize the disruption to end-users as they migrate to Skype for Business. To tie the existing PBX with the new cloud service, Microsoft's [Cloud Connector Edition](#) solution is deployed on premises.

This connector allows Skype users to call PBX users and vice versa. The connector also allows Skype users to make/take external calls when an organization chooses the On-Premises PBX Trunking model mentioned above. If the PBX can't support SIP, a PRI run from the PBX to a gateway to convert the traffic to SIP.

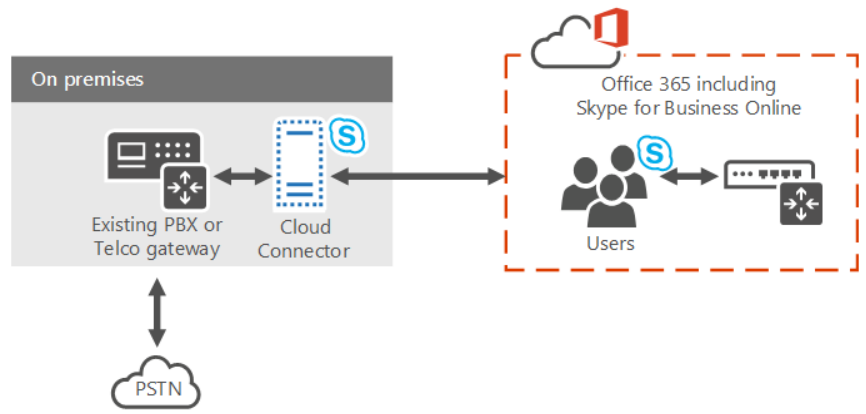


Figure 2: Cloud Connector Edition Integrates with local PBX

Takeaway: Skype allows you to move at your own speed, while still jumpstarting productivity.

Quality and Performance

The most common concern about running voice service from the cloud is that of voice quality. If bandwidth is plentiful and business requirements allow it, organizations *are* using the Microsoft Calling plans, over their ISP connection. Microsoft's data centers are located worldwide and as long as response times to their centers is adequate, voice quality is excellent. Packet loss and jitter also need to be minimized. Microsoft provides guidance and network requirements in their article: [Media Quality and Network Connectivity Performance in Skype for Business Online](#), and a [network testing tool](#) is also available.

Skype fits in well with enterprise intranet QoS policies. Computers and phones can tag their Skype traffic with priority, so that appropriately configured network equipment can quickly forward the voice/video traffic to its destination.

Call quality can be assessed using the Call Quality Dashboard. Support personnel can use the tool to determine if the issue is system or client related, or if a complaint may be due to other factors, such as a caller on a poor cell phone connection.

Takeaway: Skype is no different than other UCaaS, but if it's your first foray into the cloud, take time to assess, optimize, and manage the surrounding ecosystem.



Figure 3: Example Data from Call Quality Dashboard

Security and Compliance

Skype calls are encrypted using Secure Real-Time Protocol (SRTP) to keep them from being unknowingly tapped, while signaling/setup messages are encrypted using Transport Layer Security (TLS). Instant Messages (IM) can be archived, although for a small number of customers on-premises Skype has better IM compliance controls. Read [more about Skype security](#). The Office 365 service itself is secure, and has many proof points at [Microsoft's Trust Center](#).

Takeaway: Microsoft spends \$1B / year on R&D for security, which means most organizations cannot provide the same level of security in their own data centers.

Environmental Readiness

If the as-is ISP network isn't suitable for real-time voice or video, there are two other options. First, an on-premises trunk can transport calls in the aforementioned on-premises trunking model. Secondly, an [ExpressRoute](#) circuit can be provisioned between an organization and Microsoft's high-speed network backbone, which will optimize PSTN Conferences and calls using the Microsoft Calling plan. *Most* companies using PSTN Conferences are not using ExpressRoute, while *some* using PSTN Calling plans are.

For voicemail service to work with Cloud PBX, the organization's email must already be in Office 365 Exchange Online. Voicemail will appear in the user's Outlook inbox, provide for Message Waiting Indicator, and allow missed call logs and click to call back.

Takeaway: These are important prerequisites that if overlooked or misjudged, could lead to cost or schedule overruns. Qualified Microsoft partners can help make these important decisions.

Reliability

Microsoft promises a financially backed 99.9% uptime in Skype, but overall, it's only as reliable as the network and computers and phones that send and receive voice and video traffic. Taking precautions and understanding the options (i.e. on-premises Skype servers with survivable branch appliances) will help an organization make an informed decision.

Takeaway: The cost savings of the cloud come with trusting third party. If uncomfortable with that model, Microsoft provides more bulletproof on premises options, and hybrids.

Risk management

In addition to appropriately managing the network for voice/video traffic, there are other risks to manage:

- a) Porting phone numbers - Microsoft and partners like Enabling Technologies facilitate the legal process with the FCC, but the "losing carrier" can stall or otherwise cause delays.
- b) End user experience - "If you want to make enemies, try to change something," said Woodrow Wilson. Skype projects are not as simple as replacing one phone with another. If treated as such, results won't be ideal. Communicating with and supporting users before, during, and after migration is mandatory.

Takeaway: Porting numbers to *any* new carrier/system is rough. Set management's expectations. End users are as important as the technology itself, so we'll cover them again.

End-user culture

Skype is not a phone system, it's a Unified Communications and Collaboration tool. In order to reach desired outcomes of faster, more productive decision making and customer service, organizational change management techniques must be employed. It starts by evaluating the profiles of users in the organization, developing a plan of what features and devices to provide to them, and when. It continues with developing effective, pointed message for them (more than just email) telling them "what's in it for me?" Once they're engaged and excited, appropriate training (live and/or recorded videos) provide them the capacity to use the tool. Once deployed, continual learning will help them understand some lesser known but valuable features (i.e. muting a noisy line on a conference call, or posting a recording of a team meeting onto SharePoint).

Takeaway: Planning for the human side of change is as important as the technical track.

IT support.

Skype phone service is managed through the Office 365 admin portal. It's quite simple, but different than existing systems, so training and ramp up of administrative and troubleshooting functions is necessary. Using the Call Quality Dashboard will provide insight into issues, but stops short of pinpointing the root cause.

Takeaway: Trained IT personnel or qualified Microsoft partners should be engaged for day-to-day operations.

Final Takeaway:

Organizations already using Office 365 should pilot Cloud PBX at their earliest convenience. Doing so will prepare them to execute quickly when the need for a new system arises at a new location, or to replace a dying phone system. As the service matures, feature parity will make it a viable option for larger user groups. Organizations who get a head start can start changing the culture of the organization, as it did at [Architecture and Engineering firm GAI](#): "The best testament to the success is hearing Skype become a buzzword in our culture now," said CIO Don Bender. "People walk the halls saying, 'I'll Skype you.' You hear it all the time at GAI."