BrandMeister
DMR Master Server

BrandMeister

Artem Prilutskiy (R3ABM)
r3abm@dstar.su

What is BrandMeister?

- Switching system for IP-enabled Conventional DMR radio
- Supports the most known network-access and end-user equipment, easy expandable
- Performs switching on the Layer 3 (Call Control) of DMR stack
- Has embedded data stack (Layer 4)
- Has embedded data and voice applications
- Flexible routing based on data of global database, local in-memory cache and Lua scripts
- Event notification using messaging queues (calls, connections, alarms, messages, locations and telemetry)
- Allows to build own network based on mesh technology
- **Allows to connect to DMR-MARC and DMRplus networks**

BrandMeister allows me…

- To roam automatically from repeater to repeater
- To make private conversations on any time-slot
- To make world-wide conversations with any type of amateur DMR network
- To send my location to APRS
- To send SMS and receive
- To send (and receive) SMS to (or from) APRS
- To control some electric thing using my DMR radio as remote

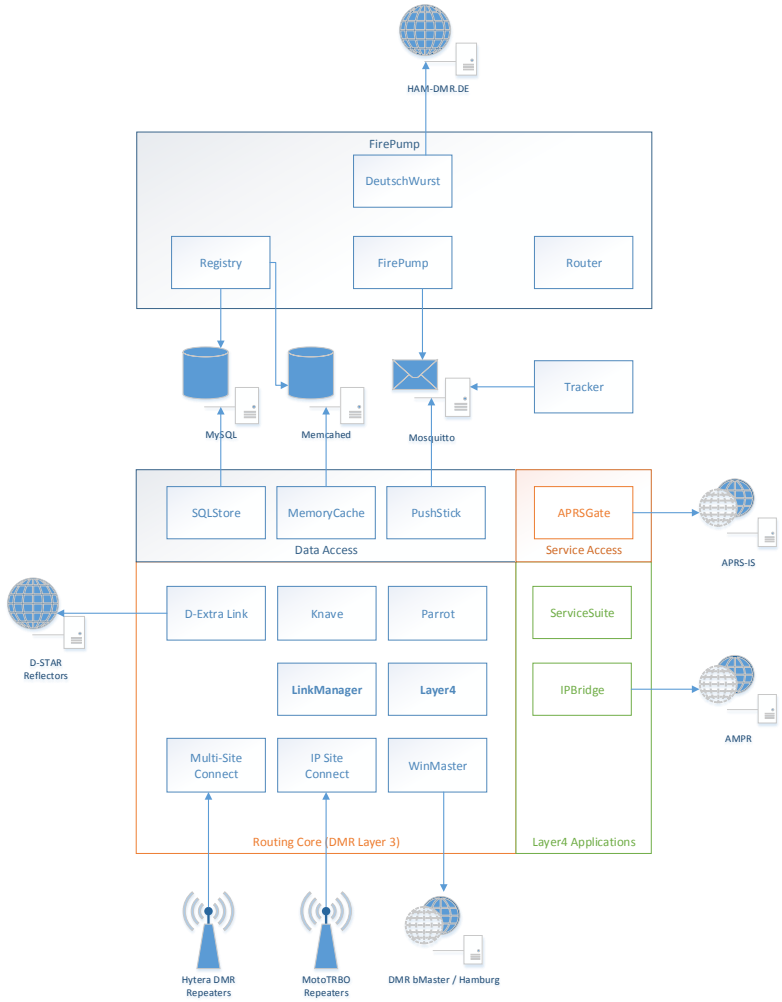
Embedded Applications

- Common-use applications:
  - Interactive voice response (with national languages support),
  - Signaling expansion (UU-Req/UU-Resp)
  - Automatic registration/roaming
  - Auto-patch call gateway
  - SMS gateway
  - IP bridge
- Radio-amateur use:
  - D-STAR D-Extra to talking group gateway
  - D-STAR G2 call routing to private call gateway
  - APRS location and telemetry reporting
  - APRS text message gateway
  - AMPR access service
  - Gateway for EchoLink or any other IP-based PTT applicaions

