International roaming is a highly valuable revenue stream. To be fully realized, technical interoperability and network signaling between operators must be seamless. In North America, GSM operators use ANSI standards for inter-operator signaling; however, GSM operators throughout the rest of the world use ITU-T standards. As a result, signaling translation is required to enable roaming. Syniverse offers two services – **SCCP Gateway Service** and **Interstandard SMS Interworking Service** – that will make international roaming easy and profitable.

With the Syniverse SCCP Gateway Service, GSM operators have a best-in-class interoperability service to create seamless international roaming between the rest of the world and North America. This service enables cost-effective, direct, switch-to-switch communication between GSM roaming partners, along with enhanced management of roaming services and agreements. Both symmetric and asymmetric routing is supported, depending on the choice of the GSM operators and their bilateral agreements.

Syniverse also offers a robust, comprehensive service for ITU-based GSM operators wishing to establish two-way SMS with North American ANSI-41 operators based on the CDMA protocol. Through a single connection to Syniverse, ANSI-41 operators are provided direct connectivity to North American operators along with major regional SS7 providers throughout Europe, Asia and South America.

**Benefits of SCCP Gateway Service**

- Provides interoperability to virtually any operator regardless of size, location, switch type, technology level or network transport protocol.
- Reduces costs by providing access to many roaming partners via one connection to either Syniverse or your regional signal transfer points (STP) provider.
- Increases your business flexibility by leveraging our reach to choose your roaming partners and negotiate better roaming rates.
- Creates new international SMS messaging revenues.
• Provides interoperability to virtually any operator regardless of size, location, switch type, technology level or network transport protocol.

• Reduces costs by providing access to many roaming partners via one connection to either Syniverse or your regional signal transfer points (STP) provider.

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• Creates new international SMS messaging revenues.

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**Features of SCCP Gateway Service**

The cornerstone of the Syniverse SCCP Gateway Service is GSM MAP C7 and GSM MAP ANSI SS7 transport and message connectivity between all relevant wireless network elements. This service provides SS7 interconnection to either mobile switching center (MSC) or STP connections.

Furthermore, the service provides all the necessary signaling and numbering conversion, including global title translation (GTT) services, for international roaming to and from North America, including:

- GSM MAP C7 transport and GSM MAP ANSI SS7 transport
- ANSI SS7 to ITU C7 and ITU C7 to ANSI SS7 conversion
- ITU C7 to ITU C7 signaling
- Connectivity to other SS7 and GSM-based networks
- E.212 and E.214 numbering conversion

With its transport and conversion services, Syniverse is the single focal point for all SS7 connectivity between mobile operators. If necessary, Syniverse’s network will interconnect with other SS7 network providers to meet your interconnection requirements in support of national and international roaming. Additional features include:

**Minimum Network Transit Delay** – Since many GSM queries apply to an outstanding call, moving a query message from a requesting network element to the processing network element must be performed in a timely manner. Syniverse’s service is designed for a maximum network transit delay of 144 milliseconds within North America and 300 milliseconds internationally.

**Maximum Network Availability** – Syniverse’s SS7 network provides 100% network availability and 99.9% link availability. The error rate for the network will not exceed 1x10-9 (including out of sequence messages), and the long-term bit error rate (BER) will not exceed 1x10-6 (long) and 1x10-4 (medium).

**Network Management and Control** – Syniverse’s network management activities include:

- Centralized monitoring
- Control of the network elements
- Real-time alarming
- Event reporting
- Comprehensive on-demand diagnostics
- Network configuration and table loading
- Accounting and statistics collection

We make mobile work.
Stafed 24 hours, 7 days a week, Syniverse’s network operations center has a realtime network surveillance and administration system that performs SS7 network activity coordination and provides SS7 network database administration. Recognition of whether the message needs to be generated upon registration by the subscriber.

Benefits of SMS Interworking Service

- Creates additional subscriber revenue.
- Increases customer satisfaction with your subscribers.
- Serves as potential differentiator in your marketplace.
- Requires no capital investment.
- Provides a single connection with broad reach to previously unreachable messaging partners.
- Eliminates need to alter network protocol for messaging (ITU uses SS7, CDMA uses SMPP).
- Provides SMS between subscribers in both home and roam environments. Features include:
  - SS7-to-IP/SMPP translation
  - North American number portability
  - Store and forward capability
  - Filtering and reporting

How It Works

1. ITU GSM subscriber sends MO SMS via Syniverse SCCP Gateway (SS7).
2. Syniverse converts SMS MSUs to ANSI, scans for North America number portability routing, converts SS7 SMS to SMPP protocol and sends SMS to SMSC of destination operator.

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