


# Asterisk for IR Exchanges



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# Policy Circulars

- ▶ Telecom Circular 12/2012
  - ▶ Asterisk software was standardized for use in Indian Railways.
  - ▶ IRISSET to provide training on Asterisk.
- ▶ Telecom Circular 12/2015
  - ▶ Because of difficulty in using Asterisk for Railway exchange, other open standard based software were also allowed to be used in IR.



# Policy Circulars

- ▶ Telecom Circular 4/2022
  - ▶ Review of VoIP exchanges on IR was done.
  - ▶ Asterisk SW used in some Railways exchange.
  - ▶ Asterisk is being actively developed and supported by the open source community.
  - ▶ Guidelines issued to use Asterisk Uniformly over Indian Railways.



# What is Means?

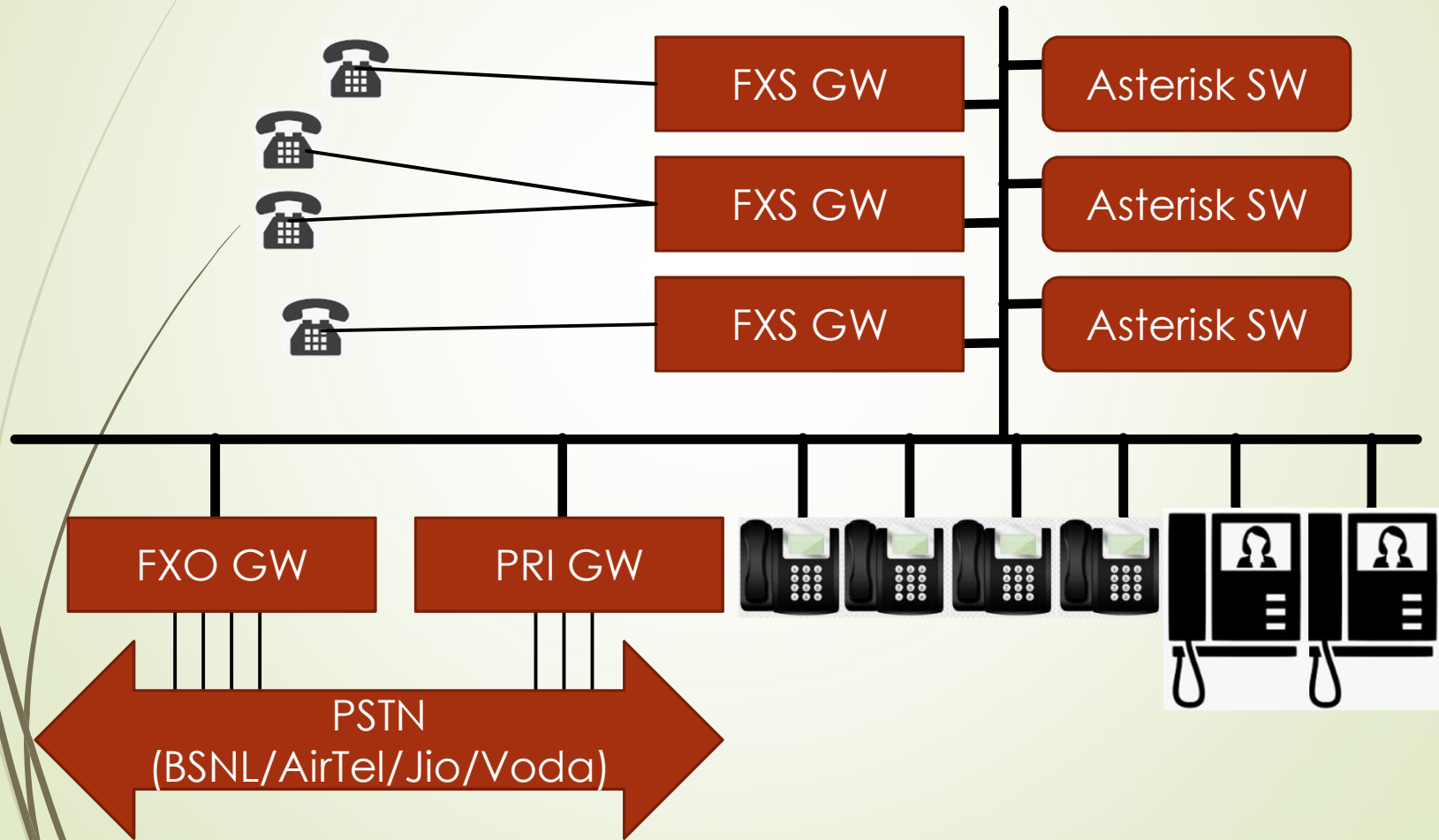
- We need to learn only one software.
- No cost. Download software.
- Configuration by using Command-Line-Interface (CLI) tool being used in ECR.
- IRISSET will train on installation, configuration, and commissioning of Asterisk exchange using the configuration tool.
- No AMC cost. No maintenance required.



