

# **Introduction to D-STAR**

Digital Smart Technologies for Amateur Radio

Developed by Japan Amateur Radio League (JARL)

Released 2001

## **JARL Design – Icom Implementation**

Currently only Icom makes radio gear

Kenwood rebrands an Icom radio in Japan only

Internet Labs makes a USB DV-Dongle which mimics a radio via your computer

Icom makes the repeater equipment as well

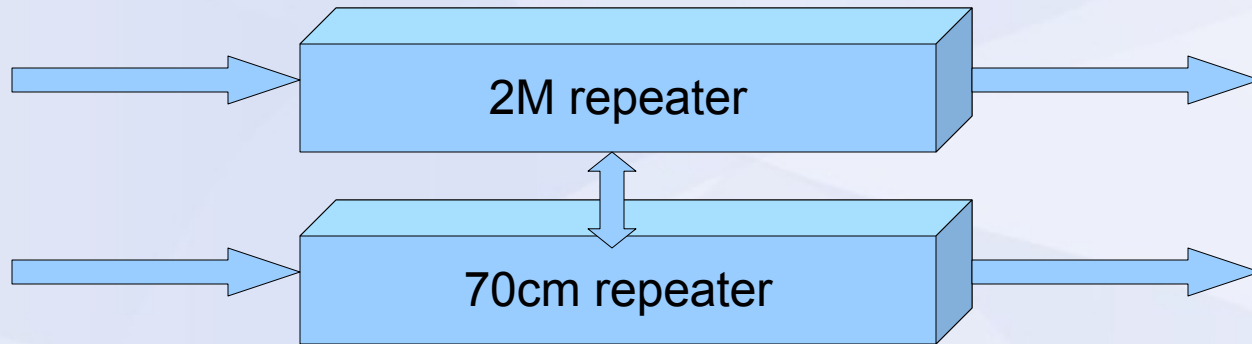
## Capabilities

- Digital voice
- Low speed data without packet
- High speed data (1.2GHz radios)
- APRS
- Most radios support legacy FM capabilities

## **Many configurations**

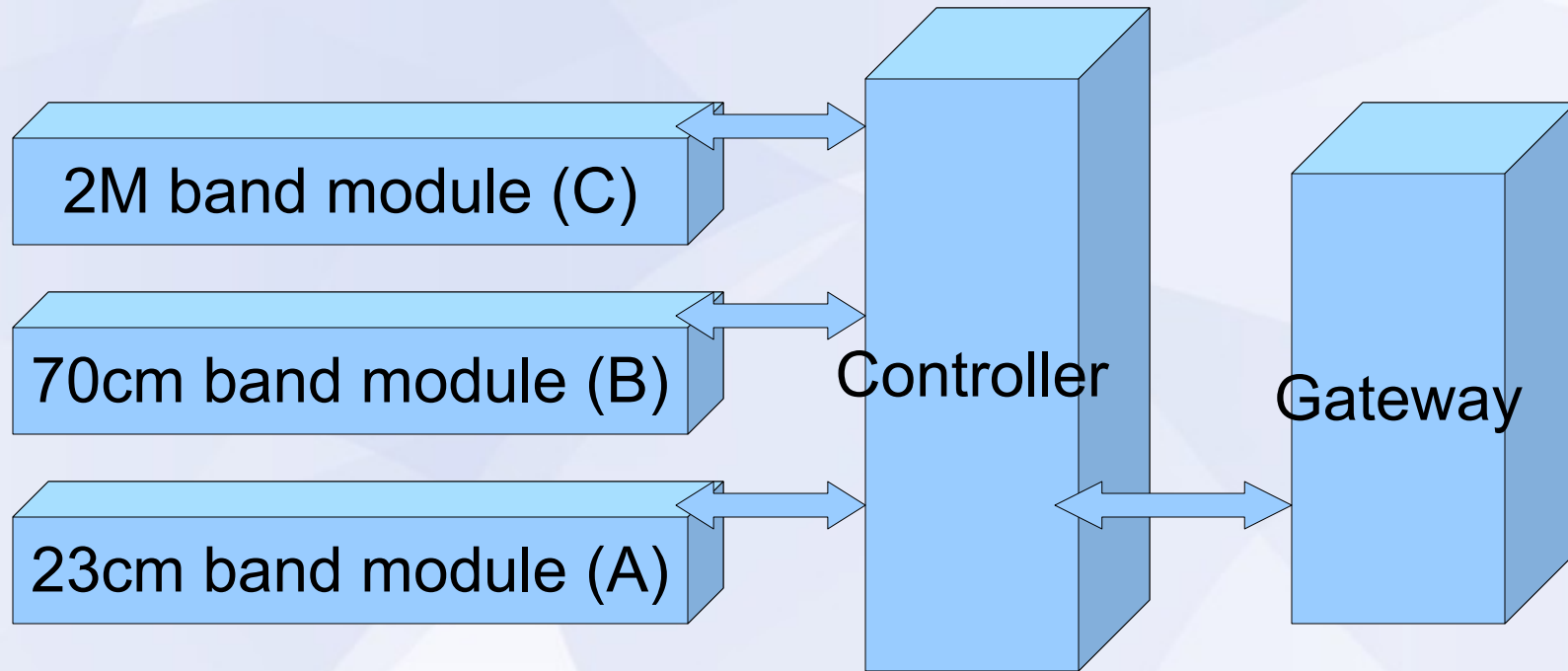
- Local repeater
- Local Repeater to Gateway
- Source Route to Specific repeater
- Specific User
- Link to Reflector

