Innovations New & Old
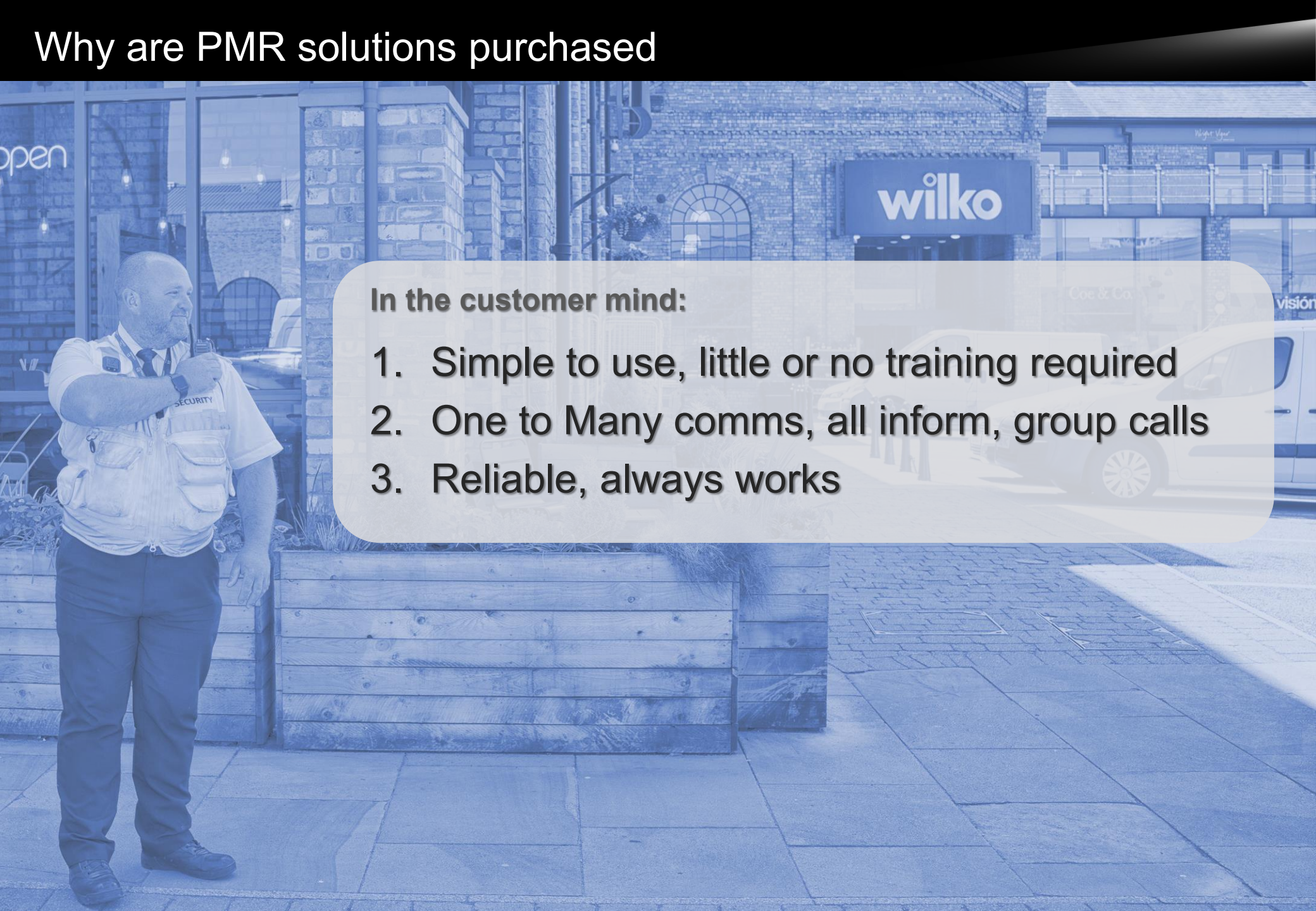
Stephen Edwards

Technical Support Manager

UK and Ireland

In the customer mind:

1. Simple to use, little or no training required
2. One to Many comms, all inform, group calls
3. Reliable, always works

Switch radio, set volume to mid position:

Select channel:

Channel 1 Teachers

Channel 2 Catering

Channel 3 Support staff

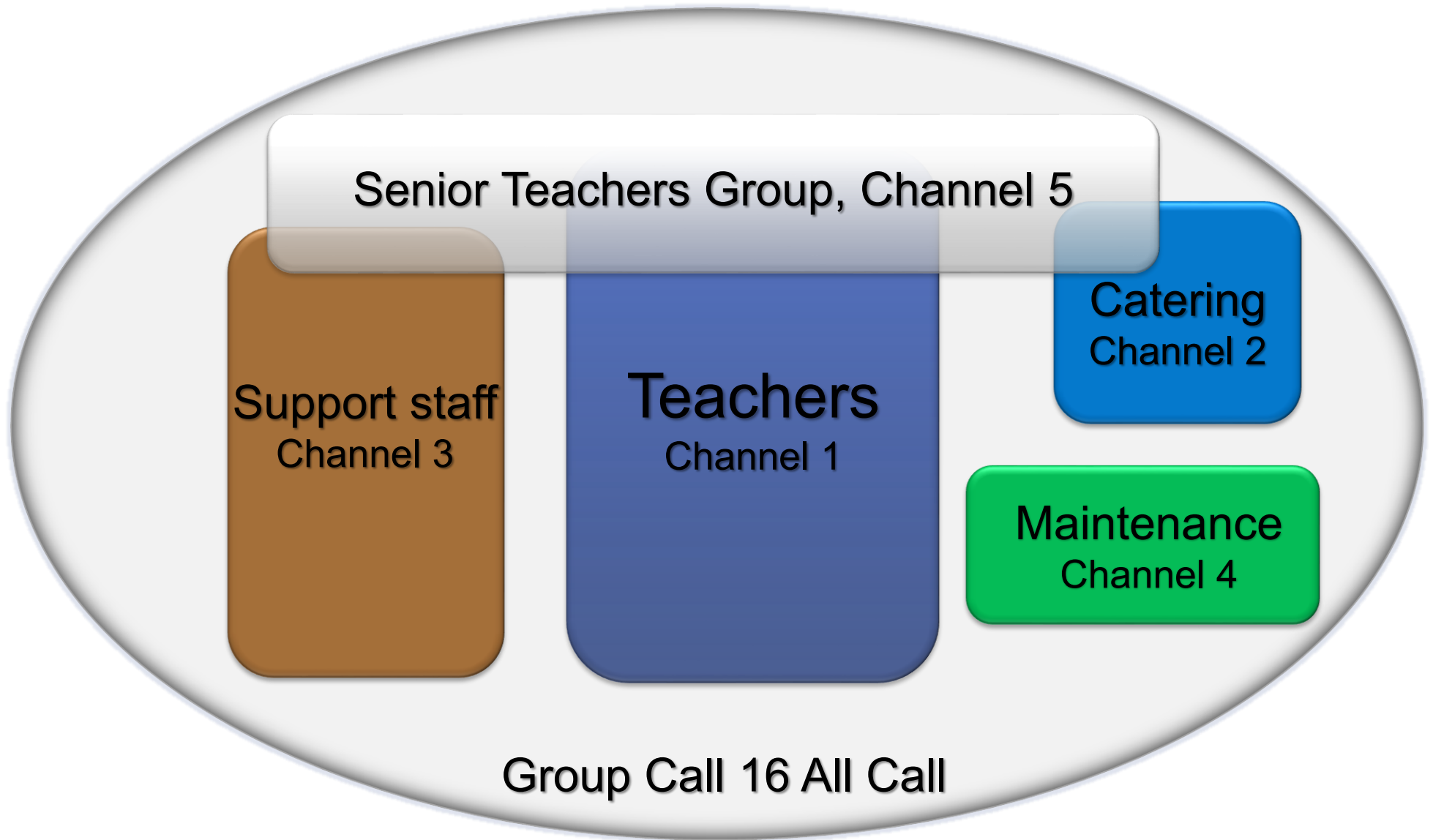Channel 4 Maintenance

Channel 9 Senior Teachers Group

Channel 16 Alarm call

Push button on side and talk…

Yes, it's the big one!

Groups, One to many; as found in a simple School system

Senior Teachers Group, Channel 5

Support staff
Channel 3

Teachers
Channel 1

Catering
Channel 2

Maintenance
Channel 4

Group Call 16 All Call

Simple Radios, No display No keypad

Channel 1   Teachers

Channel 2   Catering

Channel 3   Support Staff

Channel 4   Maintenance

Channel 5   Senior Teachers Group
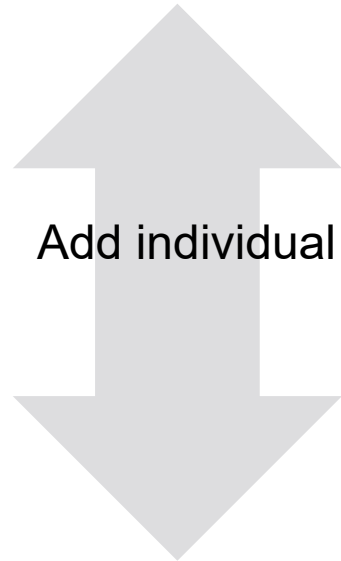
Add individual calls to unused channels

Channel 16   Priority call (All Call)

Reliability is an inherent and **key** feature of mobile radio:

- Wide area network **99.9%** availability
  down time per year **8:45hrs.**

- Local area managed network **99.99%** availability
  down time about **52 mins** per year.

- Radio system **99.999%** availability
  down time about **5 mins** per year, or better.
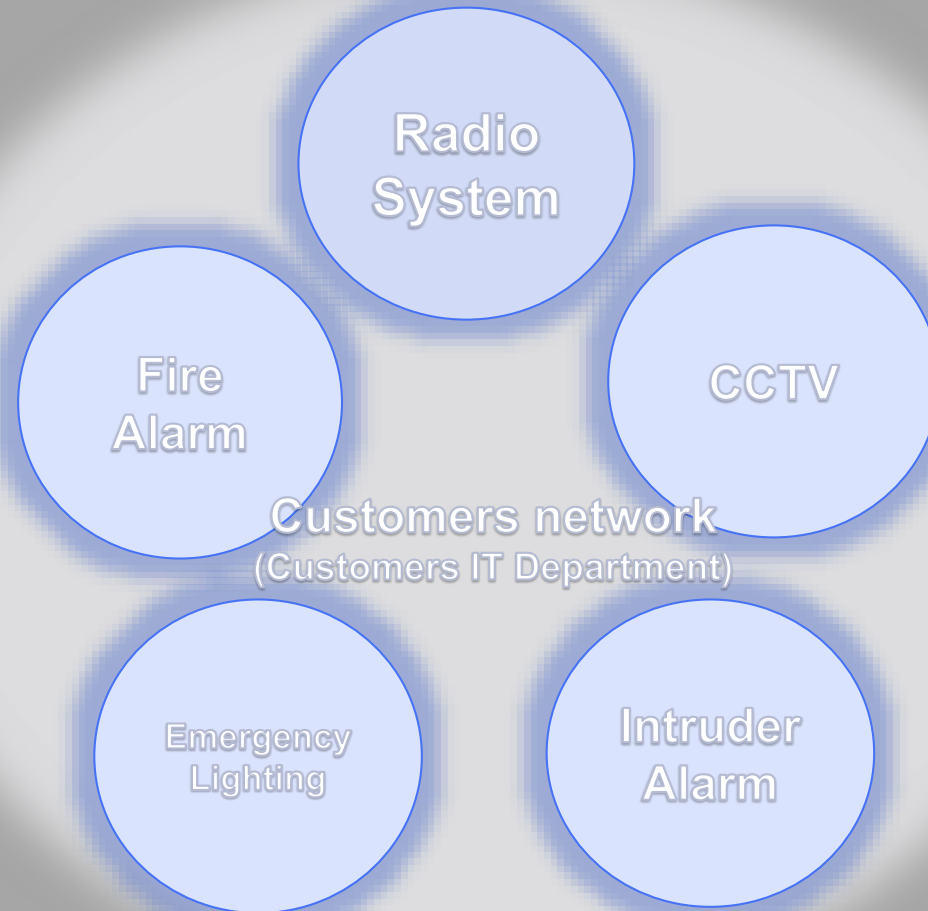
What's in our Islands

