**Overview: High level components and their interaction**

After a deep analysis of requirements, we came up with a typical Client/Server web infrastructure with only one part which interacts following the publisher/subscriber pattern. These two architectural styles cooperate in a hybrid solution of the system.

As it can be seen in the image overview below we have the usual client and server distinction. In particular, the identified clients are: PowerEnJoy App, Web Browser Client, Car Clients, Special Parking Area Clients, and Operator Clients. Car Clients and Special Parking Area Clients are anyway part of system from a logical perspective. Indeed, they are physical distant from the central servers. In order to make them logical inside the network, they are connected through VPN (Virtual Private Network).

The server side is composed of one or many Proxy Servers which act as front end servers. Their main purpose is to accept or discard client requests and to dispatch them through the right server belonging the intranet. To reach the Proxy Server one client has to know the static well known IP address or the symbolic name. In order to make this possible, this server has to be exposed to the internet in a DMZ (Demilitarized Zone). Considering that exposing a Server to the Internet is an evident security leak. To avoid this, a firewall is interposed between the Internet and the Proxy Server. In addition, the Proxy Server is used as gateway to manage gateway requests to either external information systems or API (Application Programming Interface) managers. Furthermore, the Proxy Server is used for sending either responses to clients’ requests or direct server commands to clients.

To access the intranet another firewall acts as network flow filter, this time it is more restrictive. The intranet is composed by the Operator Clients on one side and central servers on the other.

Main servers are: Web Server, Application Server and Database Server.

The Web Server deals with the dynamic web pages’ generation. As every Web Server it may need the contribution of a business logic layer, indeed the Web Server may exploit the Application Server to retrieve dynamic content. Web Browser Clients communicate to the Web Server.

The Application Server is the business logic core of the entire system. It is responsible for all clients requests handling and for commands producer.

The Database Server contains the DBMS (Data Base Management System) which deals with the data persistence. It communicates to actual physical data storages. Moreover, it manages a parallel physical data storage which contains backed up data to ensure no data loss. This copy data storage is located in a different secured area.

In the image below is represented only one server per kind but actually, there are more than one server per kind and indeed, the Proxy Server acts as load balancer, too.