

11 - 12 March 2009  
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09  
**Unified**  
Communications

## VoIP for Business Theatre

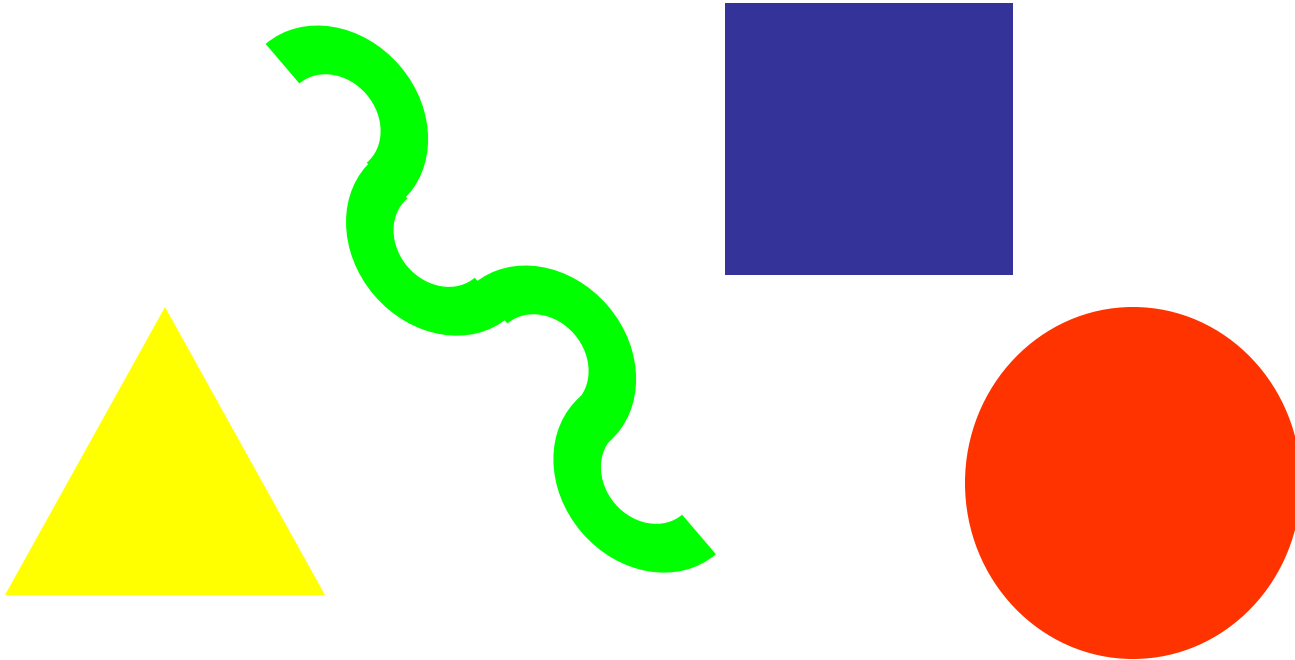
# VoIP and Wireless: Fixed Mobile Convergence or Fairly Mobile Convenience?

David Duffett, TeleSpeak

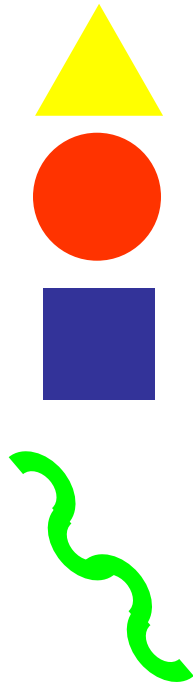
# Agenda

- **Why 'converge' Wireless with VoIP?**
- **Is it really convergence?**
- **Wireless Technology Overview**
- **Market Segmentation**
  - **Features, Advantages, Disadvantages, Comparisons**
- **Best Choices**
- **What next for VoIP and Wireless?**
- **Question Time**
- **Sources of Further Information**

