

# Mobile Device Capability Analysis and Provisioning

NAGENDRA U S<sup>1</sup>, KIRAN B N<sup>2</sup>

<sup>1</sup>Student, MTECH-Computer Network and Engineering, Department of IS&E, National Institution of Engineering, Mysore, Karnataka, India

<sup>2</sup>Assistant Professor, Department of IS&E, National Institution of Engineering, Mysore, Karnataka, India

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**Abstract:** Understanding, configuring and controlling the devices connected to any wireless network is of key importance for any Mobile Network Operator. In this paper we mention Mobile Network Operators with features to manage the mentioned challenges and to monetize the device know the way. To provide remote management of settings, application and software system updates in mobile devices connected to the wireless mobile network.

**Key Words:** IMEI, IMSI, MSISDN, HLR, VLR, OMA-DM, OMA-CP.

## 1. INTRODUCTION

The increased number of mobile devices within the network could be an overhead on the mobile network operator. Devices which are connected to network varying from feature phones to smart phones and tablets should be managed and controlled. With the complexity that comes with these devices arriving at the network, it's harder than ever for operators to trace and understand the distribution of those devices and their relative capabilities. Mobile Network Operators or application service providers can send correct service settings to devices, so subscribers can download applications. This also reduces the quantity of your time and competence that customer care personnel or device dealers have to find a specific brand of device correctly, which enable detection of devices and proper configuration of recent devices entering the network. This feature, for instance, enables subscribers to access value-added services with none assistance from the operator help-desk.

## 2. METHODOLOGY

In this paper we are proposing three features: Detection of device (DOD), Analysis of device (AOD), Provisioning of device (POD).

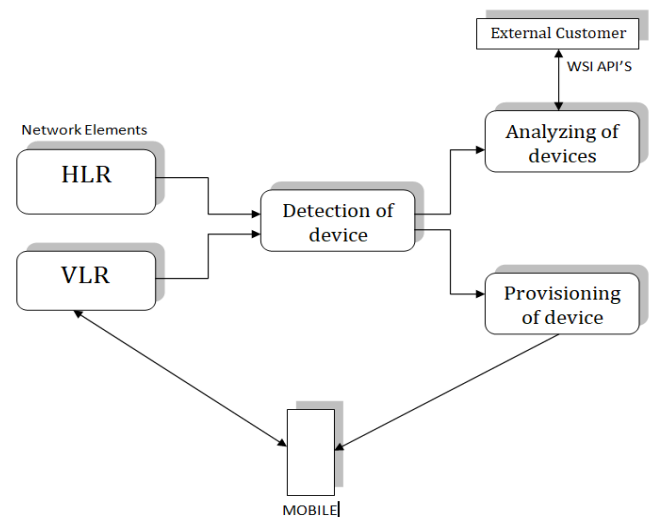


Fig -1: Complete overview

HLR (Home location register) and VLR (Visitor location register) are two examples taken for network elements. The above diagram shows complete working flow of proposed tool which contains all three features (DOD, POD and DOD), it also shows how external customer can access subscriber information by using WSI API'S.

### 2.1. Detection of device (DOD)

In this paper we refer detection of device feature as DOD. Ensures mobile operation through automatically or manually detecting devices that connect with the network allowing monitoring and controlling the devices. By detecting the device in the network, which leads get information about the device and subscriber who using that device i.e. the triplet association between a tool (Tool can be identified by IMEI) and a subscriber (Subscriber can be identified by MSISDN and IMSI) is learned upon attachment of the device to the mobile network. This feature is helps to identify device and subscriber information with device capability, DOD is really a layer between the provisioning the devices and the network elements (like HLR and VLR etc).