Inner circles, high availability 99.999%

     Core customer systems, mission critical
     Radio base stations Antenna cables etc.

     Intruder and Fire Alarm system

     Emergency lighting

     Power supplies, UPS etc.

Second Circle, Customer controlled availability, possibly 99.99%

     Mission critical and day to day services

     IP Network

     Local phone services

     Wi-Fi devices

     Internet with a Guaranteed level of service

Outside of your or your customers control 99.9% (hopefully)

     Services that are not under control of the user

     Hosted phone services

     GSM phone services

     POC

     Public internet services

Just about every end user has a contract for fire alarm systems

      With Periodic Servicing

      With a Maintenance contract

You should be making the comparison of importance to them of the radio system

Is the radio systems use part of the end user fire evacuation process?
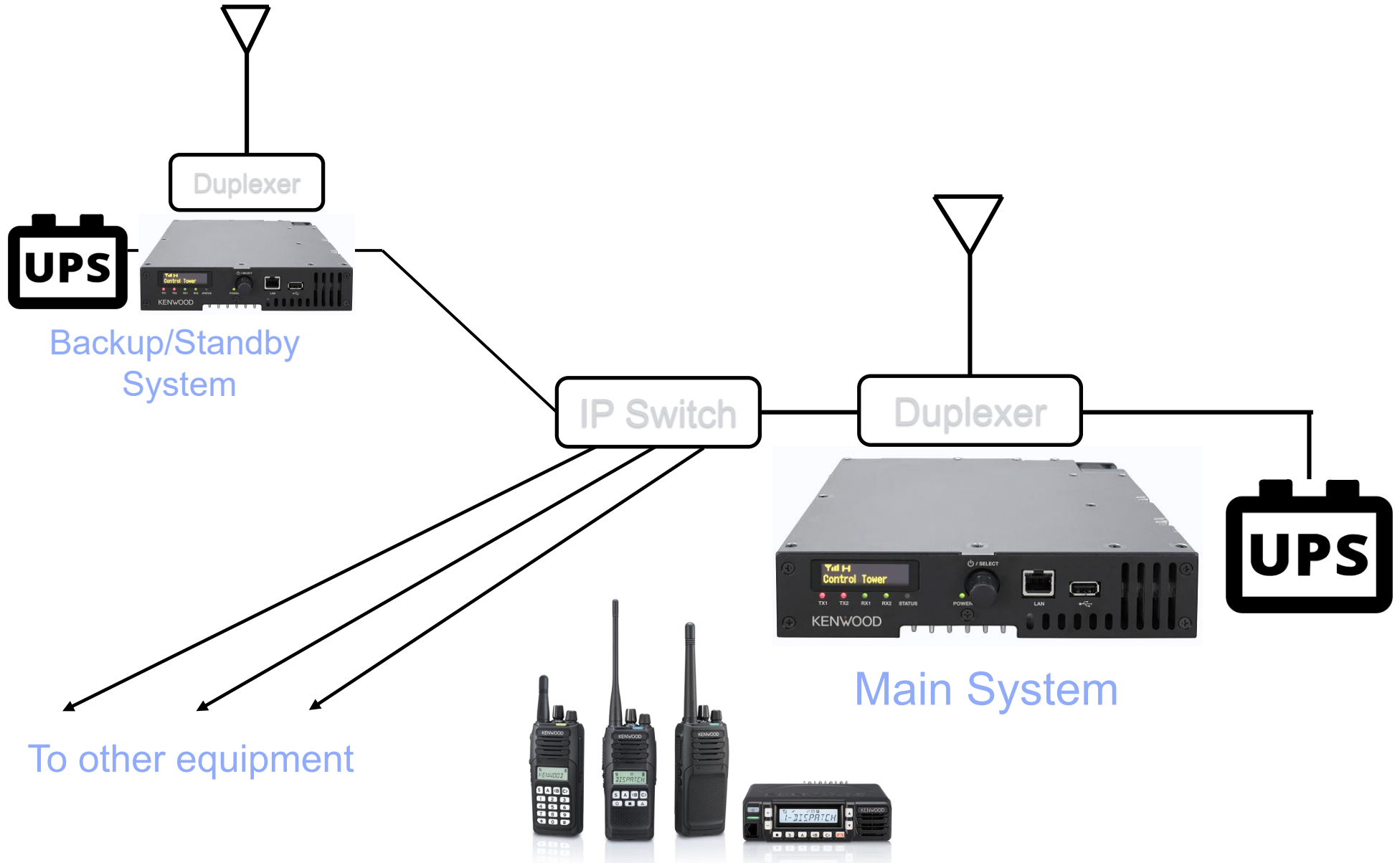
      If not, why not? Because it should be!

