EmBER Service Discovery

The EmBER group made the commitment (in April 2012) to use **Apple Bonjour** (aka Zero Configuration) for service discovery of EmBER devices. This only applies if service discovery is required at all.

Service discovery shall answer the following questions:

- Which devices provide a certain service?
- How can these services be reached?

A service provider must register its services by the DNS daemon/server which answers the requests. A service consumer may then browse for services in the network. After browsing and resolving a certain service, the consumer is able to connect to the provider (by using the host name or the IP address) and use the service.

The service type to use for EmBER is **_ember._tcp** or **_ember._udp**.

Two operating modes are possible:

- Multicast communication is used (mDNS) and requests are answered directly by the local DNS daemon.
- Unicast communication is used and requests are answered by a DNS server. The local DNS daemon must register the services by the DNS server (which must be enabled / supported).

The operating mode is typically given by the domain, either **.local** (mDNS) or **.<my- domain>** (DNS).

In the following sample scenario the wireless microphone hubs are expected to appear in a list of the mixing console when they are ready. The user may choose to connect (or even automatically connect) to the available wireless microphone hubs and display information about battery state, frequencies, etc.

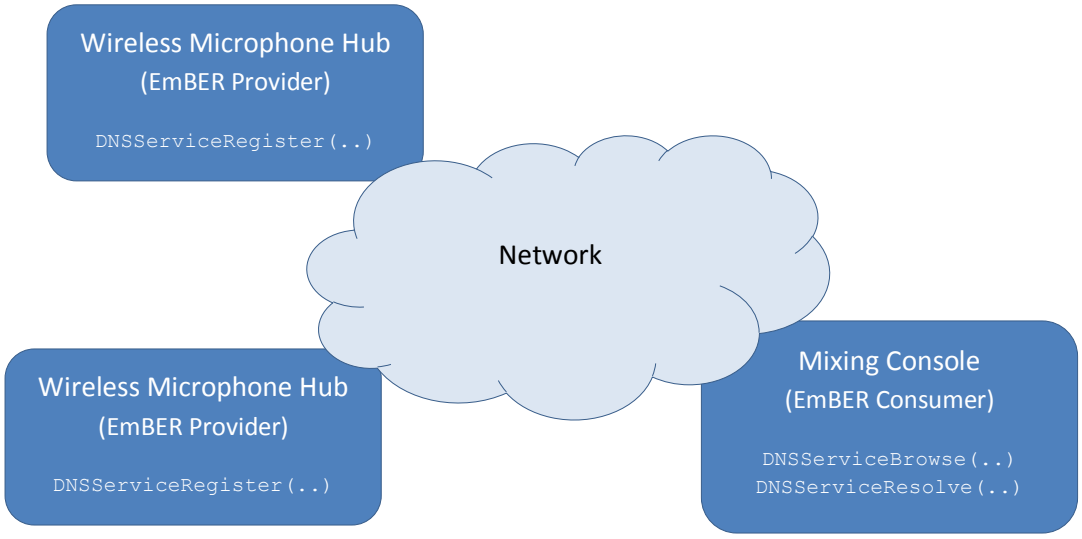

Image 1: Sample scenario with EmBER devices. The API calls at the bottom are examples of the Bonjour SDK on Windows.

References

- Apple Open Source Portal: https://developer.apple.com/opensource/
- Apple Bonjour On Wikipedia: http://en.wikipedia.org/wiki/Bonjour_(software)
- DNS Service Discovery: http://www.dns-sd.org/
- DNS Service Discovery On Windows: http://marknelson.us/2011/10/25/dns-service-discovery-on-windows/
- Zero Configuration - The Definitive Guide, O'Reilly Media, ISBN-13: 978-0596101008