

## Multi IMSI Explained by Eseye

When a GSM connected device powers on it will perform an authentication procedure with the network. This authentication procedure uses the IMSI as the key for the network. This procedure occurs at the beginning of every data session.

### What are the potential issues for a single IMSI M2M solution?

The main issues with using a single IMSI are a lack of coverage and susceptibility to network faults.

#### Lack of coverage

Typically when the device is located in the IMSI's home country the device is locked on to the IMSI's single network. This means in locations where the network has black spots the device will be unable to connect, even if other networks have coverage there. While this can be solved using roaming (using an IMSI in a foreign country) this solution requires the home network and the foreign networks to have an inter-operator agreement.

**Eseye's AnyNet Multi IMSI SIM card's** IMSI can be changed remotely therefore altering the home country, allowing the device to roam on over 440 networks worldwide to give maximum possible coverage wherever the device is located.

#### Roaming Network faults

When a device is roaming on a foreign network all information is transmitted from the device through the roaming network to the home network and then to the recipient. When using a consumer single IMSI SIM card if the roaming network has a fault the information will be blocked or lost. This is because consumer SIM cards are steered by the home network based on cost to ensure maximum profit.

**Eseye's AnyNet Multi IMSI SIM card** steers the connection route through another network when a network being roamed on has a fault. To ensure maximum GSM availability for a device.

#### Home Network Faults

Unfortunately network faults can also occur on the home network and in that case steering cannot assist. In this situation an alternate home network needs to be used to circumvent the issue.

**Eseye's AnyNet SIM card** is specifically designed to solve the issues with Single IMSI cards and ensure that the service provided is optimal, before cost is considered.

**Eseye's AnyNet SIM card** has two levels of steering to circumvent both roaming and home network faults. The use of different IMSIs therefore altering the home network ensures that the service to the customer is available even when a consumer SIM card would fail.

#### What is a SIM?

A SIM (Subscriber Identity Module) card is the encryption device for the network and a file repository. The file repository contains the rules governing how the device can connect to a network. This includes a file containing the IMSI.

#### What is an IMSI?

An IMSI (International Mobile Subscriber Identity) is a globally unique number it is used to authenticate the device on a GSM or UMTS network. A 16 digit IMSI is made of the following three components:

- Mobile Country Code (a three number code for the home country).
- Mobile Network Code (Identifier of the home network operator).
- Subscriber Number (Unique identifier assigned by the mobile network operator)

Consumer grade SIM cards typically have one IMSI, as they are supplied by one network.

Eseye's AnyNet SIM has more than one IMSI therefore can select a different home network when appropriate.

**Eseye's patented AnyNet multi IMSI SIM card** has more connection paths to globally deployed devices than any other connectivity supplier.

**Eseye's patented AnyNet multi IMSI SIM card** solves many of the real world problems faced when deploying GSM connectivity globally in a device.

**Eseye manage global regulations for you** – Eseye's AnyNet SIM card conforms to the relevant regulatory framework around the world. The Multi IMSI solution allows truly global deployment, providing solutions to permanent roaming restrictions and lawful intercept.

**Eseye manage global carrier agreements for you** – Eseye's AnyNet SIM card allows a product being built for global deployment to only require one connectivity solution, there is only one SIM card to be integrated regardless of the final destination of the product.

**Eseye use a flexible tiered billing system** – Eseye's AnyNet SIM card is billed simply, with the world split into three zones and the price of data associated with each zone the cost is easily manageable.

**Eseye simplify the management of the SIM cards** – Through the use of the SIAM portal and API, see right.

**Eseye will ensure longevity of the deployment** – Eseye's AnyNet SIM cards are M2M specification, they use high grade silicon that is able to withstand extreme conditions and decades of use.

**Eseye limit the cost** - Through the use of multiple IMSIs and the ability to remotely add IMSIs Eseye can prevent one network operator from increasing the cost of using their IMSI. The cost can be carefully managed after deployment throughout the lifetime of the product.

**Eseye's AnyNet SIM cards are 'device agnostic'** - They are capable of being fitted into a GSM capable device. They can be provided in 2FF (mini or normal size), 3FF (micro size), or as MFF embedded chip SIMs.

**Eseye proactively manage the connectivity** - of all of the AnyNet SIM cards on the network, ensuring that the most suitable route to the device is in use based upon the application profile of the device.



**Eseye's patented AnyNet multi IMSI SIM card** removes the need to visit a connected device, all changes, updates and upgrades can be achieved **remotely over-the-air.**

## **Eseye's SIAM portal**

Eseye operates a SIM Information and Account Management portal, it provides customers with a large amount of visibility into the activity of their SIMs including the ability to track, trace, and manage the connectivity of their smart devices.

It can be accessed as an easy-to-use web-portal or as a JSON based API.

It has four main features:

**Device Management** – It allows users to locate, view, manage and monitor devices, using real time, historical device information, and graphical device location. Other features include: IP address configuration, Firewall management, protocol management and more.

**Profile Management** – This allows users to configure their service with regards to Messaging, Alerting and Reporting.

**User Administration** – With a hierarchical set up and user management, there is flexibility around roles based permission sets and wider organisation topology.

**Finance Management** – SIAM allows users to access their real-time and historical billing data for easy billing management. The portal features integrated credit card billing for easy payments and the web shop allows existing customers to order new devices or SIMs at the click of a button.