      Once it is then they have a legal obligation to ensure its working

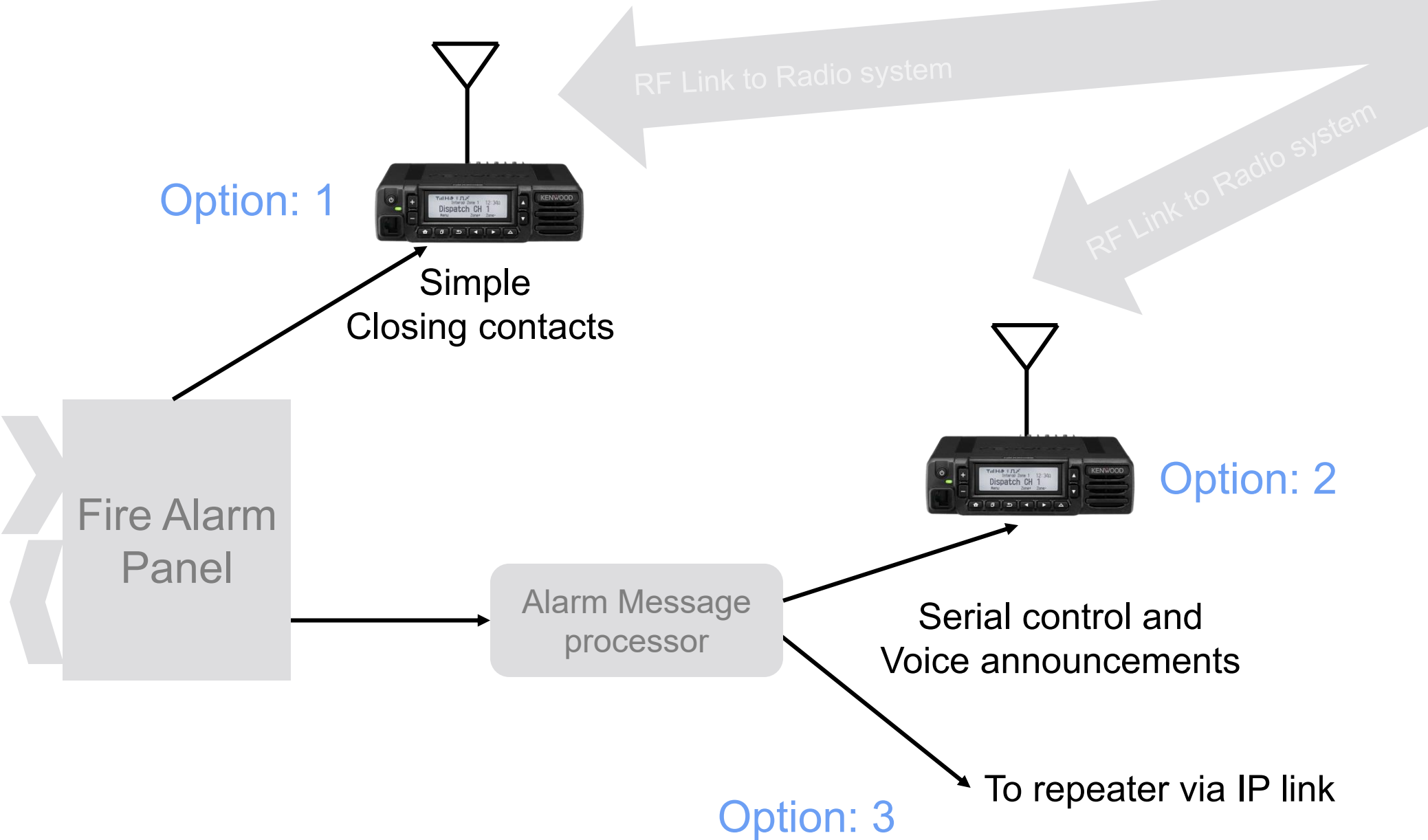   Integration with a fire panel

      Integration with other system such as PA, status to voice or tone messages

Core Radio System:

Backup/Standby System

To other equipment

Main System

Duplexer

UPS

IP Switch

Duplexer

UPS

Alarm Integration:

Option: 1

Simple
Closing contacts

RF Link to Radio system

RF Link to Radio system

Fire Alarm
Panel

Alarm Message
processor

Option: 2

Serial control and
Voice announcements

To repeater via IP link

Option: 3

When the lights go off, the power fails, and the sprinklers are trying to drown you..

The radio system still works

Core system must be resilient to local events and meet the agreed system availability with the end user.

