

***Hosted PBX – client or provider site?
or “how to manage PBX clouds with OpenSIPS”***

***Bogdan-Andrei Iancu
Founder OpenSIPS Project***

Open

- GPL, Open Source project
- tens of contributors, community of thousands
- used from SMB to enterprises and grade-carriers

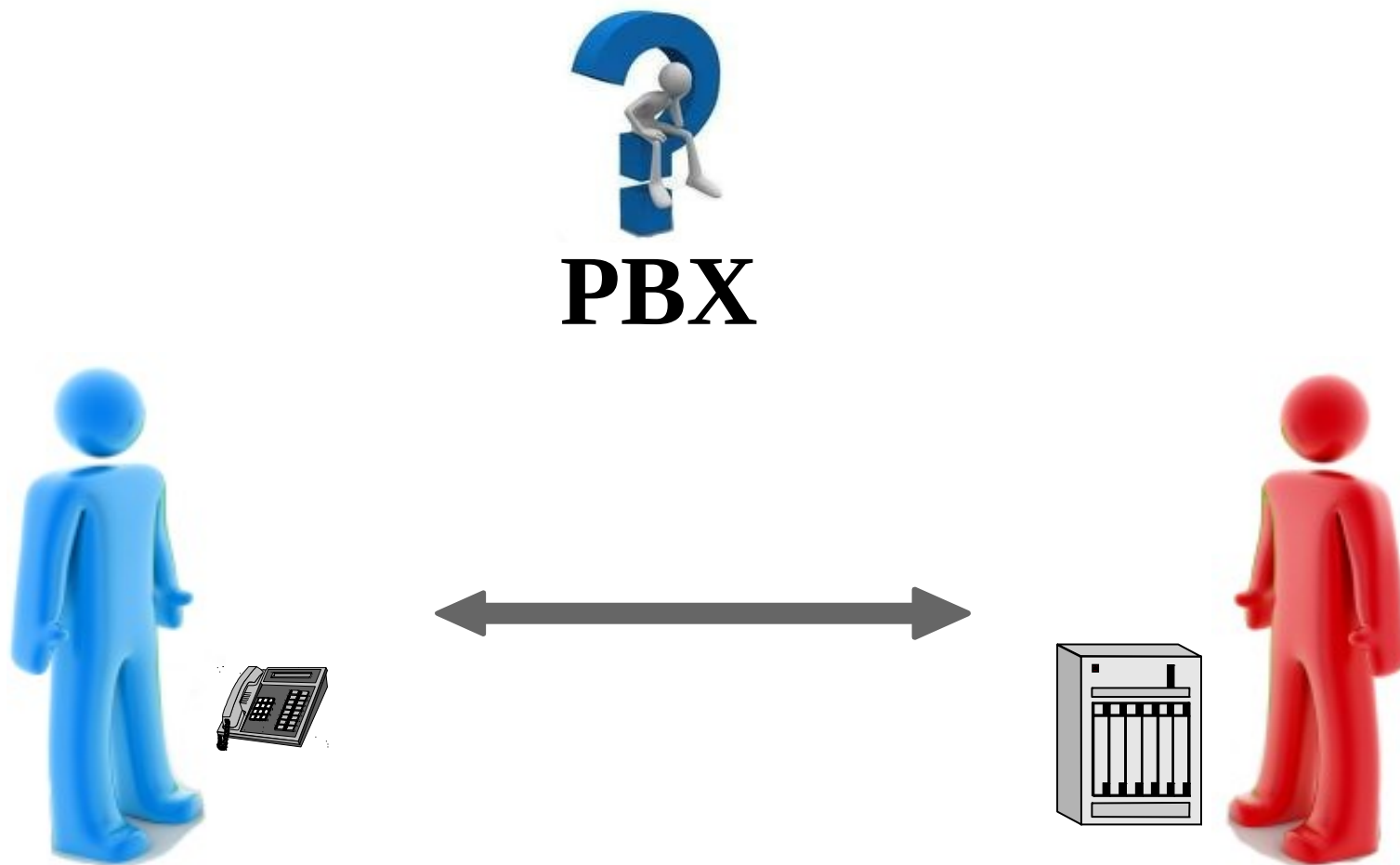
SIP

- SIP RFC 3261 + tens of SIP extensions
- SBC, trunking, billing, ITSP, router, call center

