

# Voice Over Internet Protocol (VoIP)

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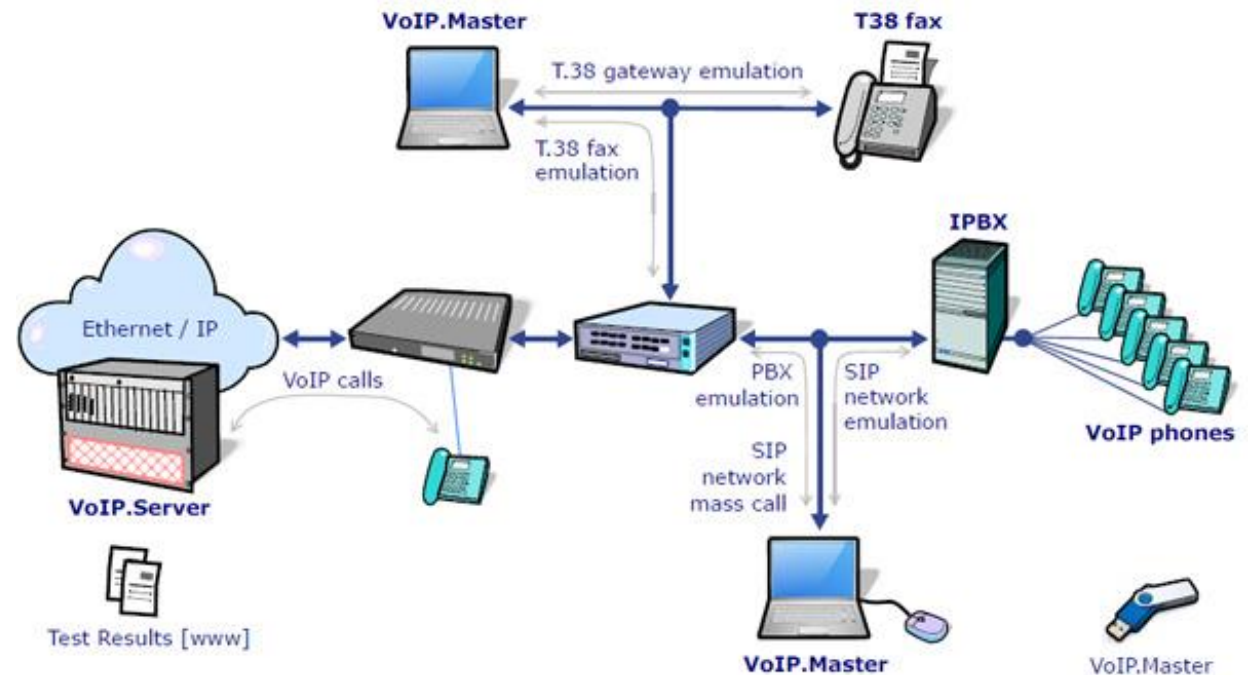
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# What is VOIP?

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- Voice transmission over the network
- Sound quality requires a stable network
- VOIP security is directly related to network security



# VOIP-based solutions

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- Centralized telephone systems (IPPBX)
- Call Center
- Smart telephone systems
- International phone
- Public Services
- Internet fax, messenger, email center, video conferencing

# VOIP phone systems

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## ➤ Commercial telephony systems

The Avaya logo consists of the word "AVAYA" in a bold, red, sans-serif font.The Cisco logo features a blue signal icon above the word "CISCO" in a blue, sans-serif font.The Mitel logo includes a blue icon of two interlocking rings followed by the word "Mitel" in a blue, sans-serif font.The Polycom logo features a red and blue circular icon followed by the word "Polycom" in a black, sans-serif font.

## ➤ Open Source telephony systems

The Issabel logo features a grid of colored dots (white, teal, orange, red, purple, yellow) to the left of the word "Issabel" in a dark blue, sans-serif font.The Asterisk logo features an orange asterisk inside a speech bubble icon above the word "Asterisk" in a grey, sans-serif font.The Trixbox logo features the word "trixbox" in a grey and green, sans-serif font, with a green diamond shape replacing the letter 'o'. Below it is the tagline "The Open Platform for Business Telephony" in a smaller, grey font.The FreeSWITCH logo features a blue icon of a signal tower above the word "FreeSWITCH" in a blue, sans-serif font.