Core building services, needed for threat to life events

Fire Alarm

Emergency Lighting

Radio Communications

Telephone Interconnect

The NXR 1K series new Features and Functions

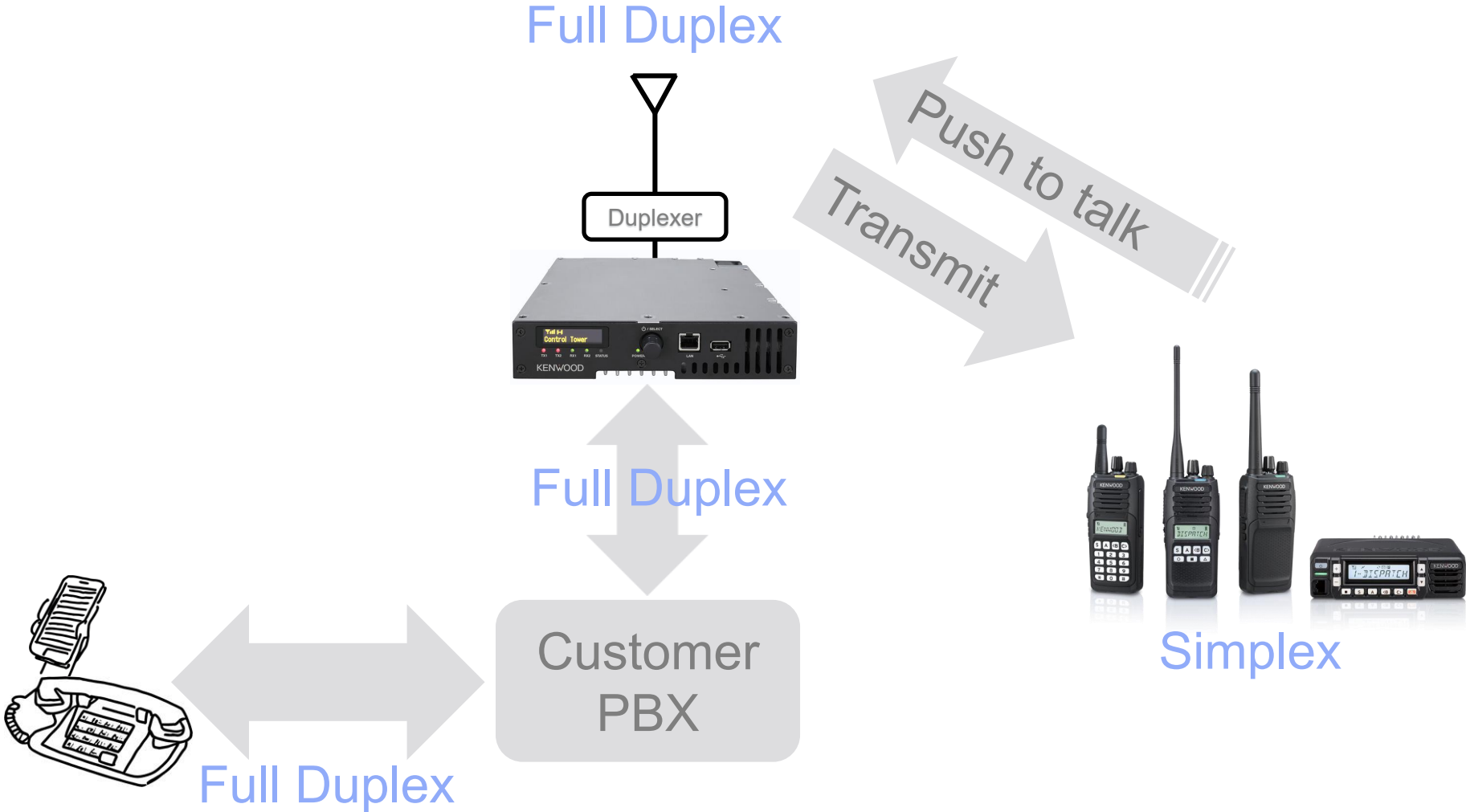IP based Telephony Service (SIP)
Full duplex telephone calls
Basic service integrated within the NXR 1K Repeater
Built in logging
Voice recording function

Telephone Operation:

Full Duplex

Duplexer

Push to talk

Transmit

Full Duplex

Simplex

Customer PBX

Full Duplex

Telephone Interconnect:

One of the many new features in the NXR-1000 series of repeaters is a SIP telephone interconnect within the repeater itself.

Two types of IP connection to phone systems:

Extension Level

Trunk connection
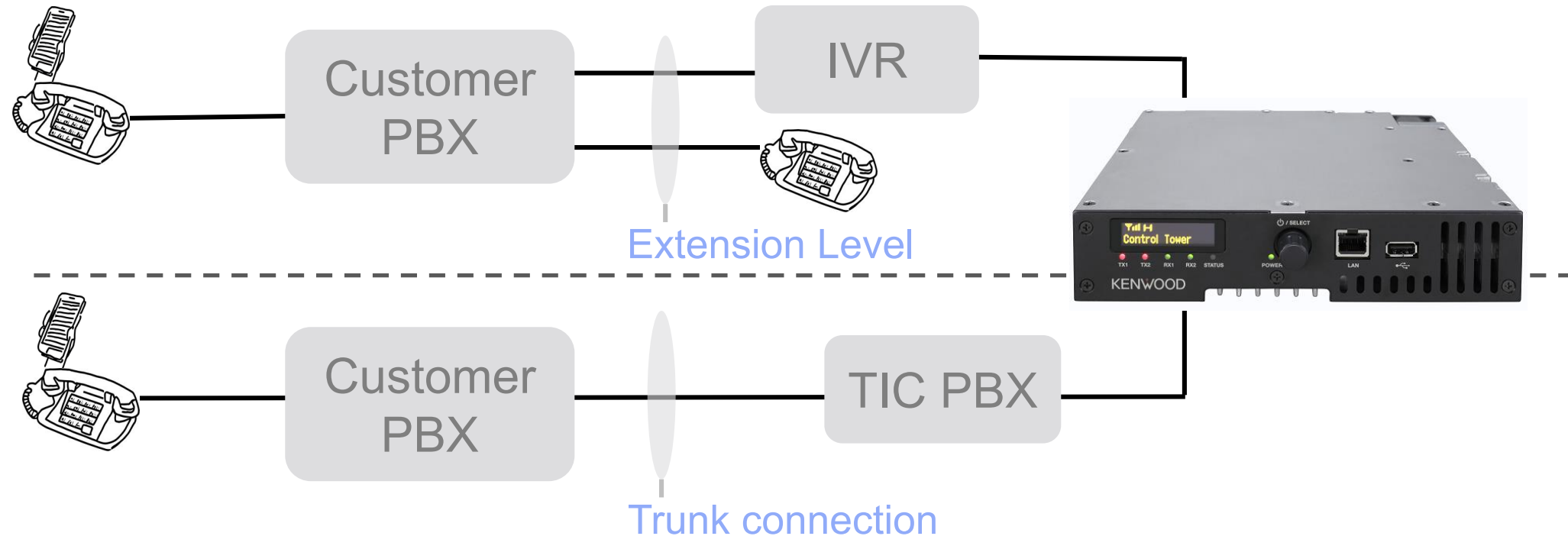
Telephone Operation:

Two modes of operation…

SIP End point connection

The Interconnect connection look like an extension to the other phones:

Simply dial its number it answers, and a voice system (IVR) will guide you through the process of placing a call, individual or group call or simply a text message to a radio along with the callers CLI

SIP Trunk Level connection:

The dialling string now contains the called radio or group number within it.

Once called the caller hears ring tone until the radio answers, just like a regular phone call.

Concerns over telephone use:

Ties up a radio voice channel (time slot) for the duration of the call

The telephone caller may not know it's a radio system and other users can potentially overhear a call and the caller could use inappropriate language

Public calls: The IVR option will tell the telephone caller they are about to use a radio system
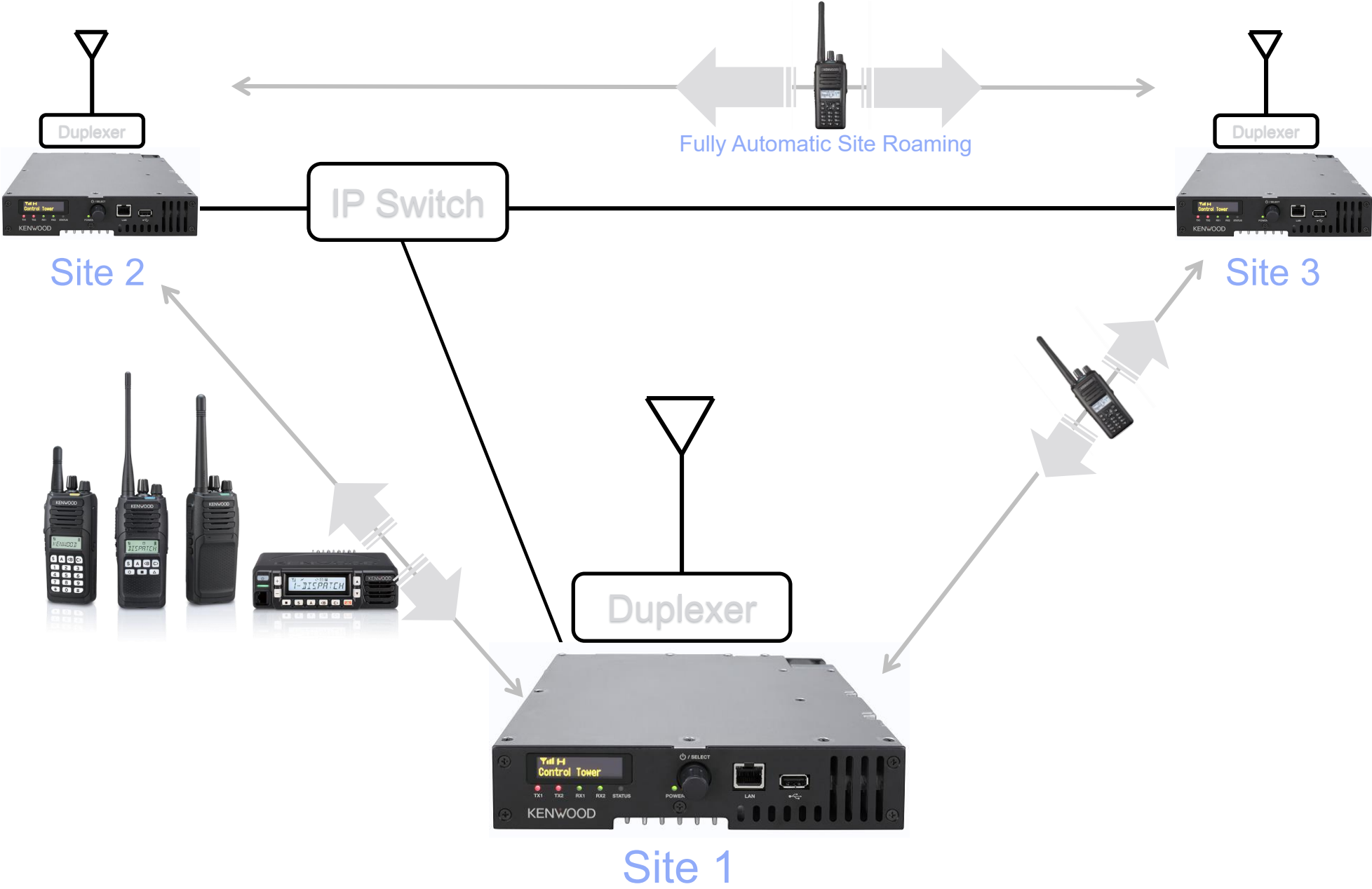
Logging: The NXR-1000 series offers logging of all call traffic in real time and the telephone interconnect records all events.

