

# BRANDMEISTER

Het hoe en wat in België





# Yentel – ON3YH

- 21 jaar
- Student Toegepaste Informatica (CCCP)
- DMR sinds oktober 2014
- @YentelHollebeke
- BM Developer Team (Dashboard)
- BM Belgium Master Server Beheerder



# @Mentions

- ON4AIM (eerste DMR repeater in België)
- ON8SVH & ON4AKH (DMR Netwerk in België)
- ON4AWM + team (testkabouters)
- ON7UZ (Coördinatie nieuwe repeaters & locaties)
- ON3WOO (Demo filmpjes & deze PPT)
  
- SYSOPS !
- Gebruikers



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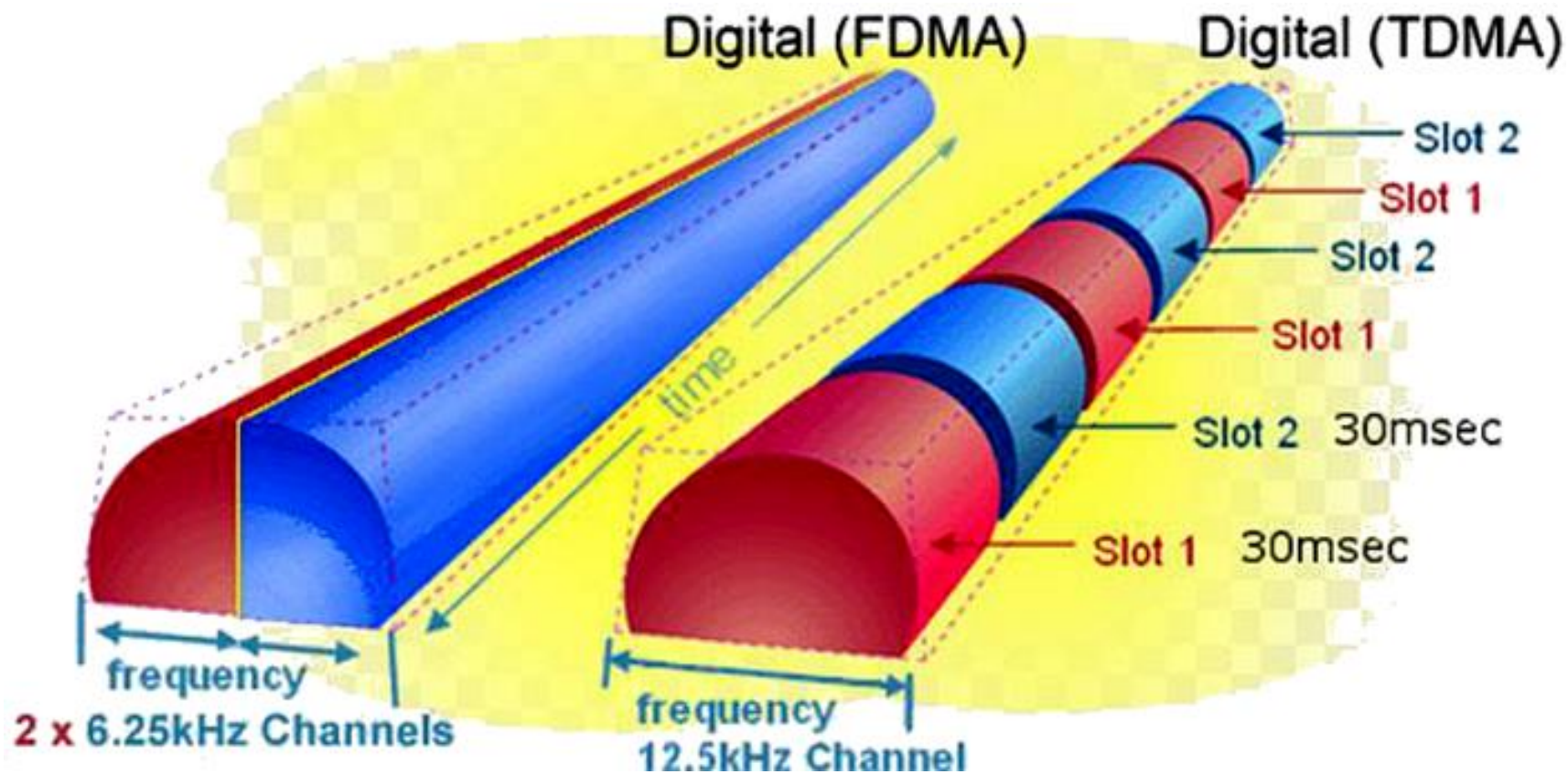
# Wat is DMR?

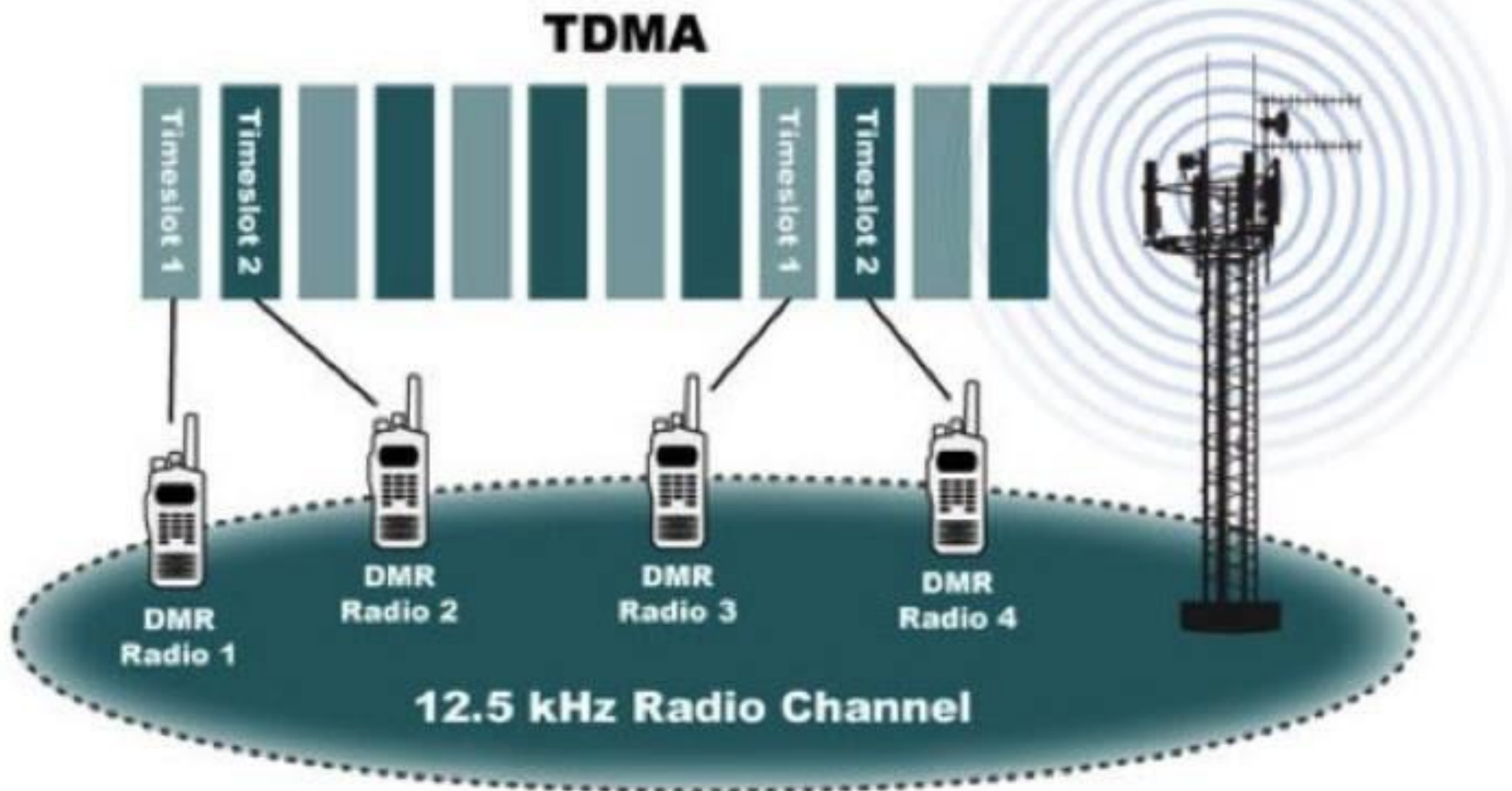
# Vragen aan het publiek

- Wie weet (ongeveer) hoe DMR werkt?
- Wie heeft er een DMR toestel in zijn/haar bezit?
- Wie kan dat toestel ook effectief zelf programmeren?
- Wie heeft deze voordracht bijgewoond op Dirage / OT5A?
- Wie denkt er aan om met DMR te beginnen?



## DMR in het kort







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# Gebruikte toestellen



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# Hytera





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# Motorola





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## Tytera

- MD-380
- MD-390
- MD-2017 (dualband)
- Ook bekend als Retevis





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## Kenwood

- NXDN (Kenwood Digital)
- DMR
- P25

An Industry First — Triple-Digital Radios for Enterprise and Public Safety



The advertisement features a large Kenwood handheld radio on the left and a base station on the right. In the background, there are three inset photos: two construction workers in hard hats and safety vests, and a police officer in uniform. The text 'NXDN™ DMR' is prominently displayed, along with logos for Bluetooth, GPS, and FleetSync. The Kenwood logo is also visible. The bottom of the advertisement features the 'NEXEDGE®' logo and a 'Gen2' badge.

**NXDN™ DMR**

Bluetooth GPS FleetSync

**NEXEDGE®**

Gen2



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## DV4Mini

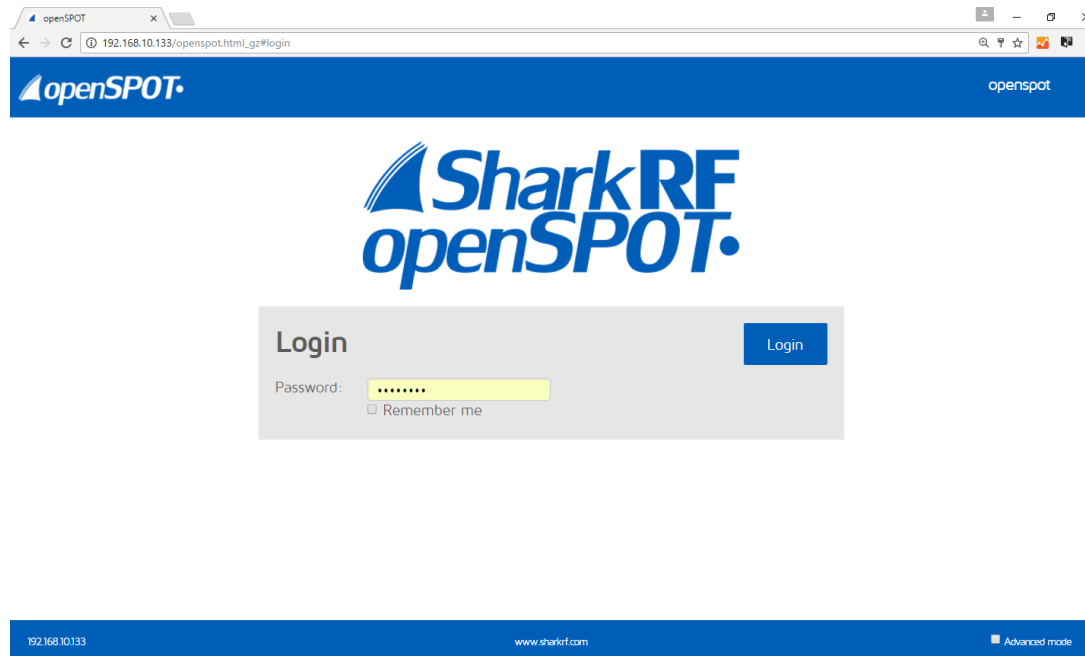
- DMR+
- Overpriced
- Beperkte functionaliteit
- Extended Routing
- Computer / RPi nodig





# OpenSpot

- Hotspot
- Webinterface
- Wired Ethernet
- Cross System Compatibility

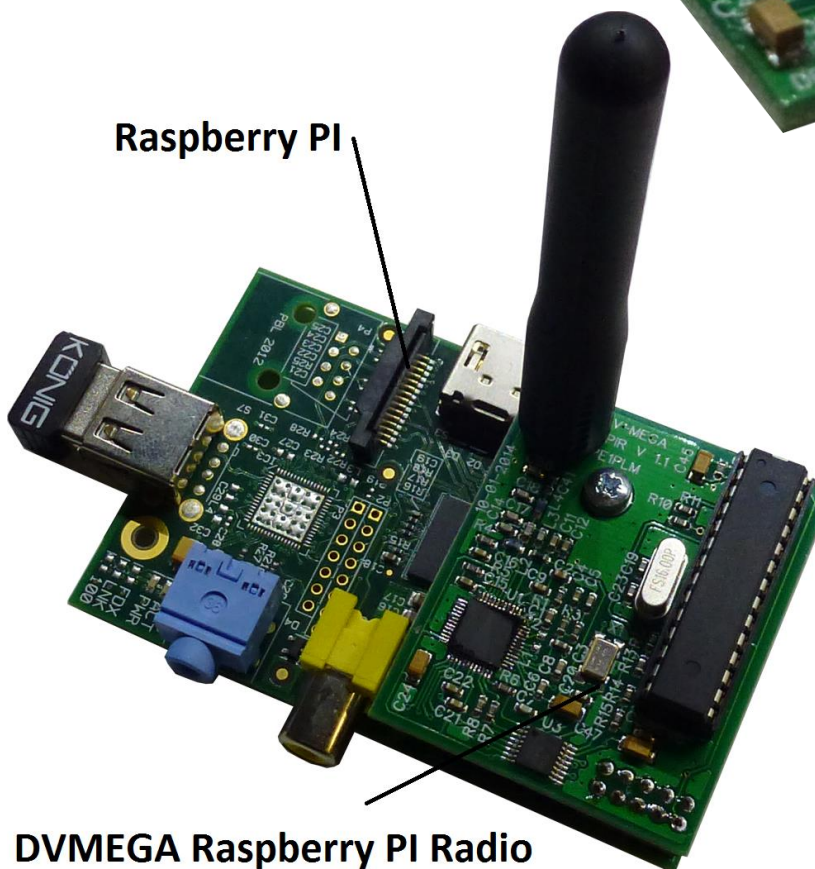




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## DVMega

- Raspberry Pi
- Bluestack (Android, iOS in dev)
- Arduino spin-off

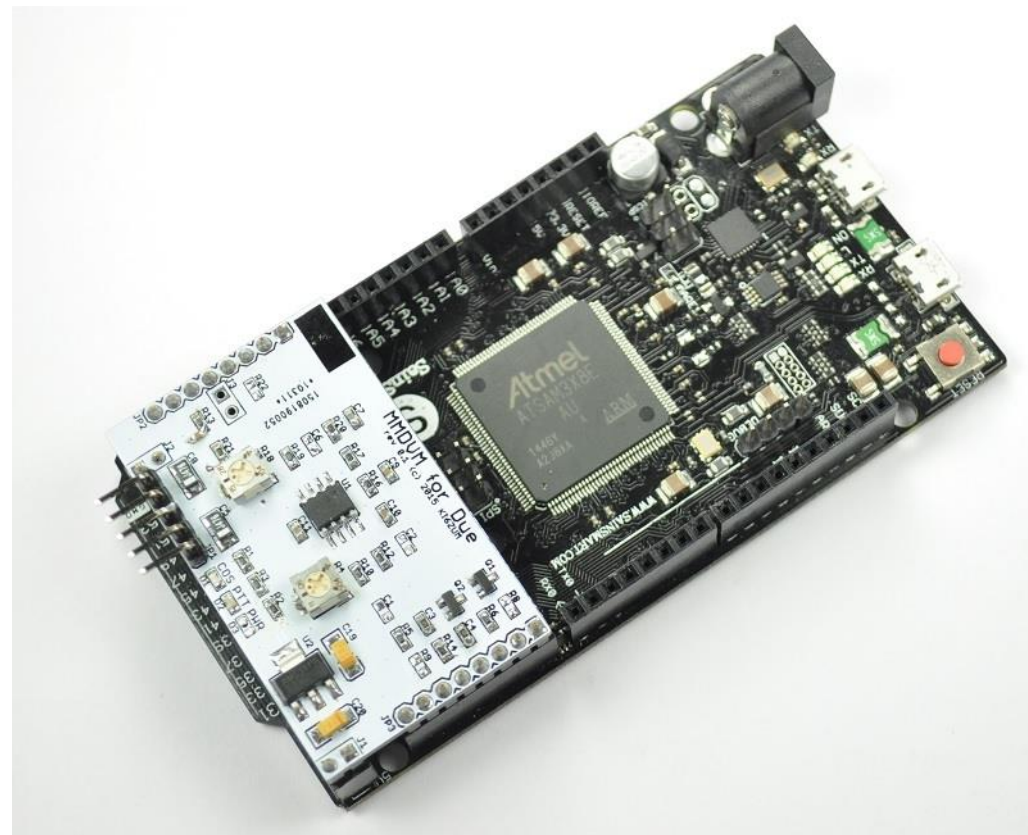




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## MMDVM Repeater

- Raspberry Pi
- Arduino Mega
- Volwaardige repeater





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- 2 Trancievers
- 1 MMDVM Print
- 1 Arduino Mega
- 1 PC / RPi
- Internet

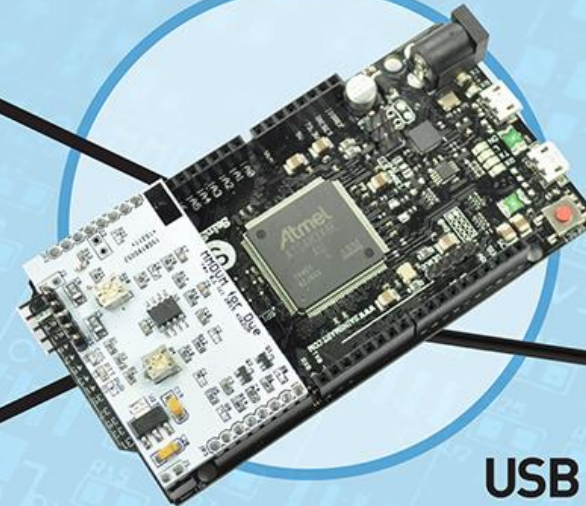
# DMR Repeater

Based on MMDVM REV 1.0  
with an Internet connection



**Arduino DUE**  
with **MMDVM** REV 1.0  
running **MMDVM** code

**Computer**  
(desktop or ARM)  
with Internet access, running  
MMDVM Host, connected to  
BrandMeister or DMR+ networks



**USB Cable**  
from programming port to host  
Also providing power



**MMDVM**  
MULTIMODE DIGITAL VOICE MODEM



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# Keuze van een goed netwerk

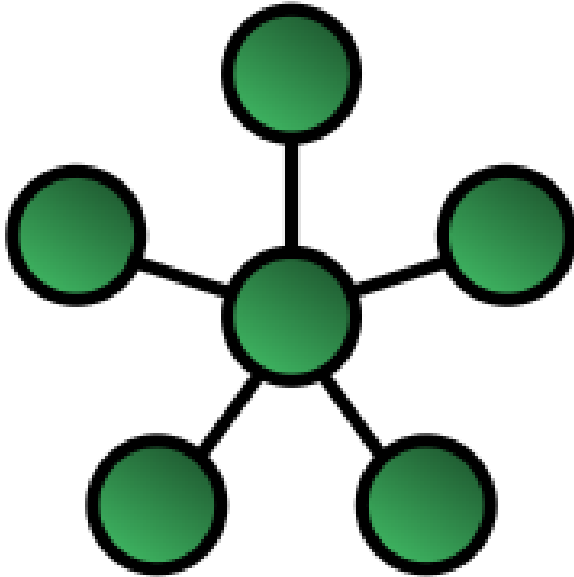
## DMR-MARC

- Opgestart in America
- Enkel Motorola
- Closed-policy
- Experimenteren bijna “verboden”
- Regels aanpassen aan de situatie
- Velen zijn reeds afgestapt
- C-Bridge **LICENTIE** kosten



## DMR+

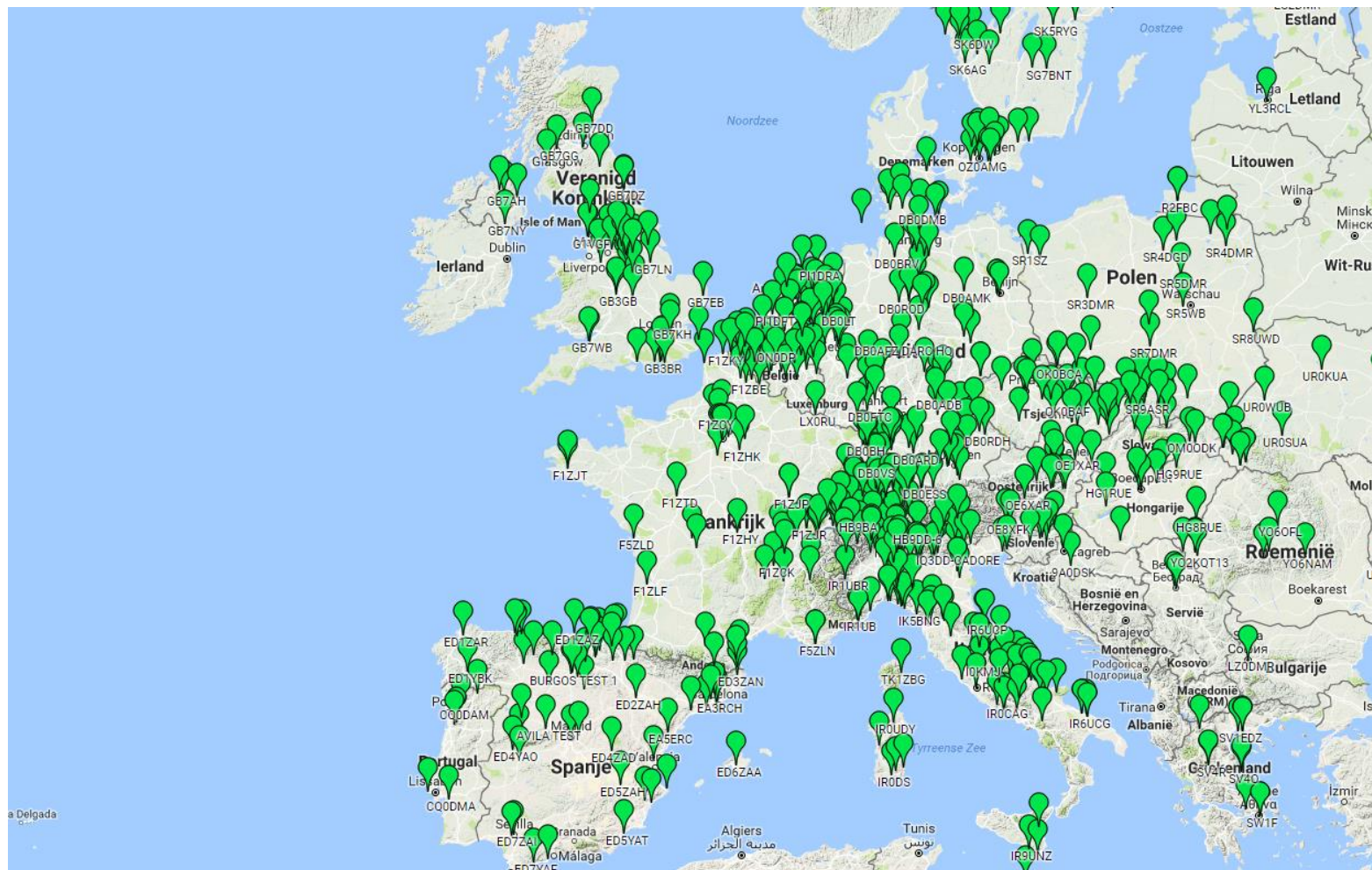
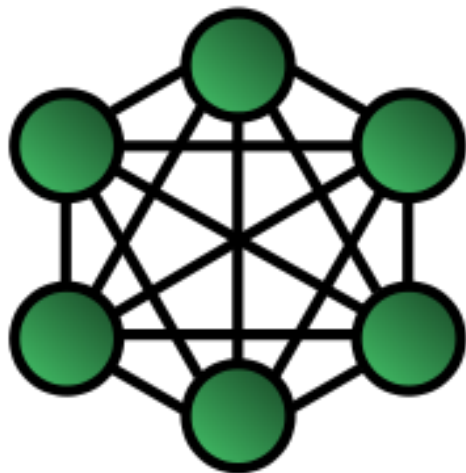
- Vernieuwende (duitse) software
- Closed-policy
- Ster netwerk





# BrandMeister

- Russische (gesloten) core software (NDA)
- Open “shell”
- Makkelijk zelf applicaties schrijven
- Vrij om te experimenteren
- Maas netwerk





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# BrandMeister in België



# Gebruikte Termen

- Talkgroups (TG)
  - Statische talkgroup
  - Dynamische talkgroup / on-demand talkgroup
- Calls
  - Private Call
  - Group Call
  - Data Call
  - Voice End
  - Call End



# DMR ID's

Bestaat uit 7 cijfers (CSS7 ID genoemd)

<MCC:3> <REGION:1> <ID:3>

**MCC:** 206 (België), 204 (Nederland), 208 (Frankrijk)

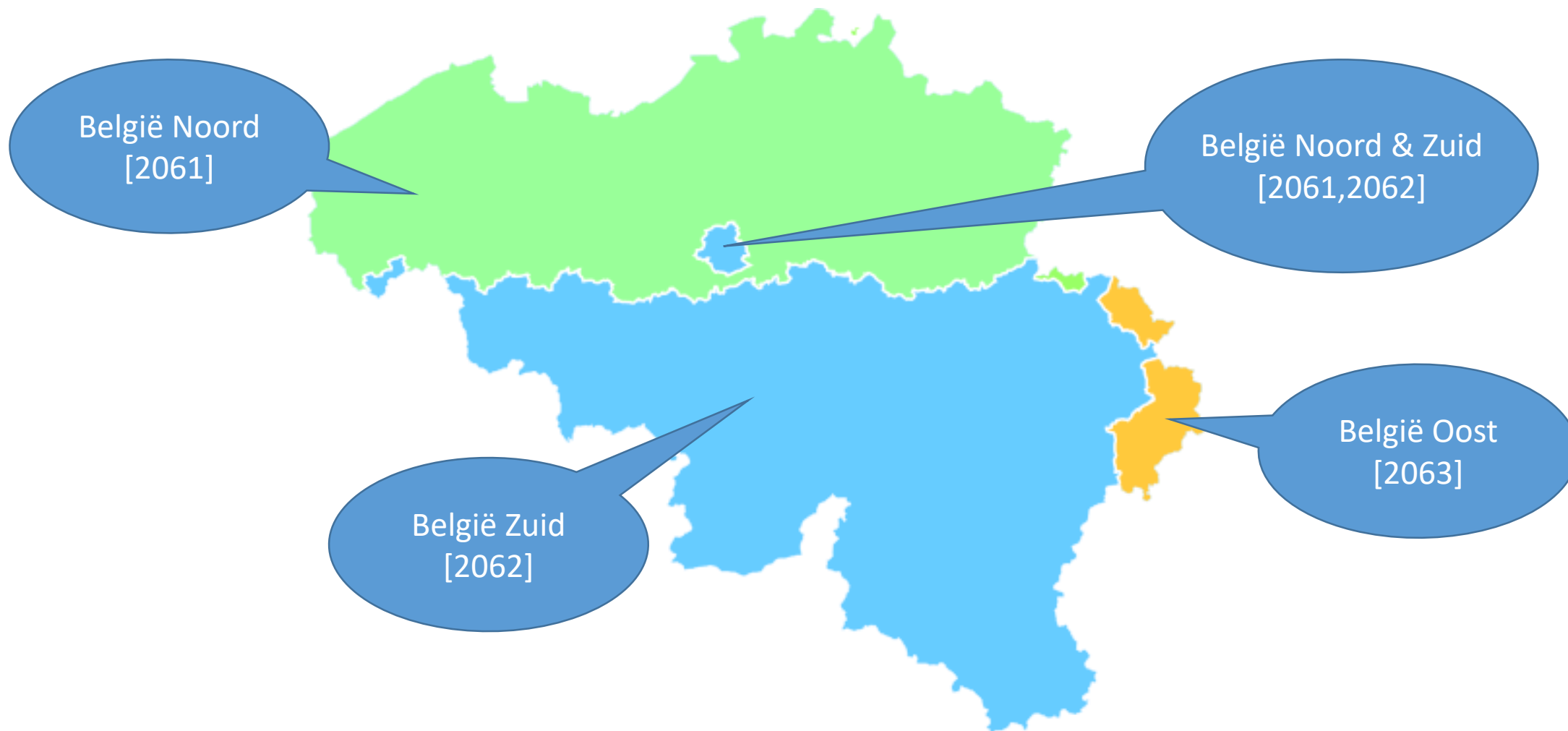
**Region:** 1 (WVL), 2 (OVL), ...