# Introducing Asterisk

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- ✓ Its development began in 1999
- ✓ The first edition was published in 2001
- ✓ They wrote a graphic environment for it called FreePBX
- ✓ A Canadian company called sangoma bought it



# Introducing ISSABEL

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Issabel

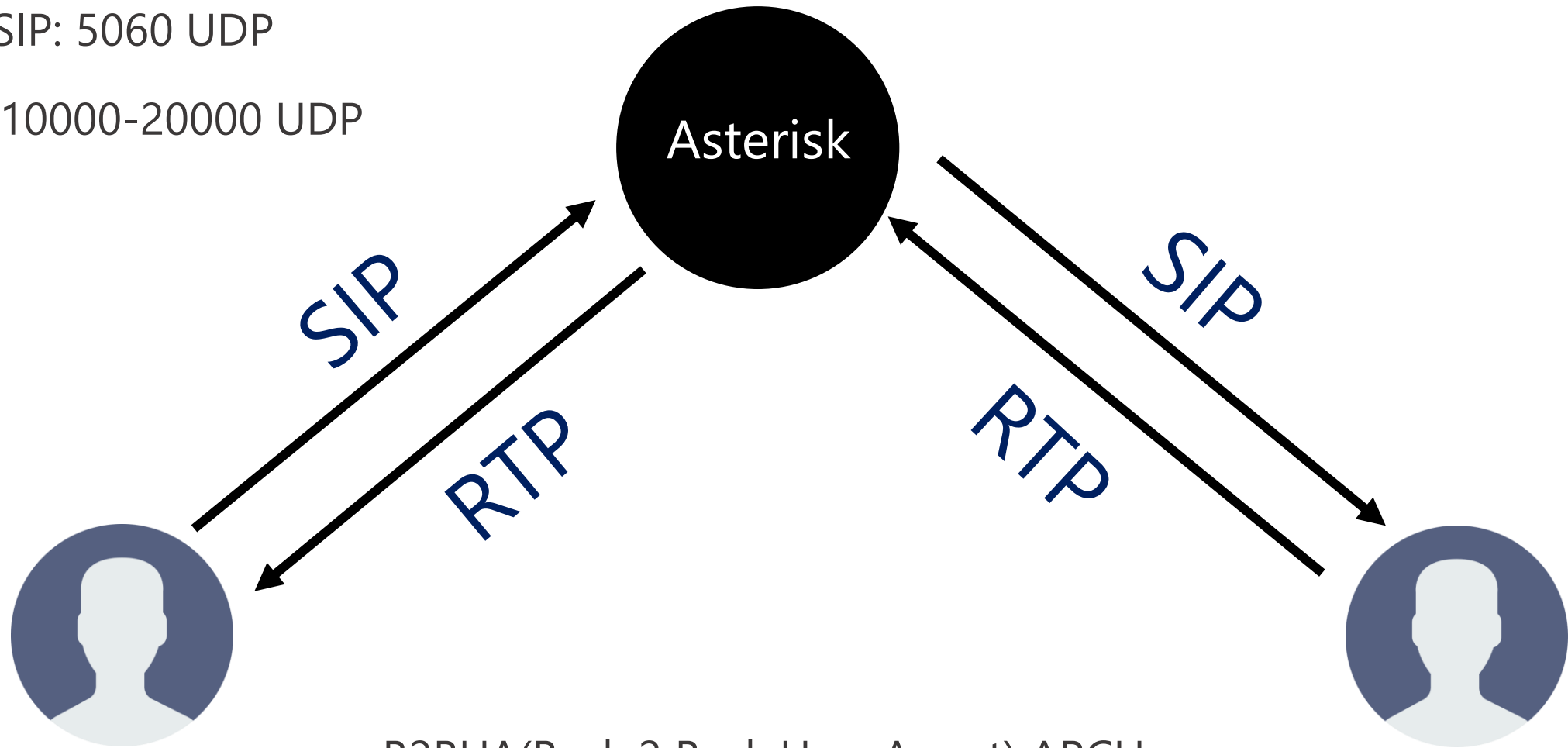


# Asterisk Architecture

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SIP: 5060 UDP

RTP: 10000-20000 UDP



B2BUA(Back 2 Back User Agent) ARCH

# VoIP Protocols

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**IAX2** Inter  
Asterisk eXchange

**RTP** Real-time  
Transport Protocol

**SIP** Session  
Initiation Protocol

# Voice and Video Codecs

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<b>H264</b>	<b>iLBC20</b>	<b>G722</b>	<b>G723</b>	<b>G729</b>	<b>G711</b>	
Video	Audio	Audio	Audio	Audio	Audio	Codec type
450 Kb/s 480 x 270 250 Kb/s 320 x 180	37.7 kb/s	87.2 kb/s	21.9 kb/s	31.2 kb/s	87.2 kb/s	The volume of package for each conversation
Free	Free	Free	Commercial	Commercial	Free	license
Yes	Yes	Yes	No	No	Yes	Available in Isabel

# References

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- 1) <https://its.iust.ac.ir/service/VoIP>
- 2) <https://nexfon.ir/voip-line-vs-landline/>
- 3) <https://www.fcc.gov/general/voice-over-internet-protocol-voip>
- 4) <https://avashnet.com/what-is-voip/>
- 5) <https://www.novinfoip.com/wiki/what-is-voip/>
- 6) <http://www.mahampardaz.com/ArticleDetails/what-is-voip>
- 7) <https://blog.idehal.org/what-is-voip/>

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Thanks for your attention

Question ?