Recording: Voice traffic (RTP, G711) can be streamed to a recorder, this can even be the customer existing telephone voice recorder, this is not just for TIC but all radio voice traffic
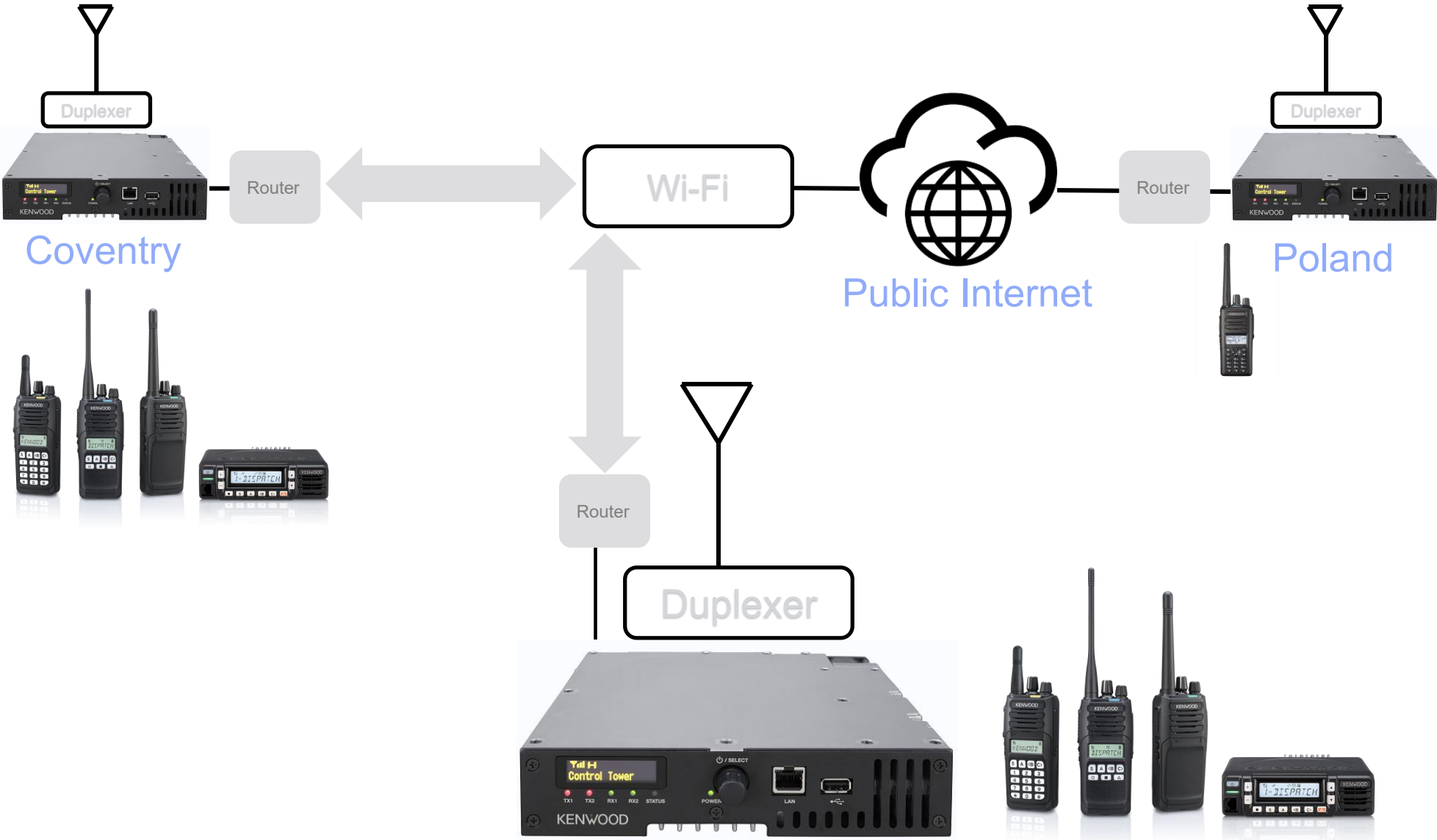
Wide Area Systems
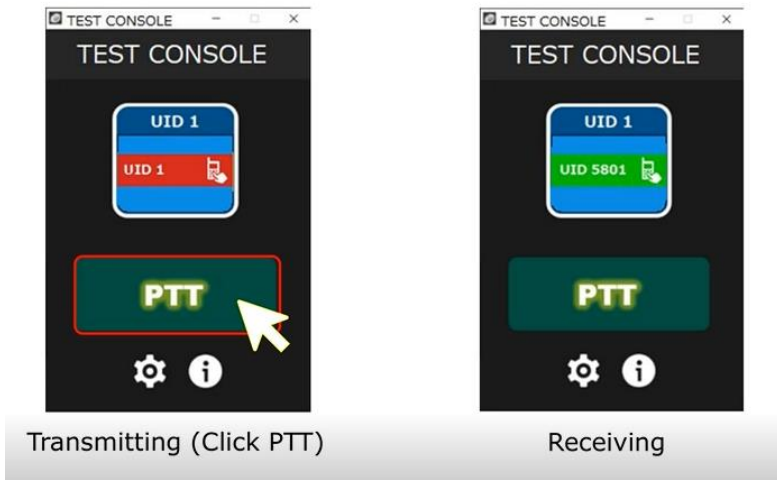
Wide Area with Automatic Roaming:

Fully Automatic Site Roaming

IP Switch

Duplexer

Duplexer

Site 2

Site 3

Duplexer

Site 1

Worldwide systems:

Coventry

Wi-Fi

Public Internet

Poland

Router

Router

Router

Duplexer

Birmingham

NXR-1700 repeater

Let's take a look at the web interface...