**ID:** User id of TG ID

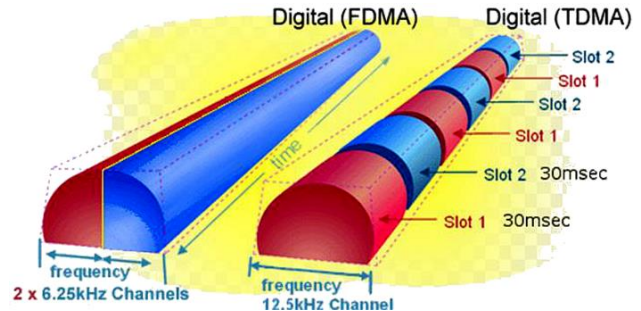
Voorbeeld: **2060049** (ON3YH)



# Indeling regio's



# Indeling



## Slot 1

B-EARS Oefeningen & Noodgevallen  
[206]

Regionaal  
[2061, 2062, 2063]

## Slot 2

Lokaal [9]  
Cluster [8]

On Demand Intern  
[2064, 2065, 2066, 2067, 2068, 2069]

On Demand Extern  
[204, 208, 214, 222, 262, 2350, ...]

Talkgroups  
[91, 92, 93]

Reflectoren  
[4500, 4750, 4751, ...]



# Slot 2 nader bekeken

- Statische talkgroepen → Slot locking
  - TG8 Cluster
  - TG9 Local
- On Demand toegelaten maar niet verplicht
- Reflectoren toegelaten maar niet verplicht
  - Outdated of niet?
  - Handig voor DV4Mini gebruikers.

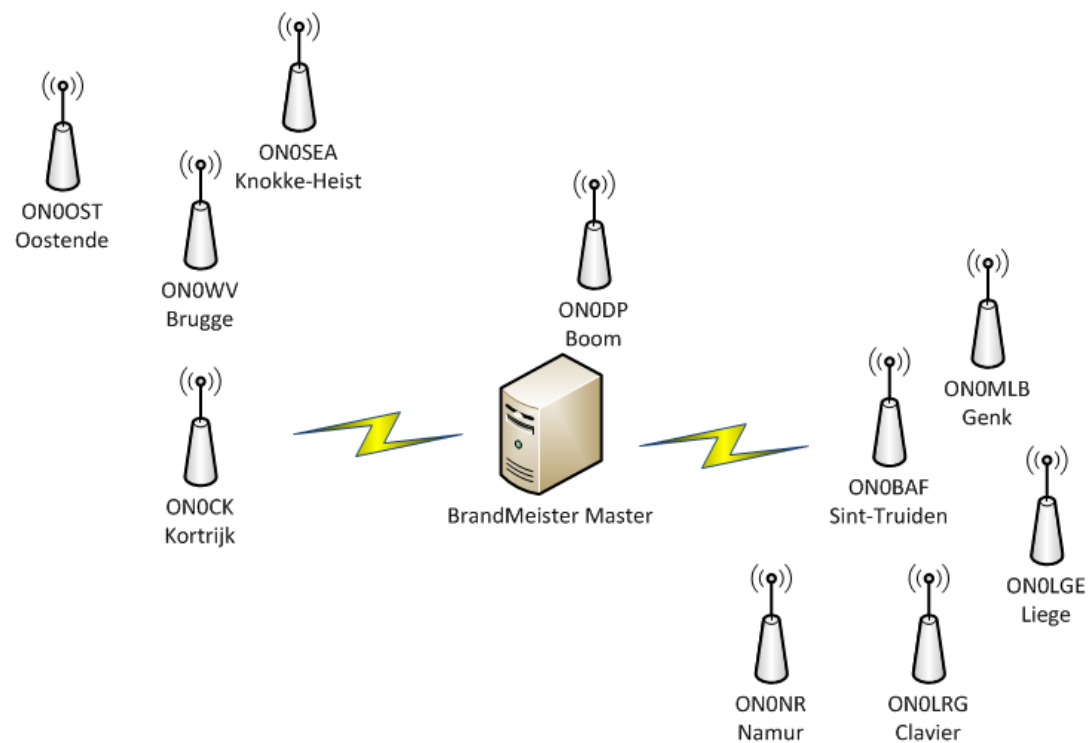


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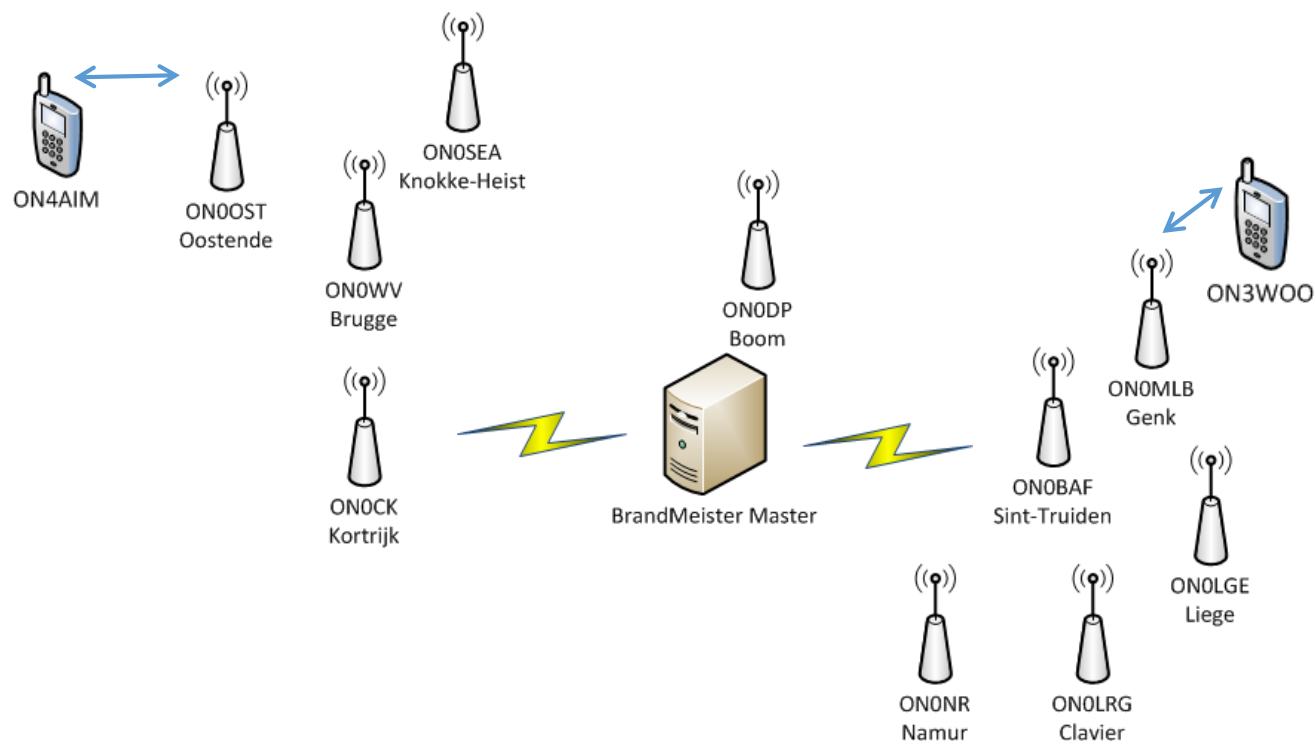
# Hands-on voorbeelden



# Ons Netwerk

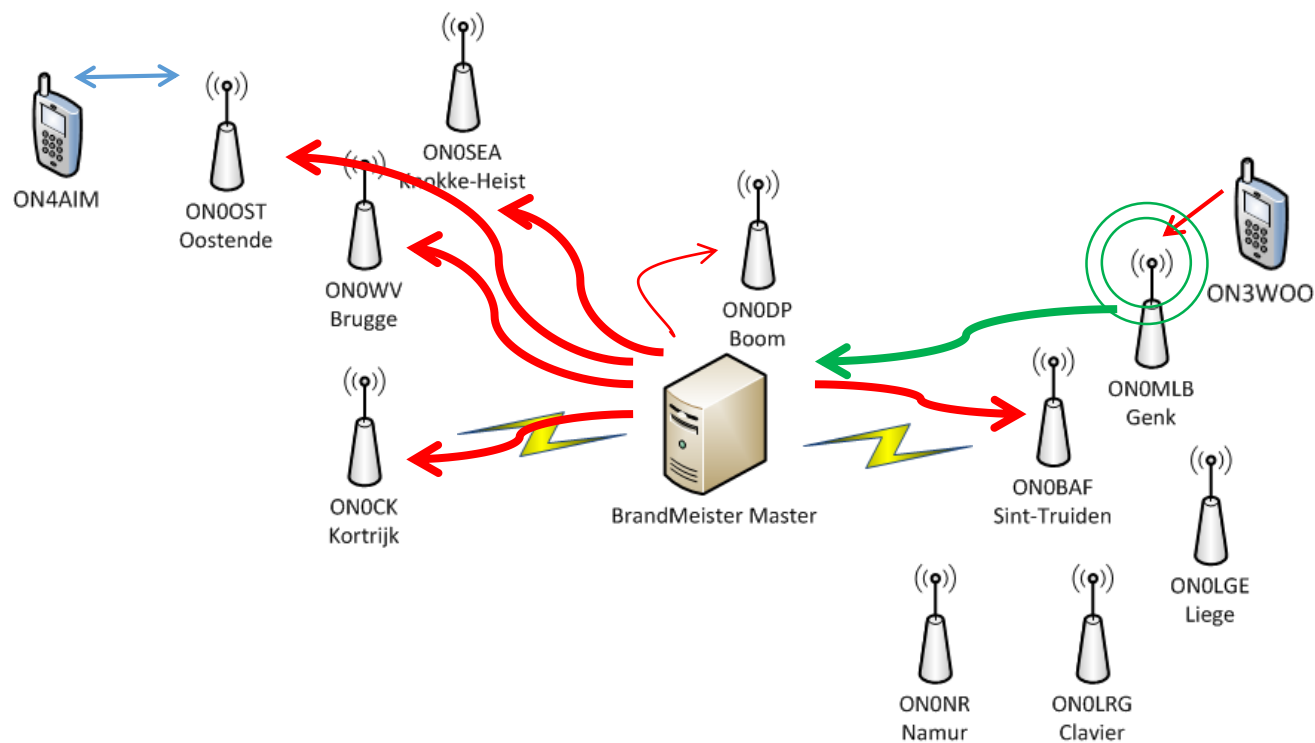


# Een verbinding maken (2061)



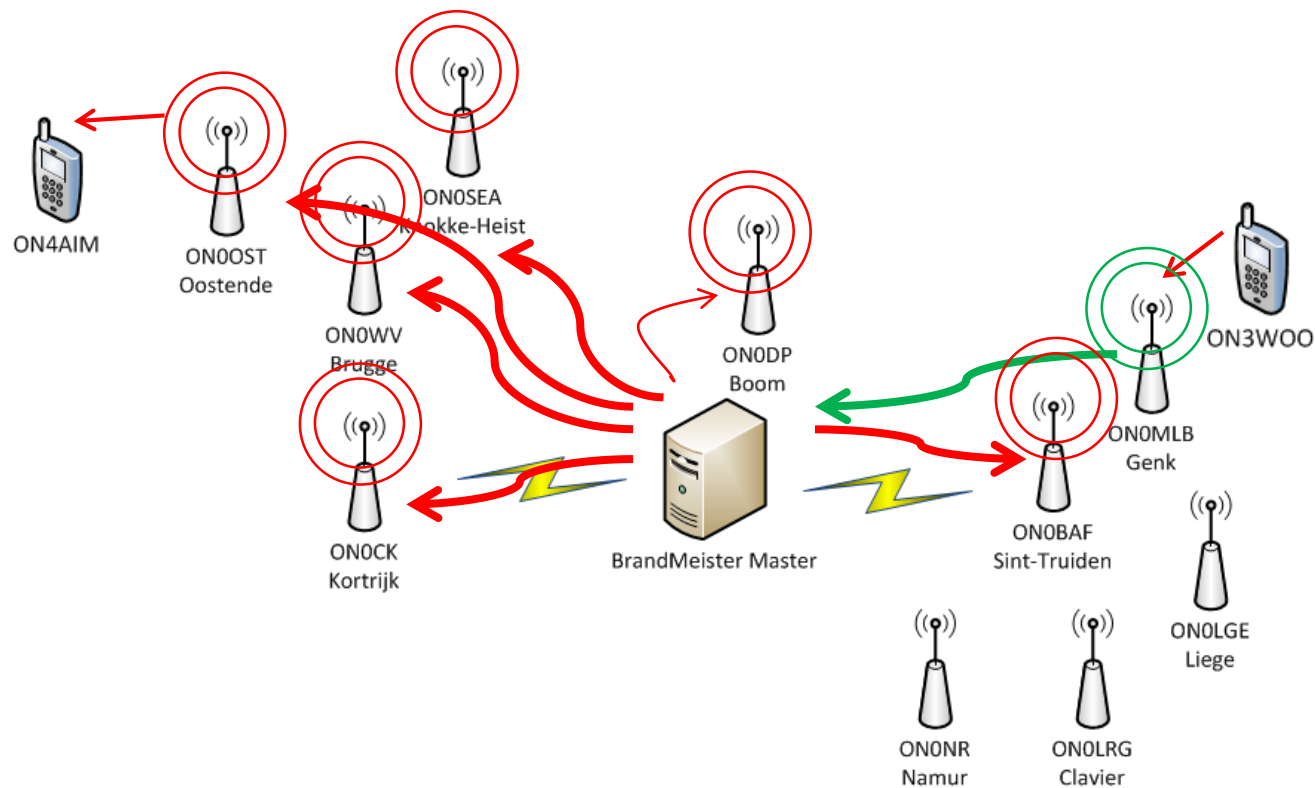


# Een verbinding maken (2061)

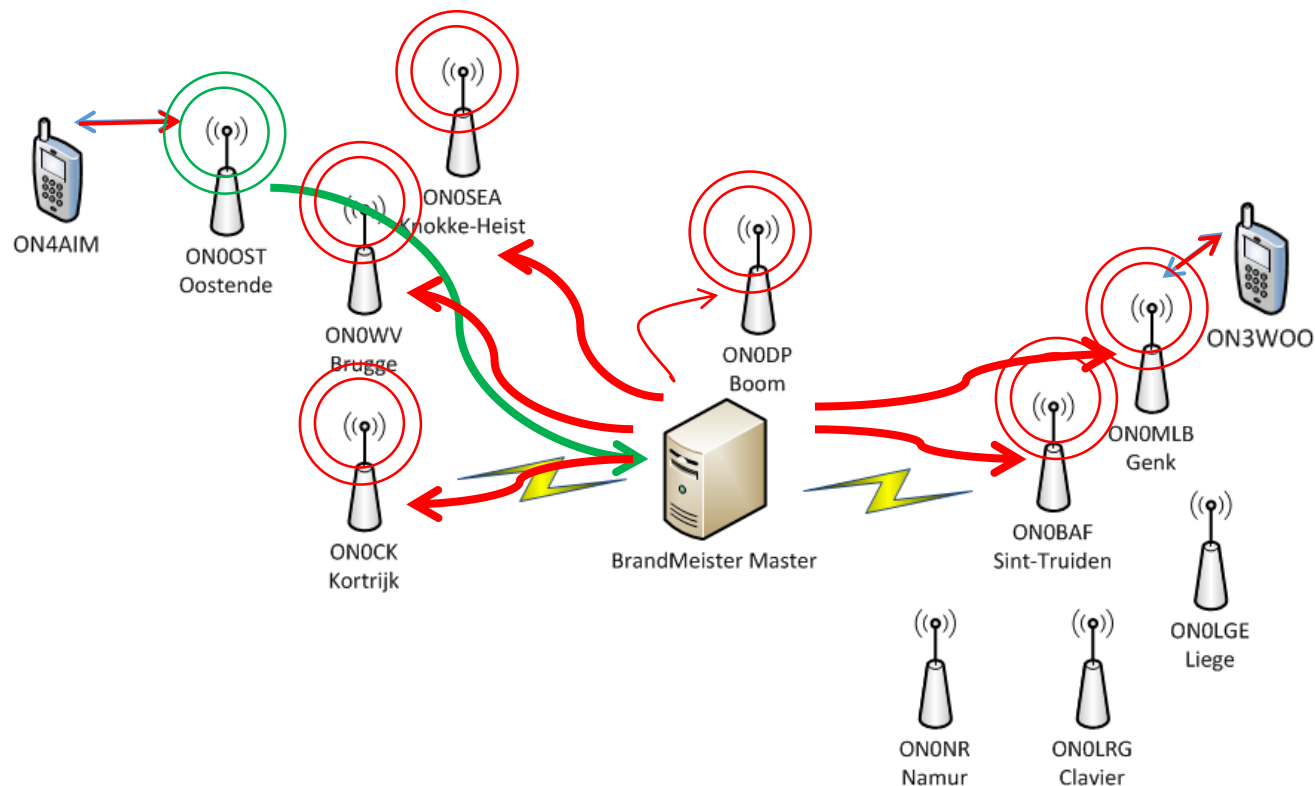




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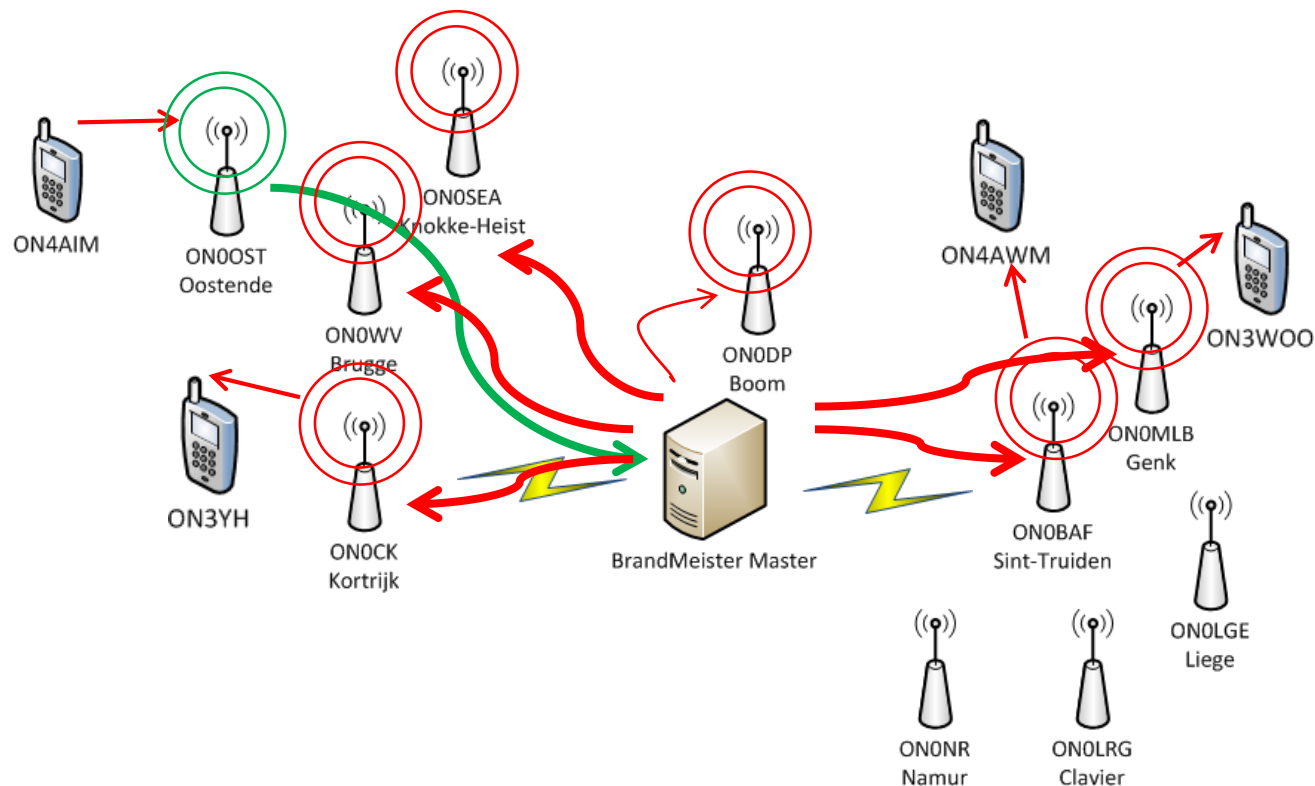