S

- Server (registrar, proxy, LB, B2BUA, SIMPLE, NAT, apps)
- 12000 cps, 5K parallel calls, 1M subscribers
- Programmable and flexible (scripting with > 100 modules)

OpenSIPS builds and glues SIP infrastructures.



Why not client site:

- effort to deploy HW in client premises / network
- problematic when comes to remote workers
- hard to scale the PBX (as resources)
- HA and backups complicated to achieve
- problematic when comes to maintain / upgrade
- provisioning must be also on client site.

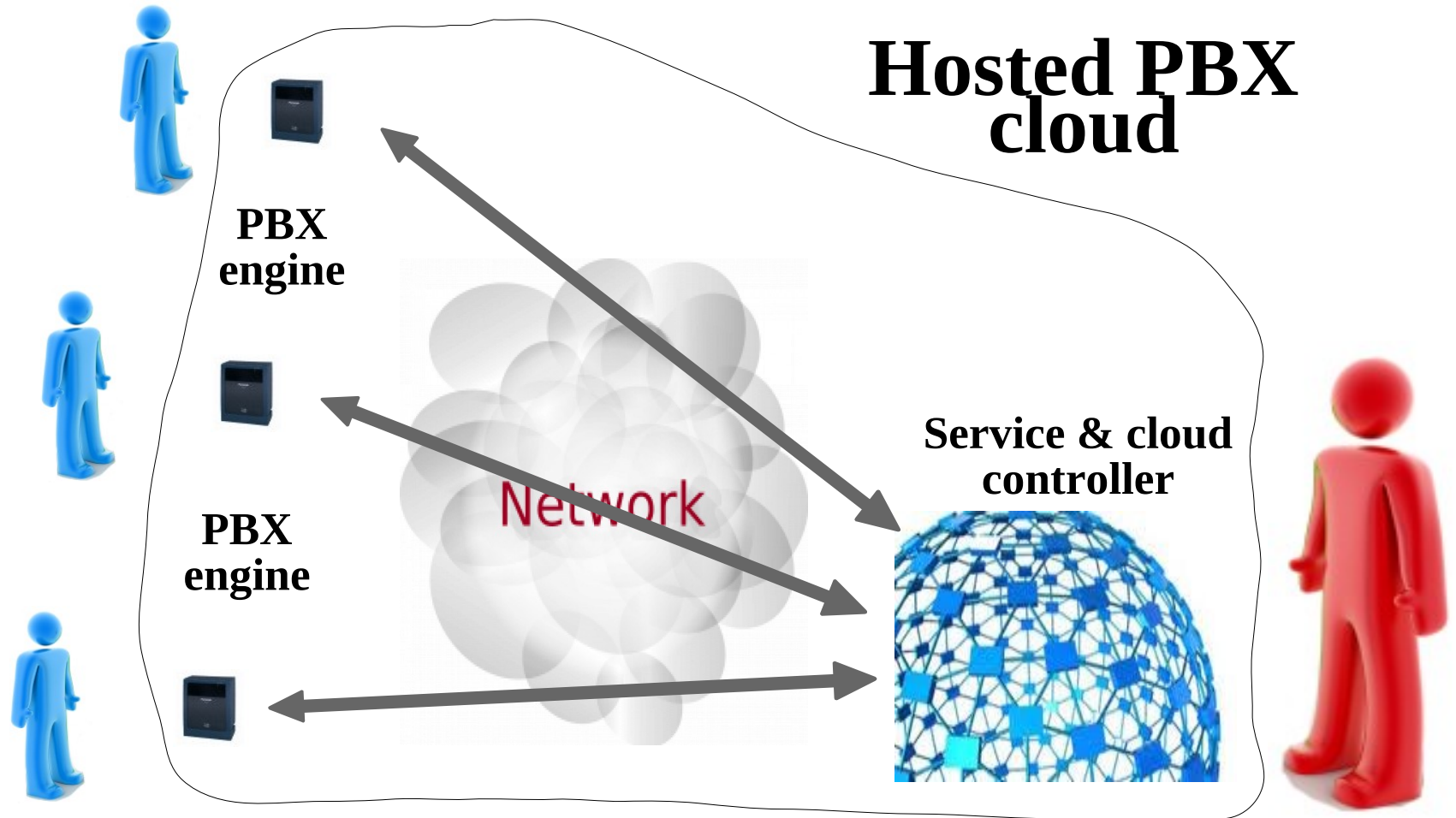
Why not provider site:

