

UK Emergency Calls – ESW 14 April 2011



UK Emergency Service

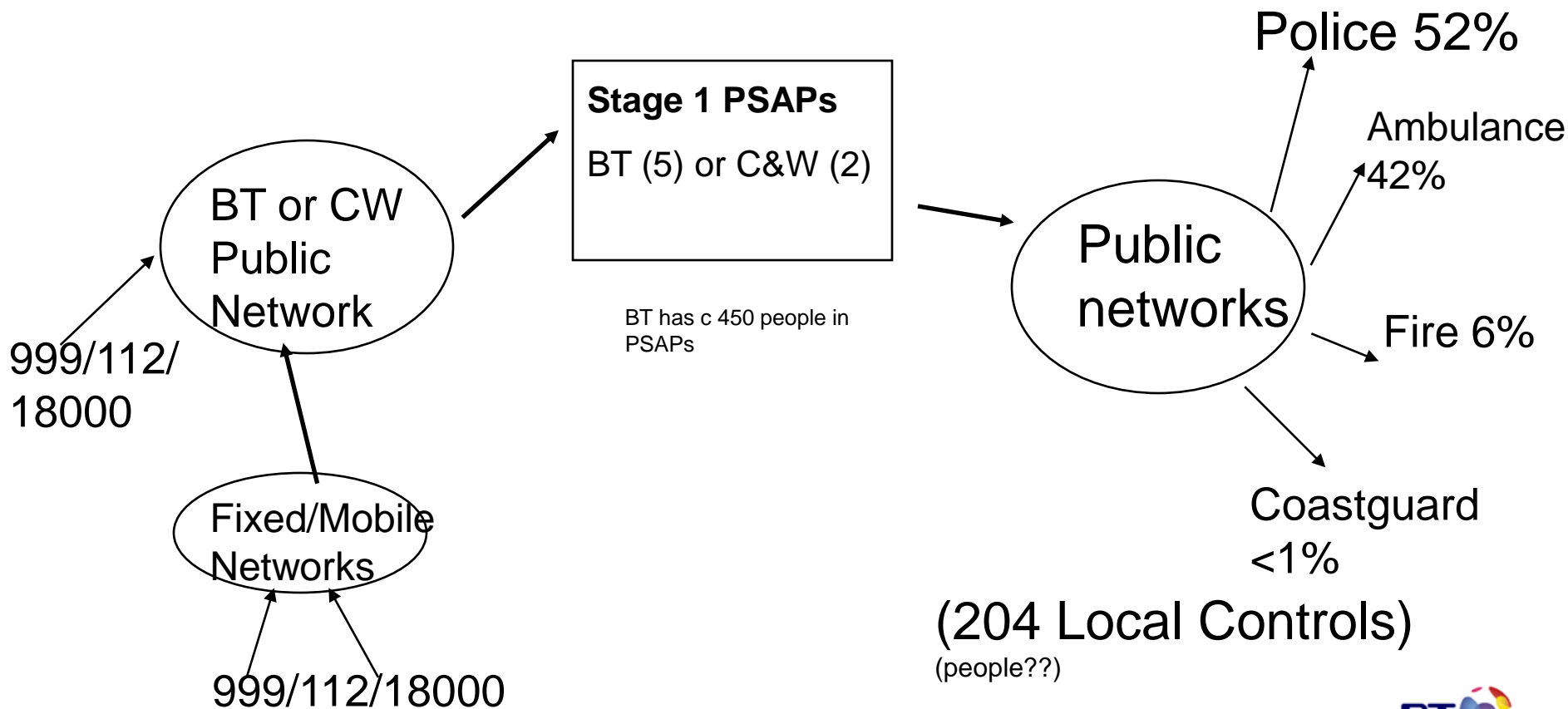
- UK Population – 61.4 million citizens
[England(84%), Northern Ireland (3%), Scotland(8%) and Wales (5%)]
- UK Area - 22.6 million hectares
- UK 112 organisation :-
 - Stage 1 and Stage 2 PSAPs (Model 2)

- *UK Office for National Statistics 2008

UK Emergency Service

Public Emergency numbers

- 999/112,
- 18000 (ITU v21 text over voice, ie real time text using special terminals)



UK Emergency Service

- Stage 1 is financed by Telecommunications Industry
- Stage 2 financed and organised by a combination of local and national Government : -
 - separate Departments for Police, Fire, Ambulance and Coastguard
- Common issues co-ordinated by Government-chaired “999/112 Liaison Committee”

UK Citizen's knowledge of 112

- 8% of UK citizens knew 112 as number to call emergency services anywhere in the EU
- UK Government gradually developing channels to the traveller :-
 - The Foreign and Commonwealth Office website has 112 in “useful numbers”
 - Passport service includes 112 on leaflet sent with new passports
 - Ofcom (Regulator) is to consider encouraging mobile networks to include knowledge of 112 in it's welcome messages to travellers
- Communication Providers mention 112 (alongside 999) in Public Payphones and Telephone Directories

