Incoming Call Latency

Incoming Call Latency in FXO Environment

- When a PSTN call is directed to an FXO line, the receptionist's phone starts to ring after a short delay. There are two reasons for this delay:
- In analog telephony systems the caller ID is sent between the first and second ring as a phase-continuous FSK audio stream. In order to detect the caller ID, the PBX has to wait until the end of the first ring, and then until the end of the caller ID transmission before the call can be initiated.
- Advanced PBXs (like Asterisk) can detect incoming fax transmissions by first identifying the fax signal and then routing the call to specific extensions that are connected to fax machines.
- This ability enables organizations to better utilize phone lines (enabling fax lines to be used as phone lines and vice versa). This feature comes with three disadvantages:
- It adds additional delay (before the attended phone starts to ring).
- In order to detect the fax tones, the line goes off-hook (the call is accepted). If the caller is not a fax machine and there is nobody to receive the call, the caller pays for the call anyway.
- The PBX simulates a ring-back tone (so that the user will think, while the line is being checked for fax tones, that the phone is still ringing on the other side of the line). This ring-back may differ from the ring-back tones that are generated by the PSTN, so the caller may hear a ring-back tone, and then another style of ring-back tone that may be confusing.

Conclusion

As described above, incoming phone calls from the PSTN may cause delayed indication at the attended phone. The delay is caused by caller ID and fax detection processes. Disabling the fax detection (using dedicated lines for faxes) and caller ID detection will enable immediate incoming call indication at the attended phone.

Using digital lines (BRI, E1 R2 or PRI E1/T1 lines) instead of analog lines will eliminate the requirement for caller ID indication (as the caller ID information is provided immediately by the signaling channel), and thereby reduce delay. Fax detection, however, will not benefit from using digital lines.