Transmitting (Click PTT)   Receiving

Maintenance > Monitor > Status Monitor

Status Monitor

RX Status		
RSSI	-	dBm
BER		%
Signaling	Detected	
Receive Signal (Threshold)	Detected	
TX Status		
VSWR	0	
RF Power	0	W
FAN	Spinning	
Power Supply Voltage	0	V
RX PLL	Lock	
TX PLL	Lock	

Call Monitor

Slot	Start Time	Duration	Source ID	Call Type	Destination ID	Emergency	Caller Site	IP Address	Service
2	10:53:56	26 s	2	Group	2		1	172.16.0.58	Voice

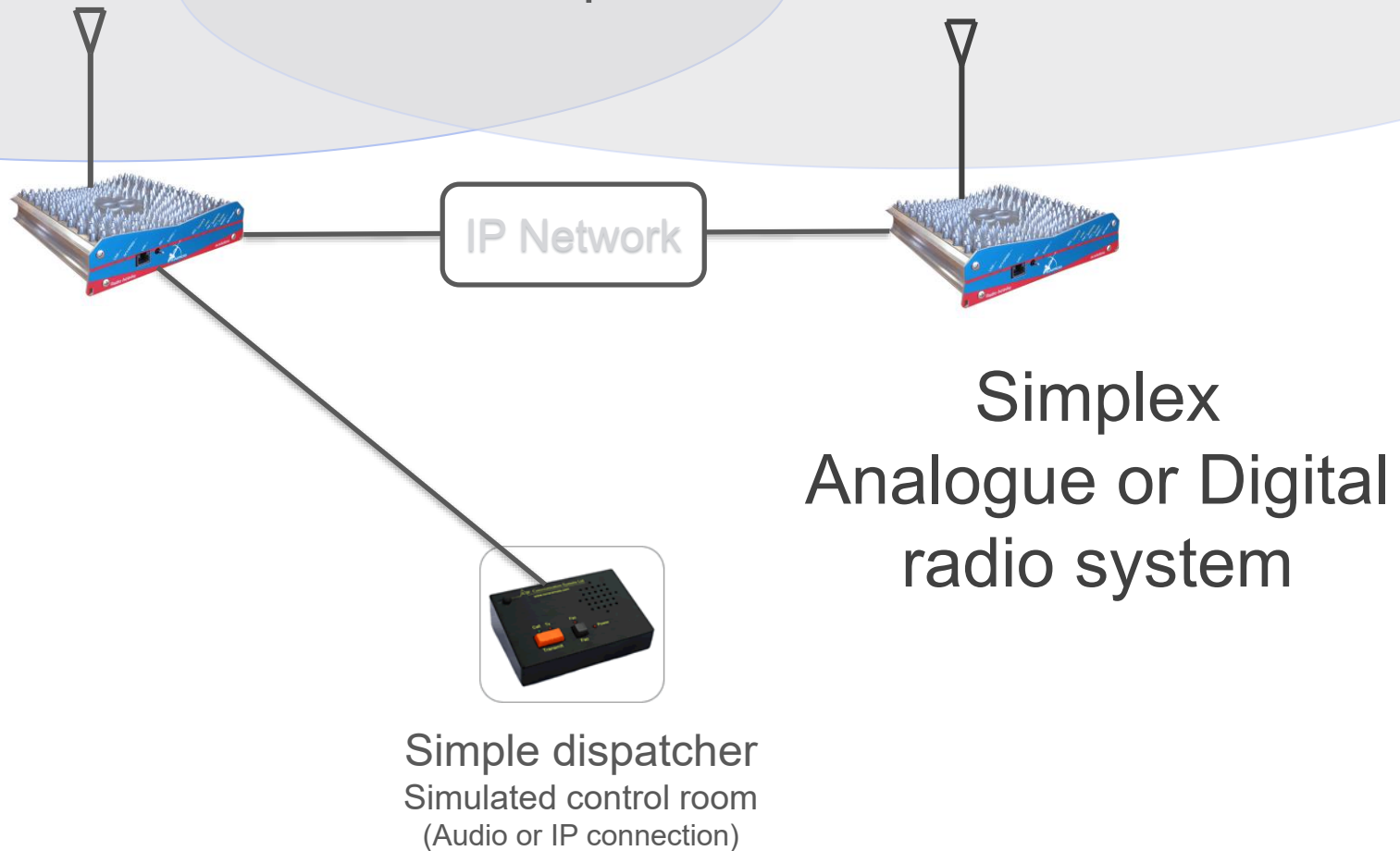- ## Simplicity
  keep is simple for users

- ## Telephony
  A nice to have or is it a key feature

- ## Reliability
  This is one of our key selling point for mobile radio;
  Any single point of failure should be removed, where possible.
  Show your understanding of the customer requirements

  – Ensure radios as part of you evacuation procedure

  – What events is the end user prepared for…

Price and Performance, just a thought

- When you look around the office and the customers IT racks you don't often see the cheepiest equipment money can buy.

- When it comes to IT the customers staff know what they need and look for the best Price/performance option

- If we don't tell end users what's available with the latest radio systems then they will just purchase on price not features and functions.

Overlap

IP Network

Simplex
Analogue or Digital
radio system

Simple dispatcher
Simulated control room
(Audio or IP connection)

Now it's your turn…

What Questions do you have for me?