## Legacy style repeater



Local repeaters might be interconnected via audio  
Or a repeater might be linked via RF to a nearby repeater

# D-STAR Repeater



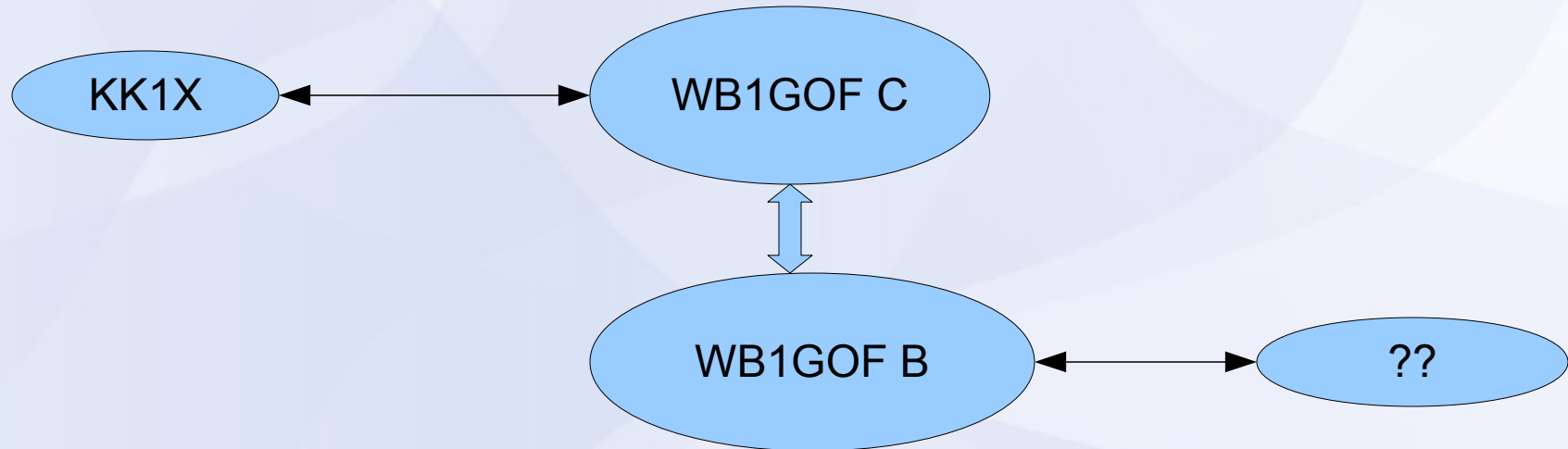
## Local Repeater



MY	RPT1	RPT2	UR
KK1X	WB1GOF A	NOTUSE	CQCQCQ

This lets me just call out on the repeater to see who's around.

