The IP-PBX

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The Analog/Legacy PBX is dying...

Advantages of IP PBXs...

1. Single Network
   - Easy installation an setup
   - Traditional PBXs require their own network and it is quite expensive/time consuming to build a separate telephone network spanning the entire business location(s). With IP Telephony, the Computer Network can be used to carry voice, video, data, and mobility features

2. Multiple Office Peering
   - IP PBXs transmit voice calls over the WAN IP Network

3. GIGANTIC Cost Savings
   - No Long distance with VoIP
   - Sip Trunking

4. Much easier System Management
   - Web User Interface
   - Hosted IP PBX (managed by provider)
The Analog/Legacy PBX is dying...

Advantages of IP PBXs...

5. Softswitches
   - Some IP PBXs are software that can be run on existing computers/servers
   - Asterisk, Tribox, FreePBX

6. Integration of multiple technologies
   - Unified Communications (voice, video, data, and mobility)
   - Mobile – softphone use
   - Fax
   - CRM software

7. State-of-the-art Security
   - Encryption (TLS and SRTP)

8. Scalable
   - Add more users/extensions as you need them
   - Choose and customize the features you need

9. SIP!!!
   - Open source technology eliminates vendor lock-in

10. SIP Endpoints rock!
    - Power of the internet and mobile devices in one
What is an IP-PBX

PBX = Private Branch Exchange

The central switching system for phone calls, video calls, email, fax, instant messaging, conferencing solutions, SMS, and mobile telephony within a business. The PBX handles internal traffic between stations and acts as a gatekeeper to the outside world.
IP-PBX System

1. Wireless/Fiber IP Network
2. IP-PBX (or softswitch/hosted network)
3. Endpoint (ex: IP Phone)
**External Calls**

Endpoints → PBX → Telephone Service/SIP Trunk → Outside World

**Internal Calls**

Endpoints → PBX → Endpoint being contacted
Basic IP-PBX Setup

- PSTN
- E1
- FXO
- PBX
- IP Network
- Fax
- IP Phone
- IP Video Phone
- IP Camera
- Local PSTN
- VoIP Gateway
- Analog Telephone
- Analog PBX
Shared Access to Limited Resources

Rather than having a separate line for each phone, a PBX allows a business to share a smaller pool of lines across the entire business.
The Backbone of Your Business

- Call-routing
- Call Transfer
- Call Block
- Voice Messaging
- Call Queue
- Voice Conferencing
- Call Forwarding
- Call Retrieval
- Music On Hold
- Ring Group/Hunt Group
- Call Recording
- Call Park
- Intercom/Paging
- Call Hold
- Do Not Disturb (DND)

- IVR
- Auto-Attendant
- Click to Dial
- Busy Lamp Field (BLF)
- Codec support
- Fax
- Phonebooks
- Call Detail Reporting (CDR)
- Voicemail/fax forwarding to email
- System Backup
- Mobility applications
IP-PBX Must Have Features

1. Voice Messaging  (voicemail to email)
2. Mobility Applications  (remote IP extensions, find me/follow me, softphone applications, etc)
3. Conferencing  (voice and video)
4. Reporting  (CDR, Call-Recording)
Basic Advantages of IP-PBX

1. One-time deployment cost
2. Enormous savings on Service costs
3. Built-In Features (IVR, auto-attendant, etc.)
4. Data capability – CDR, Call Recording, etc.
5. Multiple-office peering
IP-PBX Peering

- **Web Admin**
- **HTTP/HTTPS**
- **FXS 1**
- **FXS 2**
- **FXO lines**
- **PSTN**
- **Office 1**
- **Office 2**
- **LAN**
- **WAN**
- **PBX**
- **FXO lines**
- **Internet Network**
- **SIP Trunk Provider 1**
- **SIP Trunk Provider 2**
- **GUI**
- **Web Admin**
- **TLS/SRTP/SIP/RTP**
- **Auto-detection and Provisioning**
- **TCP/RTSP**
- **LAN DHCP**
- **IP-PBX Peering**

Devices and Protocols:
- GXP2120
- GXP2124v2
- GXP3175v2
- GVP3672 HD/FHD
- GVP3140v2
- DP715/710

Innovative IP Voice & Video.
Unified Communications
= Voice, Video, Data, and Mobility features
Unified Communications