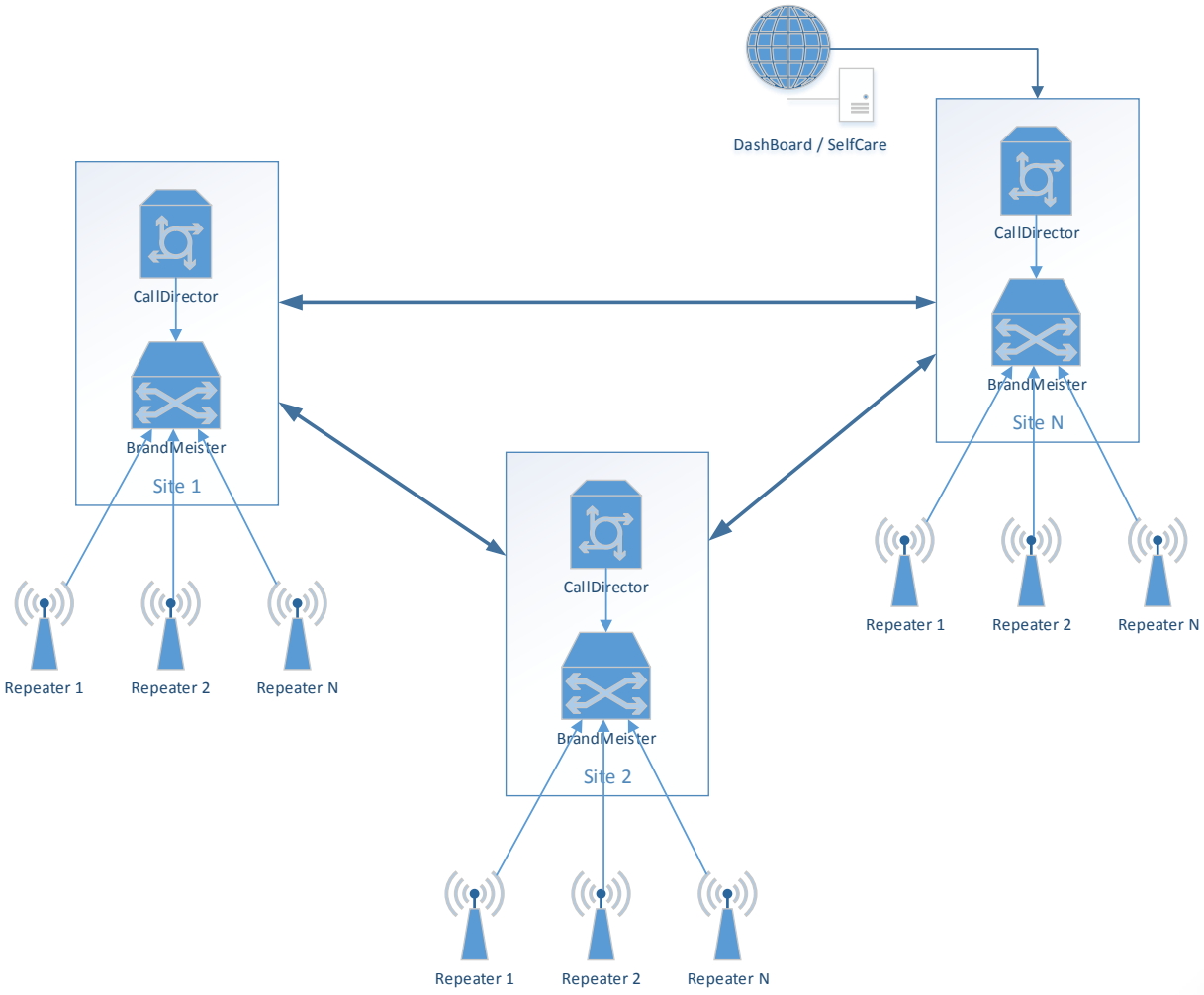
Architectural principals

- BrandMeister is only front-end application that works in real-time
- All business logic to distribute routing lists and user profiles implemented outside of BrandMeister like a set of back-end applications and scripts
- BrandMeister supports multiple sources of routing information: scripts, databases, in-memory cache, configuration files at the same time
- Web applications and diagnostic tools are also separated
- BrandMeister uses event-driven mechanisms (MQ) to notify back-ends about events, in-memory data storage and relational database to get location, routing and user profiles
- We are in the process of implementation of mesh-based distributed network storage
- In this paradigm all network servers will be equivalent, the network will be the most resistant to the loss of nodes

Components of BrandMeister



Network topology example



Connectivity

Technology	Functions
MQTT	Call and network events SMS, GPS, Telemetry
MySQL Memcached	User profiles Location registry
D-BUS	Run-time automayion
ALSA	Audio of auto-patch application
APRS-IS	SMS, GPS, Telemetry
TUN device	IP Data Calls with external applications AMPR gateway*
K7VE AMBEServer	Integration with AMBE3000 codec
D-Extra G2 Call Routing	D-STAR reflector to DMR Group Call D-STAR personal call to DMR Private Call