# Op een gesprek antwoorden (2061)

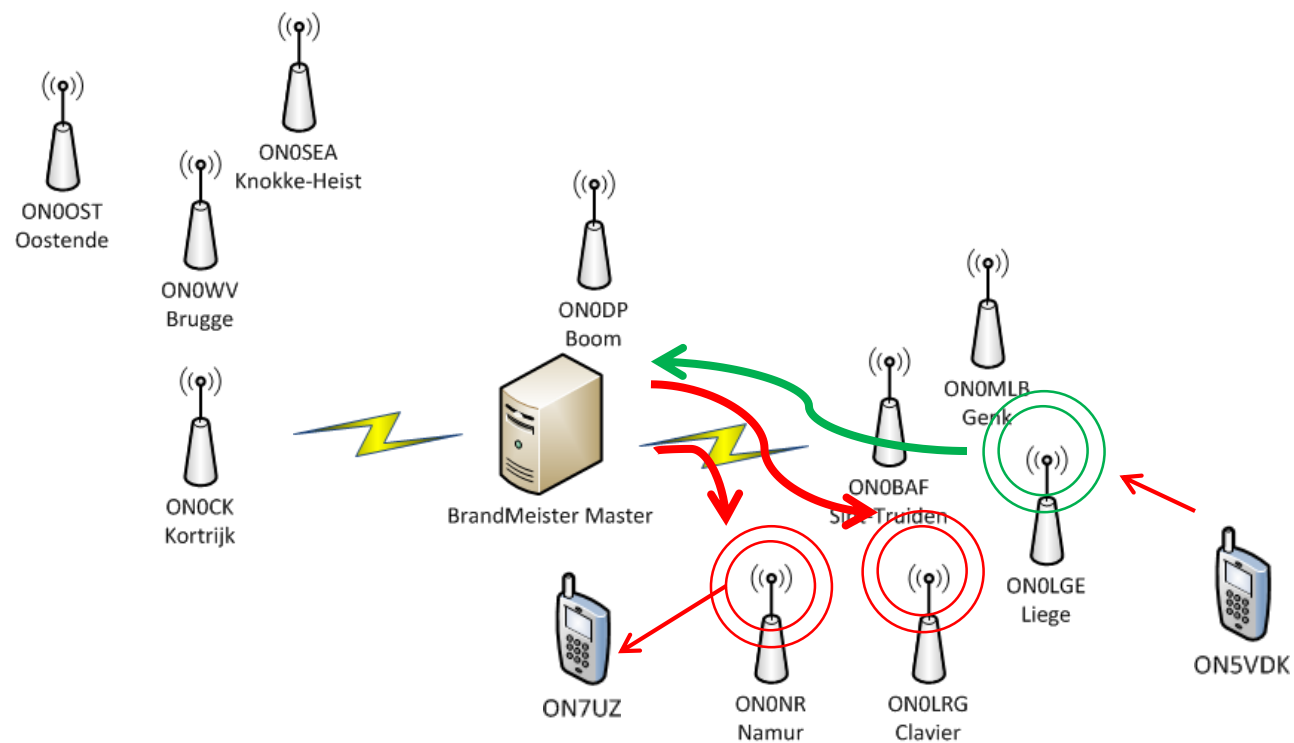




# Op een gesprek antwoorden (2061)

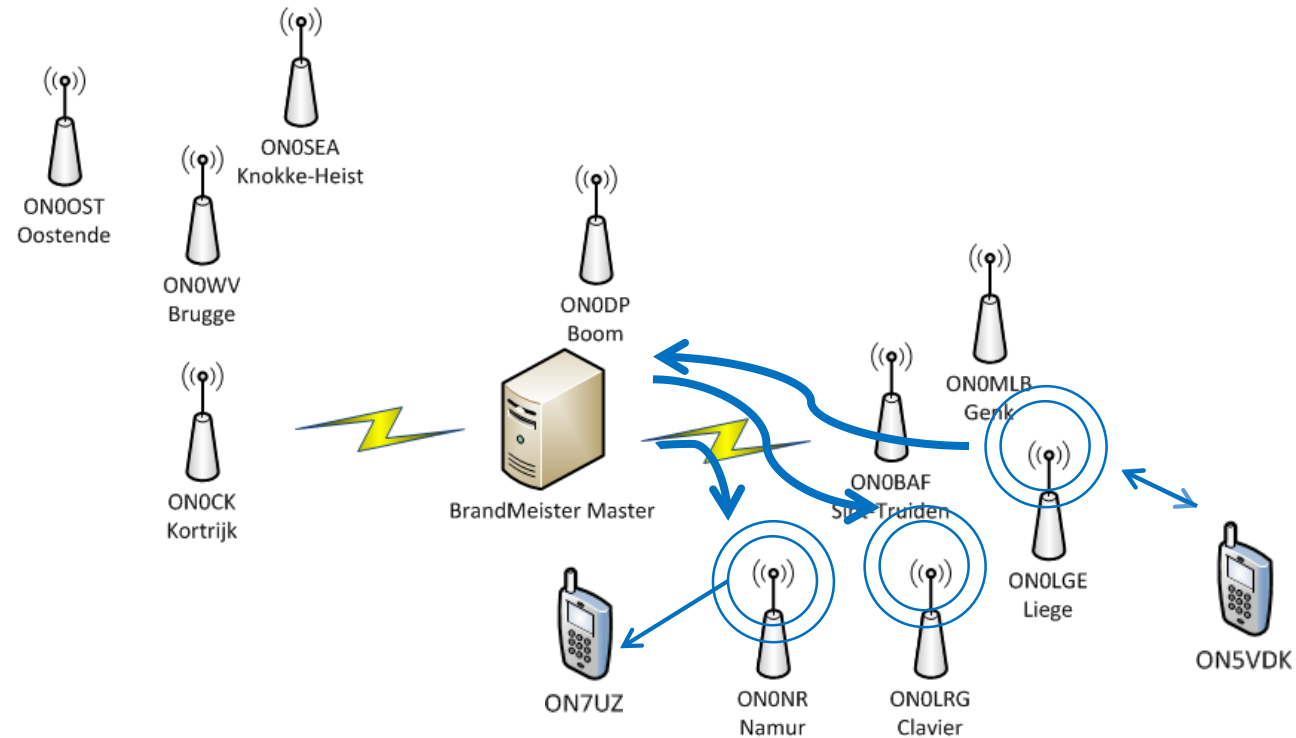


# Een verbinding maken (2062)



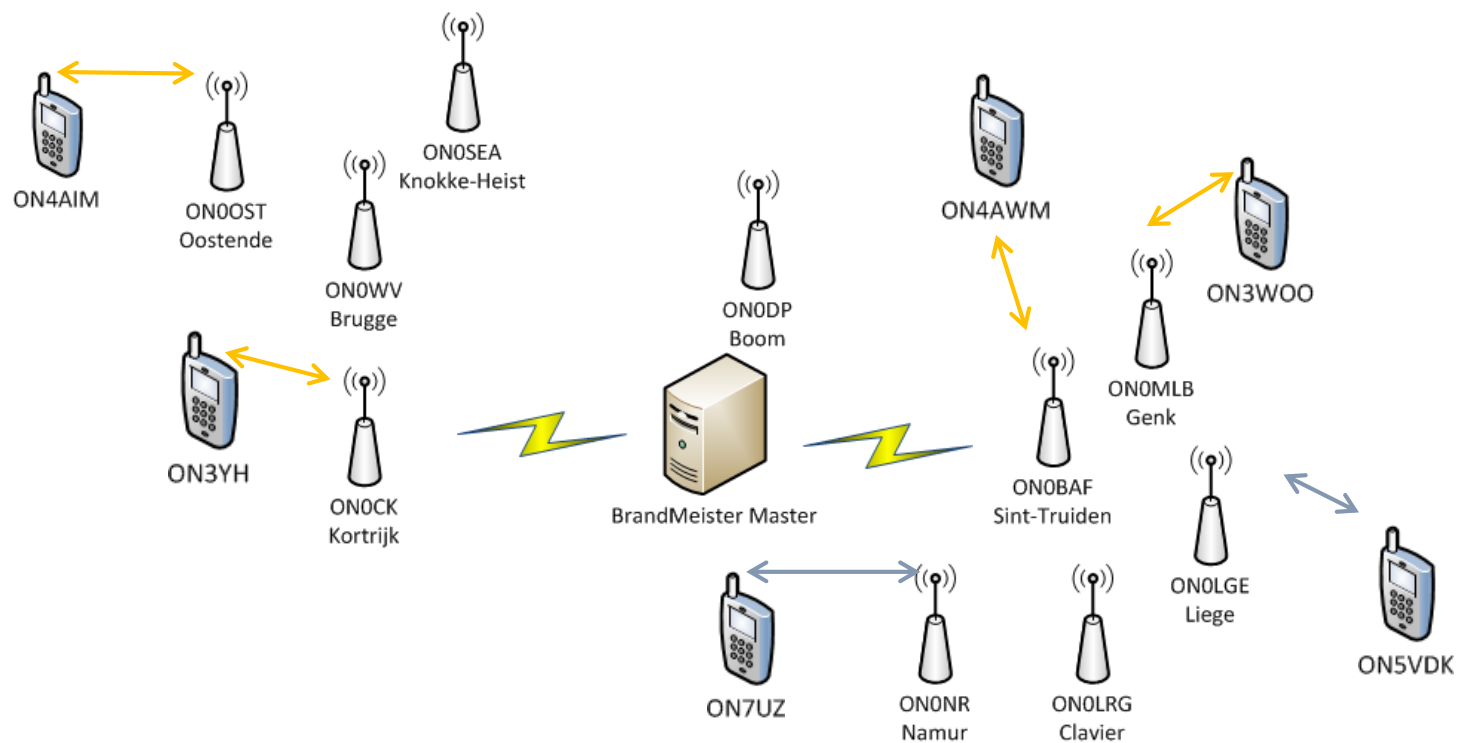


# Een verbinding maken (2062)

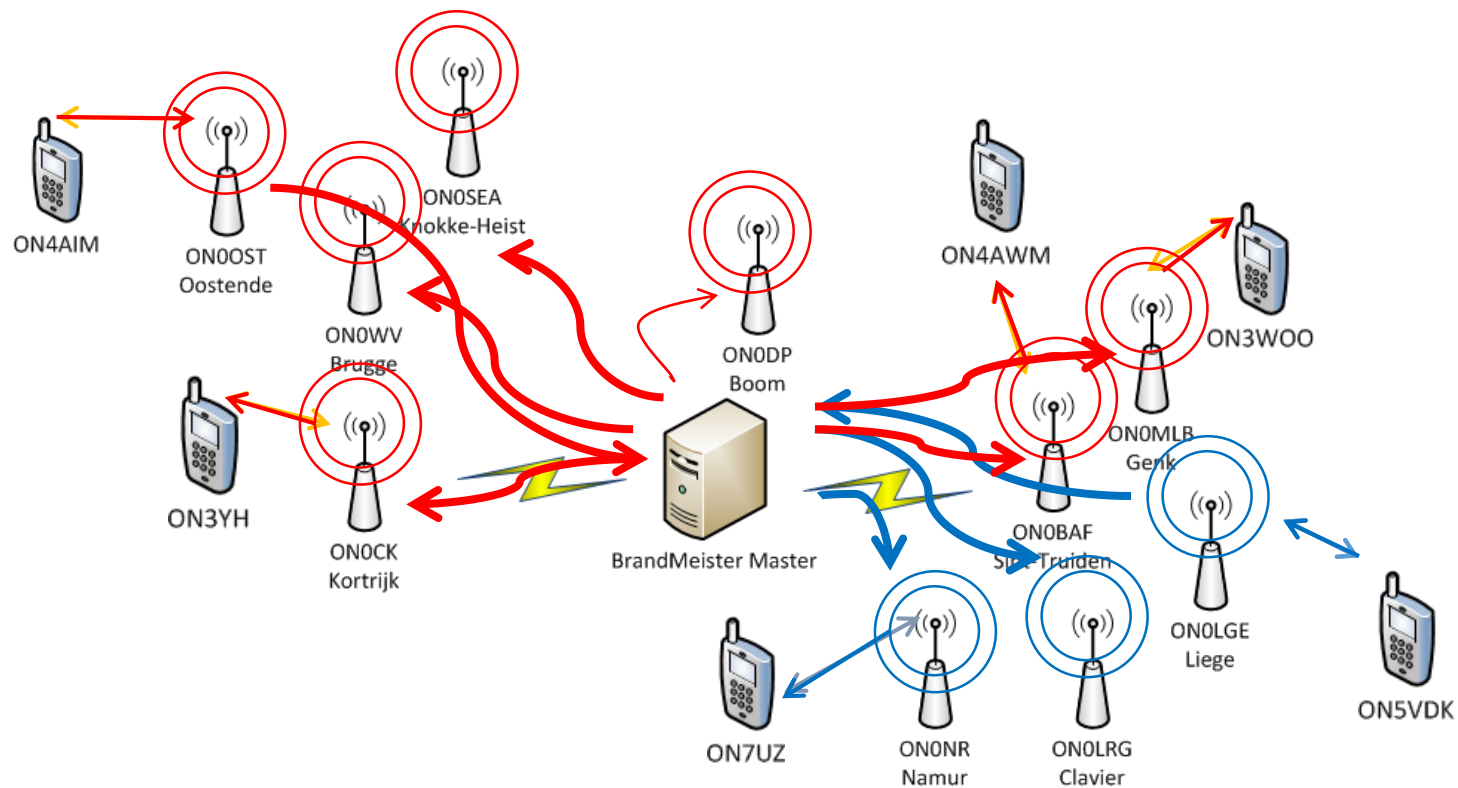




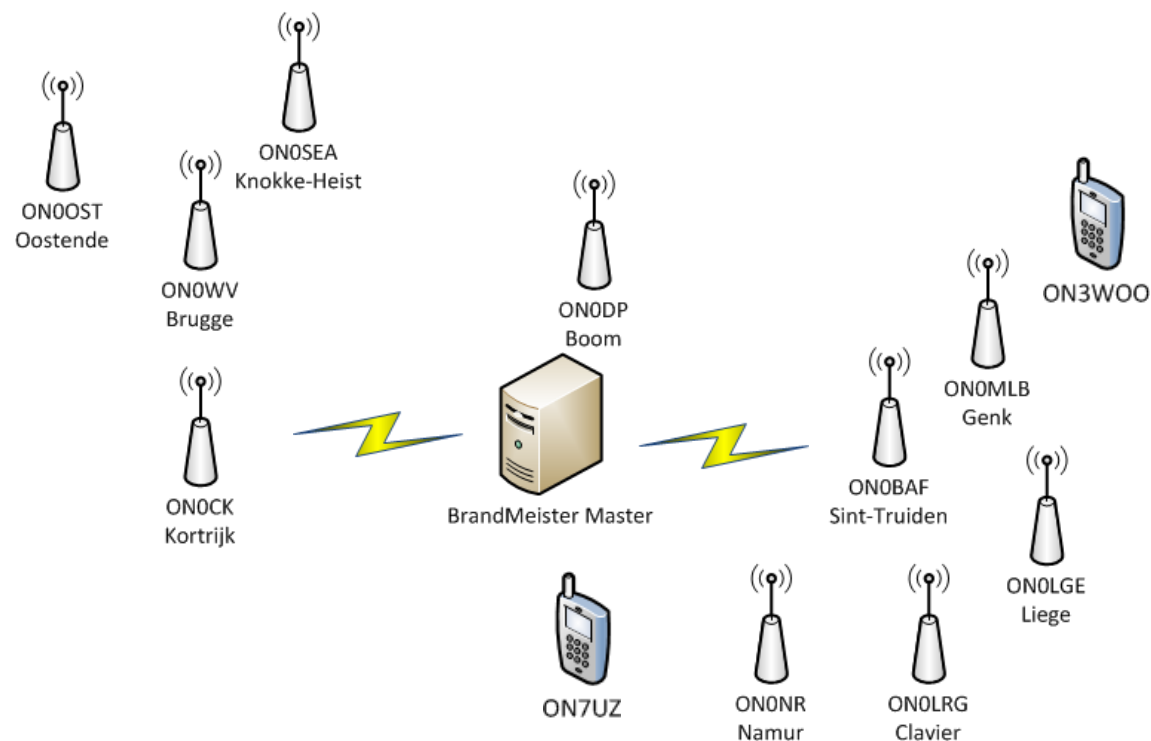
# 2 verbindingen tegelijk?



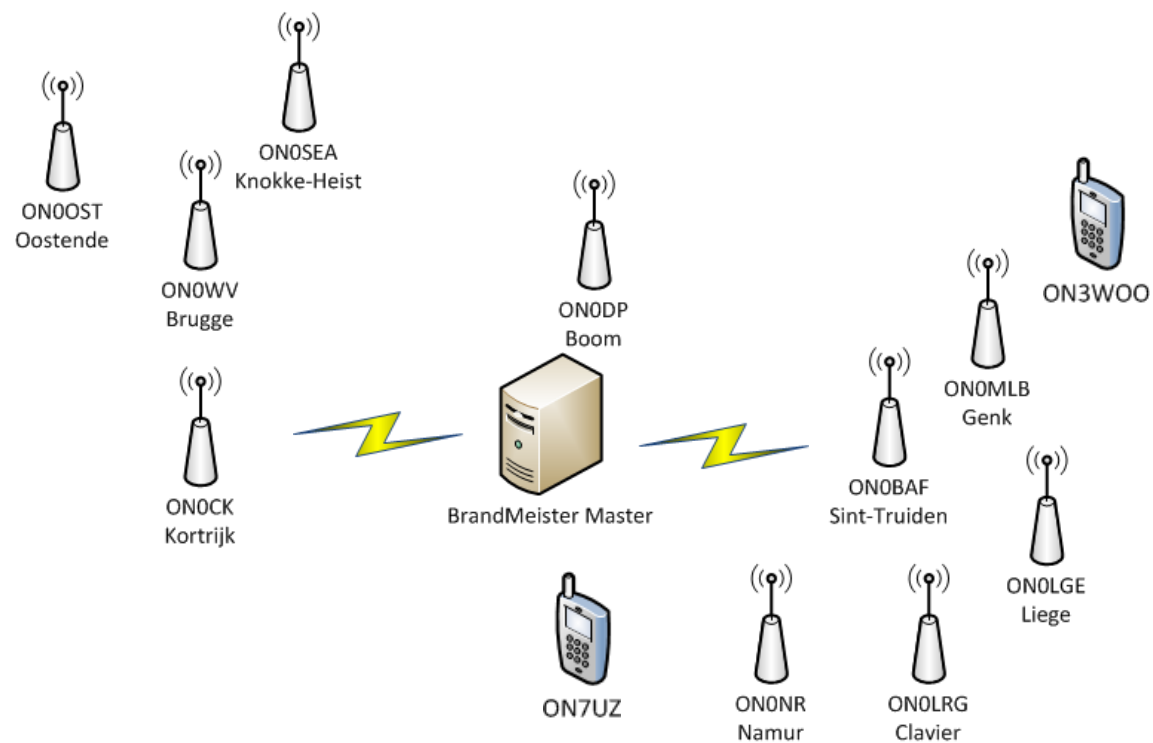
# 2 verbindingen tegelijk?



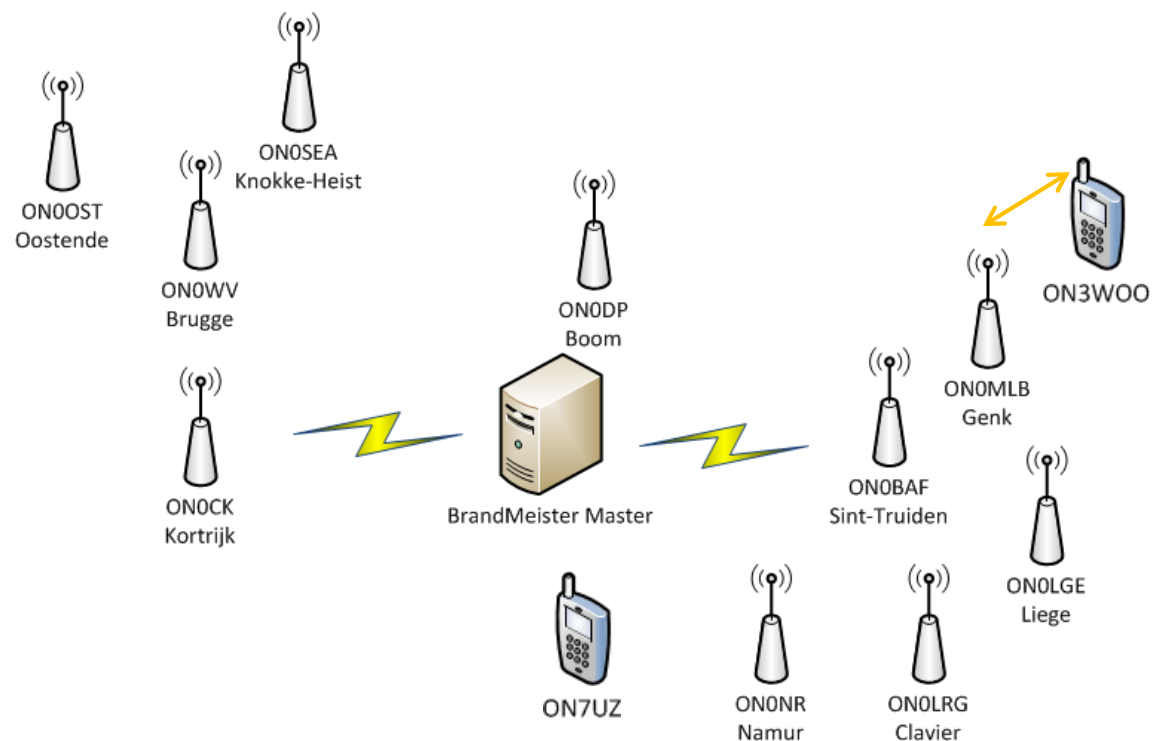
# Verbindingen tussen Noord en Zuid?