## Or Cross-band Local

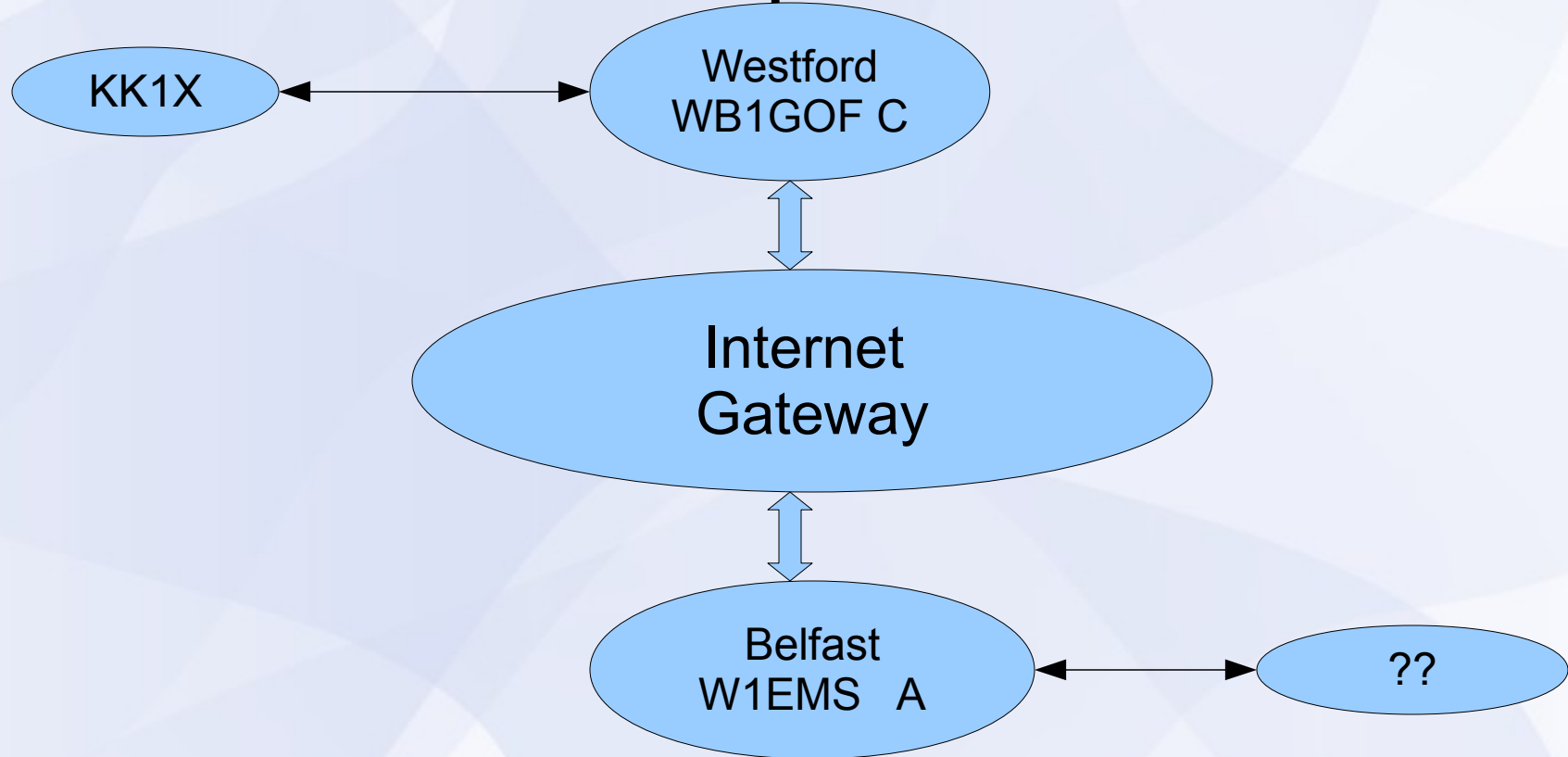


MY	RPT1	RPT2	UR
KK1X	WB1GOF C	WB1GOF B	CQCQCQ

Lets me see who is hanging around the 70cm repeater when I'm on 2m



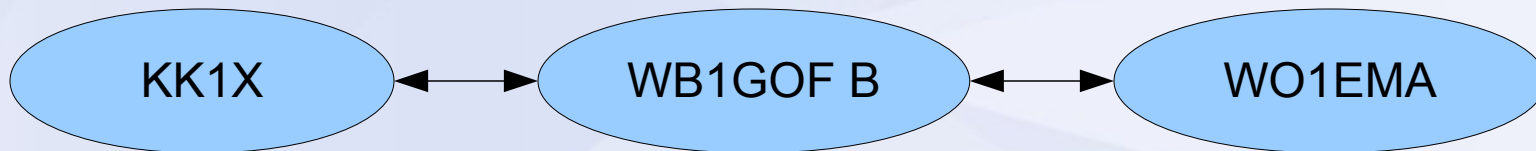
## Cross-repeater Link



Lets me check to see who is on any linked repeater in Belfast (I might want to talk to my friend Dick)

## Find a Friend

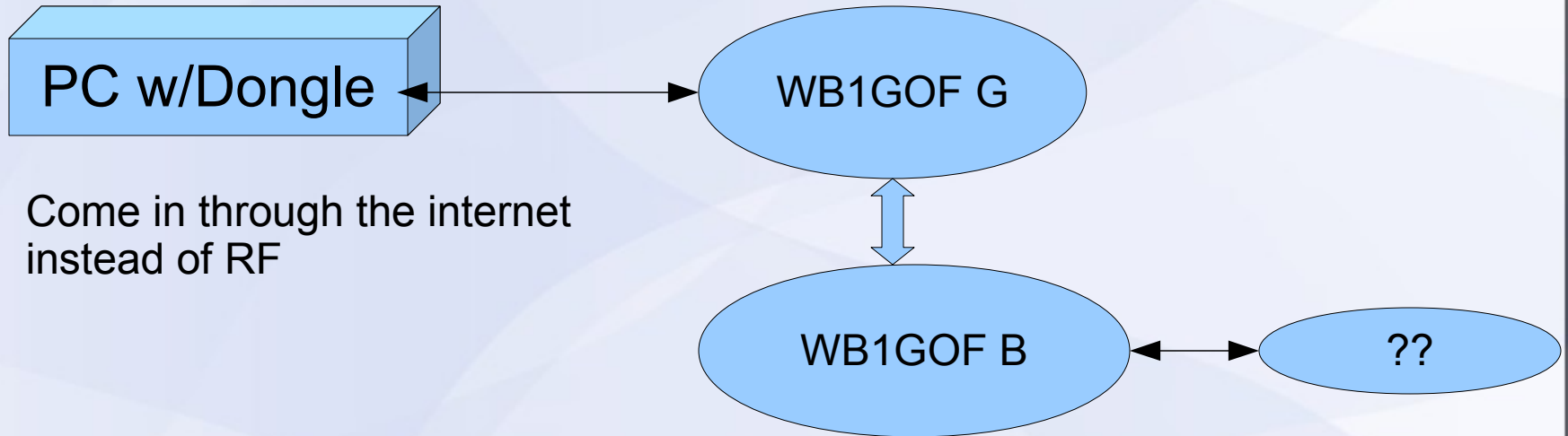
If I just want to find a friend (say Dicky from Belfast)  
but I don't quite know where he is



MY	RPT1	RPT2	UR
KK1X	WB1GOF B	WB1GOF G	WO1EMA

And the “system” will find Dicky if he's around anywhere, and route my call to him – even if he's not in Belfast

# DV Dongle



MY	RPT1	RPT2	UR
KK1X	WB1GOF G	WB1GOF B	CQCQCQ

## Pros - Cons

- Pros

- Interesting new technology
- Data capabilities

- Cons

- Expensive (\$500 for a dual-band 880-H)
- Complex (frequencies, offsets, tones AND callsigns, repeaters and gateways)
- Digital voice drops abruptly – there's no gradual degradation – it just drops off a cliff

## Links

- [www.dstarinfo.com](http://www.dstarinfo.com)
- [www.dstarusers.org](http://www.dstarusers.org)
- [www.icomamerica.com](http://www.icomamerica.com)
- [www.dvdongle.com](http://www.dvdongle.com)