# But first...some geometric testing



# What does your preference tell us

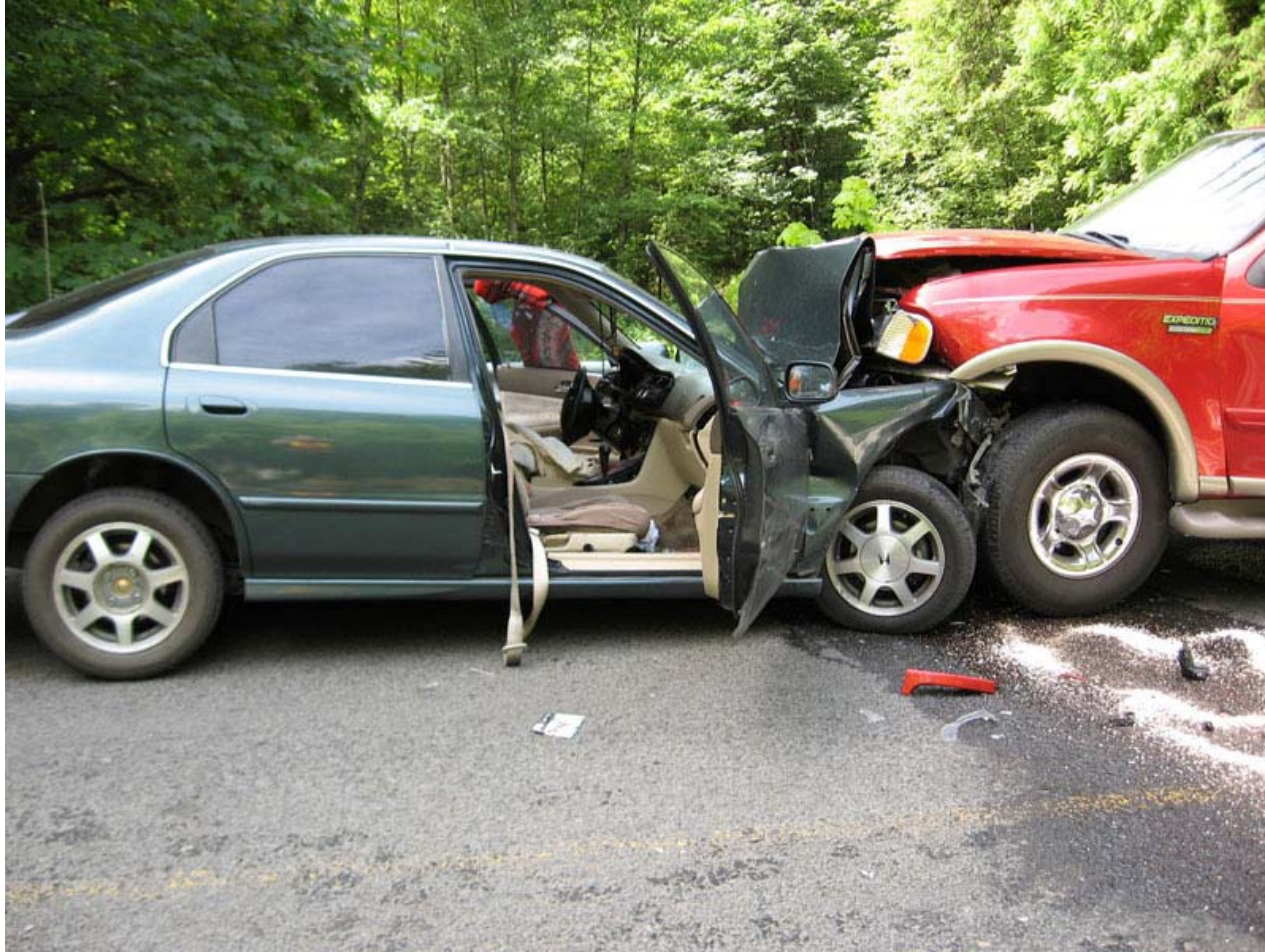


- Directed, ambitious
- A people person
- Detail conscious
- An unhealthy obsession with
  - Heidi Klum, Jeniffer Lopez
  - Justin Timberlake, Brad Pitt
  - VoIP and Wireless

# Why VoIP & Wireless?

- Mobility within the office
- Mobile workforce
  - Take your office extension wherever you go
- Reducing costs
  - Less 'hard' infrastructure
  - Domestic and international call charges
  - Least Cost Routing for outbound traffic
- Because we can...

