

VoIP/FoIP – Understanding the Hype and Practical Application in the Accounting Firm of VoIP, FoIP and Unified Messaging

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Agenda

- > VoIP, FoIP – benefits and pitfalls
- > Underlying technology – making it happen
- > Unified Messaging – what it is and how it works
- > SIP trunking – achieving a 30% savings on telco bills

Staying in touch with colleagues and clients is a business necessity; and living in an ever increasingly mobile society makes this more challenging. Now that the early adopters have shaken the bugs out, are YOU ready to look at "Voice over Internet Protocol"? What about FoIP (Fax over IP)? Does the underlying technology really matter, or can we truly consider only the end result?

Back to School - Quiz

Do you know your acronyms?

Quiz

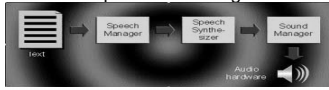
PSTN	Public Switched Telephone Network
IP	Internet Protocol
PBX	Private Branch Exchange
VoIP	Voice over Internet Protocol
FoIP	Fax over Internet Protocol
ACD	Automatic Call Distribution
IVR	Interactive Voice Response
DID	Direct Inward Dial
CPE	Customer Premise Equipment
ATA	Analog Terminal Adapter
DTMF	Dual Tone Multi Frequency (touch tones)

Telephony – what is it?

- Communication by telephone
 - . Using the PSTN
 - . Using the IP Network
- PBX vs. Key System
 - . Key System
 - . Telephones with multiple buttons and lights
 - . Direct access to telephone company central office lines
 - . PBX (Private branch exchange)
 - . Smaller version of the telephone company central office

E-mail via telephone

- Requires text to speech technologies



- <http://www.research.att.com/~ttsweb/tts/demo.php>

Speech Recognition

- Expanding PBX for easier access vs. DTMF
 - Speech enabled auto attendant
 - Speech enabled voice mail
- Players: Lumenvox, Excendia, Microsoft (Outlook Voice Access)

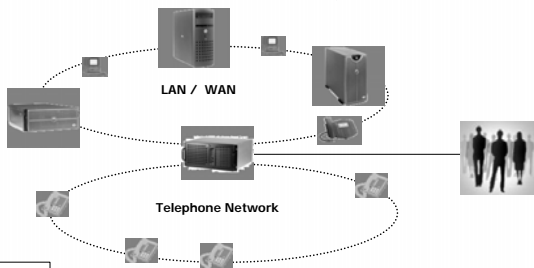
Fax servers vs. FoIP

- Fax Servers
 - Requires hardware i.e. fax boards and telephone lines
 - Most widely used are Brooktrout
- FoIP
 - No hardware to purchase or maintain – DID ties to e-mail address
 - Images converted and sent to provider

PC based switching

- 'Convergence'
 - Combining of Voice and Data networks
- PC becomes the PBX
 - Switching cards
 - ISA or PCI bus
 - Host Media Processing
 - Cardless switching
 - Uses only the processor (s)

Voice/Data Convergence Redefining the PBX Industry



Intel Driving the Communications Industry to Open Systems



Phase I – Standard telephony hardware

- Intel platform supports thousands of commercial telephony applications
- All sharing the same media processing hardware platform (Play/Record/Conference/IP)



Phase II –Host Media Processing (HMP)

- Intel HMP software replaces media processing hardware
- Enables software only IP-PBX
- Cost per port dramatically reduced

VoIP – a primer

- > What is it?
 - . Sending voice over data lines
 - . <http://www.fcc.gov/voip/> (see Factsheet handout)
- > Requirements
 - . High bandwidth data pipe
 - . Conversion equipment
 - . Media gateways, IP telephones, Analog Terminal Adapters
- > Concerns
 - . Reliability – Network Design
 - . Quality - QoS

VoIP – a primer

At last the telephone companies and mobile operators are realizing the nightmare in which their future income from phone call minutes related to time and distance is under real threat. A combination of high billing system costs, static (or rising) provision and services costs, severe competition and an unwillingness of customers to pay is severely cramping their style. It is unfortunate indeed that they have long been aware that their 200-year-old model was going to collapse but took limited or no action.

- Peter Cochrane - silicon.com

Telephony Reliability

Rightly or wrongly, data networks aren't seen as being the most reliable things in the world. And if something should happen to the data network, workers want to be able to know they can pick up the phone and call the help desk. When they pick up the phone and there's no dial tone, it becomes a very serious problem.