# What is Means?

- Only common-off-the-shelf servers to be used for exchange. No more propriety hardware.
- Open Standards - Use IP phones and gateways of different OEM vendors. They work together.
- Standard exchange architecture for small as well as big ones – Achieve uniformity.
- IRISSET to be the Centre of Excellence for Use of Asterisk on Railways.

# Asterisk Exchange Architecture





# Features in Brief

- ▶ Audio and Video Telephony.
- ▶ Single phone to cater for
  - ▶ Departmental Intercom, Railway phone, PSTN phone, BYTE Intercom.
- ▶ Boss Secretary configuration.
- ▶ Conferences – Attended and unattended.
- ▶ CDRs, Call Forwarding, Call Parking, Call Transfer, Caller ID, Voice Mail.



# Exchange Components

- VoIP SIP Software
  - Asterisk – Download from Internet/Railnet
- Servers
  - Common-off-the-shelf servers
  - HP/Dell/Lenovo/Other Make in India servers
- FXS/FXO/PRI Gateway
  - CoreIP/Coral/Techroute/Sangoma/Other Make in India Product.
- IP Phones
  - CoreIP/Coral/Yealink/Mitel/Siemens/Alcatel/ Other Make in India Products etc.





# Network Cabling

- ▶ Railnet to be used for Telephony as well. No separate LAN system.
- ▶ QoS in LAN (IEEE 802.1p) and WAN (DiffServ Code Points) – Directions for uniformity will be issued.
- ▶ Distributed FXS gateway – Avoid outdoor cabling of Telephone cables. Use Ethernet/ optical cables only in the outdoor.



# NGN Connectivity

- ▶ NGN established by RailTel is available on Railnet.
- ▶ Ready for setting up SIP trunk.
- ▶ Can be used when the QoS across the Railnet is configured uniformly.
- ▶ RailTel working on bringing this uniformity.
- ▶ No special connection/equipment. Only configuration for SIP trunk with NGN.



# What is Board/RDSO doing?

- ▶ RailTel asked to standardize the QoS model to be implemented on Railnet for voice/video telephony on Railnet with SIP trunks with NGN.
- ▶ Committee formed to issue standard architecture, schedule and specifications for implementation of Asterisk exchange. Guidelines expected to be issued by 31<sup>st</sup> July.



# Role of Railways

- Recast estimates to fit Asterisk based exchange.
- Float tender as per specification guidelines that will be issued.
- Implement distributed FXS gateways if analog phones required.
- Send SSE/JEs trained in Asterisk basics for advanced Asterisk training to IRISSET.



# Role of IRISSET

- Setup a portal for Asterisk information on Railnet for Railways to download Asterisk and the configuration tool.
- Assist Railways in implementing Asterisk.
- Plan advance Asterisk course to guide SSE/JEs for installation, commissioning & maintain Asterisk exchange.
- Standard handbook to be prepared.
- Prepare for courses of Asterisk with IPv6 in near future.



# Software Maintenance & Upkeep

- Asterisk & Configuration tool.
- To be hosted by IRISSET for all to use.
- Configuration tool to be further developed and maintained using open source model.
- Anyone can download and use the same.
- Anyone can contribute.
- Appeal to all the Railwaymen and vendor community who are interested to participate in this attempt.



# Future Directions

- ▶ Railnet to be powered by IPv6 and Asterisk to work using IPv6.
- ▶ Why not VoIP based Train Control Communication System using Asterisk? IRISSET working on the same.
- ▶ ECR demonstrated the use of Asterisk to integrate the existing PA system both manual and computerise to achieve remote monitoring. Talks going on with CDoT & NDMA to enable such usage during disaster.



# Question & Answers