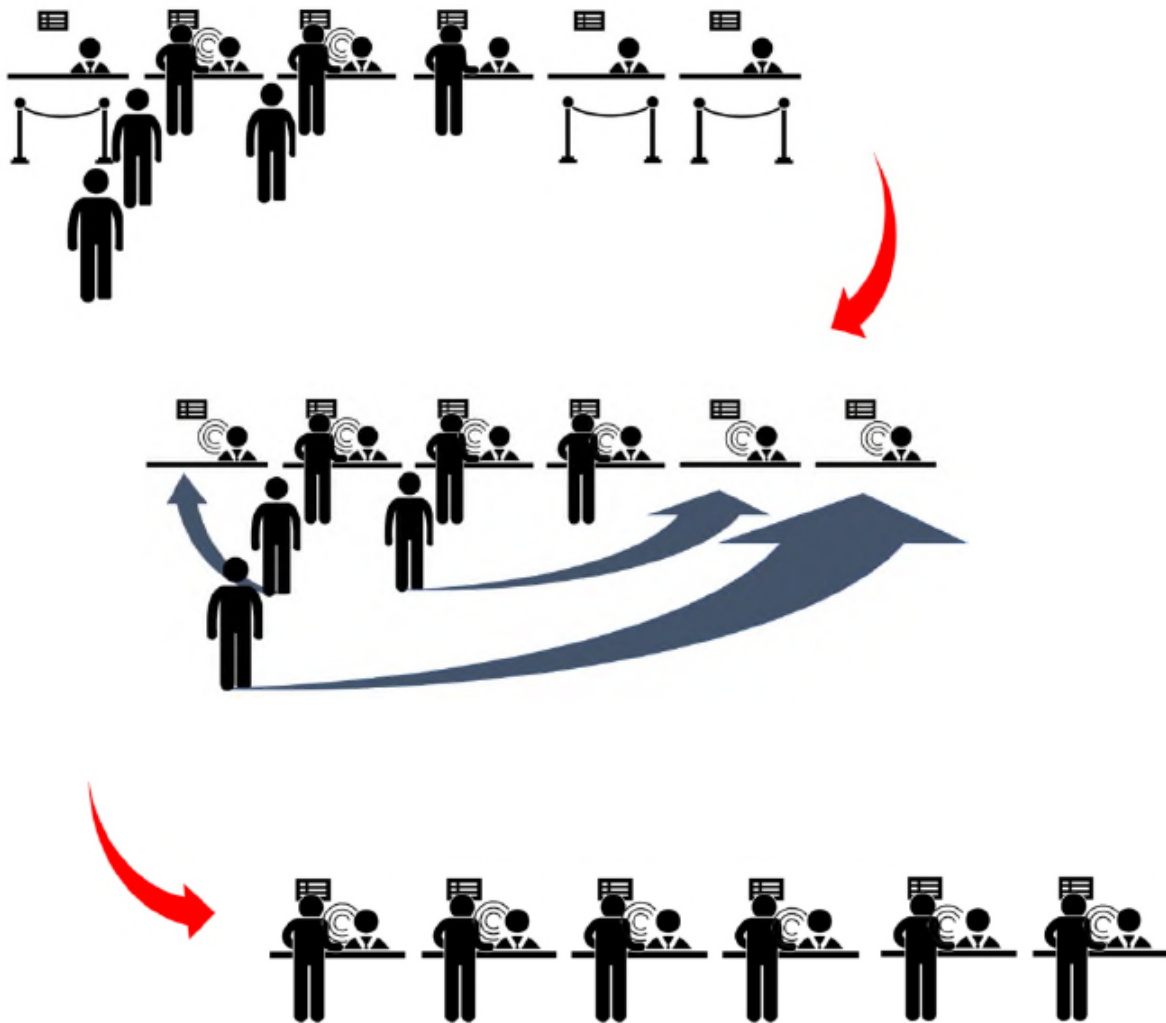
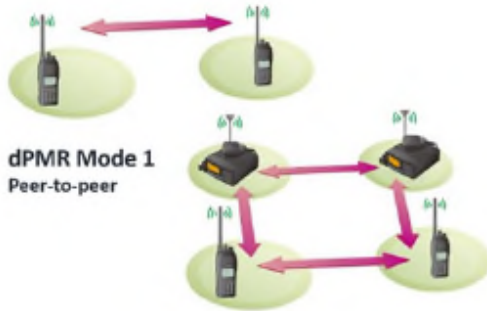


A simple guide to the difference between dPMR Conventional operation and dPMR Control-channel Trunking



dPMR Modes 1 & 2 'conventional' two-way radio operation

The vast majority of two-way radio systems in the world operate perfectly efficiently and effectively in peer-to-peer configuration or as 'conventional' systems where individual users or user groups manually select a channel on a radio device for communication with each other.



dPMR Mode 2
Conventional IP repeater mode



In a conventional system, a user on a channel would need to end their call before another user could place a call on it. The number of users and user groups that can be accommodated on a conventional system directly correlates to the number of channels available for use.