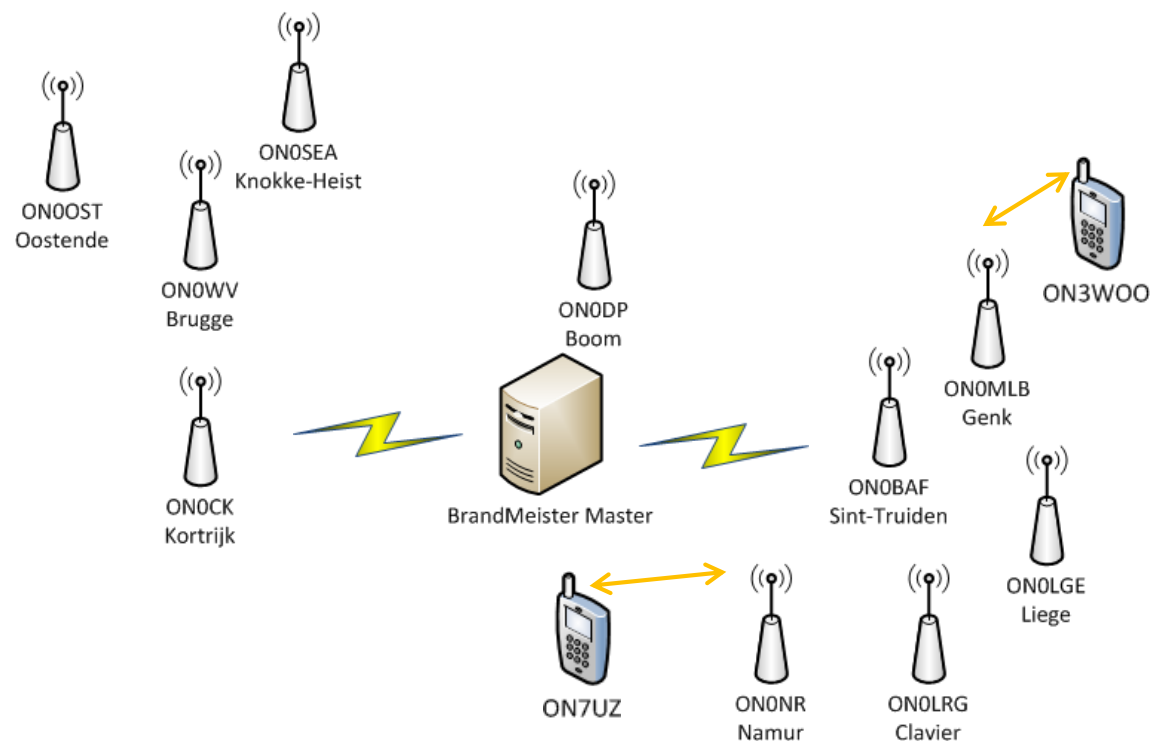
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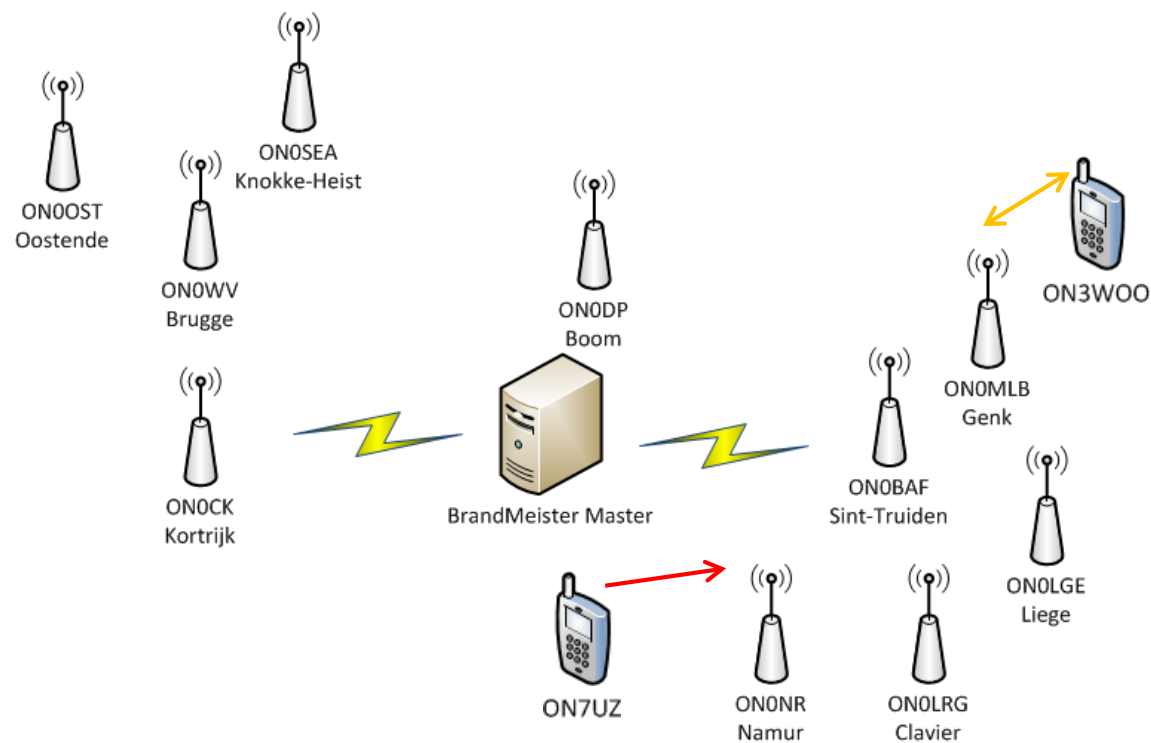
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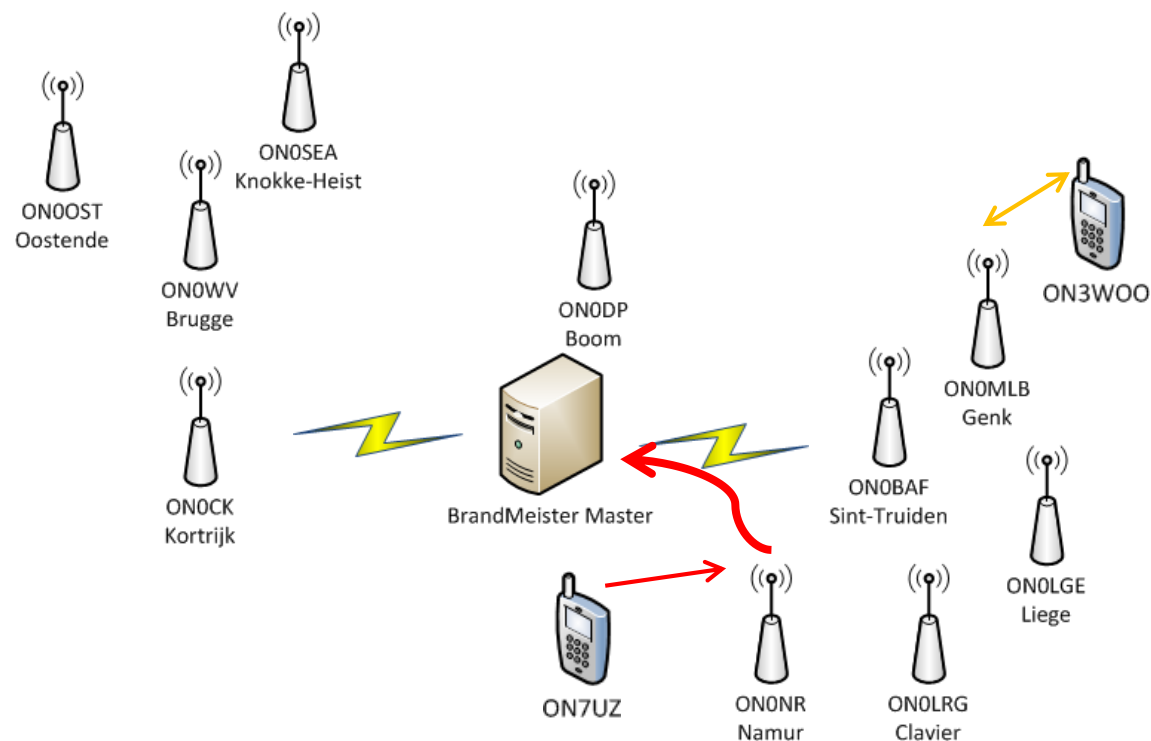
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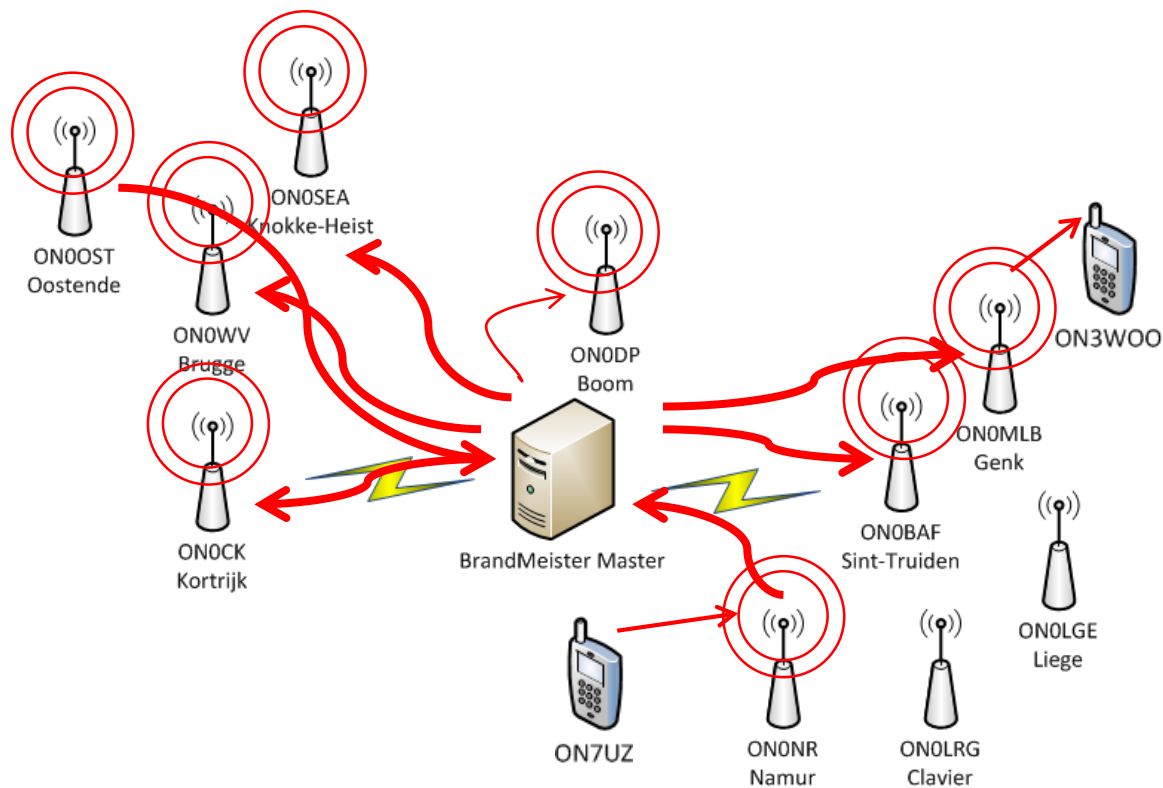
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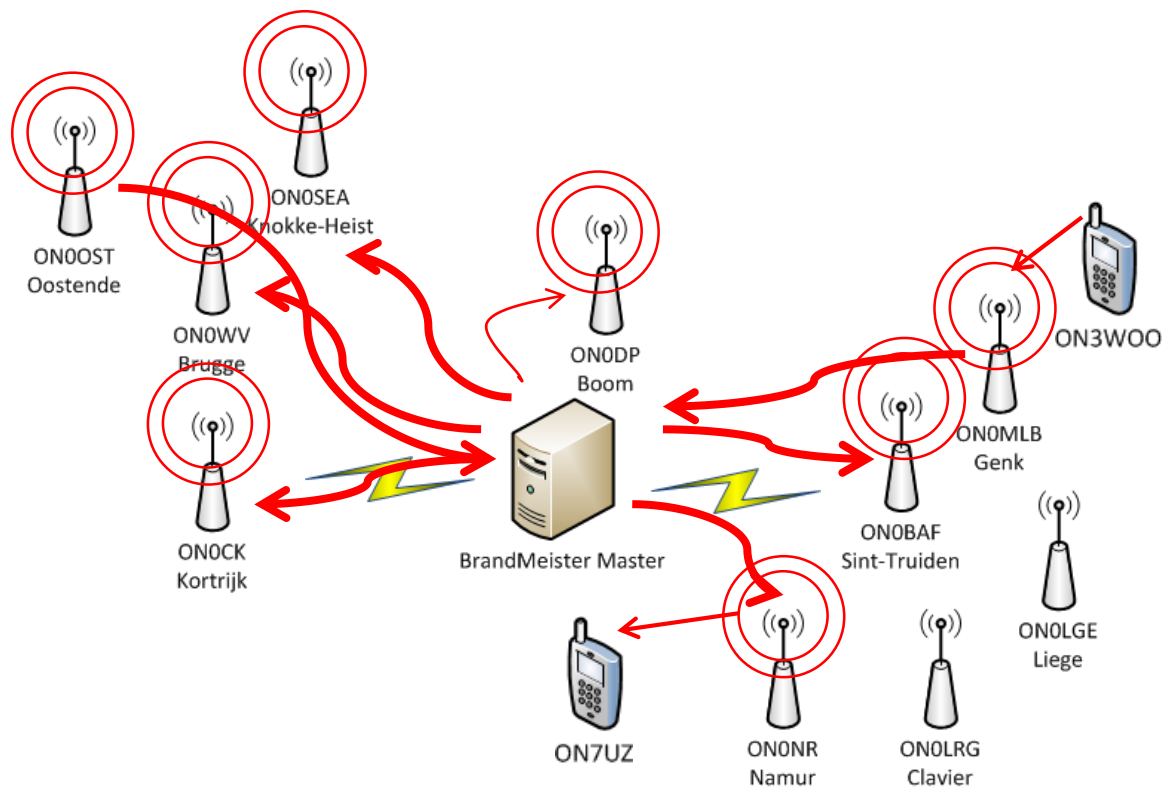
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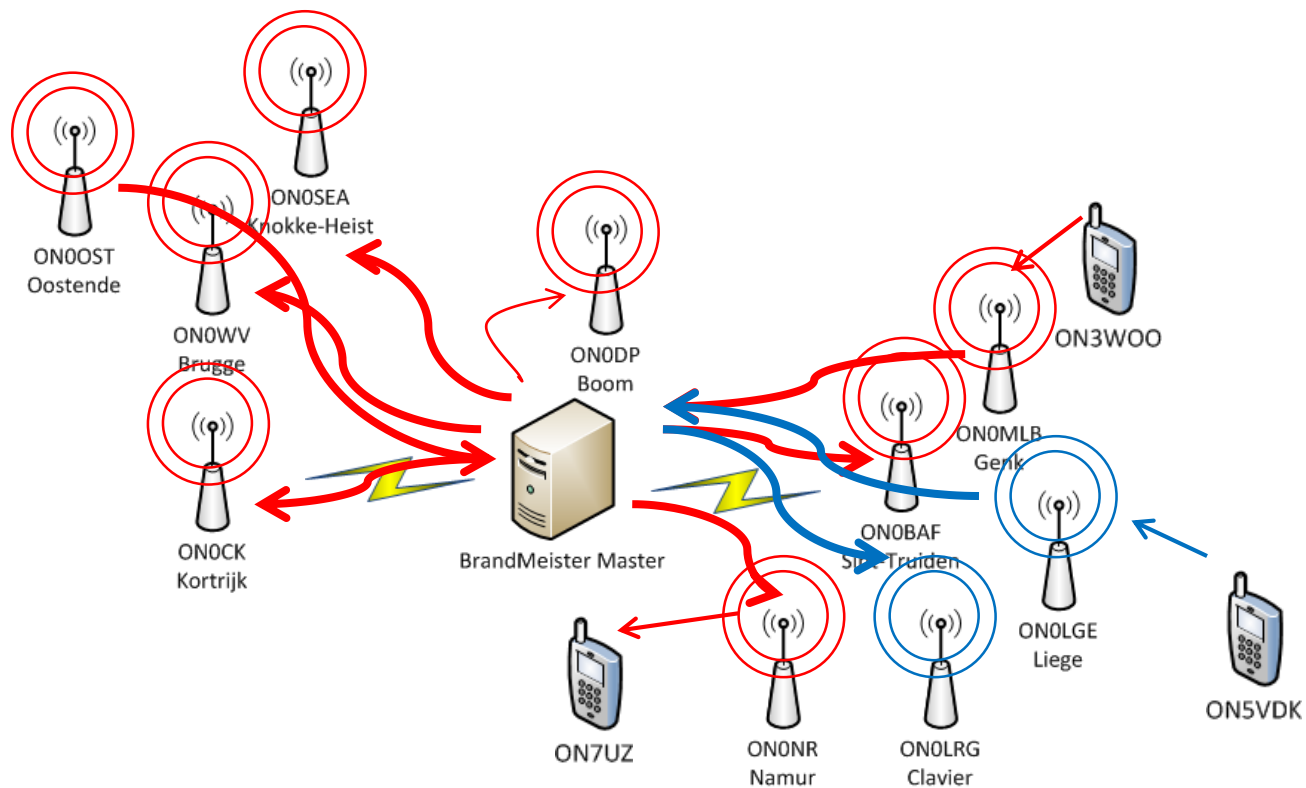
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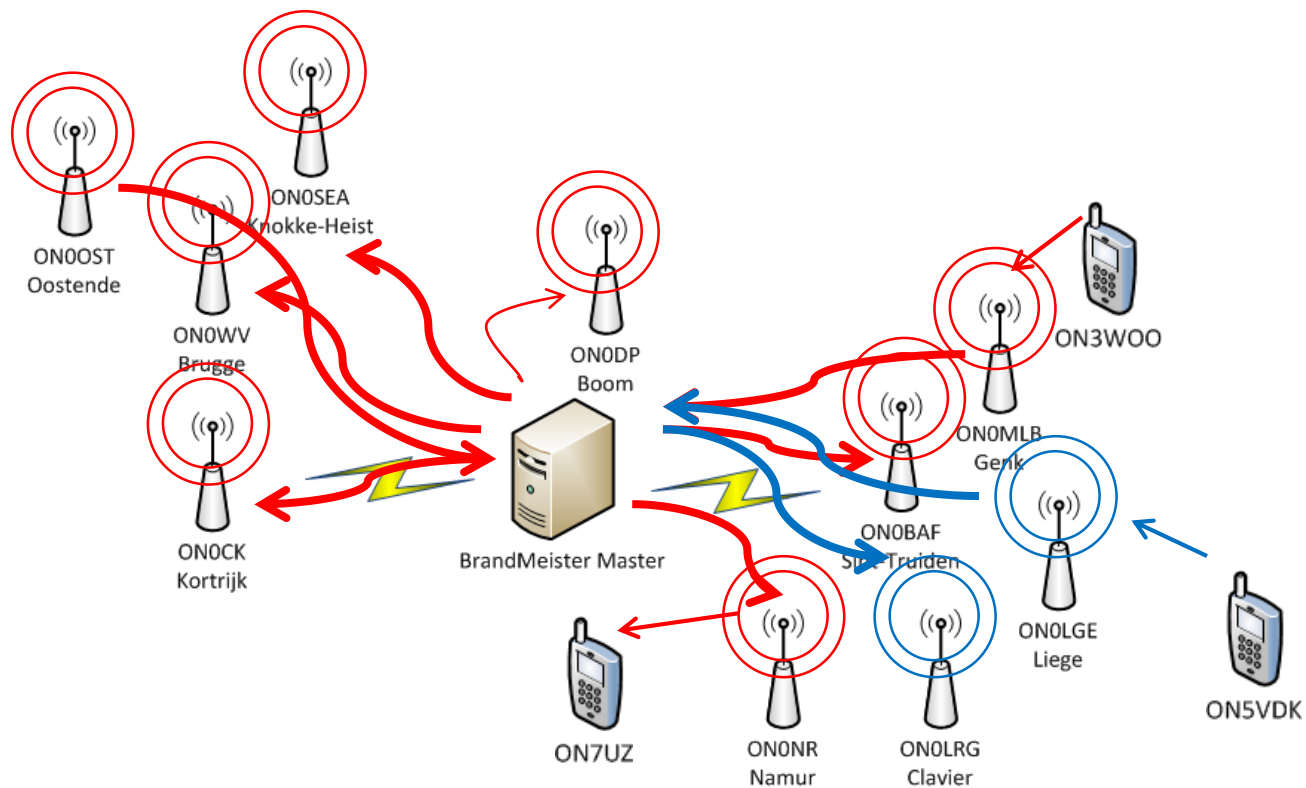
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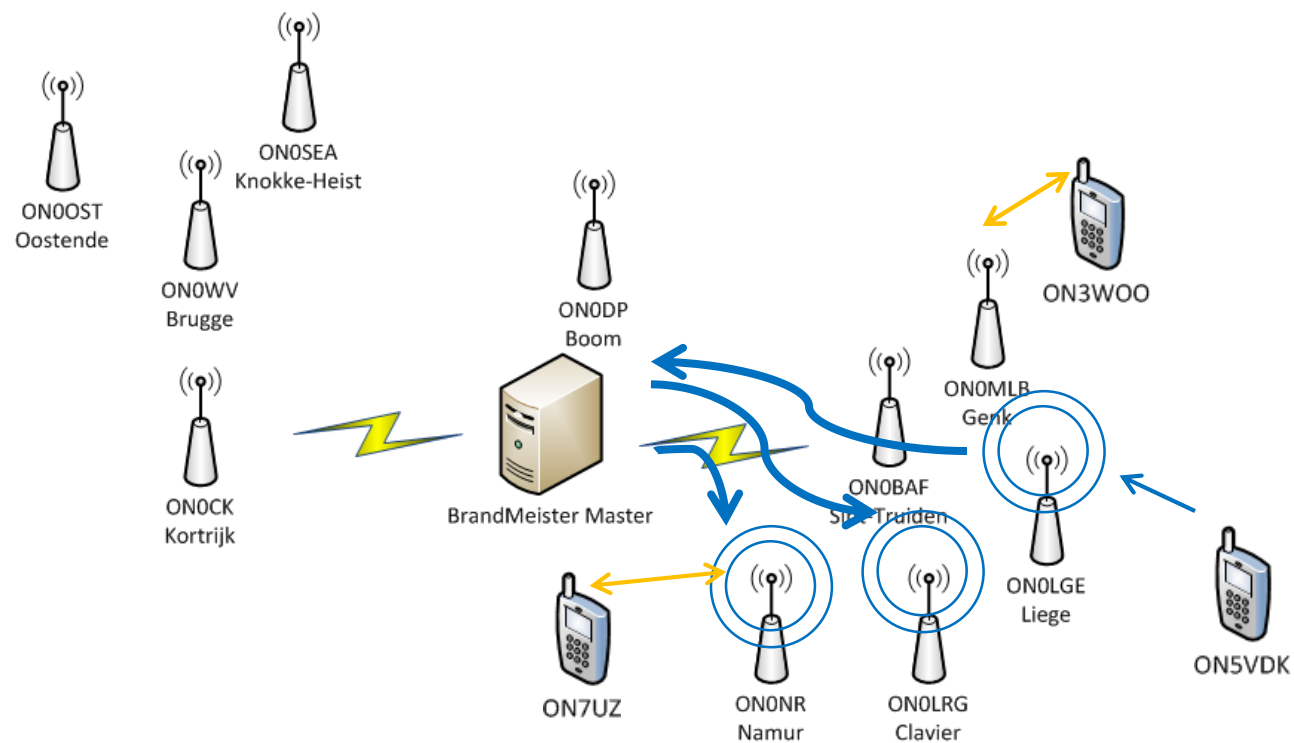
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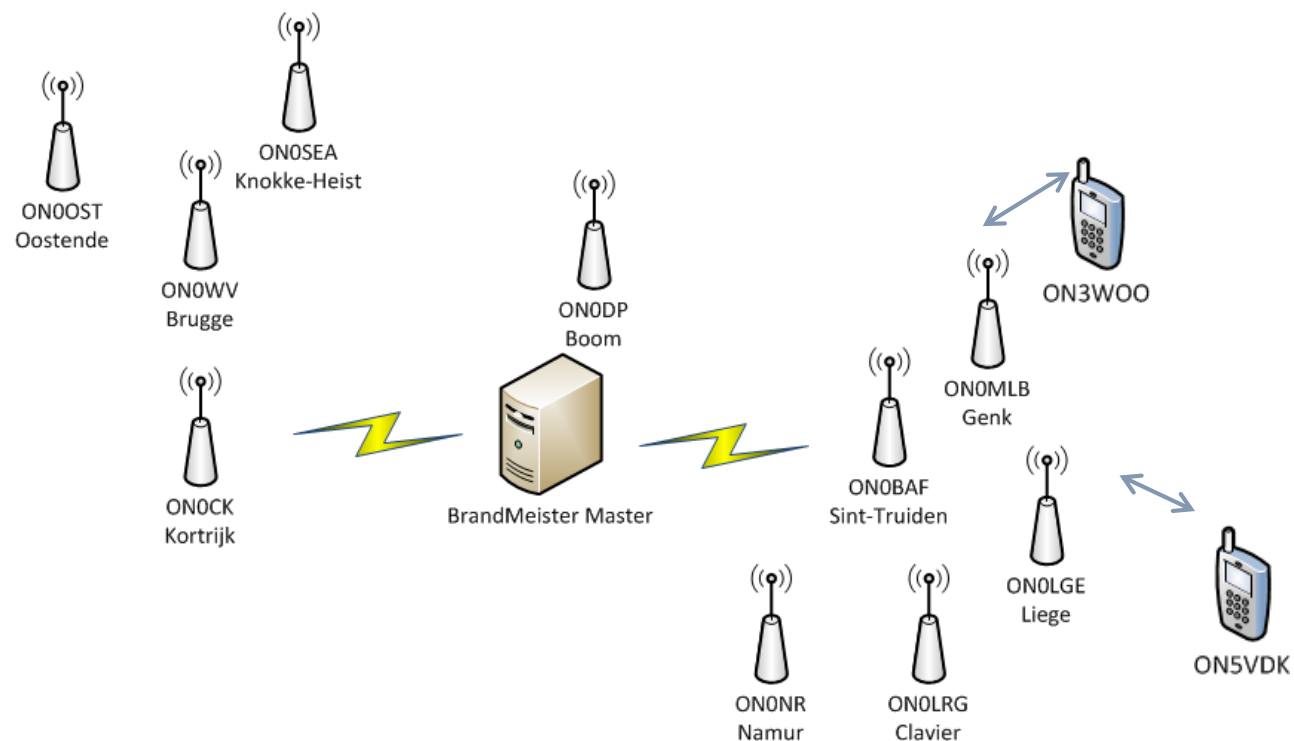
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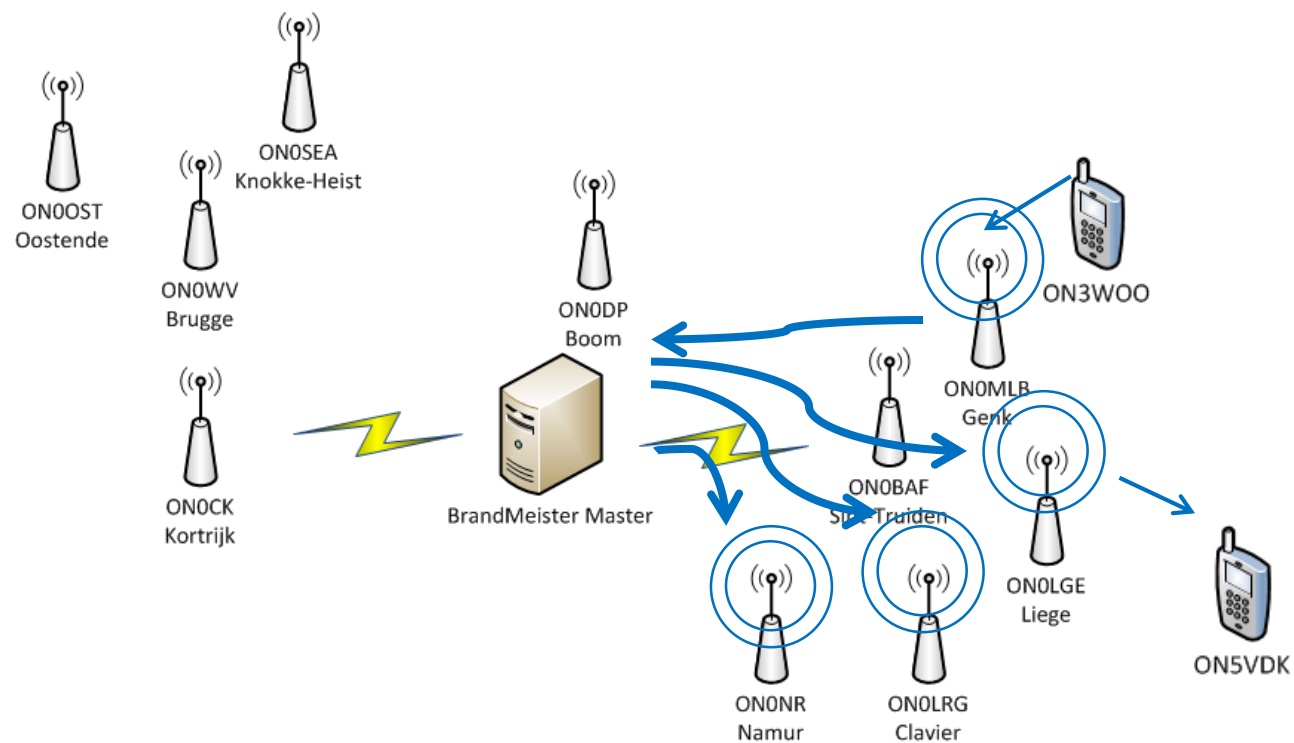
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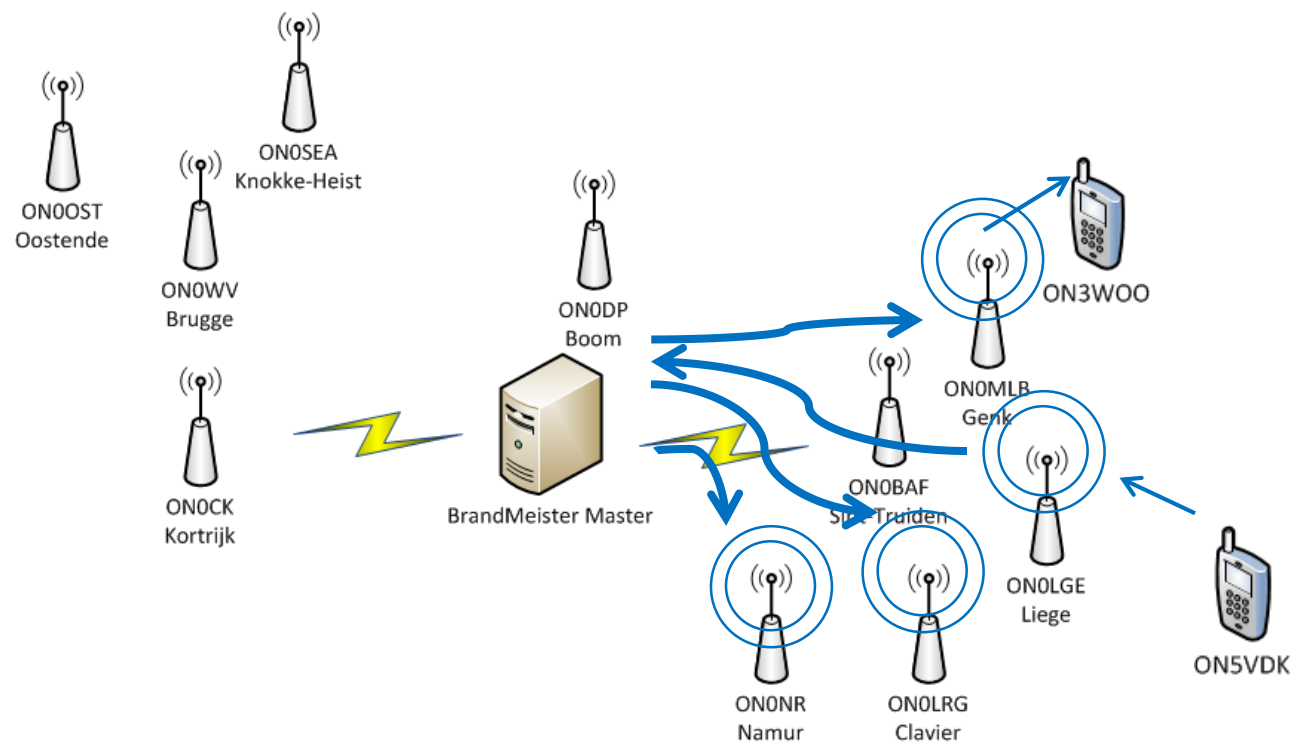
# Verbindingen tussen Noord en Zuid?