# Is it really convergence?



# Wireless Technology Overview

- Handsets
- Networks



# Market Segmentation

- WiFi (only) Phones



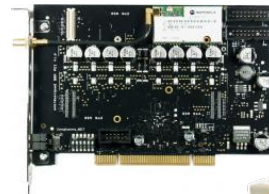
- SIP/DECT Phones



- Dual Mode (3G & SIP) Phones



- GSM Cards/Gateways



# Wireless Devices

- Overview of devices
- WiFi (only) SIP phones
- SIP desk phones with wireless
- 3G/GSM/WiFi SIP phones (dual mode)
- SIP/DECT phones

# WiFi (only) Phones

- Use is not restricted to office
- Great for roaming (hotspots)
- Range is an issue
- Hand-over does not work
- Battery life is generally poor
- Speech quality is OK
- UT Starcom (& OEMs), Hitachi



# WiFi (only) Phones

- Characteristics
  - First type of wireless SIP devices available
  - WiFi device with SIP stack added
  - Still not an optimised technology
  - Voice quality can be poor (but getting better)
  - Sometimes difficult to configure
  - Not many offerings from mainstream vendors

# WiFi (only) devices

## Advantages

- Truly mobile
  - Inside the office
  - Other hotspots worldwide
- Allows PBX extension to travel
- Small and portable

## Disadvantages

- Configuration difficult
- Battery life short
- Voice quality poor
- Not a wide choice of phones
- If the phone does not have a browser, may not be able to connect to hotspots

# SIP desk phones with wireless

- Standard desk phones
  - ‘Normal’ phone
  - Wireless bridge neatly fits into stand
  - Needs mains power



# SIP desk phones with wireless

- Characteristics
  - Known build quality, speech quality
  - Wireless link
  - Desktop replacement
    - Or wireless enable existing SIP phones
  - Wireless ethernet bridge attached



# SIP desk phones with wireless

## Advantages

- Very user-friendly
- Great for office use
- Comprehensive features
- Good for temporary deployments

## Disadvantages

- Additional work of connecting and configuring the wireless ethernet bridge
- Not full mobility, as power is required

# Dual Mode (3G & SIP) Phones

- Unlimited mobility
- Good for international roaming
- Range: WiFi OK, 3G excellent
- Two phones in one, little integration
- Battery life lower when WiFi on
- Speech quality is very good
- Nokia, HTC Smart Phones, Pirelli



# Dual Mode (3G & SIP) Phones

- Characteristics
  - Typically better than WiFi only phones
    - Designed by those with mobile phone experience
    - Good quality components in the voice path
  - No real integration between GSM/3G and SIP

# Dual Mode (3G & SIP) Phones

## Advantages

- Better voice quality than WiFi only (typically)
- User interface is generally better than alternative
- Great mobility
- Always on-net, just variable costs
- VoIP is an 'application'
- Respected vendors

## Disadvantages

- Battery life is reduced by having WiFi on, in addition to the regular phone
- Complex hotspot attachment processes in some environments
- Sometimes frustrating steps to choose call route

# SIP/DECT Phones

- Office use only (SIP is in DECT base)
- Great for mobile extensions on Asterisk
- Range is better than WiFi
- 1 base -  $\leq 6$  handsets
- Battery life is very good (DECT)
- Speech quality is excellent (DECT)
- Siemens, Snom and others



