

## Roaming With Pre-paid

### Key Benefits

- ▶ Real time rating based on multiple roaming indicators
- ▶ Rating for roaming in IN and pre-IN environments
- ▶ Support for networks with multiple switch vendors

Pre-paid wireless has experienced explosive growth over the past few years, enabling carriers to market existing services to new categories of customers and create new revenue opportunities. With the concept of a global village becoming a reality, subscribers now expect to be able to use their phones not only throughout a service provider's entire network, but also across a country and across the world in other networks. To meet these expectations service providers will have an urgent need for flexible pricing structures, depending on the roaming status of the subscriber. Thus a major challenge in pre-paid wireless becomes the carriers' ability to rate calls and receive information about subscriber roaming status and location **in real time**. ORYX has been designed to meet all these demands in a number of innovative ways.

### Roaming Between Service Providers and Between Heterogeneous Networks

Roaming is handled in a post-paid environment with inter-carrier roaming agreements and post call reconciliation. As pre-paid requires real time call rating, this type of billing is unacceptable. ORYX offers two innovative solutions that help carriers extend intra and international roaming service to pre-paid customers while eliminating potential fraud associated with post call billing.

- ▶ WIN Phase 2 (IS-826) for IS-41 environments and CAMEL 2 for GSM environments

IS-826 and CAMEL 2 are standards that take advantage of Wireless Intelligent Network (WIN) capabilities and ensure that a pre-paid subscriber will have the same interaction experience with the ORYX pre-paid wireless solution both on a home and on a roaming network. For carriers that have implemented the software loads for IS-826 or CAMEL 2

on their network elements (MSCs, HLR, etc.), the ORYX pre-paid wireless solution will deliver full IN performance for pre-paid subscribers.

- ▶ IN Roaming in pre-standards environments

ORYX delivers the capability to rate for roaming-terminated and roaming-originated calls **between different networks with different infrastructures prior to IS-826 or CAMEL 2 implementation**. The key to this solution is deriving subscriber location information. Intersystem communication (e.g. an HLR receiving subscriber registration information from a visited MSC) for managing subscriber location information is accomplished through a series of standard, TCAP level, IS-41 or GSM queries and replies. The ORYX solution contains the intelligence to use standard TCAP commands to issue queries to the network and derive location information to rate roaming calls appropriately. Since the TCAP commands are non-proprietary, they will be understood across different networks.

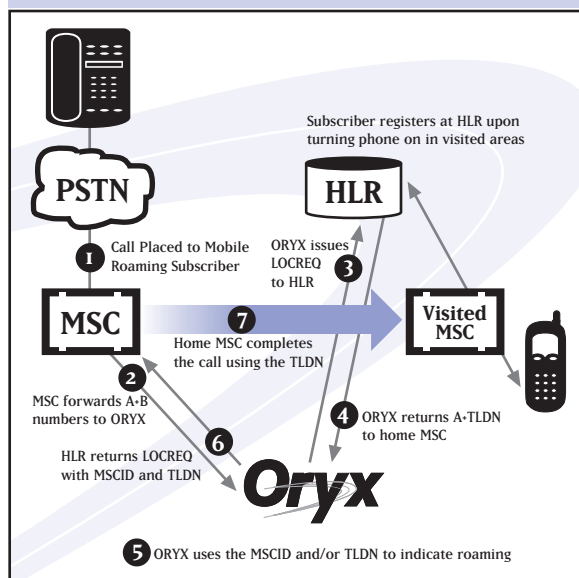
### Roaming within a Service Provider Footprint

ORYX offers three different options that allow for pre-paid roaming within a service provider footprint:

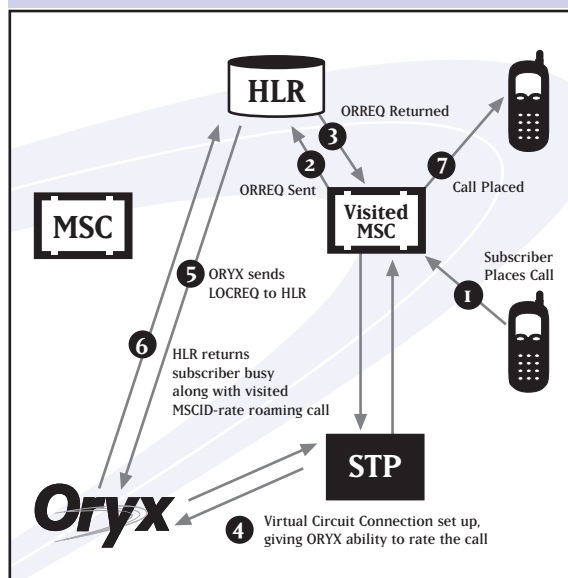
- ▶ **Global Addressing:**

The ORYX solution has the intelligence to recognize whether a subscriber making a call through an ORYX-served MSC is homed on that ORYX or is roaming. When a call comes in a local ORYX node, ORYX checks its subscriber database; if it is not a home subscriber, ORYX initiates a query over TCP/IP to the remote ORYX platform associated with this subscriber. The remote platform sends back a copy of the subscriber profile, including funds available. The local ORYX assigns the roaming subscriber a roaming rate upon receiving the profile copy, rates the call, and updates the remote ORYX at the conclusion of the call.

## Mobile TERMINATED roaming call to non-IN network



## Mobile ORIGINATED roaming call to non-IN network



The TCAP roaming solution incorporates ORYX signaling-based IN capability to set up, rate, and tear down calls with no trunk-associated back-haul costs.

## Roaming within a Service Provider Footprint (cont'd)

## ► Number Prefixing:

ORYX can work with the MSC to recognize and rate roaming calls. The MSC, based on HLR/VLR interaction, can attach a prefix to the calling/called party string sent to. ORYX recognizes the prefix, assigns an appropriate rate (roaming or non-roaming) based on the prefix, and strips the prefix out before returning the call to the MSC.

## ► ANI info digits:

In a method similar to Number Prefixing, ORYX can recognize and rate roaming based on ANI info digits placed in the User\_User part of ISUP. The MSC will populate the User\_User part based on the roaming situation. ORYX recognizes these digits in the ISUP messages and assigns an appropriate rate (roaming or non-roaming).

## Multiple Services — Same Platform

ORYX stands out in the market because of the unique flexibility of its platform applications, making it the preferred solution for any type of pre-paid wireless environment. ORYX improves network architecture for the pre-paid environment, and the platforms can be configured anywhere in the world to meet specific market demands.

By choosing the world class ORYX solution as the foundation for their enhanced services, telephony and IP providers around the globe can offer a suite of industry-leading applications including pre-paid wireless, unified communications, enhanced messaging, and pre-paid and postpaid enhanced calling — all from a single platform.

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Your Partner for Business Success

Sema Telecoms is a world leader in communications software and solutions offering a unique combination of consulting, systems integration and software products. Supporting over 120 million subscribers at 350 customer sites worldwide, the company meets the needs of wireline, wireless and convergent networks with an extensive portfolio of end-to-end solutions for business support, network management, pre-paid, messaging and enhanced services, as well as mobile commerce. Our ORYX enhanced services solutions give providers a flexible, scalable platform to deploy a wide range of revenue-generating enhanced services.

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