# Verbindingen tussen Noord en Zuid?

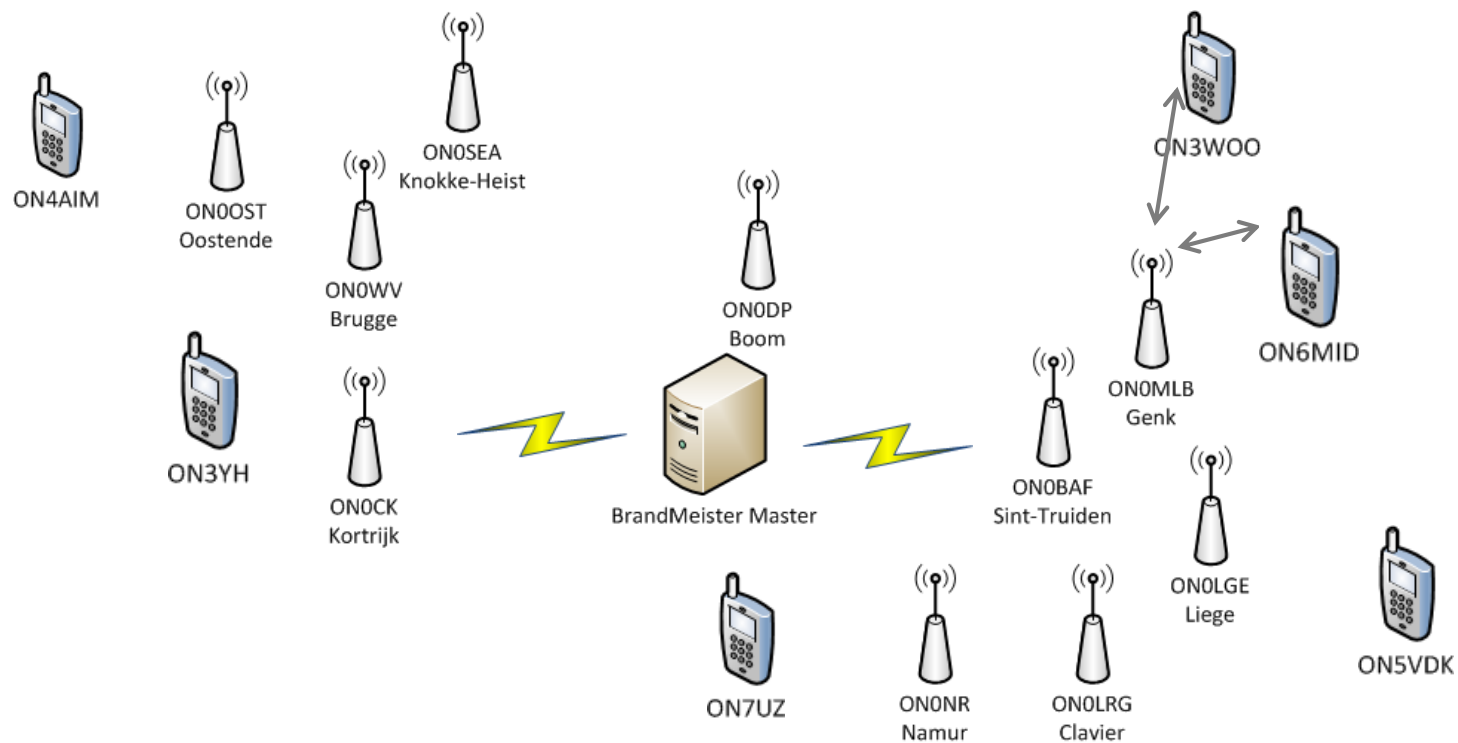


# Verbindingen tussen Noord en Zuid?



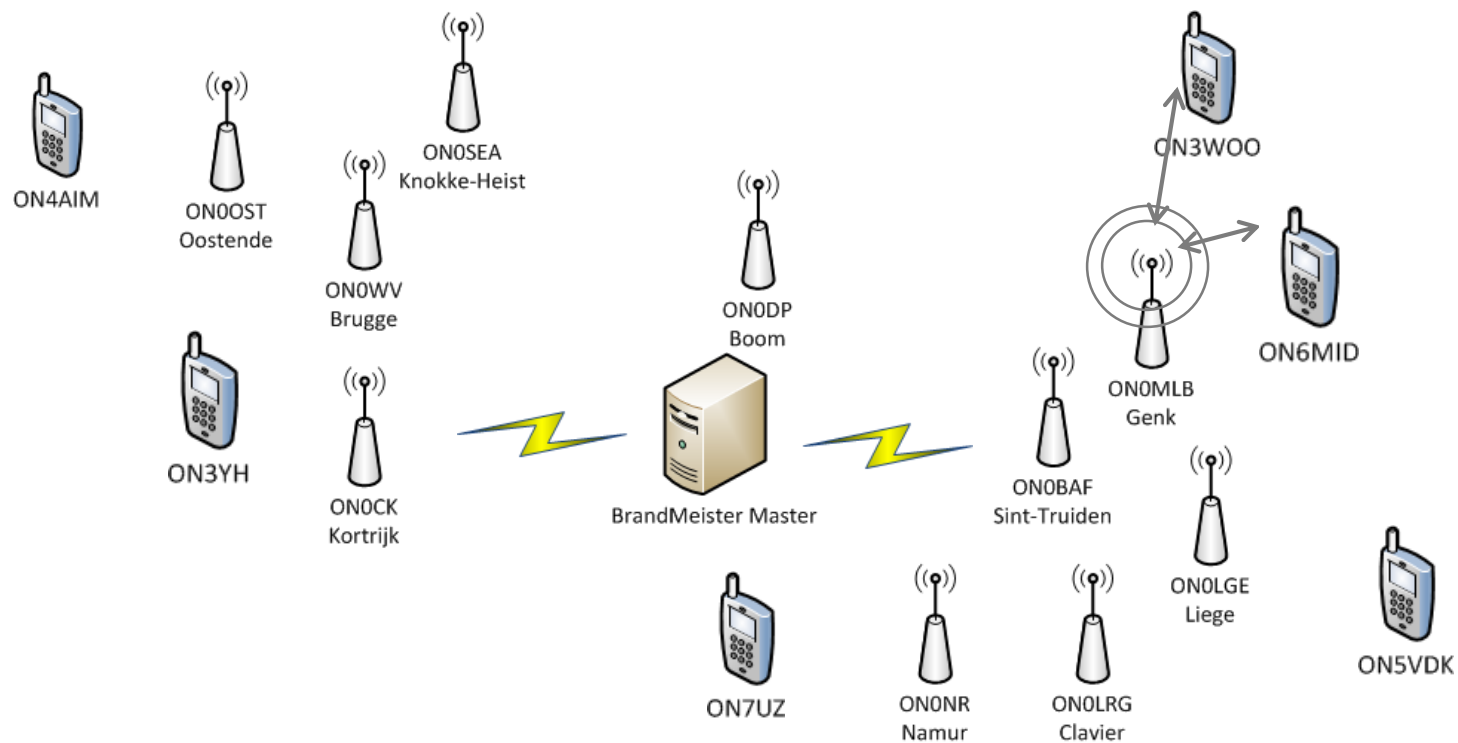


# Lokale verbindingen



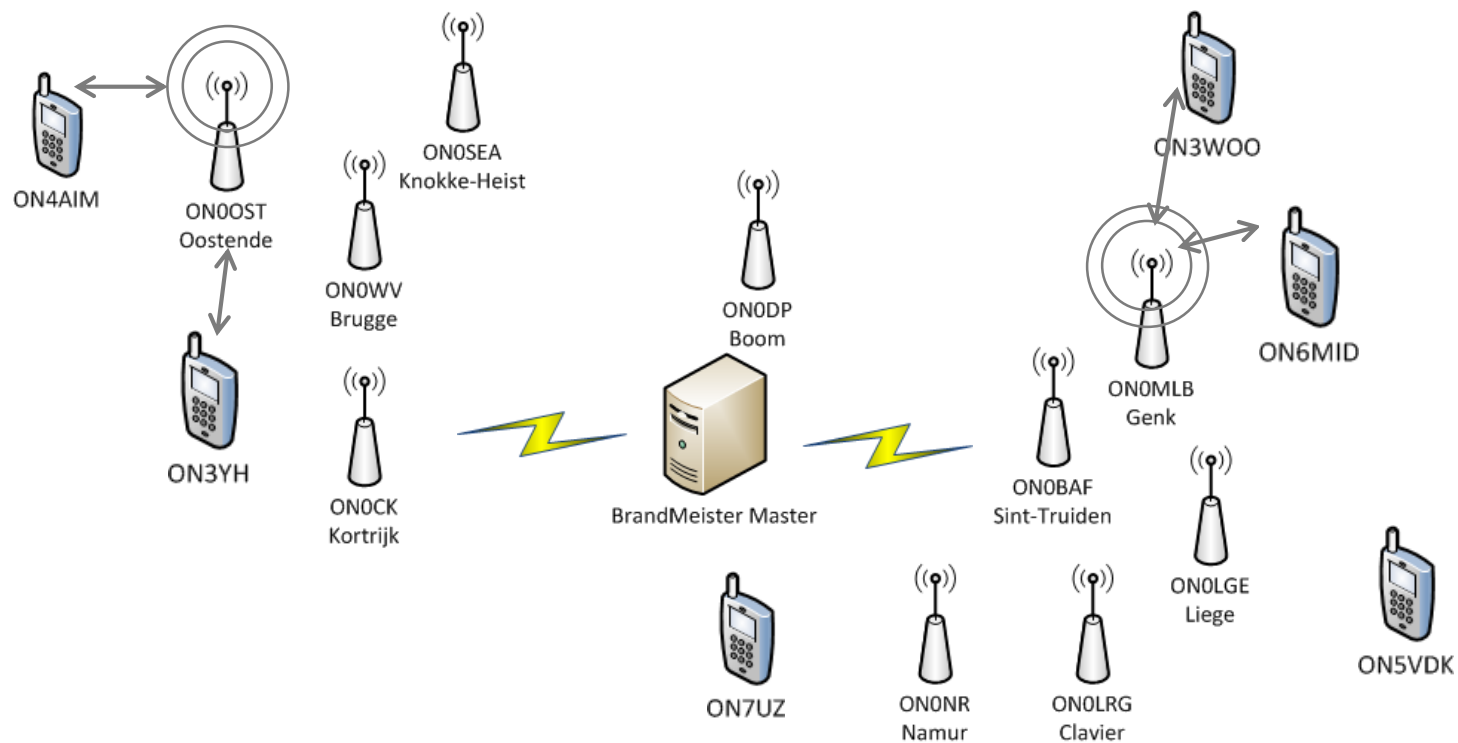


# Lokale verbindingen



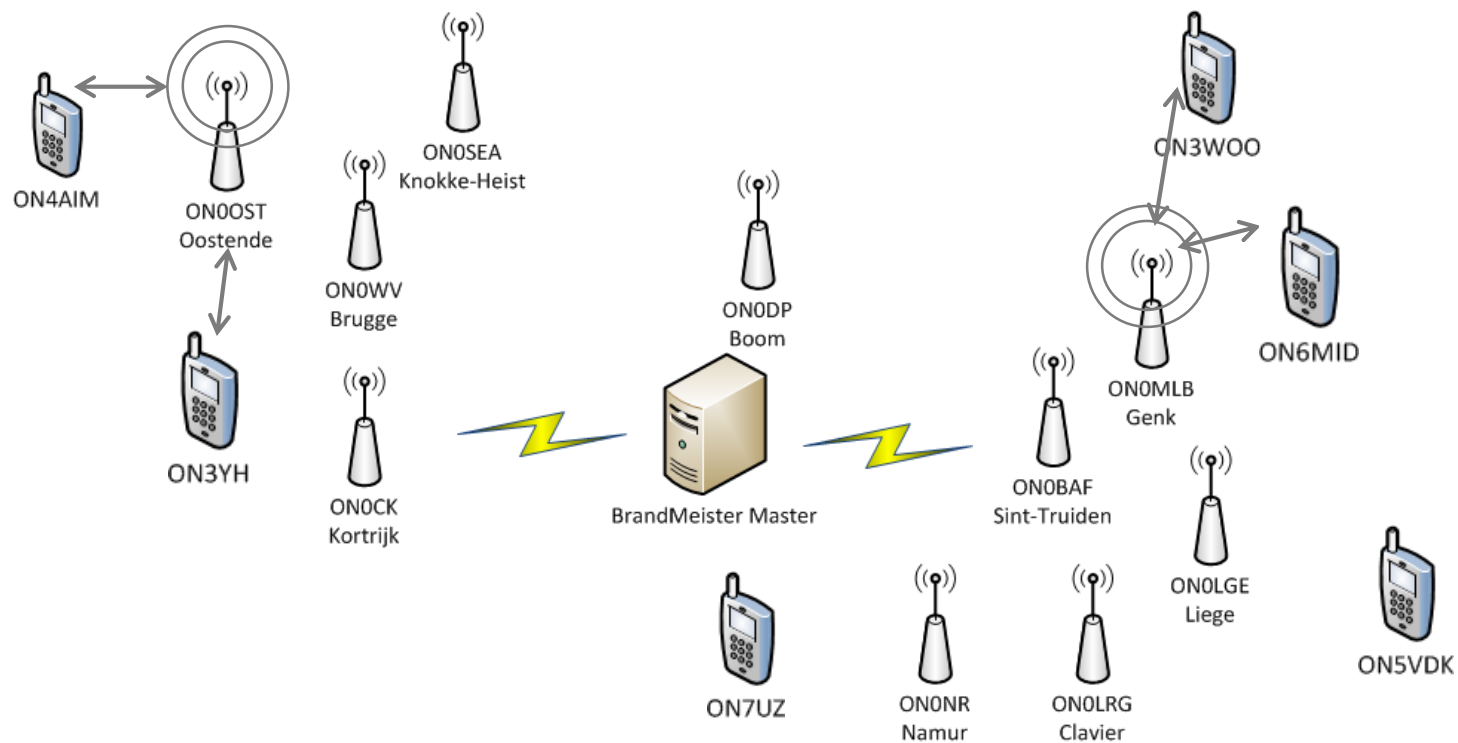


# Lokale verbindingen



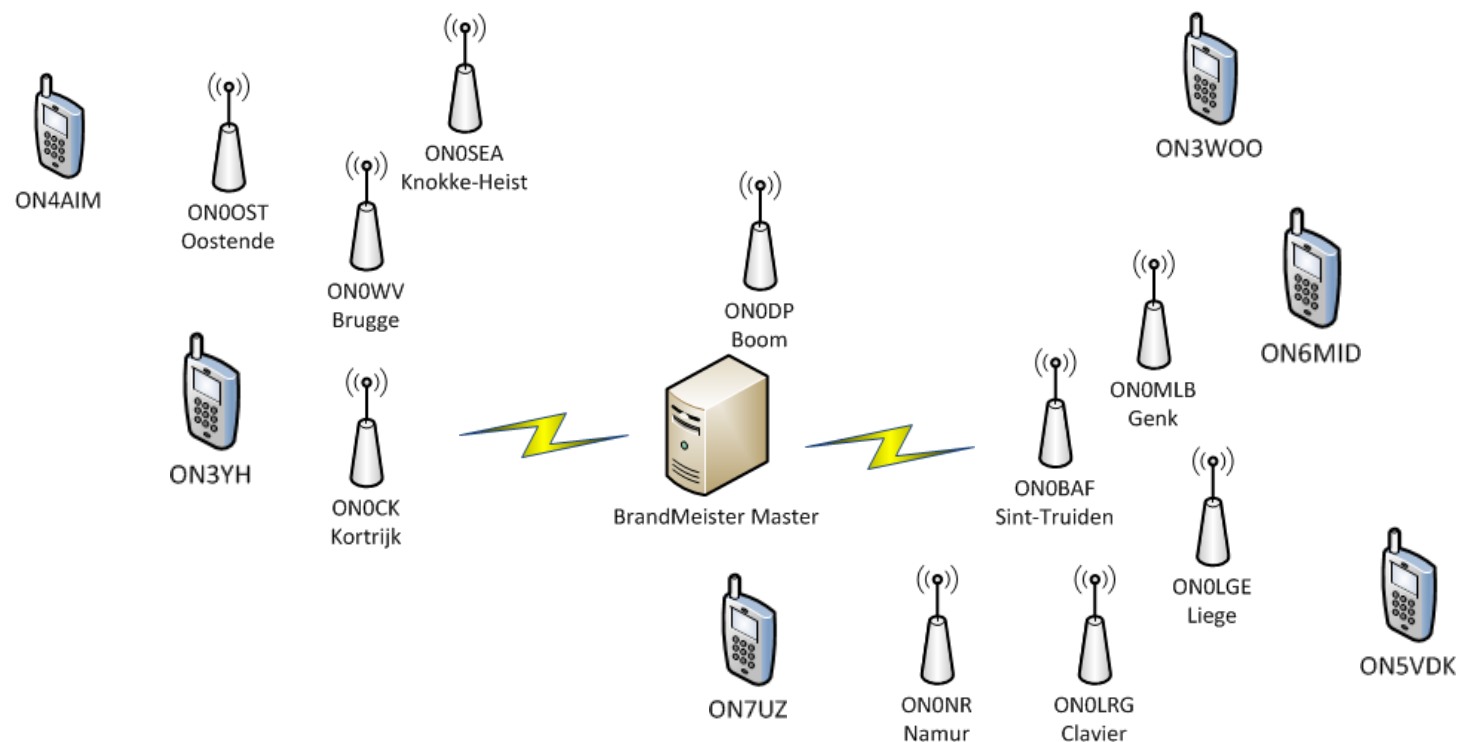


# Lokale verbindingen



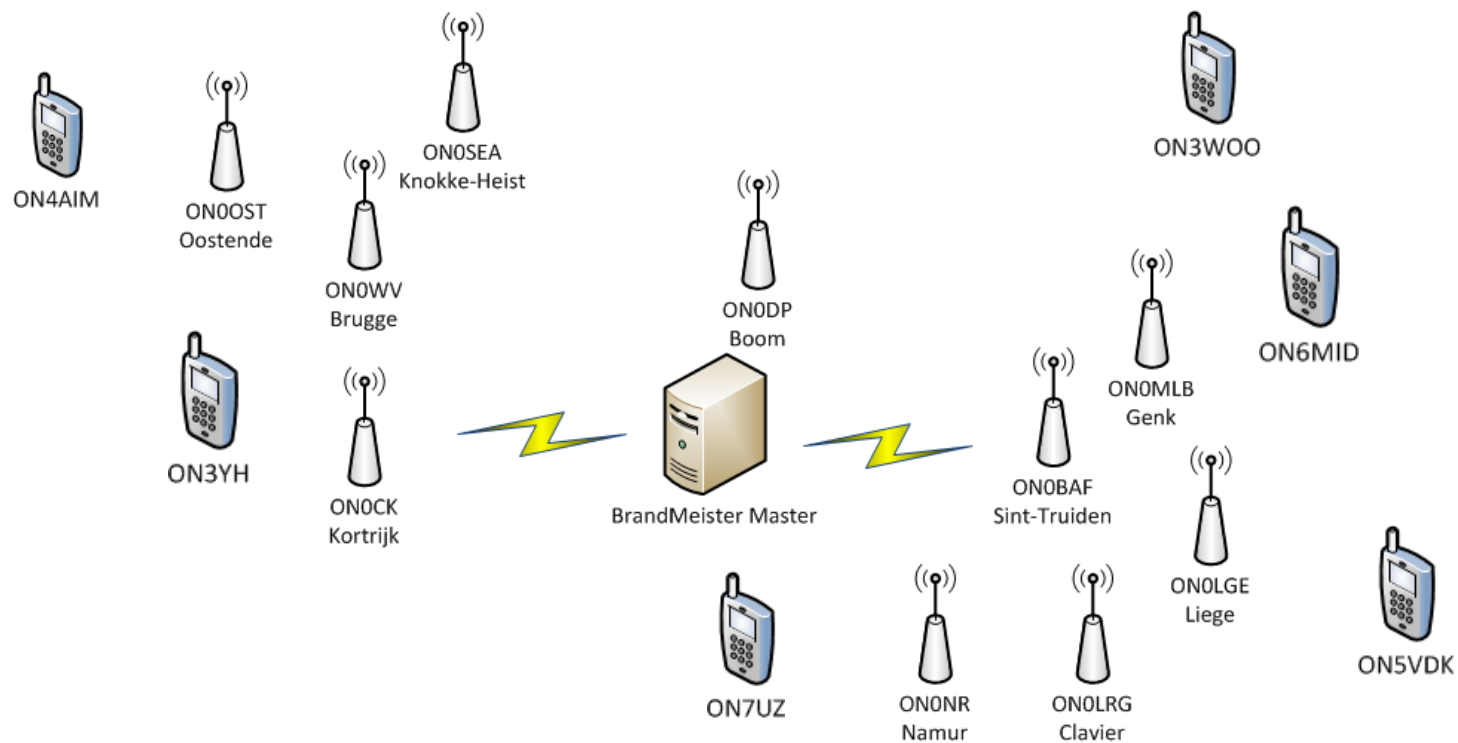


# On Demand gespreksgroepen



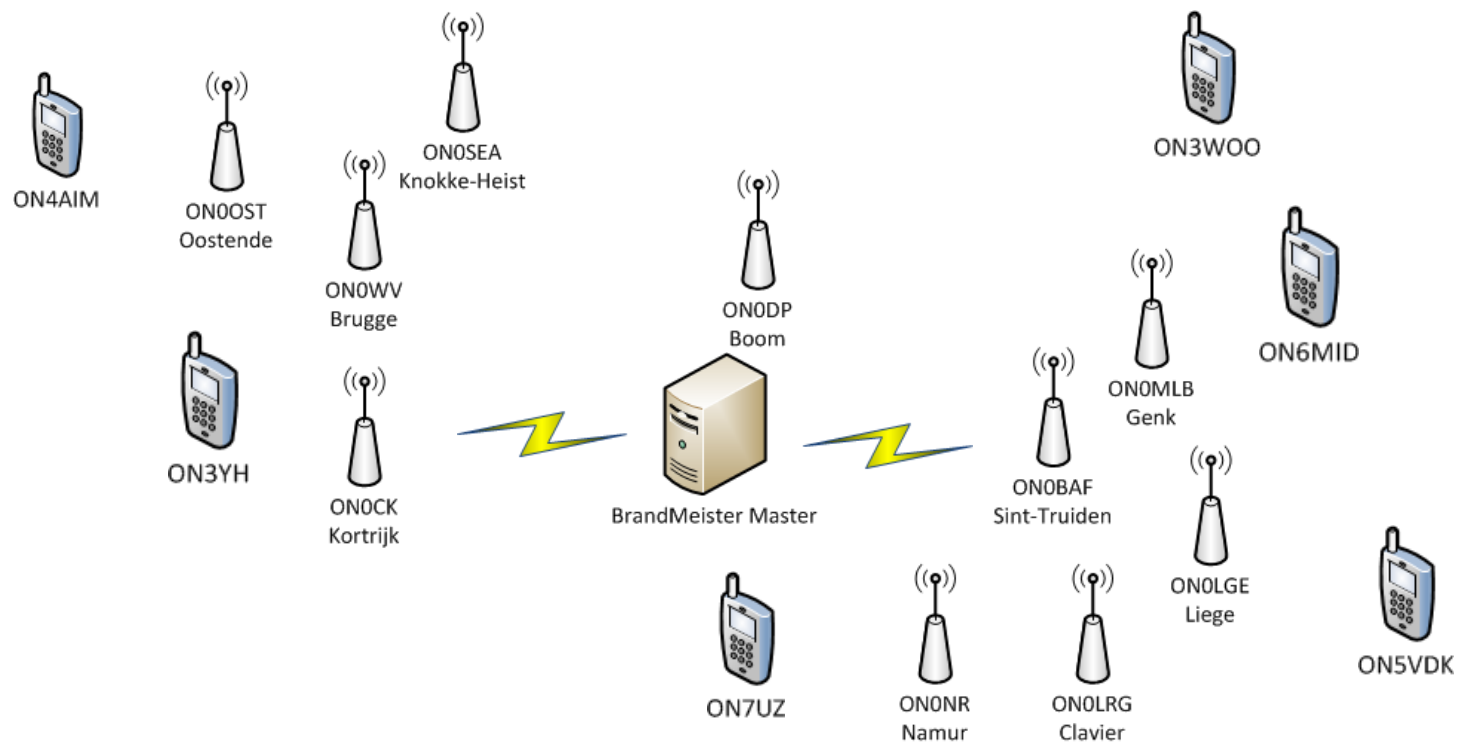


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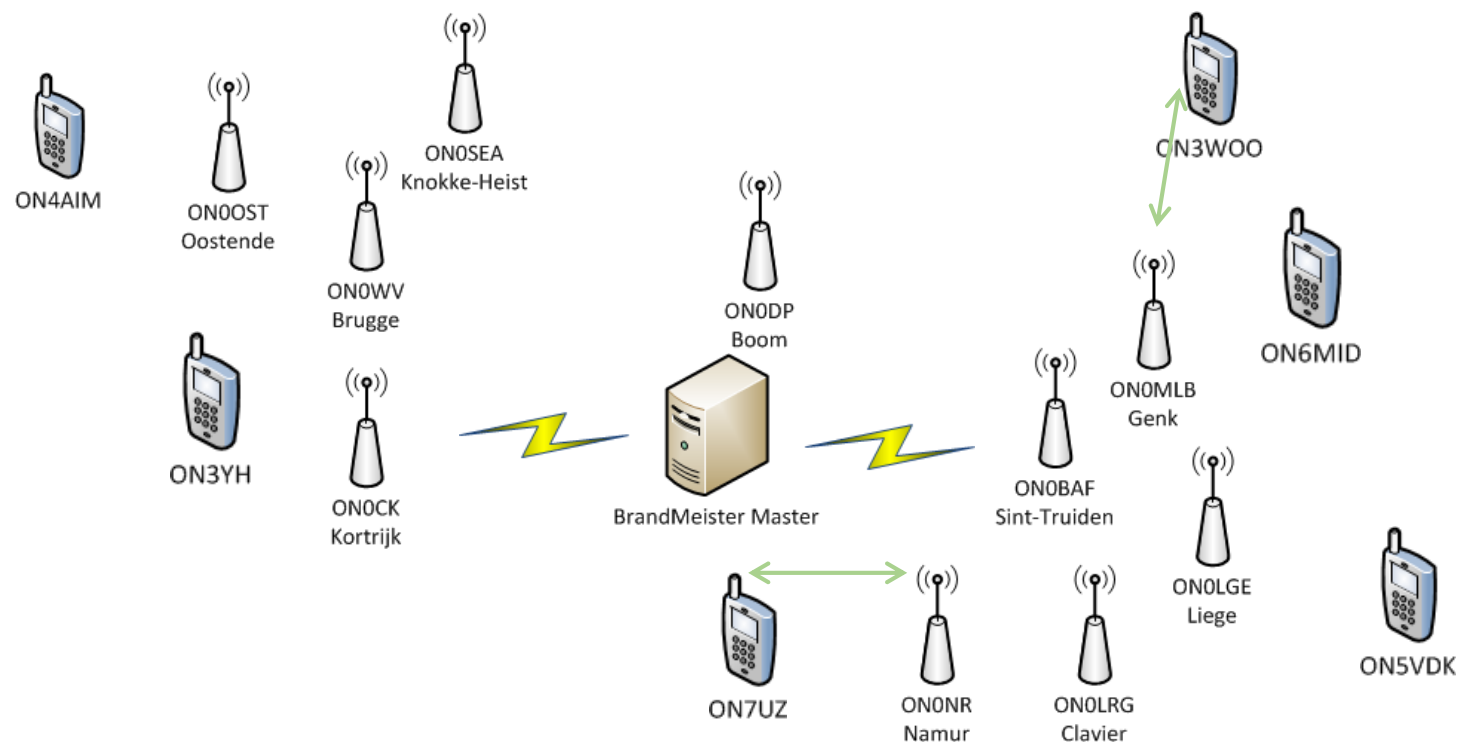


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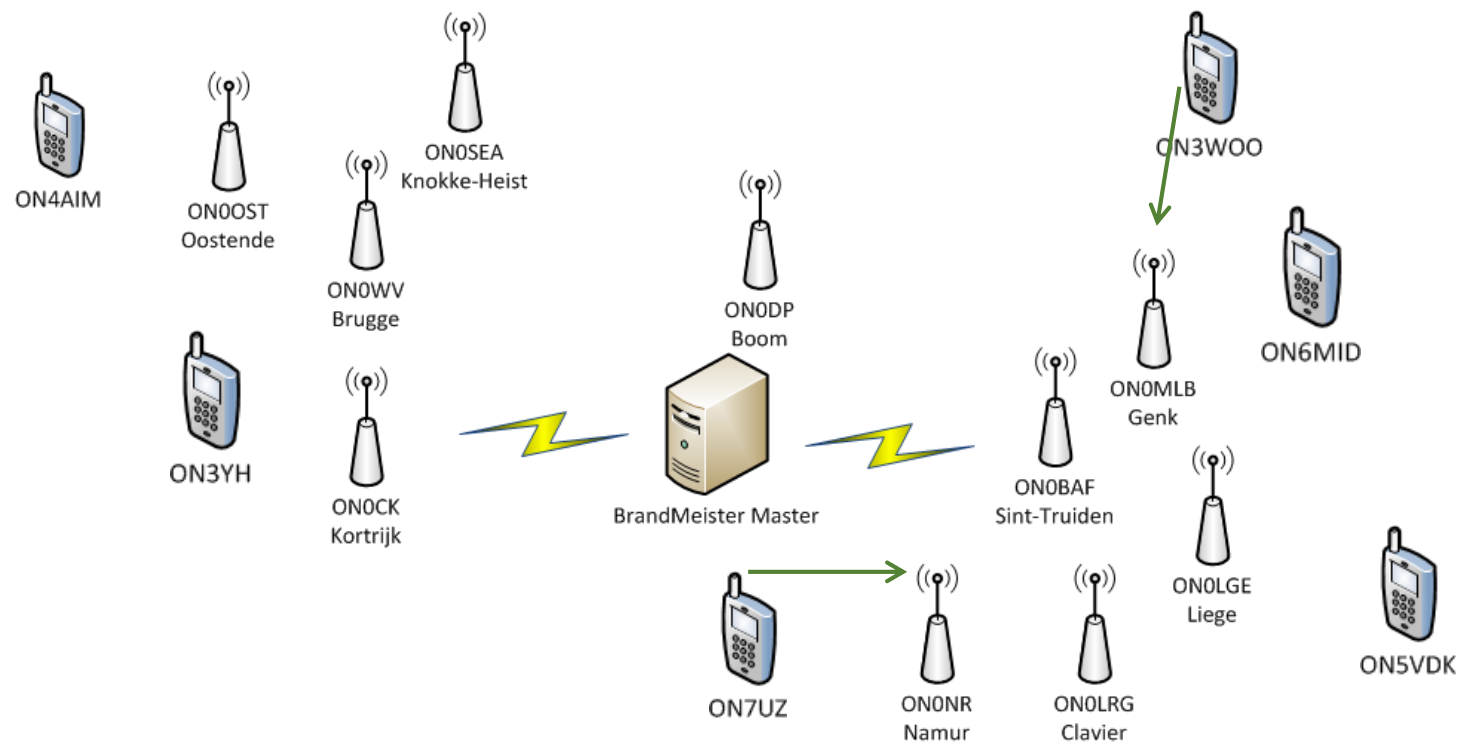