Voice

- Traditional voices features
- Integration of voice features with video, data, and mobility applications
  - Door Access cameras
  - Video Surveillance cameras
  - Softphone applications
  - UC desktop clients
Unified Communications

Video

- Video phones
- UC Desktop clients
- SIP Door Cameras
- IP Video Surveillance Cameras
- Video conferencing systems
Unified Communications

Video Surveillance Integration

- Create a comprehensive solution to view, monitor and receive alerts from IP cameras
- Register IP cameras to the PBX
- Make video calls to IP cameras to view live feeds
- Speak through cameras with 2-way audio & video (door entry)
- IP cameras can be set to automatically call video phone when alert is triggered
- Receive alerts from anywhere in the world
Unified Communications

Data

- Integrated data features
  - CRM programs
  - Call Recordings
  - CDR
  - Phonebook files (LDAP)
  - Voicemail/fax forwarding to email
  - Automatic system backup
  - BLF
  - Remote Access BLF
Unified Communications

Mobility

- Desktop UC clients
  - IM, Voice calls, video calls, CRM
- Access everything you need from anywhere
  - Call recordings
  - CDR
  - Fax
  - Voicemail
  - System settings
  - System backup
- Softphone Applications
- Multiple office peering
Advantages of IP-PBX for Employees

1. **Mobility** — access to extension, voicemail, fax, call-routing, video conferencing, SMS, Presence, etc.

2. **More Communication Options = More Productivity**
   – fax, voice, video conferencing, video surveillance, data, and more

3. **More Voice Options** — Built-in call-routing, call transfer/park/queue/hold, Ring/Hunt Group, IVR, auto-attendance, etc.

4. **Interconnected Business** — one platform for all communications, making it easier than ever to access any phonebook, call, fax, and keep in touch with fellow employees

5. **Keep Closer contact with Clients** — video calls, video conferencing, voice conferencing, etc.
Advantages of IP-PBX for Businesses

1. Enormous Cost Savings
2. More Communication Options = More Productivity
3. Future proof – easily add users/features
4. Connect Multiple Offices/Locations
5. Unified Communications functionality
6. Web User Interface Management
7. Features built-in
# Hosted IP-PBX vs. On-Premise IP-PBX

## Hosted IP PBX
- PBX hardware is Off-site
- Support/Maintenance controlled by Service Provider
- Add new users online
- Package deals

## On-Premise IP PBX
- PBX hardware is on-site
- Support controlled on-site
- Full on-site control of setup, management, additions, etc
- Web User Interface
Hosted IP-PBX vs. On-Premise IP-PBX

Considerations

1. Total Cost of Ownership
2. Bundled Features
3. Ease of Customization
4. User Experience
5. Cost and Ease of Tech Support
Hosted IP-PBX

- Also known as “Cloud PBX”
- Outsources PBX hardware and control
- Often bundles various services
- Often requires service contracts/annual contracts
- Hosted provider controls maintenance, updates, etc.
- On-premise endpoints connected to Hosted PBX through the internet
On-Premise IP-PBX

- PBX is at your business location
- You choose service provider
- Maintenance and additions are done by business (IT Manager, Installer, Reseller, etc.)
- Ability to pick all features freely
- Business has full control of PBX
Cost Considerations

Hosted IP-PBX vs. On-Premise IP-PBX

1. Setup costs
2. Maintenance Costs
3. Ongoing Costs
4. Service Provider Costs
5. Fees
6. Contracts/Leases
Future Expansion

Hosted IP-PBX vs. On-Premise IP-PBX

1. Control of Expansion?
2. Risk
3. Flexibility of Expansion?
Control Considerations

Hosted IP-PBX vs. On-Premise IP-PBX

1. Internal control or out-sourced control
2. Cost of internal control vs. out-sourced control
Flexibility

Hosted IP-PBX vs. On-Premise IP-PBX

1. Pre-set list of features vs. Customizable features

2. Do you have the technical resources?
Range of Features/Options

Hosted IP-PBX vs. On-Premise IP-PBX

1. Does it have the feature set you want?
2. How easy is it to add features?
Implementation

Hosted IP-PBX vs. On-Premise IP-PBX

1. Initial Setup time and cost of setup

2. Support/control off-site vs. on-site
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