

10 Things about (hosted VoIP)

Tim Bray
tim@kooky.org

Intro

- VoIP
 - Voice over internet protocol
- SIP
 - Open standard for VoIP. Think like HTTP
- Whole market of wholesale/retail service providers, phones, systems

It's just data?

- Voice is just data
- Around 100kbs per call.
 - Not a lot really by modern standards
 - 10000 (ish) calls down gig Ethernet
- But 50 packets per second

Small business Setup

- ADSL Line
- Router
- SIP phones
 - Each username and password
- Connection to ITSP
 - Voipfone, Vonage, Gradwell,

Large Enterprise

- Probably lots of phones
- Probably separate VLAN for voice
- More likely to have onsite call processing.
- Possibly proprietary (cisco, mitel) rather than SIP.

Onsite V Hosted

- Put a PBX in your office
 - Maybe connected to BT phone lines
 - Maybe with SIP trunks as well
 - Kit to look after
 - Some people just like a box
- Or just use hosted
 - Can get expensive for lots of users
 - Perceived problem with internet reliability

Voice Compression?

- Normal phonecall is 64kbit/s of audio (G.711a)
- In theory compression can get that down to 8kbit/s
- But the overhead means not much difference
 - 218 bytes of ethernet contains 160 bytes voice (73%)
- Multiplexing can help (IAX2)
- Unless you are really constrained, use full quality

Fraud

- Voip Fraud is everywhere
 - Steal accounts, make calls to expensive premium rates abroad
- Any device with port 5060 open will get attacked
 - And word gets around
- More and more traffic
- Drop early

Bufferbloat

- Increase in latency when a link is under load
- Can be caused on upstream or downstream
- Forget Qos stuff
 - Marketing speak for something very hard



Firewall

- Avoid 5060 open to internet
 - Whitelist SIP carriers
- If a corporate, use VPN for remote SIP access
- PBX needs to be able to add firewall rules
- Needs throughput.
- Needs NAT ports
 - Lots of consumer stuff wimps out at 1500 sessions

Securing provisioning

- Phones call home for config
 - Auth is often just a phone MAC address
- Very handy
- But large security hole
- Best practice
 - Unique TLS client certificate on the phone
 - In the factory
 - Public CA to validate phones
 - MAC address in phone certificate

The SIP ALG problem

- Pesky routers that mess with traffic
 - Usually regexp search and replace
- Everywhere, never useful
- Security issue
- Use TLS

TLS

- SIP over TLS for signalling
- SRTP – secure voice
- Widely supported on phones since 2006
- Not widely deployed

IPv6

- Just works on snom phones and asterisk
- Interop testing lacking

Legal answer to fraud

- Agree a credit limit with suppliers
- Agree in writing that the credit limit works both ways
 - That you will get cut off before the credit limit
- Run away if this isn't possible

The end

Questions?