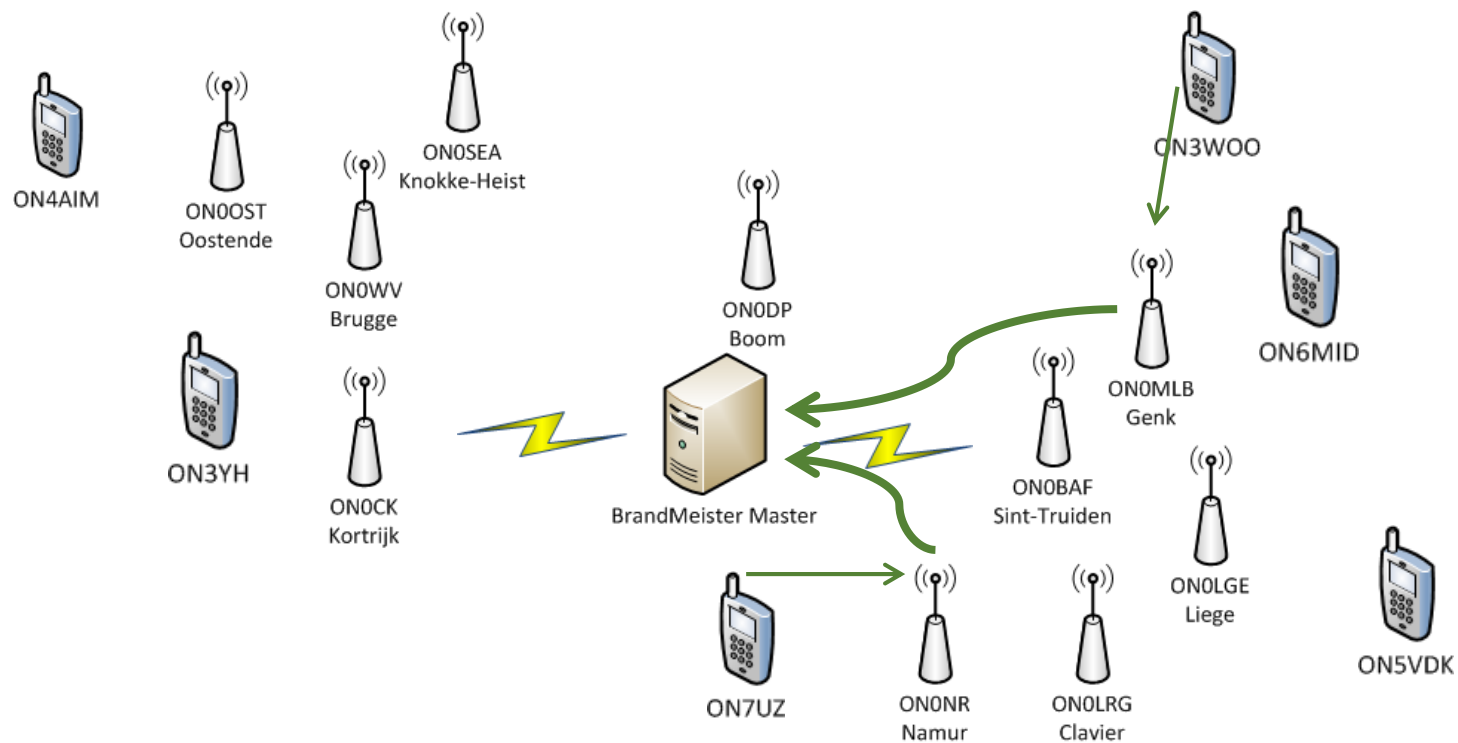
# On Demand gespreksgroepen



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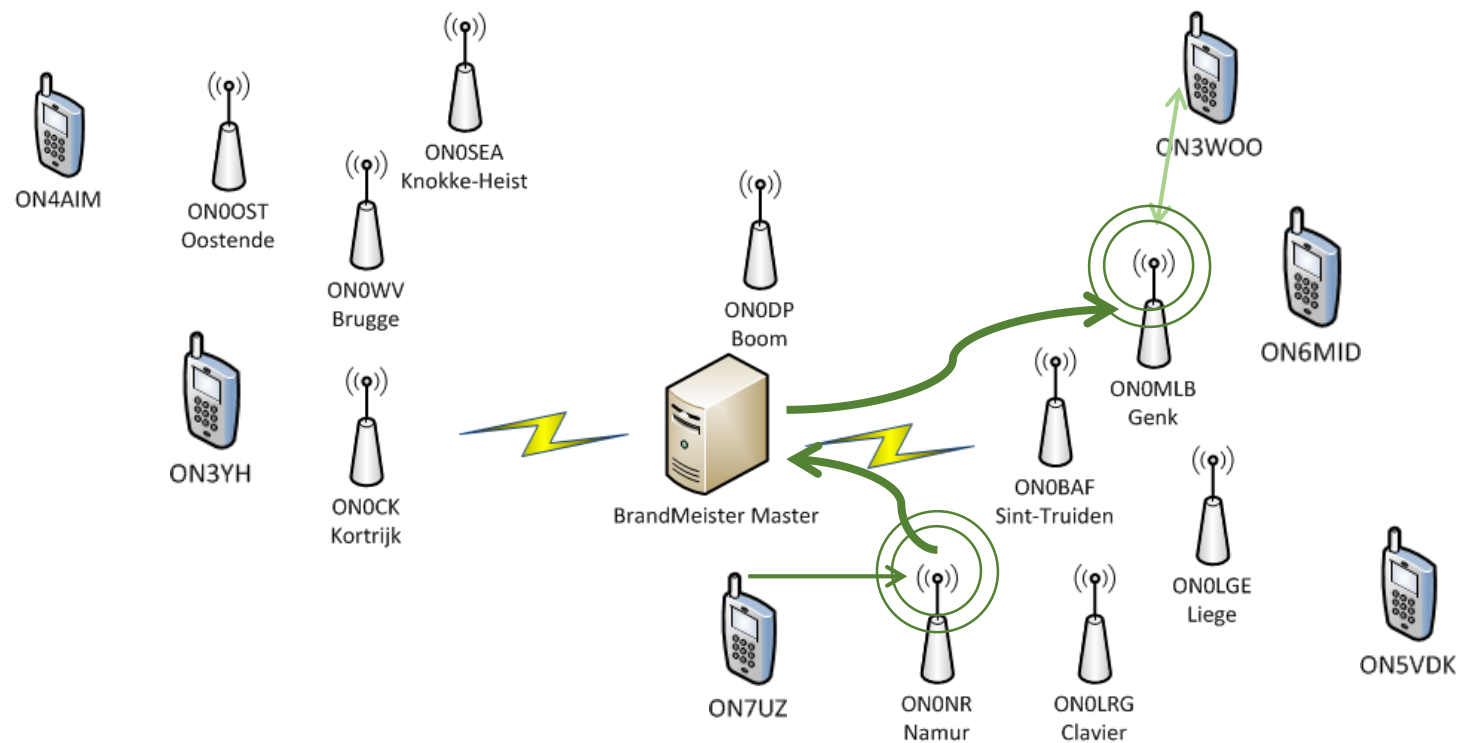


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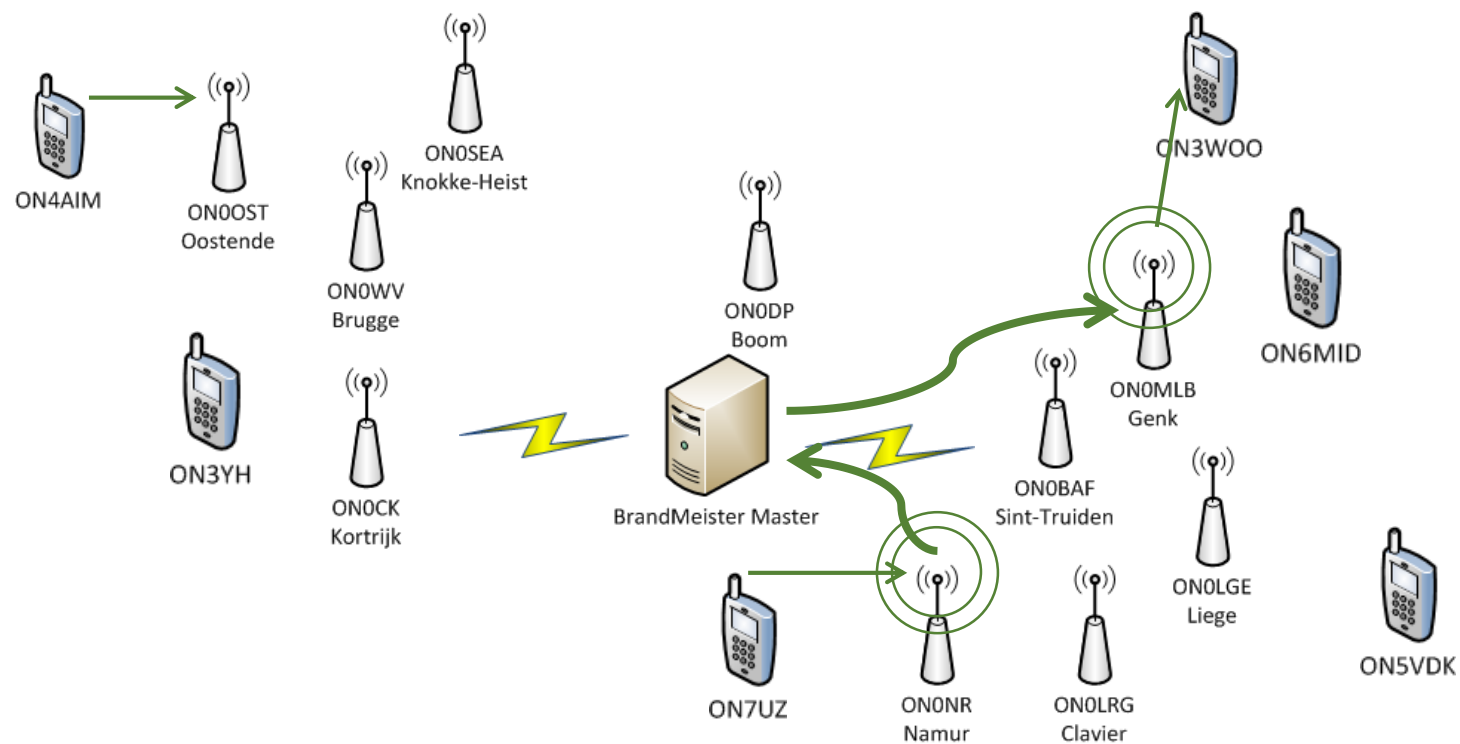


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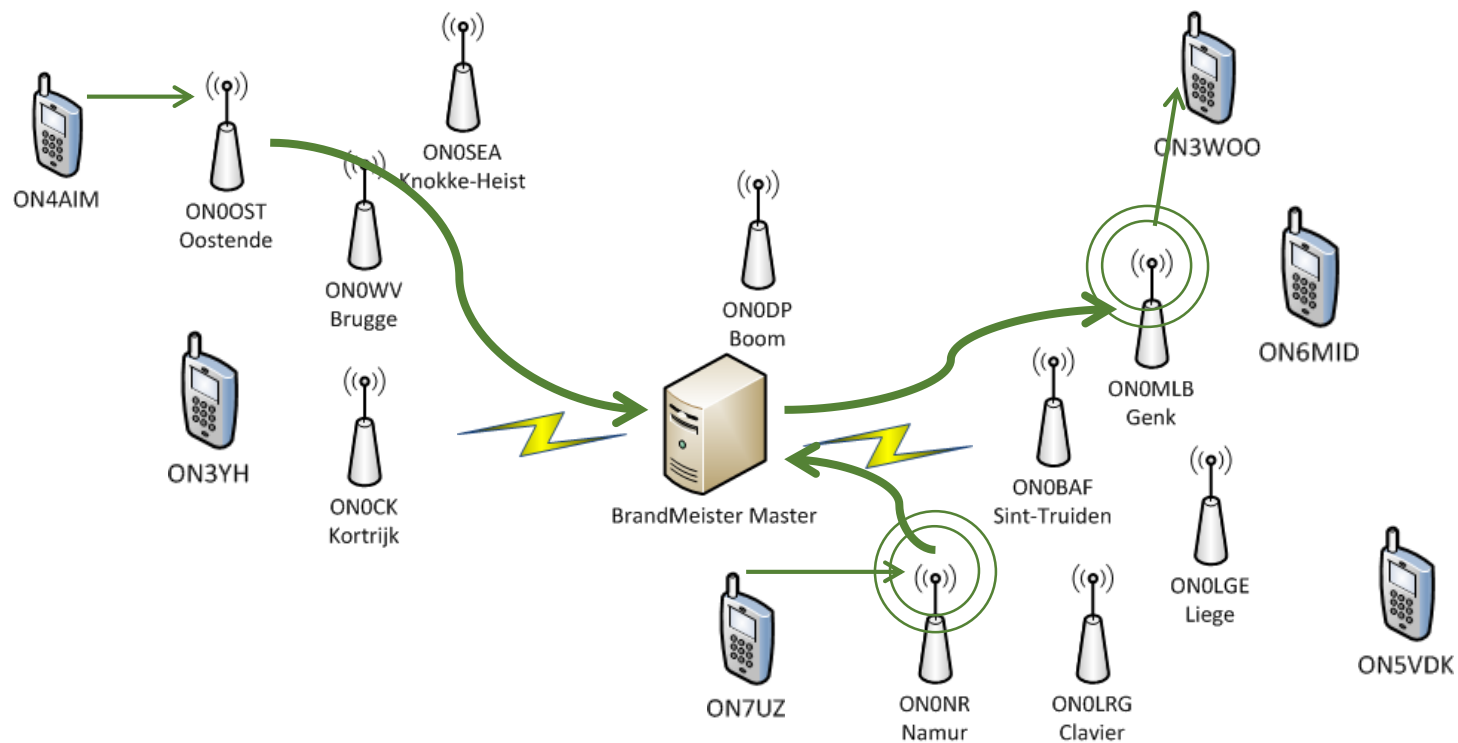


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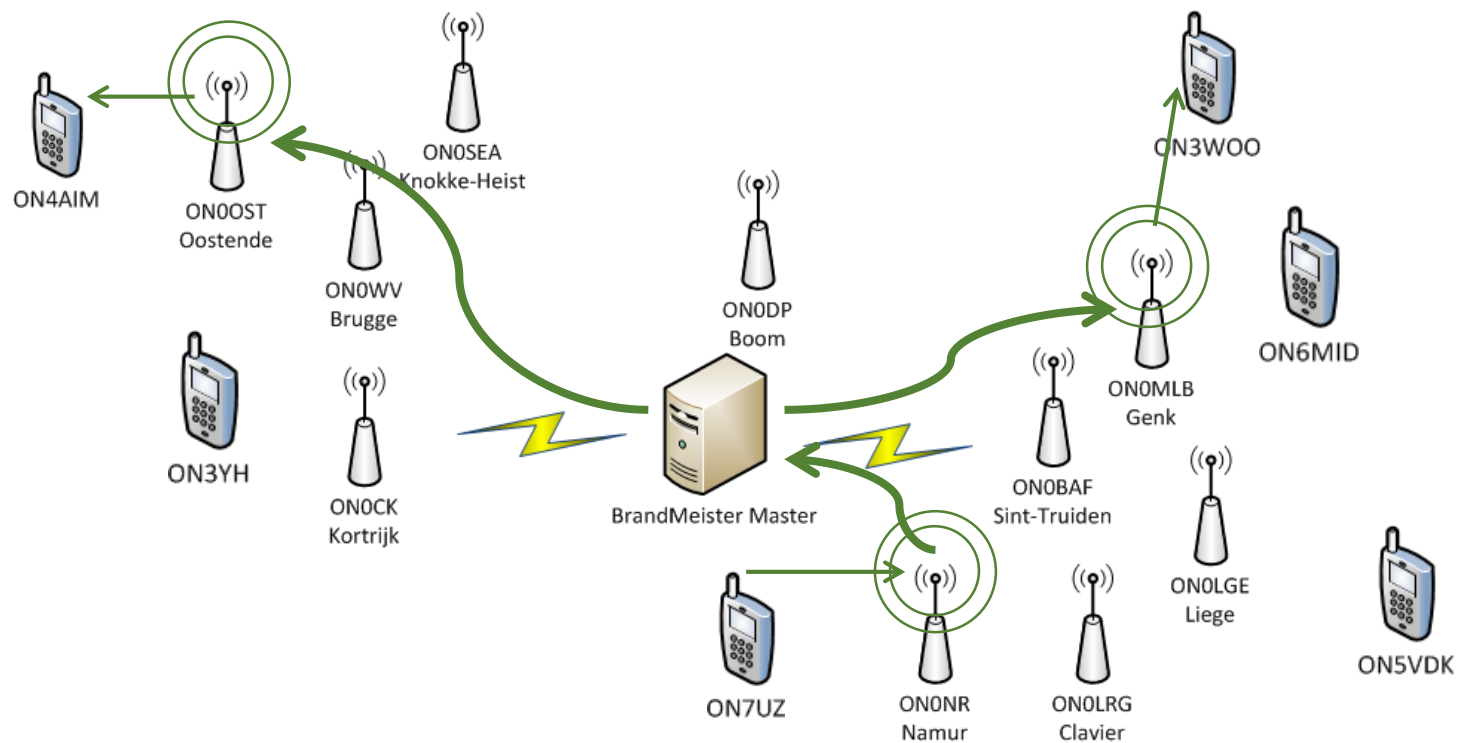


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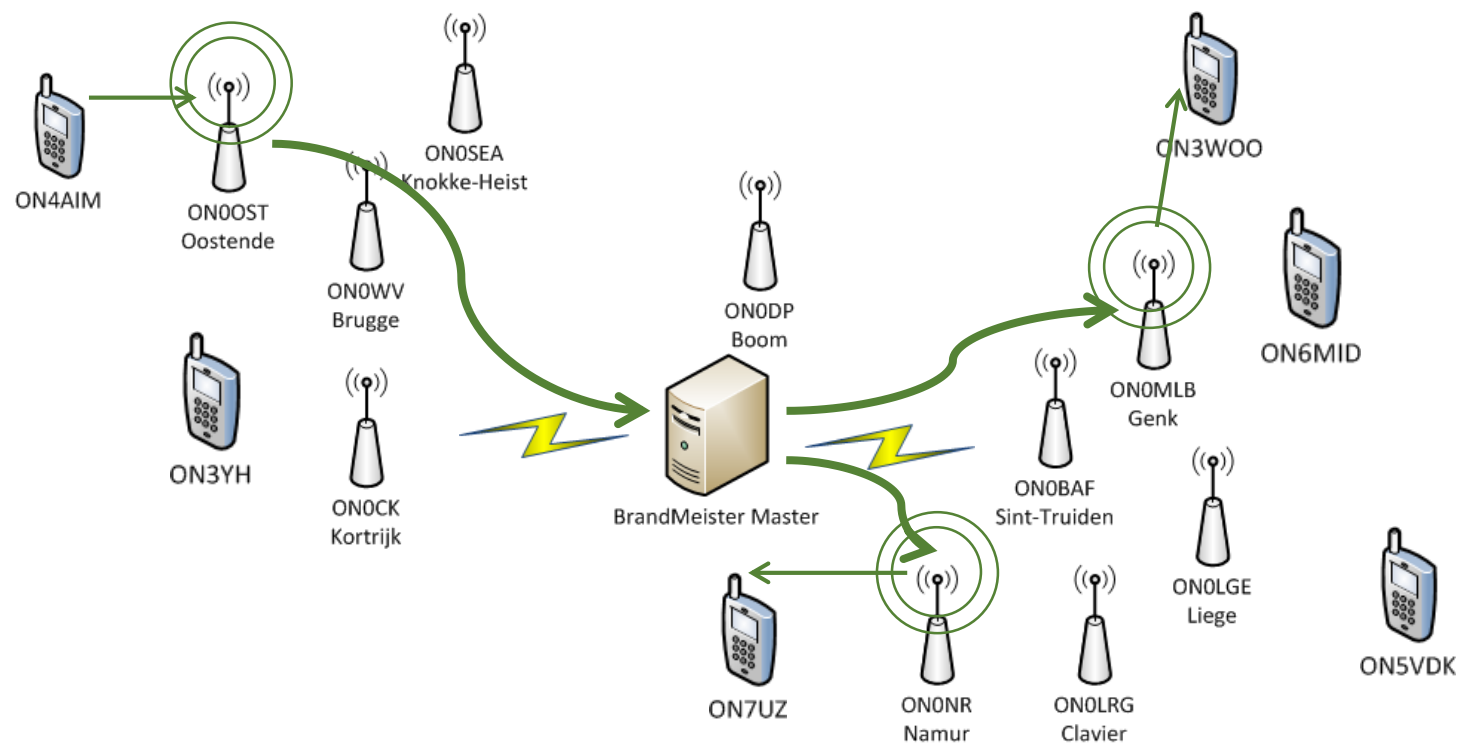


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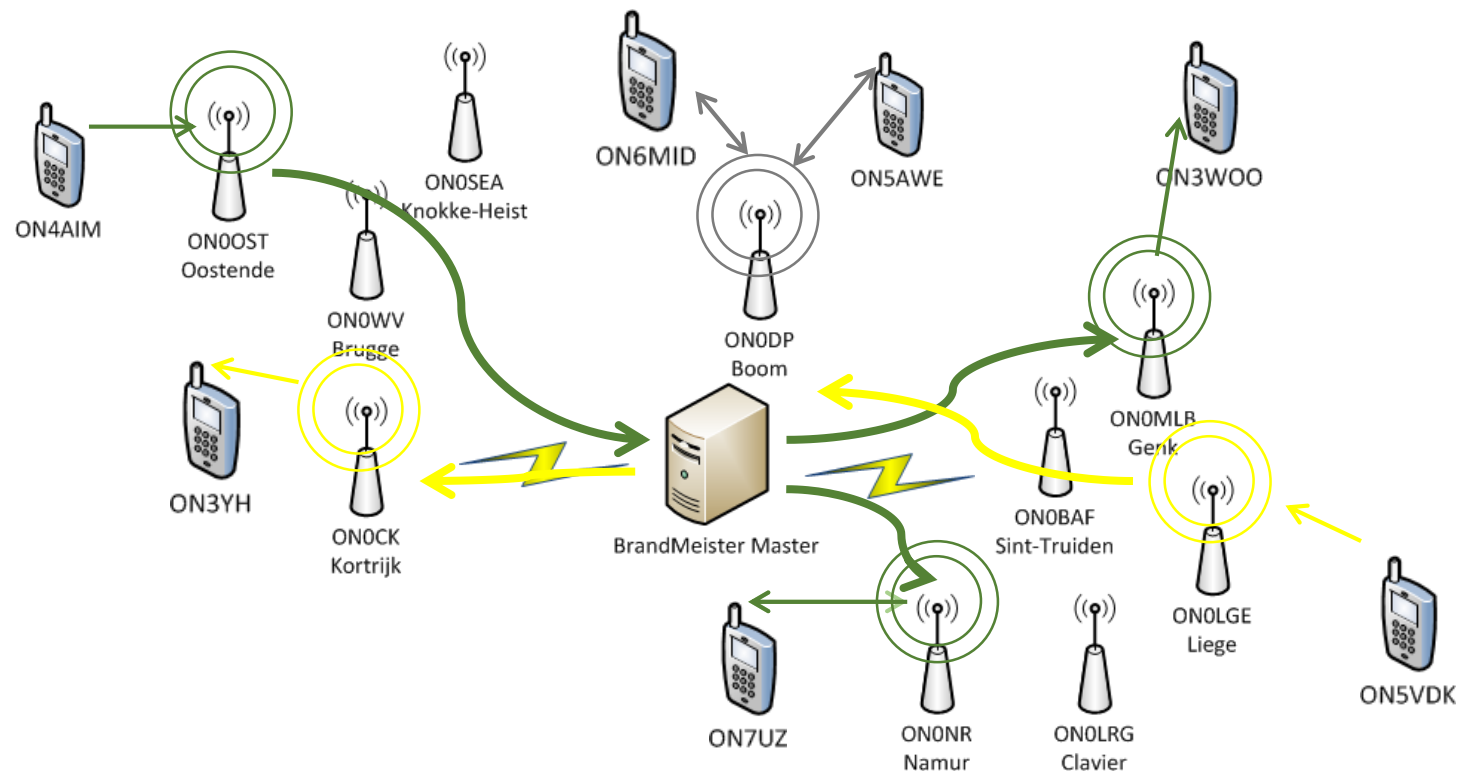


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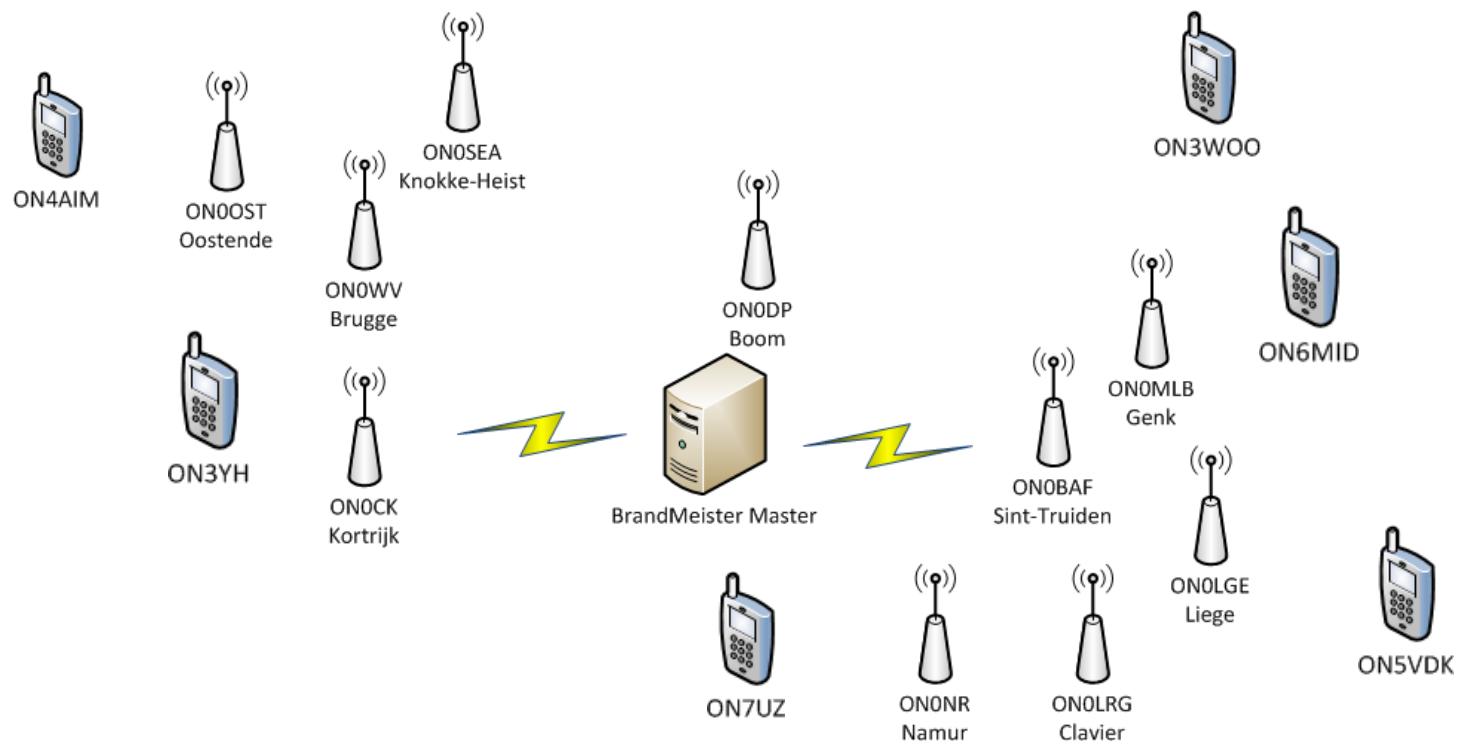


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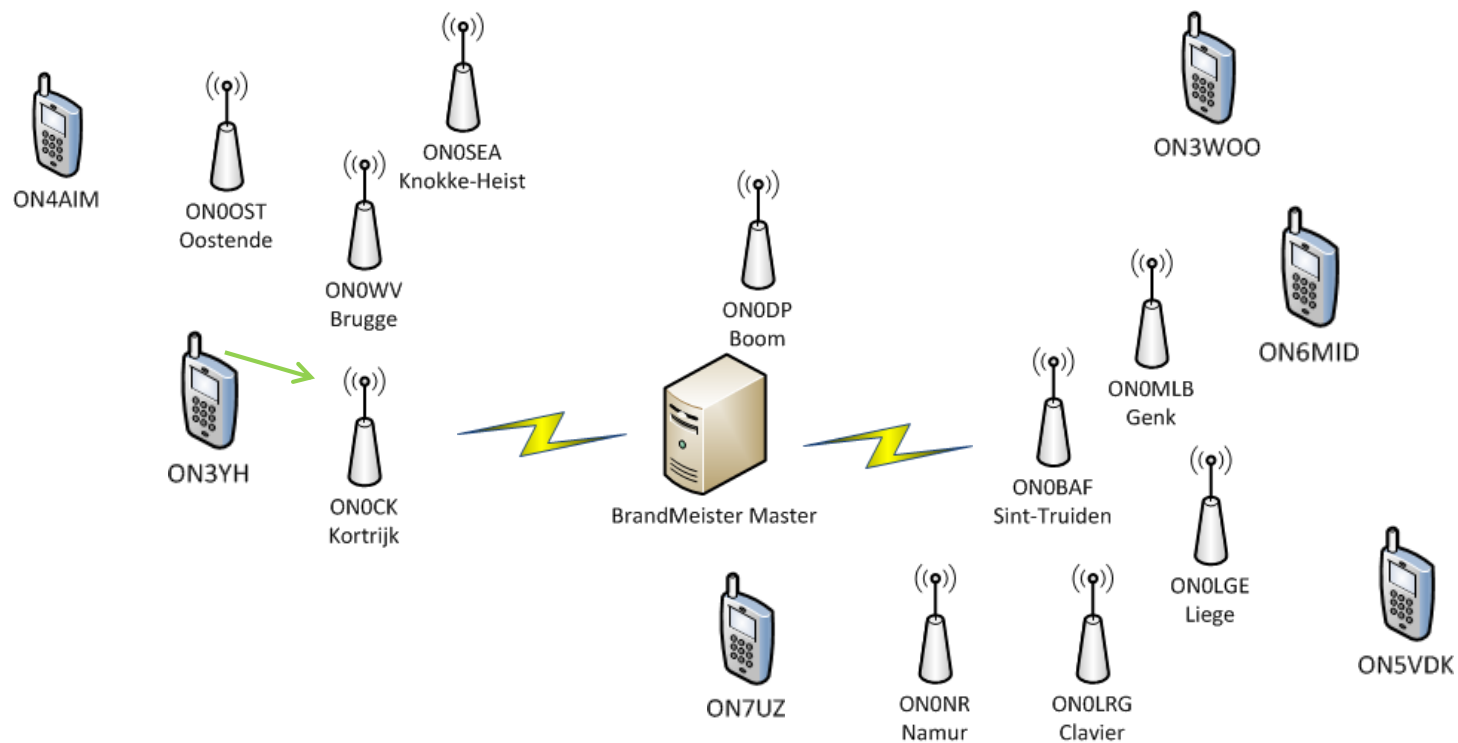