You can liken conventional radio operation to a queue at an airport check-in where those in each queue have to stay in their line until the person in front of them has checked-in and the desk becomes available.



Now, if those waiting in line could move to the free ticket booths, there would be no queue, better utilisation of the available resources and

most importantly, each customer is dealt with immediately; this is where trunking comes into play.

dPMR Mode 3 trunking

A 'trunked' radio system is fundamentally different from a conventional two-way radio in that it pools all available channels and allocates capacity as required.



Put simply, where a conventional system is limited by the number of users calling on its capacity at the same time, a trunked system allows you to create virtually unlimited user groups and provides the most efficient use of the radio frequencies and channels allocated to a system.



What does a trunked system do?

Where conventional two-way radio communications take place on one frequency a trunked system employs multiple frequencies and is able to scan all the frequencies used in the network to prioritise and allocate availability which makes it ideally suited to larger organisations with more users and groups to manage.

When you place a call on a trunked system, a channel is allocated to all participants, once the call is completed, the channel is returned to the pool for other users. This sharing of the channel capacity increases the availability of the system to all radio users, maximising availability, especially important at times of peak utilisation.

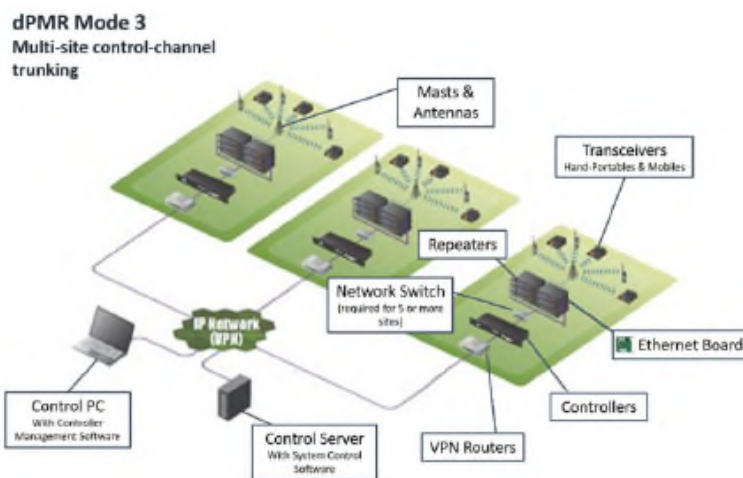


A trunked radio system is configured on the basis that with any given number of users, not all of them will require channel access at the same time, so fewer individual radio channels are required, providing a number of benefits including savings in the cost of channel licences, the ability to accommodate more users and user groups, the flexibility to configure access between user groups, increased security against eavesdropping and not least, increased availability of the system at all times.

The control channel is a vital instrument in the seamless management of a trunked radio system, ensuring seamless operation in all situations. It can be used to transmit small data messages between radios even if all other channels are occupied and it provides pre-emptive call handling to ensure radio access in case of emergencies.

How does control-channel trunking work?

For more information on the dPMR ETSI standards covering license-free dPMR 446 through to Mode 3 managed access, multi-site trunked systems, visit us at www.dpmrassociation.org.



A database lies at the heart of a trunked radio system where it controls access to talk groups and the rules applied to individual users and groups at all times. Typically, at least one frequency will be assigned as a 'control channel' to manage the hand-portable or mobile radio devices telling them which frequency to monitor for incoming and outgoing transmissions.

When a user makes a call by depressing the Push-To-Talk (PTT) button on their device, the control channel will automatically find and allocate a free channel and send a message to the radio units involved in the talk group instructing them to change to the free channel. This means a conversation can take place on any available channel rather having to wait for a particular channel to be available.

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'Queue' illustrations: Adapted from Copyright: www.123rf.com/profile_jeremy