So there's a perception, justified or not, that phones which are running on a potentially dodgy data network won't have that cast-iron, unshakable, 'fine-nines' reliability that we're used to from conventional telephone networks.

Ben King – silicon.com

Telephony Reliability

Of course, the reliability of any given network doesn't just depend on the technology. It's as much if not more a function of network design. The more redundancy and fail-safe features you build in, the more reliable it will be.

Ben King – silicon.com

Hosted vs. Managed

- > Hosted
 - . The ASP Model
 - . Only CPE are Router/Switch and IP Phones and/or ATA's and traditional analog phones
 - . Players include: Covad, Nuvio, Vonage, Skype
- > Managed
 - . The PBX model
 - . CPE includes the switch (brain) and compatible phones
 - . Players include: Vertical, Interactive Intelligence, Avia, Nortel, Centerpointe Technologies

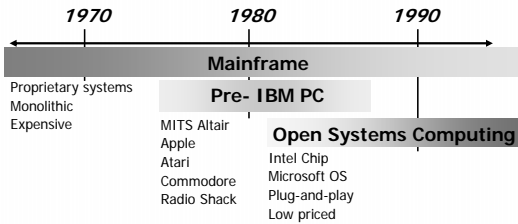
Softswitches and Softphones

- > Softswitches
 - . The switching of telephone calls by software
 - . Requires a PC to run the software
- > Softphones
 - . Software based communication devices
 - . Converts your monitor and PC (or PocketPC) to a 'telephone' device
 - . Examples: Net Meeting

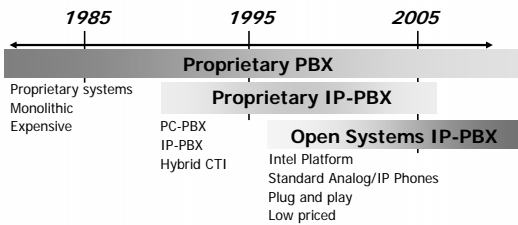
Proprietary vs. Open

- Proprietary
 - Manufacturer requires their components and replacements
- Open
 - Many manufacturers produce competing components and system replacements

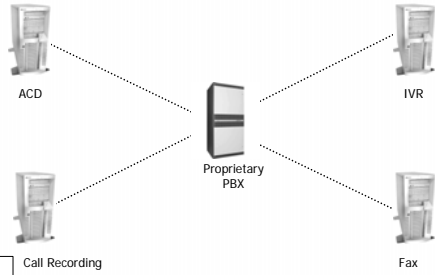
The Computer Evolution



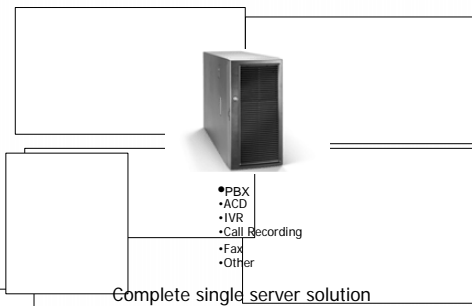
History Repeats Itself



Typical Legacy PBX Configuration



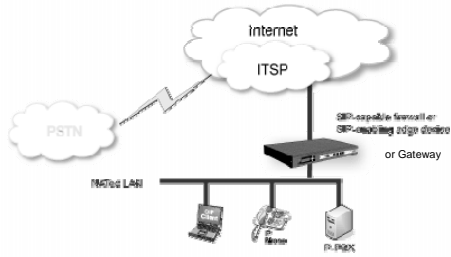
Telephony Integration Flexibility



Components for SIP Trunking

- > PBX
 - . Can be either IP based (preferable)
 - . Traditional digital or analog with SIP trunking interface
- > Enterprise Boarder Element or Gateway device
 - . Translates IP to TDM
- > ISTP – Internet Telephone Service Provider
 - . Like your ISP for voice
 - . <http://www.siptrunk.org/>

SIP Trunking



Products/Solutions

- > VoIP/Softswitches
 - Vertical
 - Televantage – Premise based
 - Wave
 - Xcelerator
 - Centerpoint
 - Talkswitch – Premise based
 - Interactive Intelligence – Premise based
 - Covad – PBXi - Hosted
 - Appia – Hosted (midwest)
 - Nuvio - Hosted
 - Skype – Hosted (small)
- > Fax Server
 - GFIFaxmaker
- > FoIP
 - Venali – Integrated in Outlook 2003
 - e Fax
 - Clickfax

Questions