# Contact met het buitenland



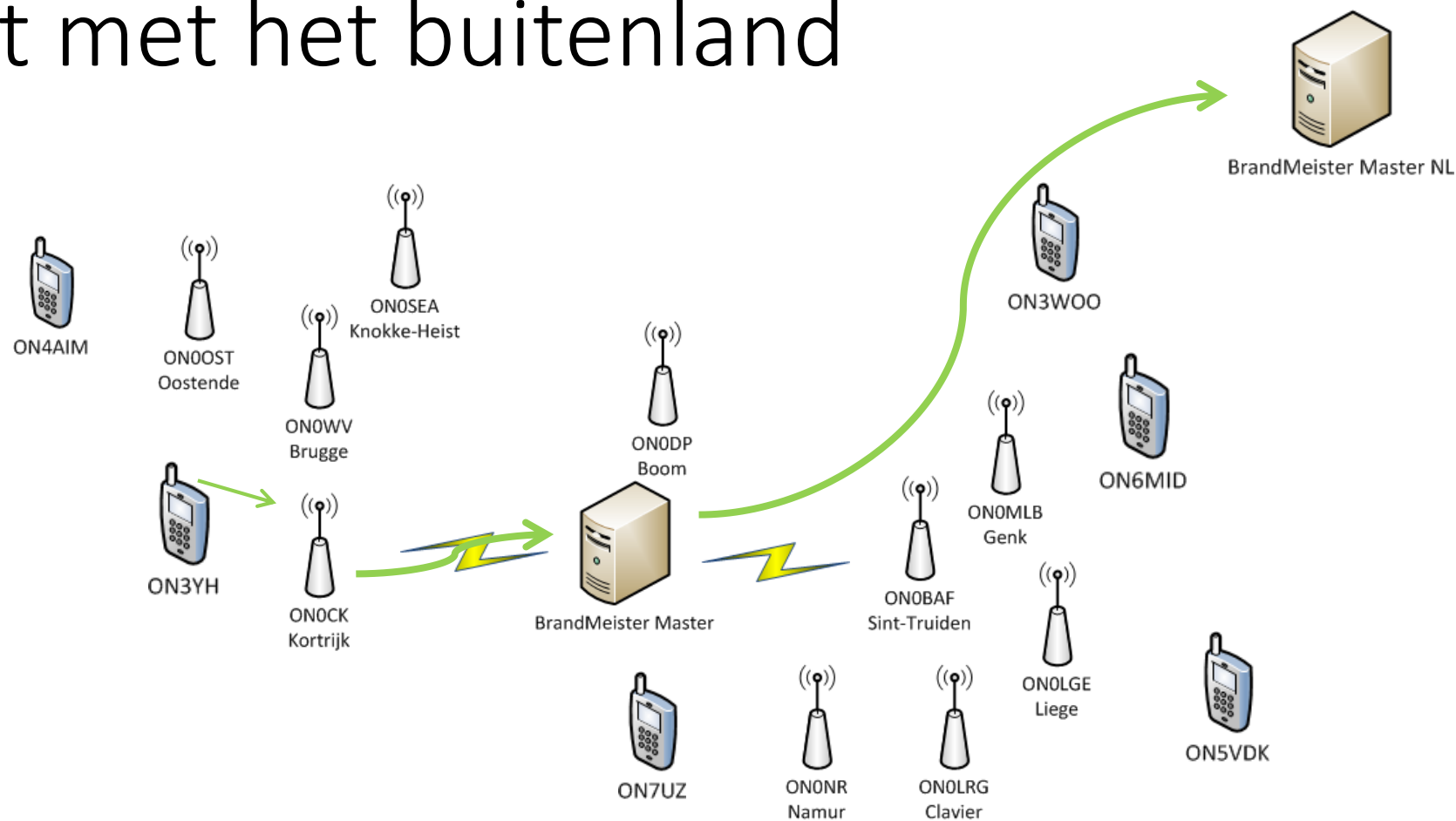


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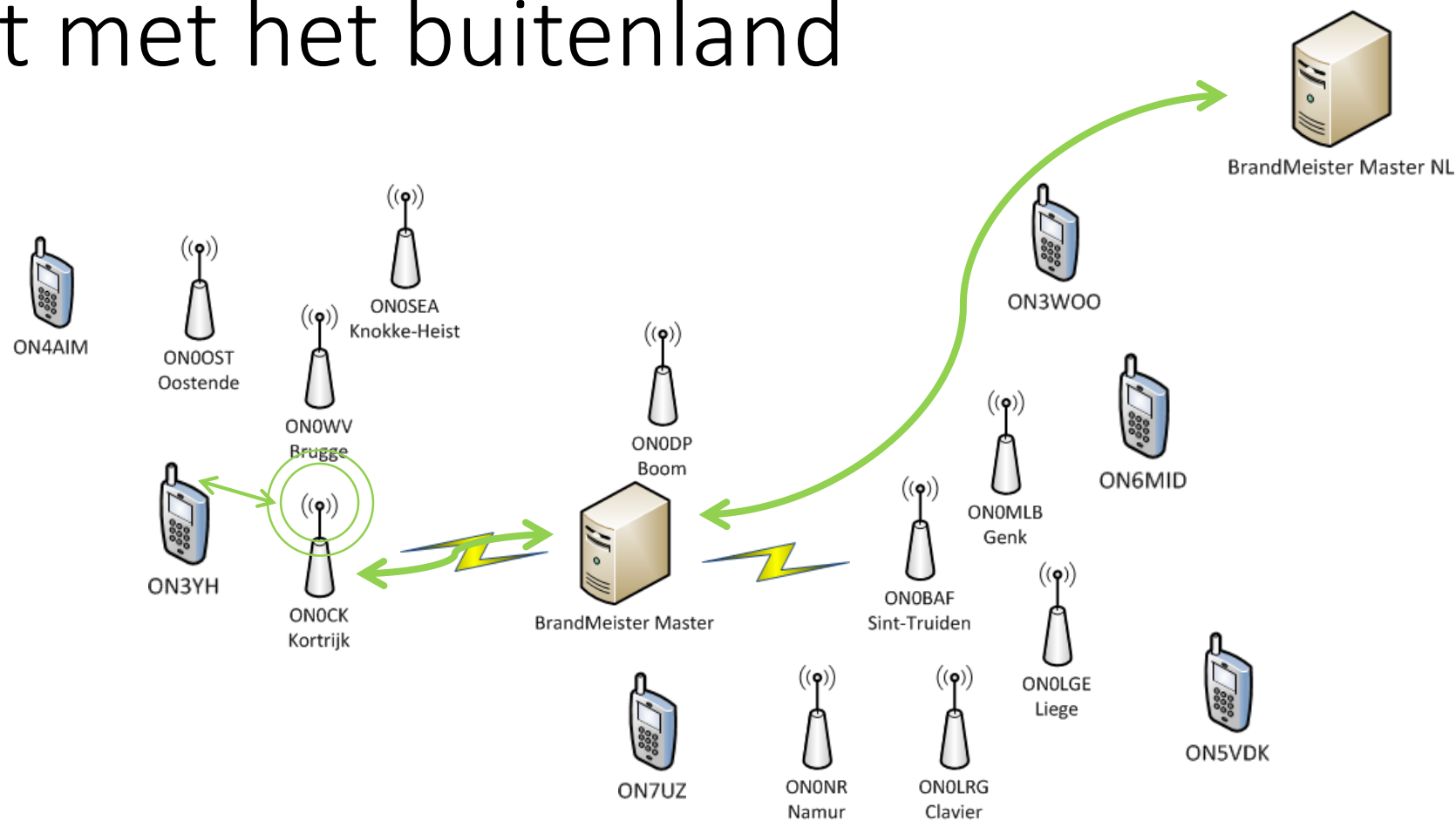


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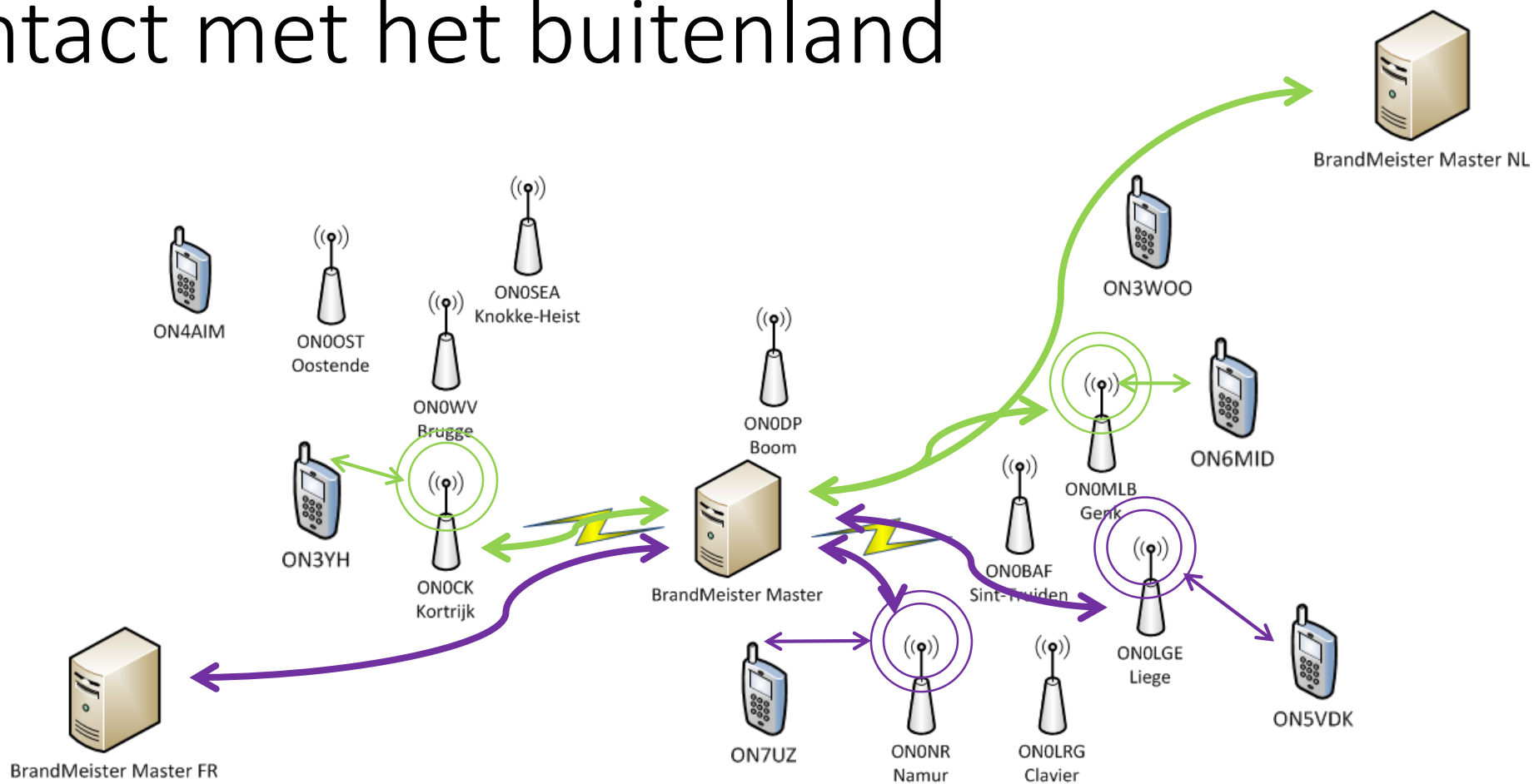


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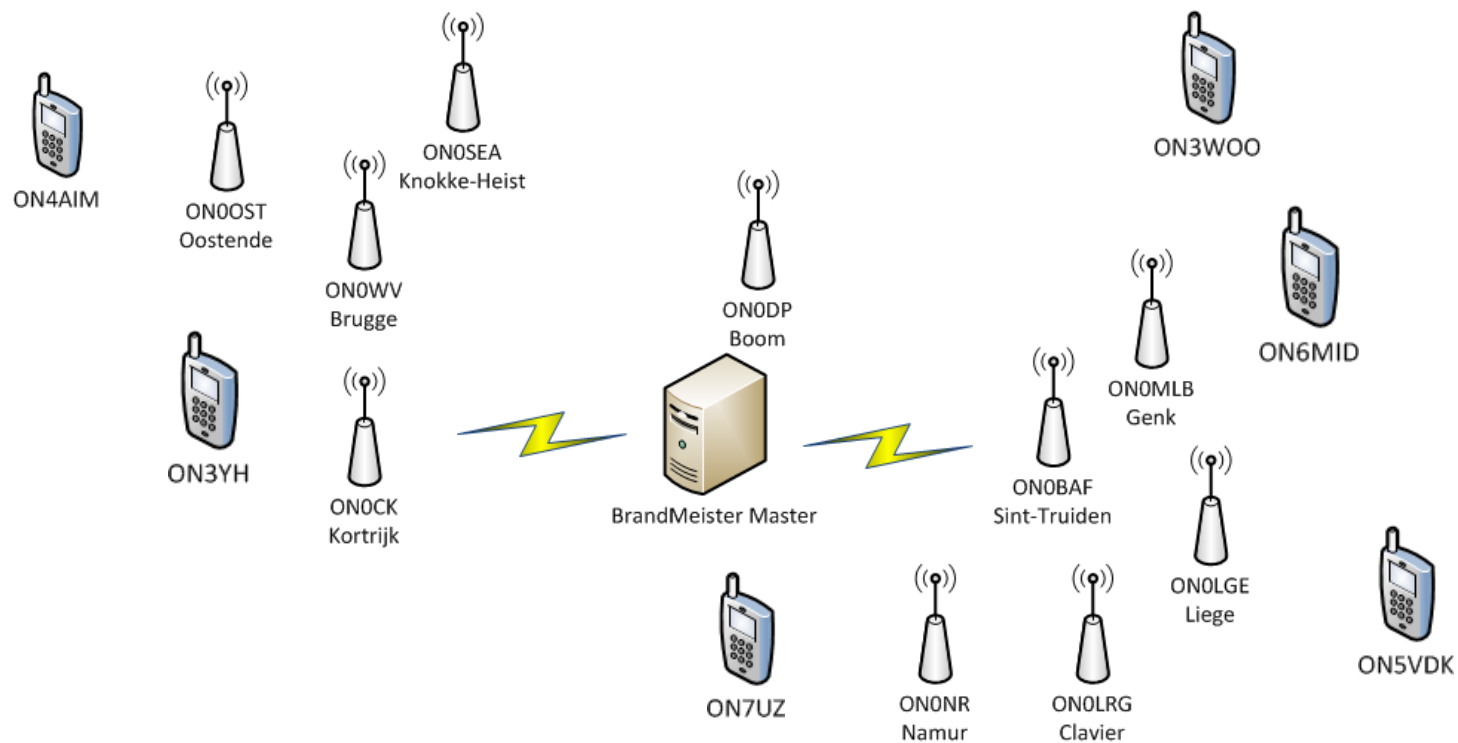


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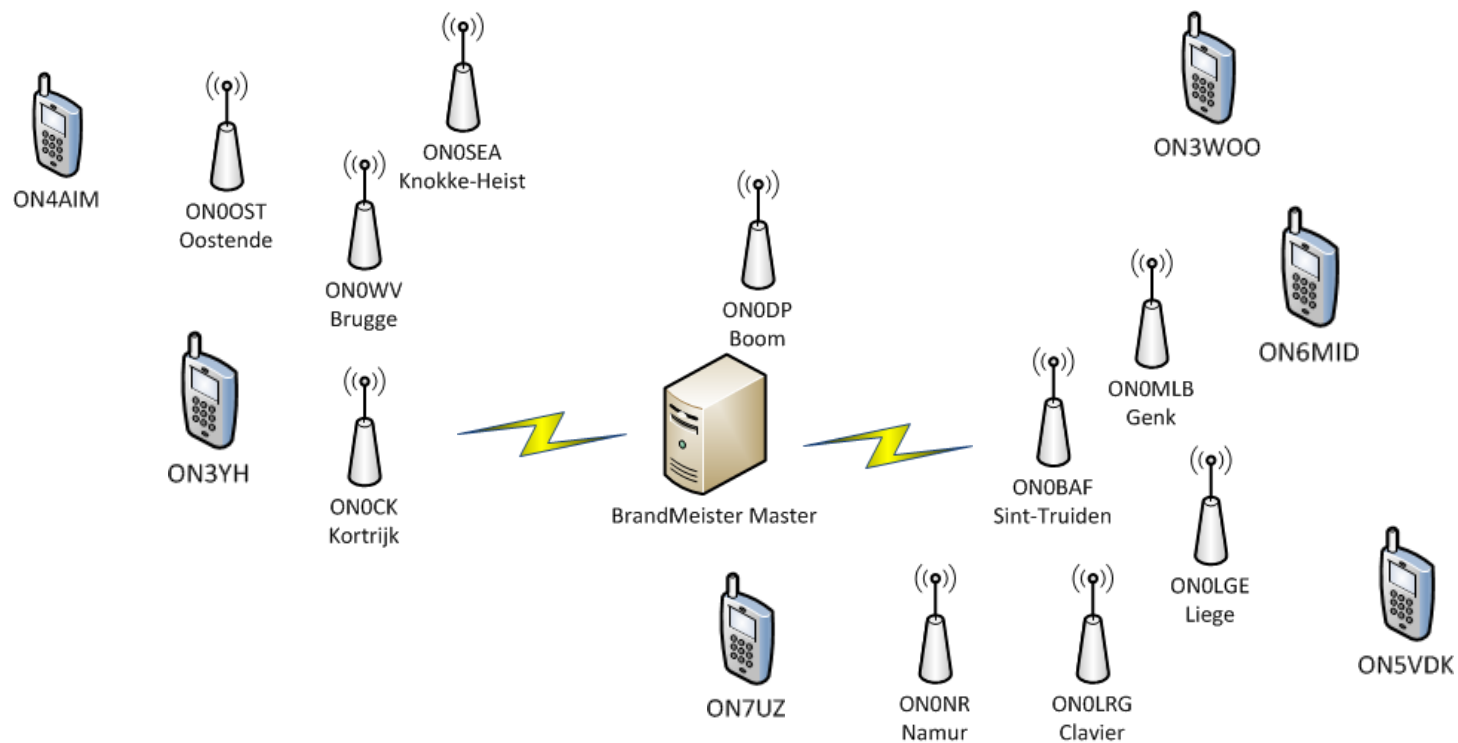


# Een Private Call



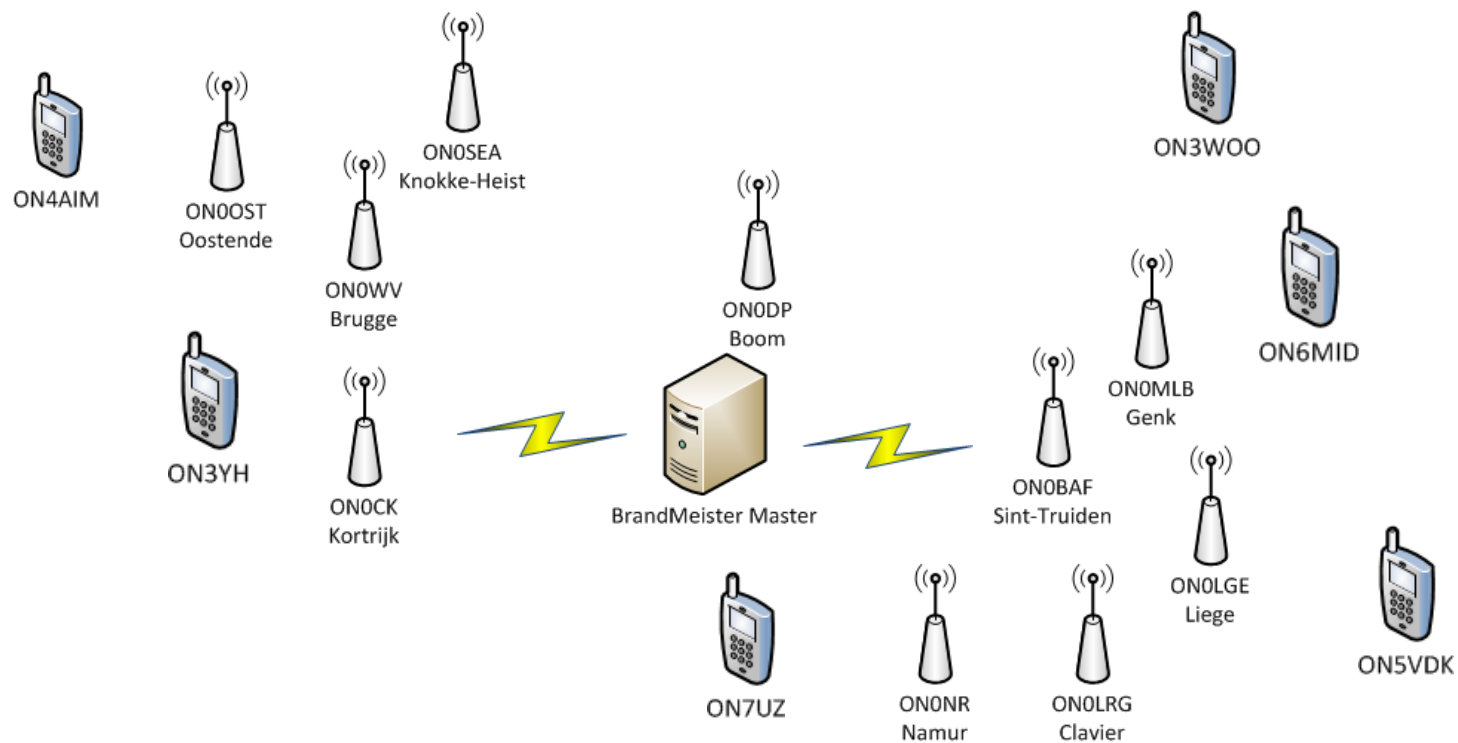


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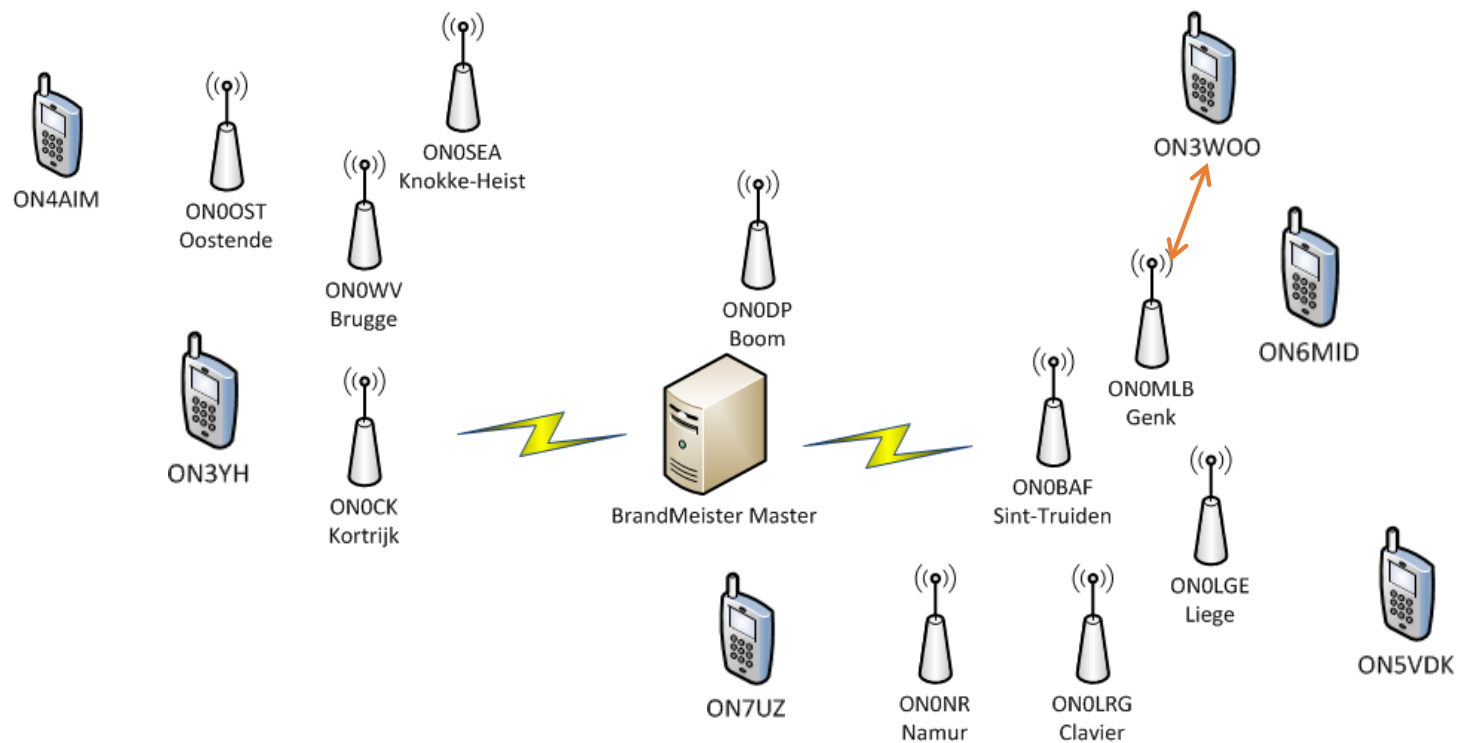