# SIP/DECT Phones

- Characteristics
  - LAN cable plugs into base
  - Standard DECT air interface
  - Proven technology
  - Like a standard cordless phone



# SIP/DECT Phones

## Advantages

- Excellent range when compared with WiFi
- Great battery life
- Very good speech quality
- Intuitive use (like a standard cordless phone)
- Standard SIP configuration

## Disadvantages

- Only mobile within the office

# Comparing Mobile Devices

Device	Speech Quality	Range	Battery Life	Mobility	Asterisk Integration
<b>WiFi (only)</b>	OK	OK	Poor	WiFi Hotspots	OK, may need STUN outside local network
<b>SIP Desk with WiFi</b>	Good	OK	N/A	WiFi Hotspots	Easy
<b>SIP/DECT</b>	Excellent	Excellent	Excellent	Within Office	Very easy
<b>Dual Mode</b>	Good	WiFi – OK 3G – Good	Good	3G Network Hotspots	OK, may need STUN outside local network

# Wireless Device Summary

- Overview of devices
  - Lots of choice, something for every scenario
- WiFi (only) SIP phones
  - OK, but some issues with battery life
- SIP desk phones with wireless
  - Perfect for fast office installs
  - Looks like a standard phone

# Wireless Device Summary

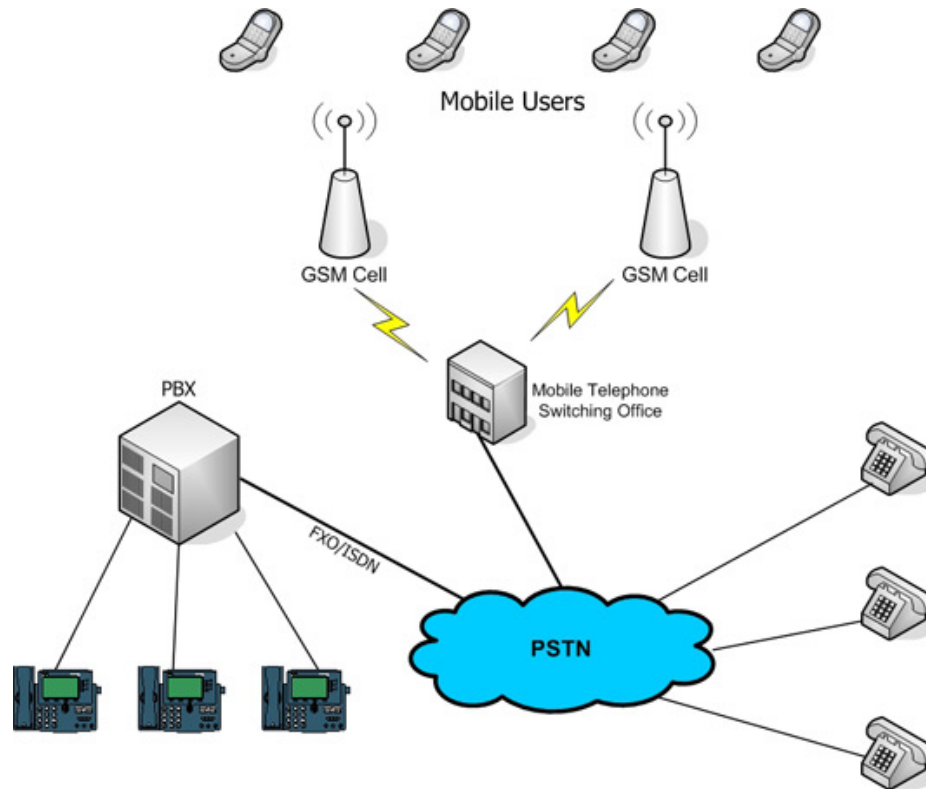
- 3G/GSM/WiFi SIP phones (dual mode)
  - Better quality than WiFi only phones
  - Not really integrated, just coincident
- SIP/DECT phones
  - Excellent in many ways
  - Mobility limited to the office area