- network link may become a limitation
- media quality degradation because of the path
- client have “0” independence if link down
- load and geo location maybe become an issue when centralizing all the media

Split the PBX into “control/logic” part and “engine/media” part.

The “control/logic” part contains the configuration (services, routing), provisioning data (extensions, phones), runtime data (voicemail records) – all these will be stored and centralized on the provider site.

The “engine/media” part is a basic PBX engine able to provide local call routing and media based services (conferencing, queues, voicemail) – this engine is a standard plug-and-play components (same for all PBX customers)



Host the PBX in a cloud of controllers and engines.

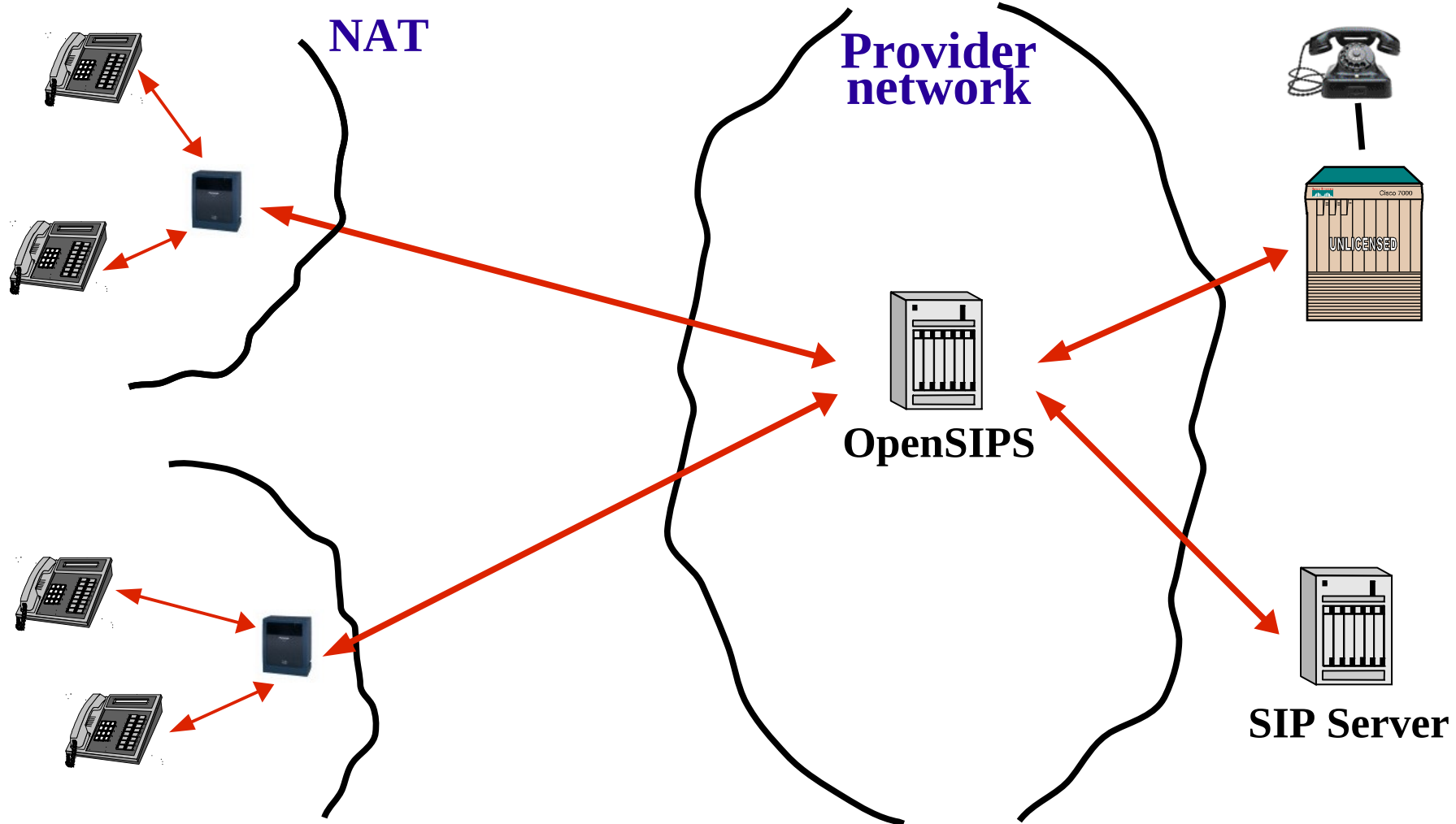
Provider hosts the logics and the PBX cloud controller:

- **central point for provisioning, backup & HA, service logic**
- **routing inbound/outbound and inter-PBX calls**
- **control over all PBXs in the cloud**

Customer hosts the basic PBX engine:

- **self-sustaining for local calls/services**
- **media stays local for better quality**
- **simple to deploy/maintain**

OpenSIPS running the PBX cloud



HA system & public IP**OpenSIPS**

- Nat traversal, proto exchange
- DID management
- PSTN/LCR routing
- inter-PBX cloud routing
- Link/bandwidth controller
- Presence / messages server
- Topology hiding, security

**Complementary
VIDEO / AUDIO
conferencing****DNS****Phone
Provisioning
Server****DB
central
storage****WEB server**

- User interface
- Provisioning and CDRs
- FS PBX configuration
- Voicemail
- Daily backups

Intra-PBX calls will stay local (signaling and media)

NAT traversal, TCP/TLS tunneling handled by OpenSIPS

IP based authentication (for PBXS)

Bandwidth control by call monitoring and limitation (per PBX)

DID based routing of calls:

- Inter PBX routing
- LCR routing to PSTN GW (multi GW failover)
- ENUM routing to other SIP domains

GW authentication

Number normalization and multi-dialplan support

PBX selection based in dialled DID

Global call filtering and call forwarding

Bandwidth control by call monitoring and limitation

NAT traversal, TCP/TLS tunneling handled by OpenSIPS

Voicemail re-routing if local-PBX not reachable

Voicemail services will be locally handled by the local PBX instance.

Voicemail recordings will be copied up on central DB for backup reasons.

Conferences can be hosted on local PBX instance or on the service provider bridge (depending on the participants locations, to minimize the net link overload)

OpenSIPS can provide extra services (on top of the PBX engine)

- SIP presence server
- SIP messaging (offline storage, SMS)
- Topology hiding (outbound calls)
- Caller ID management (outbound calls)
- 911 and call recording
- IVR and call queuing
- Billing (postpaid, prepaid, calling cards)

Conclusions

Centralized approach :

- Centralized provisioning system
- HA and backups for entire cloud
- Minimum intrusion / effort in the customer site
- Service logic stays under provider direct control
- Easy to extend the service (new adds-on) and to upgrade

Local PBX engines :

- Distributed media load
- Independence of customer site (from provider)
- Better quality for media

Thank you for your attention
You can find out more at www.opensips.org
bogdan@opensips.org

Questions are welcome