# Een Private Call



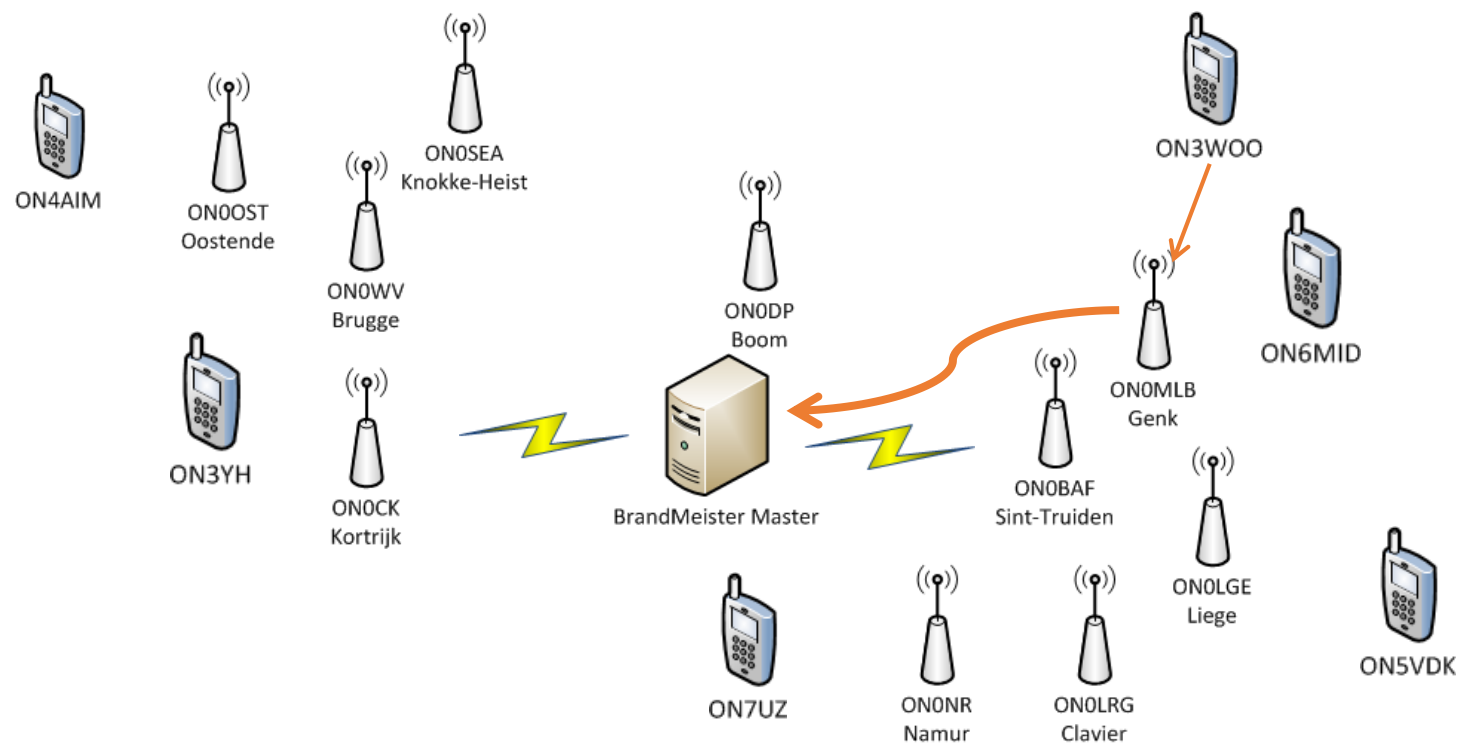


# Een Private Call



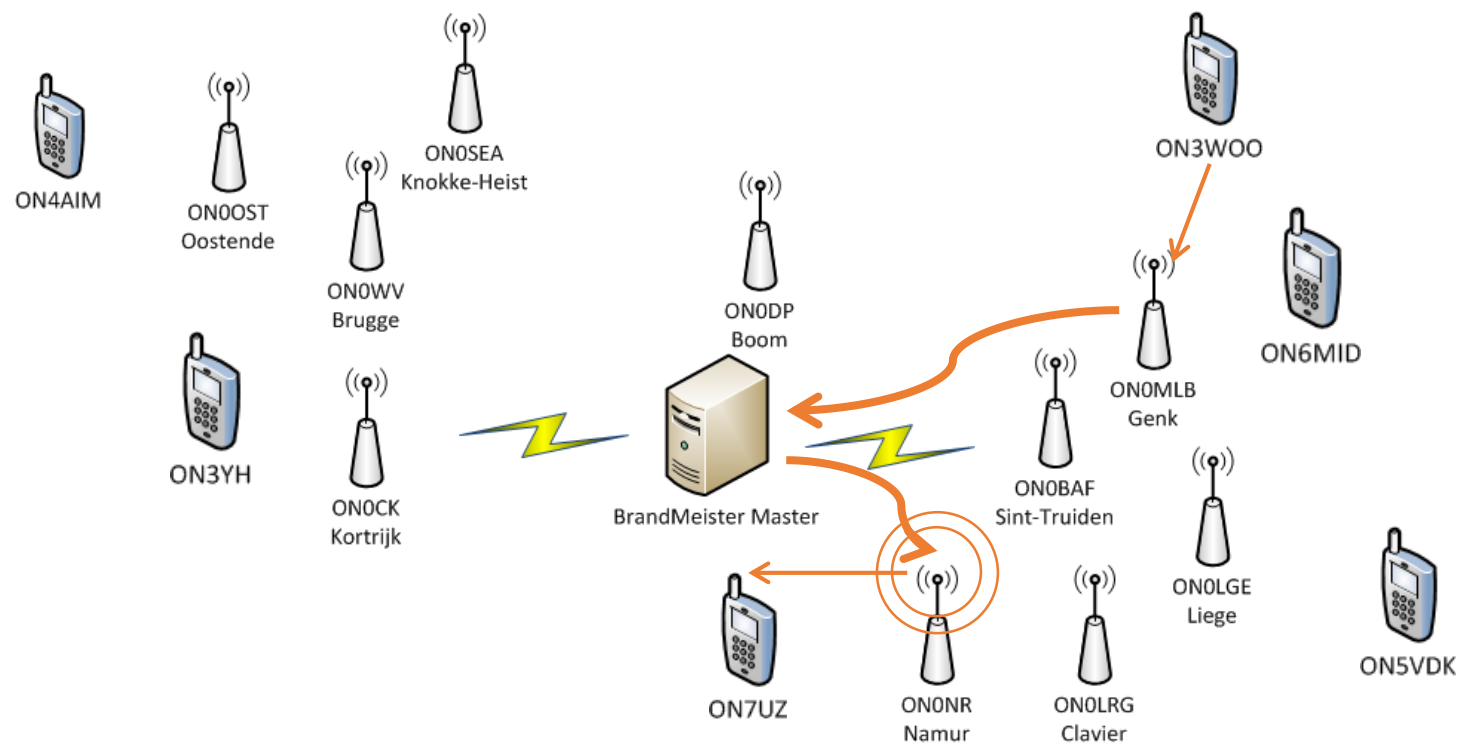


# Een Private Call



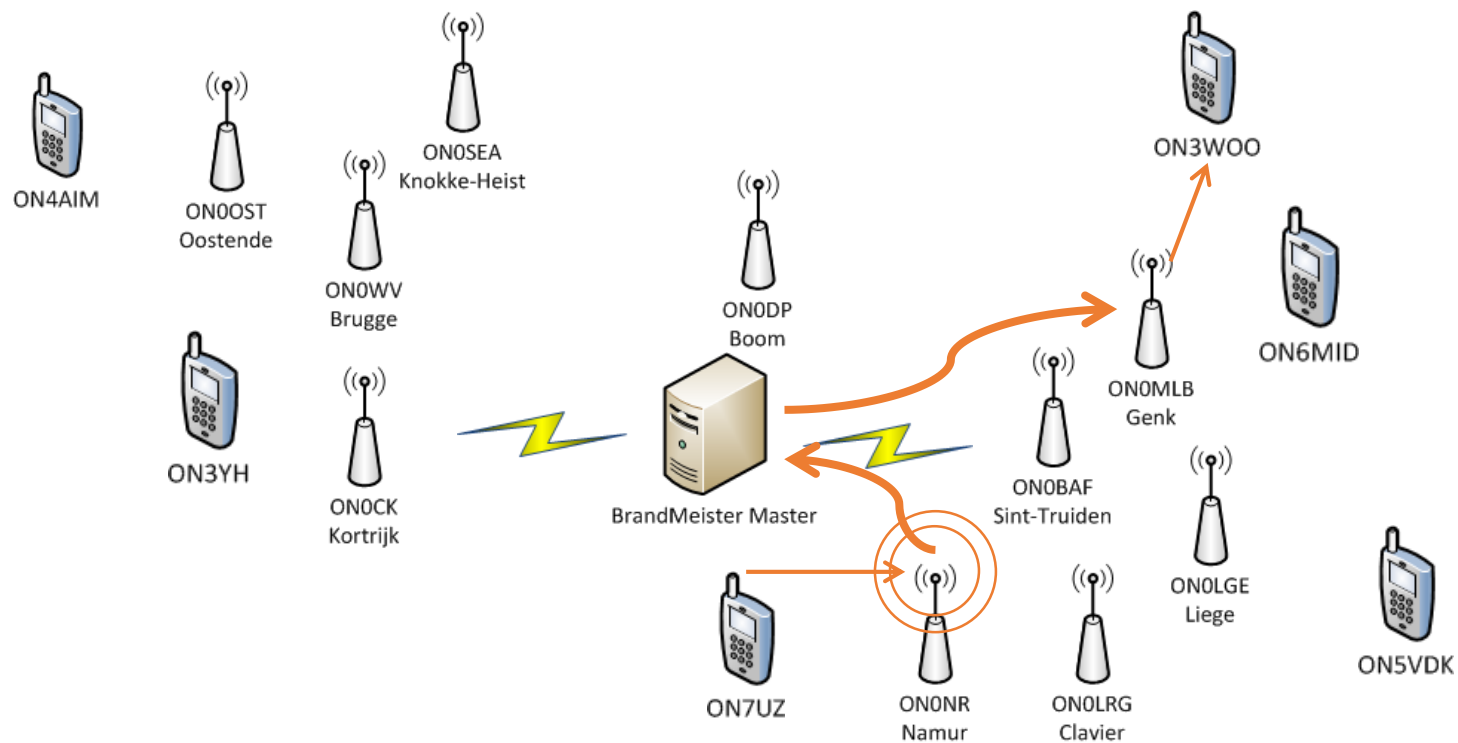


# Een Private Call



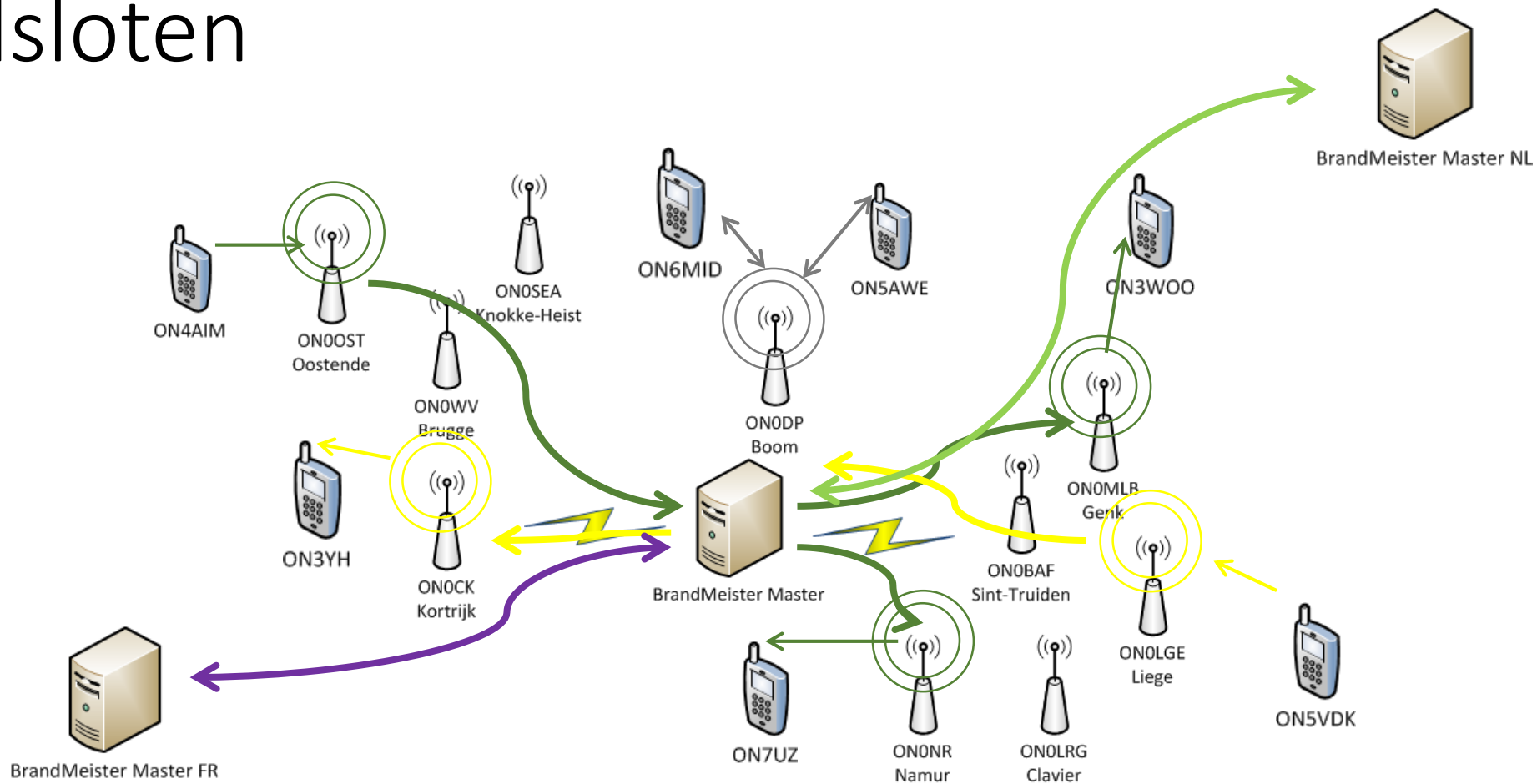


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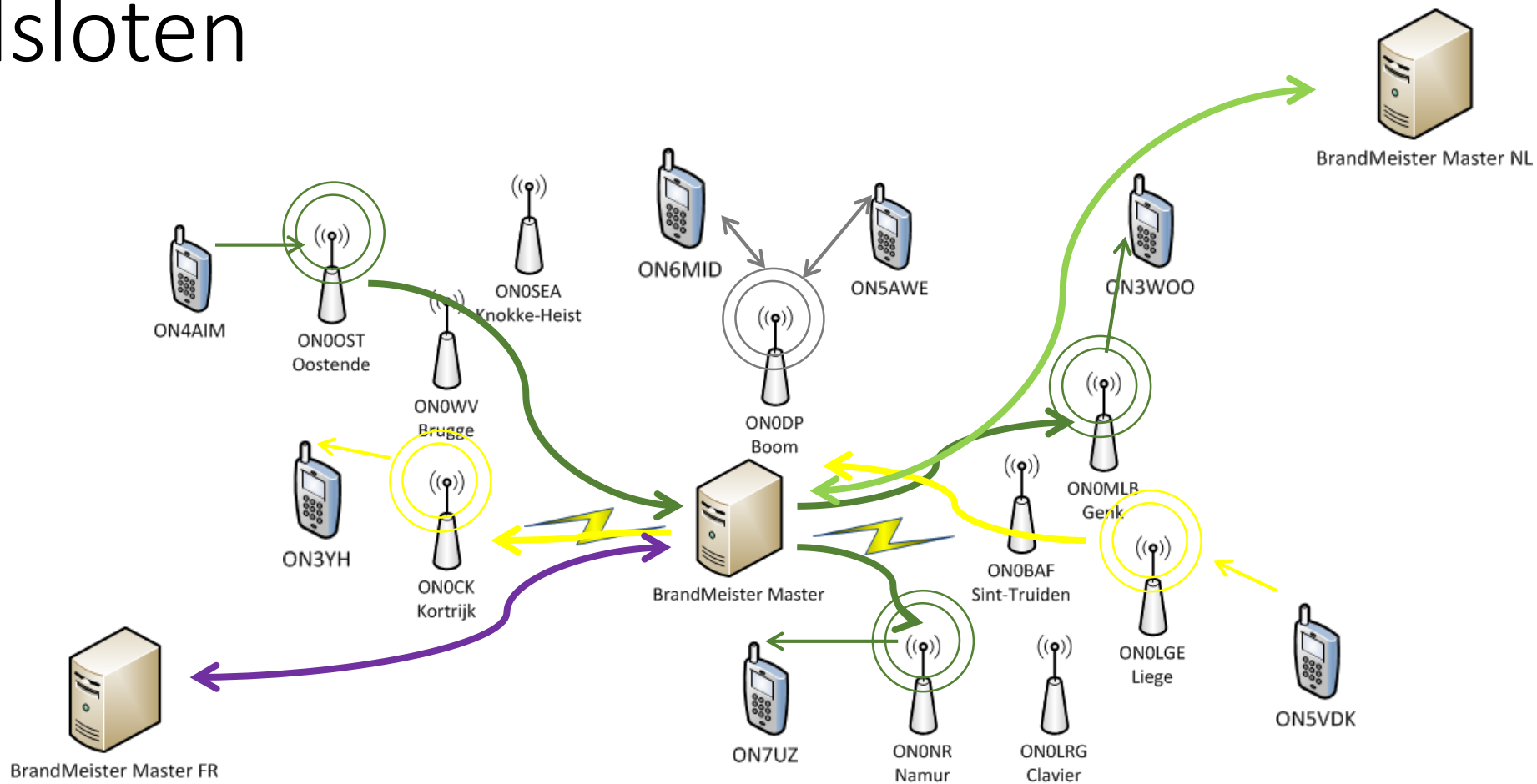


# Tijdsloten



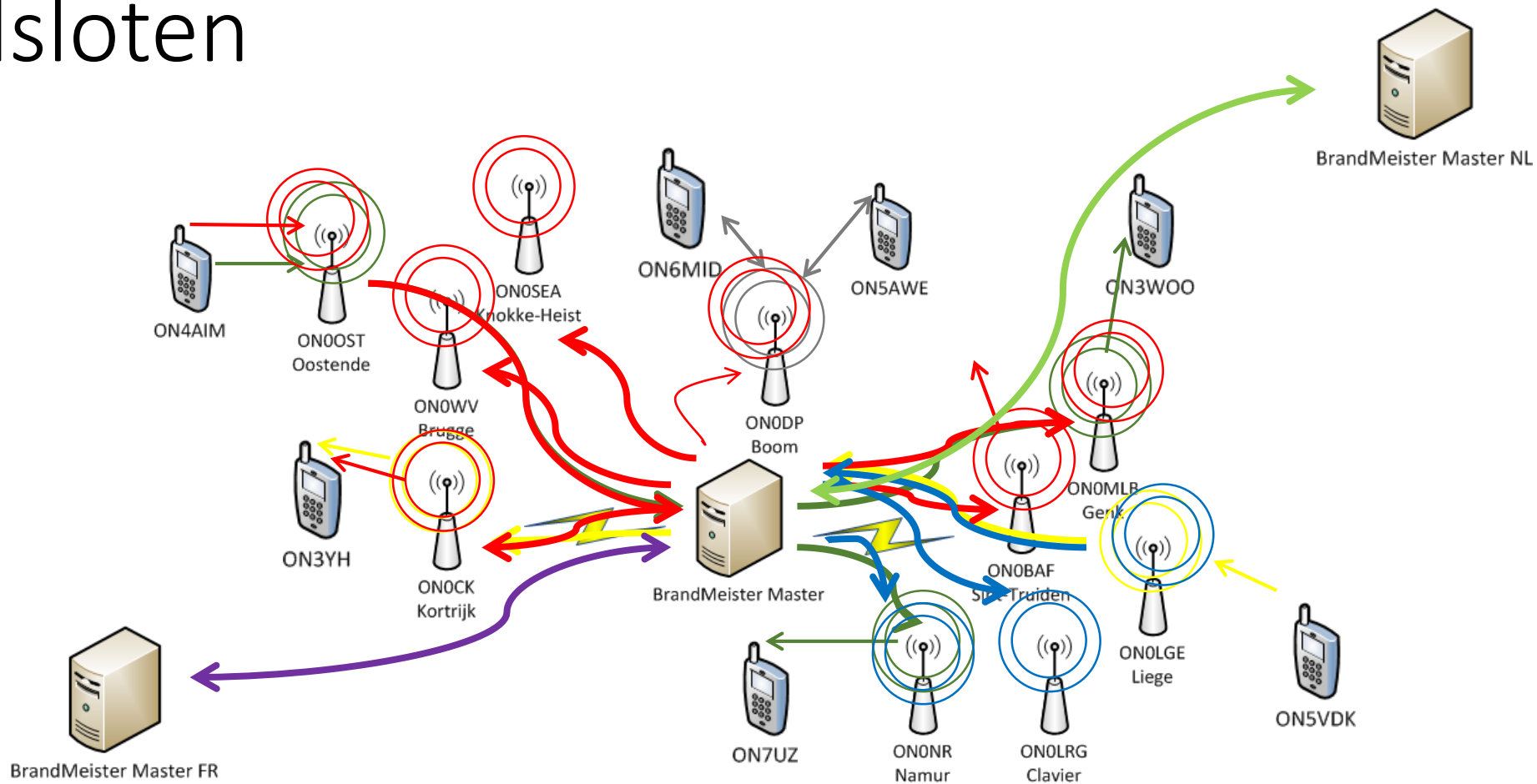


# Tijdsloten



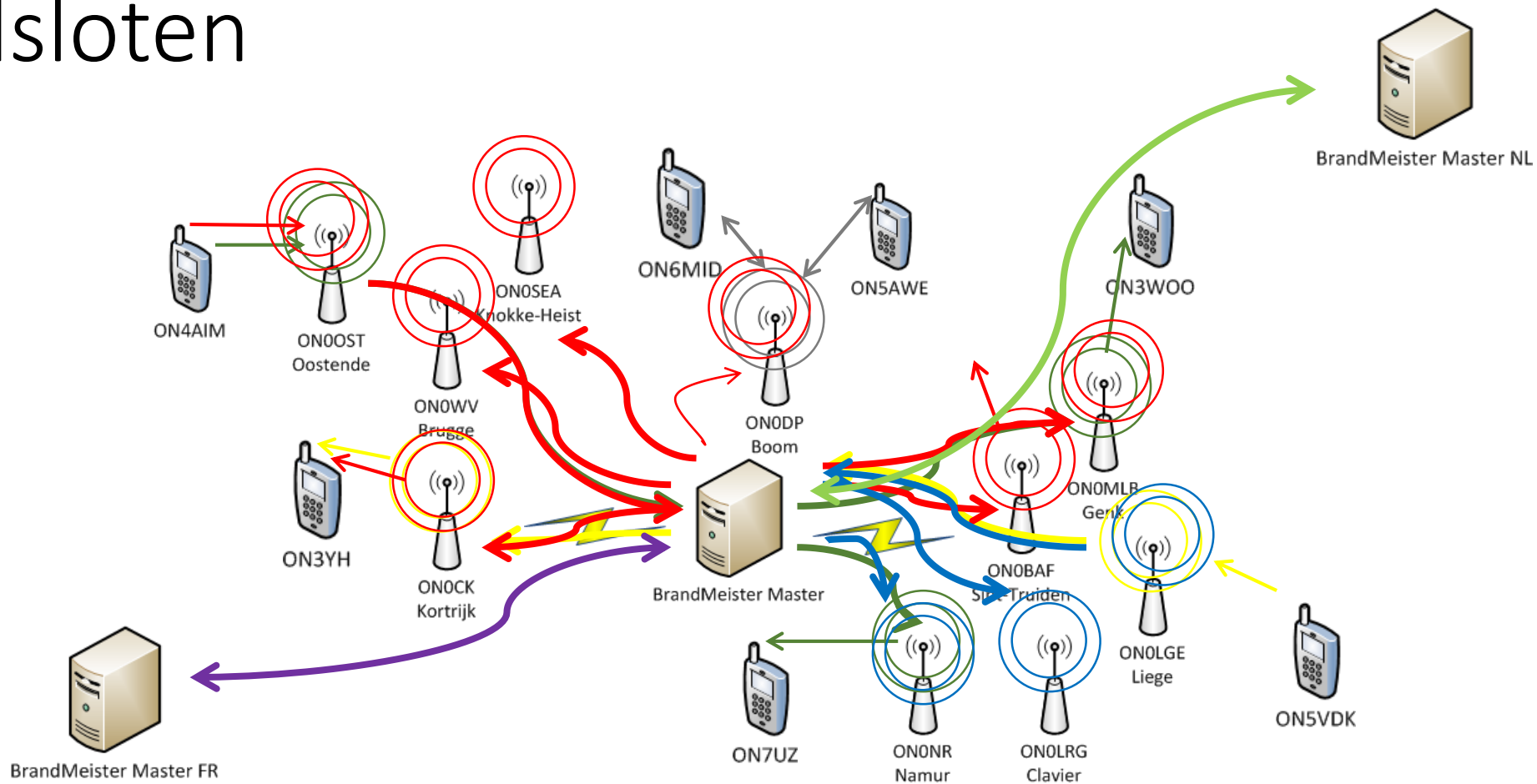


# Tijdsloten



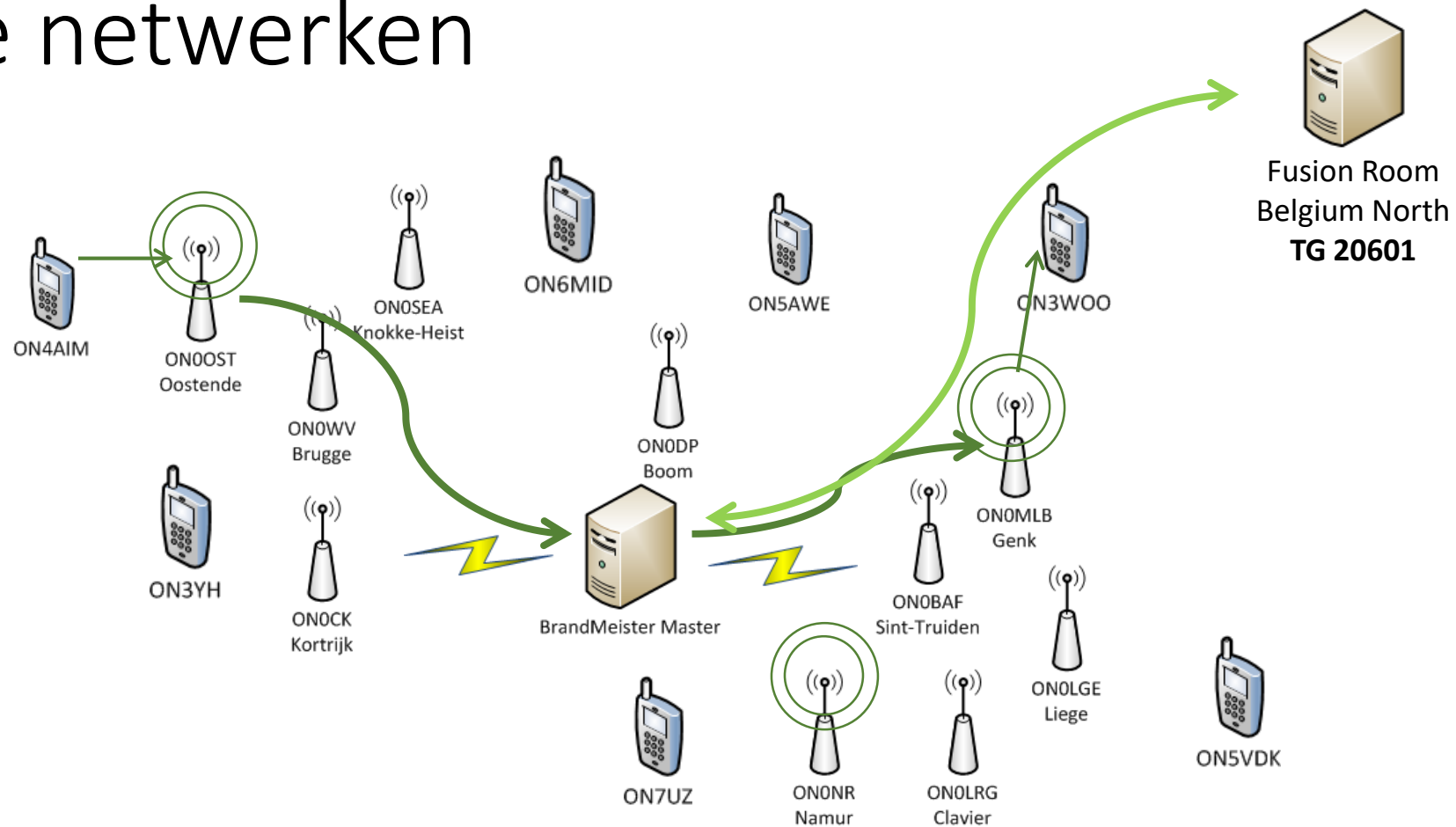


# Tijdsloten





# Andere netwerken





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# Dashboards

Wat gebeurt er nu eigenlijk op het netwerk?



# Internationaal Dashboard