# Wireless Networks

- Introduction to wireless networks and connection methodologies
- The GSM gateway box
- The GSM gateway card

# Connecting the old way...

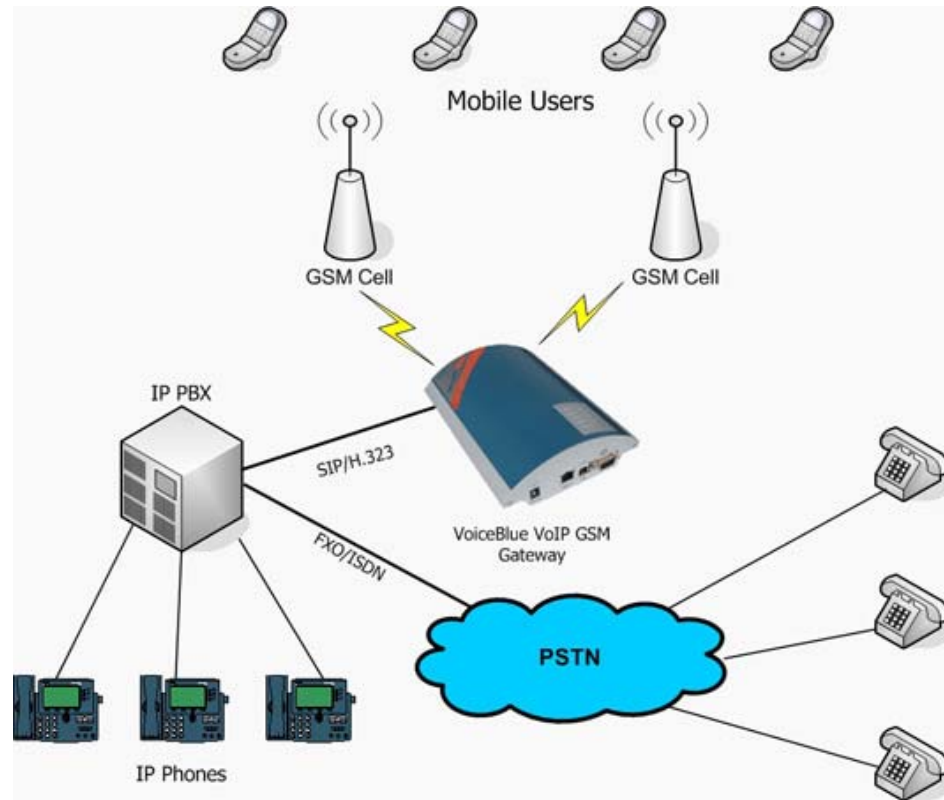
- Pay fixed to mobile call rates – HIGH ☹️