UK PSAPs - overview

- Stage 1 PSAPs (UK-wide coverage) operated by two telcos
 - all CPs contract with either BT and C&W to connect their 112s
 - BT, C&W use different switches, databases and call handling software
- Stage 2 PSAPs : 92 Control Rooms for Police, 59 for the Fire, 34 for the Ambulance* and 19 for Coastguard
 - all in separate sites with diverse network access
 - usually separate call taking and despatch (in same room)
 - wide range of hardware and software currently used
 - some moves to co-ordinated approach :
 - Airwave Digital Radio for most services
 - Ambulance use same medical questions for prioritisation
 - Fire may move to smaller number of regional controls
 - Stage 2 PSAPs of same type operate back-up arrangements for neighbours/near neighbours

112 Access to PSAPs

- All calls from anywhere in UK routed first to Stage 1 PSAPs
- Automatic location for Fixed and Mobile calls
- At stage 1 PSAPs :-
 - Fixed calls routed using civic location (match postcode map coordinates to Stage 2 PSAP coverage areas)
 - Mobile routing uses Cell IDs (map cell coverage to PSAPs)
 - VoIP calls use a default civic location (registered address) which is confirmed verbally where possible
- UK Mobile networks allow Limited Service State calls with SIM (national “roaming” for 112)
- Calls from Private Networks (eg Campus, or large organisation) are tagged to alert PSAPs of possible address issues
- Automatic Alarms go first to specialised Monitoring Companies before connecting to any PSAPs

Statistics for emergency calls (112 + 999) -1

- Approximately 31 million calls each year to stage 1 PSAPs, 60% from mobile phones
- 95% of calls answered within 5 seconds (stage 1)
- Around 60% are connected to Stage 2 PSAPs (usually within 10 seconds)
- 40% “false calls” carefully filtered-out (accidental calls from mobiles, children playing with fixed phones, fault generated 112s)
- Peak days are at weekends (daily peaks are late afternoon, or when pubs/clubs close at weekends)
- Extreme weather peaks and “winter pressures” for Ambulance

Statistics for emergency calls (112 + 999) - 2

- Different call answer targets for stage 2 PSAPs : between 5 and 10 seconds
- Different caller conversation times : typically 30 seconds at stage 1, 60 seconds with Fire, 120 seconds with Police and 180 secs for Ambulance.
- Inappropriate calls :-
 - accidental (mobile handset in pocket)
 - Children playing (no request for help)
 - inappropriate (need help but not an emergency)
 - hoax, where caller asks for specific help to a certain location
- Language :-
 - Stage 1 : around 2% of calls would benefit from language assistance (many Asian in UK)
 - Stage 2 conference-in Interpreters or use a Voice Call Server

Call handling

- **Stage 1** : -
 - Quick answer, select stage 2 PSAP, check connection, reassure caller
 - filter out false calls : standard questions/criteria to safely filter “silent” calls, agreed with Police ; use of Police IVR
 - Call details automatically recorded and stored
- **Stage 2** : -
 - Call-takers confirm incident location and identify problem
 - Prioritise (eg AMPDS for Ambulance)
 - Send details (data) to Despatch team within Control Room
 - Send details (often as data) to response vehicles (which may have been already selected and mobilised as soon as location known)
 - Fire services use pre-determined response based on incident type and any information in local database
 - Some medical advice given by Ambulance call-takers when help is on the way

Accessibility- for hearing or speech impaired

- Use of ITU v21 text over voice which requires :-
 - special terminals
 - unique number (18000)
 - Text Direct(TXD) network platform and Relay Operators
- Emergency SMS service
 - normal mobile phone
 - registration (to ensure limits understood, minimise misuse)
 - uses TXD Platform and Relay Operators
 - new processes developed and trained to PSAPs

Location for emergency callers

- Available automatically at Stage 1 and Stage 2 PSAPs
- Fixed lines : civic locations as name and address
(from Stage 1 PSAP database, which is updated daily by CPs)
- Mobile networks provide cell coverage area (enhanced with timing advance for some) over standard ETSI interface: radius ~2.2km
- Limitations for VoIP calls, calls from private networks, mobile roamers
- Stage 1 PSAPs provide Location Servers which can be accessed freely by Stage 2 PSAPs (location retrieved instantly using telephone number + secure TCP/IP link)
[Stage 2 PSAPs pay for their lines, hardware and software]
- Telematics emergency calls (non-standard eCalls) growing and can provide GPS information

Public Warning

- Environment Agency provides Flood Warning :-
- Automated call delivery to all fixed lines in areas likely to be flooded
- Emergency Services (Stage 2 in liaison with Stage 1) can currently use media news announcements (TV and Radio)

Future Challenges

- More precise mobile locations
- Managing inappropriate use
- Reliable VoIP locations
- Better international links between PSAPs
- Moving all PSAPs to IP-based communication to improve user access and PSAP response

Any Questions??

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