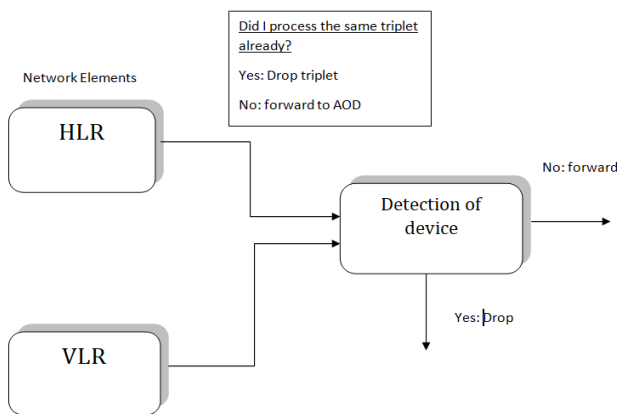


Fig -2: Working DOD

Filters the valid requests sent by the network elements before sending the requests for provisioning of specific device (Filter needs to be done before provisioning because it will help to remove already provisioned device from re-provisioning by referring the IMEI of newly arrived device), so it will reduce the overhead from provisioning all incoming requests. This fashion detection of device feature protects from overloading with unnecessary requests coming from network elements. This feature is often founded to automatically detect the device type associated with each Mobile Subscriber ISDN within the operator's network, This information is often used to provide automatic configuration that the suitable default settings are sent to the devices as soon as they're found within the network, Even when automatic configuration is not used, the availability of this information removes the requirement to specify the device type when the user requests configuration settings, or when settings are sent using bulk management, This function enables to send appropriate configuration settings to devices automatically, this means that end-users do not required know whether their devices are required to have any special settings to work properly, neither do they have to contact the operator to induce proper settings. The system keeps track of devices that have already received configuration settings. If a tool already has settings, new settings do not seem to be sent there to when it determines that the device is in use. Saved or updated settings are sent to already configured devices only a user or an application makes a specific request.

The major role of DOD feature is to capture events, from the Mobile Network which hints that a new triplet appeared. To achieve that we must connect with a Network Element or to any other tool, this is able to produce such triggers.

## 2.2. Analyzing of device (AOD)

In this paper we refer analysis of device feature as AOD. This can provide information on device capabilities (like

firmware version, camera detail etc.), device distribution, and subscriber distribution and subscriber history for reporting purposes or as an input to external applications. The information about devices and subscribers gives valuable input about the potential market coverage before launching a replacement service within the network. We can find the device capability by using TAC number which is present in IMEI number (Type allocation code is the starting 8 digits of IMEI number).

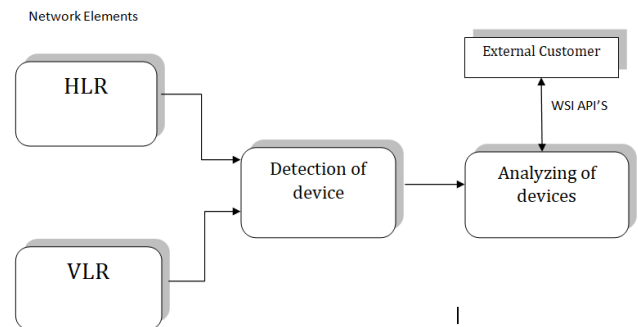


Fig -3: Working AOD

The AOD helps to produce a whole set of valuable information. This feature builds a real-time know-how within the mobile network about the devices and their capabilities that every end-user has. This information becomes available from the instant when end-users connect with the network. The AOD could be a concept that allows the operators to get profit from information about device provided in real time to enhance their network business decisions. By utilizing this information, operators can enhance their operational efficiency by providing desired services to users which are supported to device capabilities. All This information is created available through the WSI API's. The WSI API is constructed with technology standards that give the other system to simply integrate to that and query information, as an example, subscribers' device capabilities. This permits other systems to leverage on this know-how and enrich their knowledge to perform more efficiently and make intelligent decisions.

## 2.3. Provisioning of device

In this paper we refer Provisioning of device feature as POD. By referring the information about device from AOD, POD feature provides the services like updating of settings, application and software system of targeted device connected to the network. So here we can use OMA-DM and OMA-CP protocols for provisioning the devices.

### 3. CONCLUSION AND FUTURE WORK

In this paper we consider only mobile devices, for further we use same technology to monitor and control IOT and home smart device. In this paper we discussed about automatically monitoring and controlling of mobile devices which helps to reduce the overhead of mobile network operator. This also reduces the time required and also reduces the customer care personnel or device dealers overhead from finding a specific brand of device correctly, which enable detection of devices and proper configuration of recent devices entering the network and also this feature helpful to increase marketing strategies based on current trends.

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