Source:  
TalkToUs Communications  
Australia

# Connecting the new way...

- Pay mobile to mobile call rates – **LOW** 😊



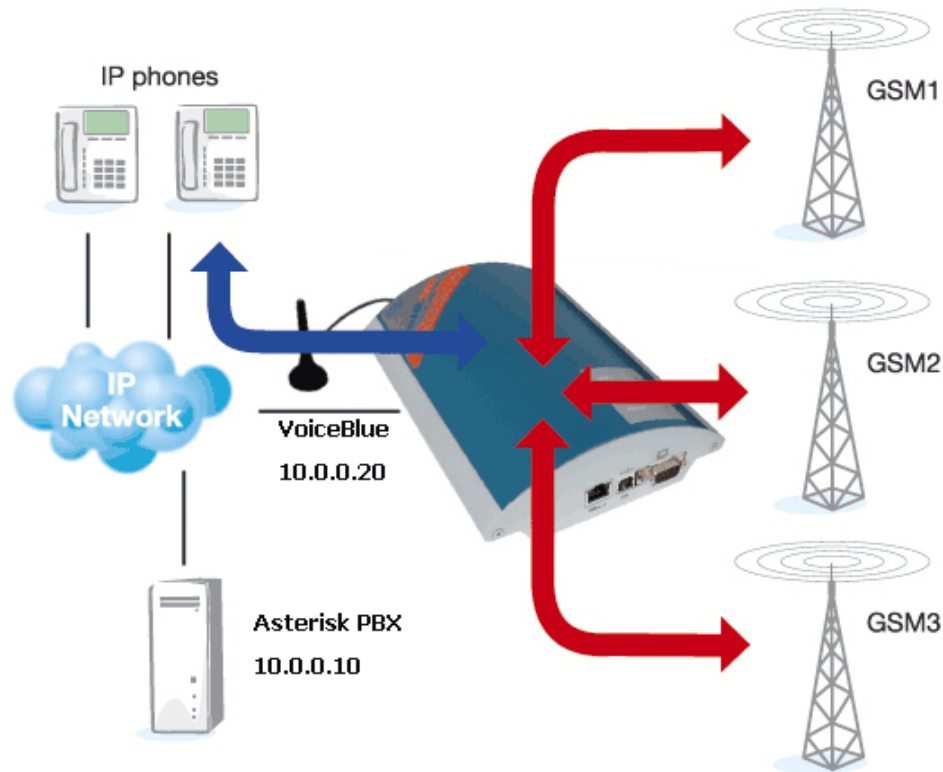
Source:  
TalkToUs Communications  
Australia

# GSM connectivity overview

- Main aim is usually least cost routing
- Business can get package from mobile provider for all users, plus extra SIMs for GSM connectivity from the PBX
- Caller ID can be an issue
- Can be used to reduce roaming charges, by leaving SIM in home country and using Asterisk to re-route calls

# Multiple networks

- Possible resilience solution



Source:  
TalkToUs Communications  
Australia

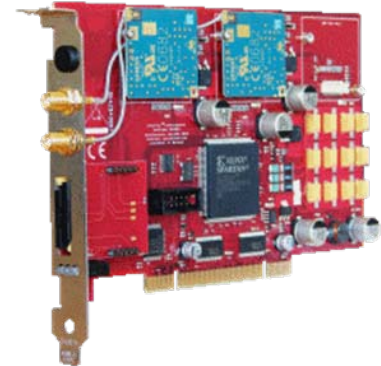
# GSM Cards/Gateways

- Connects Asterisk to the mobile network
- Least Cost Routing, Roaming
- Cards are a neat solution
- Boxes are platform independent
- Both types need Antenna
- Beware of 2G only devices
- BeroNet, Junghanns, Portech



# GSM Cards

- Characteristics
  - Generally PCI cards
  - One or more SIMs
  - External antenna required
  - Drivers are required



# GSM Cards

## Advantages

- Neat solution, card is inside the PBX platform
- Less interconnecting cables – just the antenna

## Disadvantages

- Platform compatibility is essential
- Expansion may prove difficult, as slots for further cards are required
- Set up and configuration can be difficult

# GSM Gateways

- Characteristics
  - FXO to GSM, or
  - IP (SIP or H.323) to GSM
  - Single and multi-SIM variants
  - Small units need external PSU



# GSM Gateways

## Advantages

- Not platform dependent:
  - Connect via FXO or SIP
- Easily scalable – just add more boxes
- No special drivers required

## Disadvantages

- Lots of wires
  - Antenna
  - Power
  - Connection to Asterisk

# Best Choices

- Office only
  - SIP/DECT (range, battery life, speech quality)
- Mobile
  - WiFi (only) if no 3G/GSM requirement
  - Dual Mode (SIP client on all Nokia E phones)
  - PDA with SIP or IAX soft client
- Remote
  - Laptop with SIP or IAX soft client

