

Part 2 - IU13 Local and Long Distance Program Webinar Series

Moving your Telephone Service to the 21st Century

Roy Hoover, Network and Telecommunications Coordinator
Lancaster Lebanon IU13
roy_hoover@iu13.org
@RoyWHoover

Michael I. DeBakey, Network Engineer
Lancaster Lebanon IU13
michael_debakey@iu13.org
@MikeDeBakey





Topics Covered

- Why Phones?
- A Brief History & The New Reality
- Telephone Provider Choices
- Technology Planning: What Do I Need?
- VoIP Definitions
- VoIP Pricing Models
- Building a UC Plan
- Q&A

Why Phones? What do we need to work?

- Parent contact
- Emergency dialing
- Paging
- Conferencing
- Fax
- Credit card machines





Telephone Provider Choices for Schools

- Traditional carrier provided, tariff-rate service
 - Offered via telephone company
 - Copper circuits, ISDN, PRI or analog POTS
 - Requires on-site PBX
- Centrex
 - Offered via telephone company
 - Voice/data carried over ISDN to on-site PBX
 - PBX provided by telephone company (not always on-site)
- **Business-class Voice over IP (VoIP) service**
 - Offered via cable (DOCSIS), carrier ethernet, or cloud (“BYOI”)
 - Voice traffic carried over IP network (yours or provider’s)
 - Requires on-site or cloud hosted PBX
 - “Per channel” rate options becoming more popular
 - Fewer fees, generally

(We will focus on this)



What Do I Need for VoIP to Work?



Call Processor - Can be locally hosted or cloud hosted, may be referred to as your “PBX”. This is where extensions are defined, directories live, and configuration data for your phone system is stored. The call processor is used for call signalling and media transport.

Free Open Source Software options:

The logo for FreeSWITCH, featuring the word 'FreeSWITCH' in a teal, sans-serif font. Above the 'S' and 'W' are three curved lines representing a signal or network connection.

The logo for Asterisk, featuring an orange asterisk inside a speech bubble shape, with the word 'Asterisk' in a black, sans-serif font below it.

Many paid and open source PBX platforms are derived from these platforms with their own custom GUI

What Do I Need for VoIP to Work?



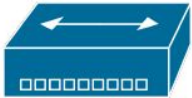
Media Endpoint - Handset or softphone client that provides connectivity between the call processor and the end user.



Enterprise PBX vendors manufacture their own proprietary endpoints for use with their systems. In the case of free open source PBX systems, endpoint choices are not proprietary, allowing for a wide range of options based on budget, use case, and application.



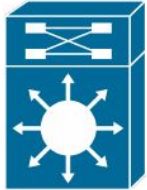
What Do I Need for VoIP to Work?



Media Gateway (optional) - Demarcation point for interconnection with TDM-based phone service (PRI, POTS). “TDM”, or “time division multiplexing circuits” provide another means of connecting to the PSTN and predate the use of IP telephony.

Another use of a media gateway could also include providing access to legacy systems such as cordless phones or fax machines.

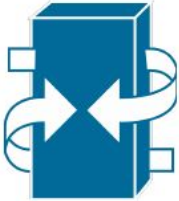
What Do I Need for VoIP to Work?



Network - A good quality local area network (LAN) throughout your facilities.

Power over Ethernet (PoE) is recommended for telephones.

What Do I Need for VoIP to Work?



Provider - Public Switched Telephone Network (“PSTN”) Provider. This is the entity responsible for billing, management of interconnectivity infrastructure with the outside world.

The provider may install their own equipment or allow for a “BYOI” approach which requires the customer to furnish additional components such as a Session Border Controller (“SBC”) to allow for a demarcation point for call handling between the provider edge equipment and customer PBX.



What Do I Need for VoIP to Work?



Call Processor - Can be locally hosted or cloud hosted



Media Endpoints - Handset, softphone, analog telephone adaptor



Media Gateway - (Optional) Demarcation point for TDM-based phone service (PRI, POTS)