# Best Choices

- Least Cost Routing (mobile calls over net)
  - Gateway Box
    - Easy SIP integration
    - No worries about 'slot' compatibility
    - A range of boxes, easy to scale
  - Gateway Card
    - Neat – no other boxes or PSUs
    - up to 4 SIMs per card

# What Next?

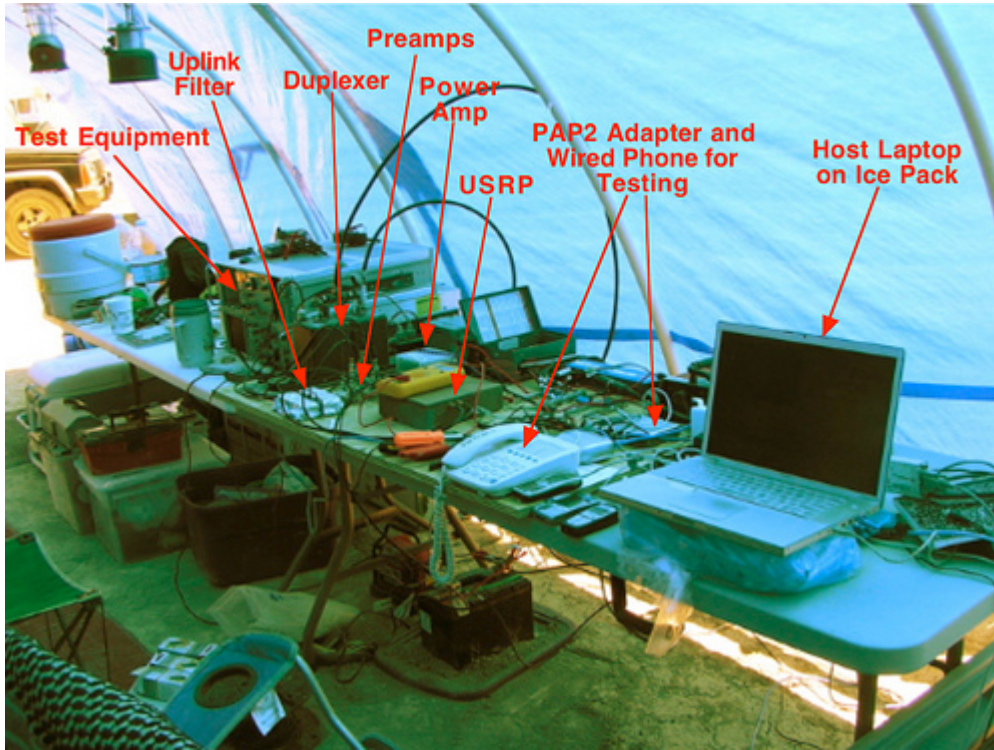
- Currently...
- Fixed Mobile Convergence not yet a reality
  - ‘Fixed Mobile Coincidence’ is more accurate
  - Two devices in one handset
    - Battery life issues, will get better but ...
    - ... even after optimisation it's still two devices
  - No real routing capabilities on the device
- Vo3G high speed data may improve things

# Femtocells

- Mini Cell tower in the office (or home)
- Uses existing Broadband
  - For backhaul to cellular network
- Is a VoIP device
  - Currently closed by MNOs
- **COULD** run embedded Asterisk
  - Wireless office PBX in one box
  - Great potential for Least Cost Routing



# OpenBTS (GSM/Asterisk)



# Question Time

- What questions do you have ?

# Summary

- **Wireless can save money in lots of ways**
  - Reduce 'hard' infrastructure, roaming, LCR
- **Wireless Technologies Overview**
  - SIP/DECT, WiFi (only), Dual Mode, Gateways
- **Best Choices**
  - For given deployment scenarios
- **What next for VoIP and Wireless?**
  - Femtocells, if MNOs can be more open
- **Sources of Further Information**

# Further Information

- Polycom/Aastra websites
- Nokia/Symbian websites
- PDA/Smartphone websites
- TeleSpeak for consultancy and training

# Thank You

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