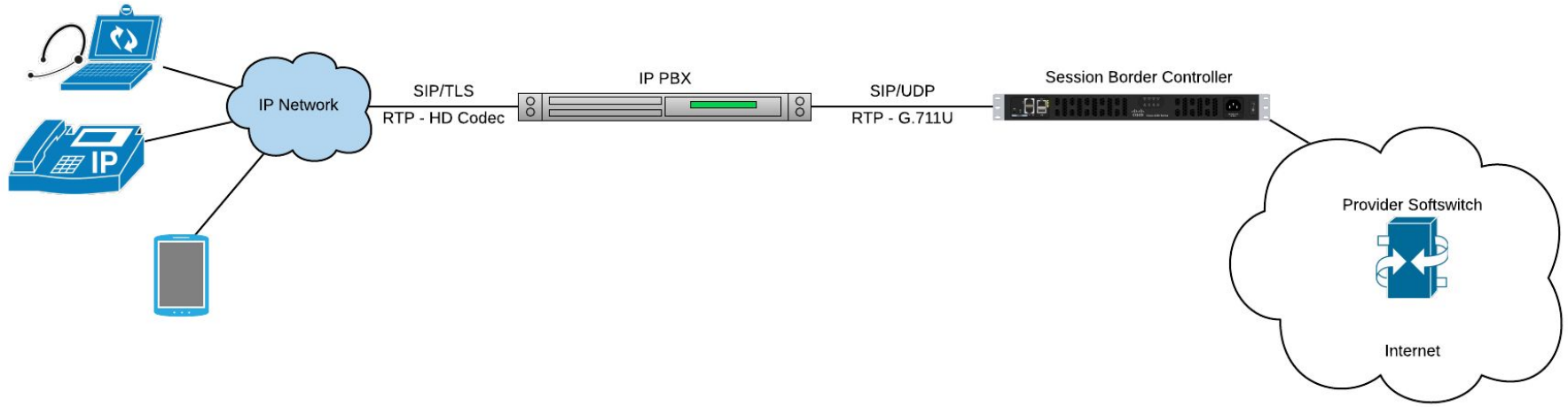


Network - The infrastructure needed to transmit and receive telephone traffic



Provider - Public Switched Telephone Network (“PSTN”) Provider

Typical VoIP Topology





VoIP Telephony Pricing Models/Terminology

- By minute - Per minute usage cost
- By channel - Unlimited duration of calls over set number of lines (channels in the SIP world)
- By E911 number - Price per listed number presented to local PSAP in the event of 911 call
- By DID (Direct Inward Dial) - Price per incoming direct phone number to your PBX
- Long distance most always included (lower 48 states)
- NO LONGER CONCERNED about IntraLATA, IntraState, National call posture



VoIP Pricing Can Be Easier to Understand

(Once you understand the technology)

- **Changes in technology** have ushered changes in how services are billed
- **Telco infrastructure requirements** for VoIP requires less proprietary hardware (softswitch)
- **Less industry protection** related to interconnection fees
- **Blocks of long distance minutes** with overages are less prevalent among VoIP Providers
- **Lines blurred** between local and domestic long distance
- **Pricing reflects industry shift toward “unlimited”** with a “gotcha” here and there
- **Need to get the “out the door” price**, with taxes and fees, generally priced based on...
 - How many concurrent calls do you need?
 - How many phone numbers (DIDs) do you want?
 - How are you connecting to the provider?



Final Observations

- **IT needs to be involved in infrastructure planning decisions related to telecommunications**
- VoIP represents a general trend in the technology landscape toward convergence of media services: One network, multiple services, delivered over your existing Internet connection
- Plan for system redundancy and redundant call paths to VoIP carrier
 - May need to discuss additional Internet connections and hardware
 - Redundancy on an IP network is easier and cheaper
- As with any telephone system change, considerations when someone dials 911 in an emergency scenario must be considered.
 - What path will the call take?
 - What telephone number is presented to the emergency operator?
 - If that number is dialed, what phone will ring? (Callback)
 - E911 regulations - Dispatchable location, “911” pattern requirement
- SIP is changing voice communications similarly to how the web changed how we communicated 20 years ago



Next steps: Local & Long Distance Phone Service Provider

- Contact your existing provider and investigate what service options are available for your school.
- Shop other providers to compare choices and pricing.
 - One option: IU13 Telephone Service Master Agreement with Telesystem
 - Competitive Pricing
 - IU13- Bid Compliant IU13#189-015
 - 3-Year rate lock - June 30, 2022
 - Flexible service model for small & large schools
 - Join anytime during the year
 - Ask for a quote, even if you're just curious about how it compares to your current provider.
- Use these quotes to explore and map out the vision for your Schools Unified Communication project.



Need Information? Let Us Help You Plan for UC!



Lancaster Lebanon IU13 IP Telephony Services

Jessica Diller, Program Director for Marketplace Services

jessica_diller@iu13.org

717-606-1770

Steven Frey, Senior Collaborative Services Manager

steven_frey@iu13.org

717-606-1607



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Q&A

Upcoming webinar:

October 23, 2019 - What is Next? Moving Your Telephone Project Forward

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