

# Maximize Your Reach by Providing World-Class Roaming Services



The Best-Run Businesses Run SAP™



**Interoperate more easily with a standards-compliant network**

# Interoperate more easily with a standards-compliant network

The SAP® GRX 365 mobile service provides **global roaming for subscribers**. By relying on SAP GRX 365, mobile service providers can offer 2G, 3G, 3G data roaming, and LTE roaming services. Available from SAP Mobile Services, a division of SAP, this proven service can enhance the subscriber experience and increase inbound and outbound roaming revenue.

SAP GRX 365 has been in commercial operation for 12 years. Today, it offers one of the largest direct footprints in the market. Through extensive value-based peering, SAP GRX 365 lets you connect to virtually every mobile operator, making SAP the world's largest GRX provider based on number of mobile subscribers served.

SAP GRX 365 is part of a full portfolio of interconnection services available on SAP's high-performing IPX network. The SAP IPX 365 mobile service provides a single connection to all these services. SAP GRX 365

is based on our next-generation IPX infrastructure. It offers industry-leading service-level agreements (SLAs), five classes of service, and optimal performance. It also supports real-time and traditional data applications.

The SAP LTE 365 mobile service further enhances SAP GRX 365 by letting you quickly establish LTE roaming with your roaming partners through the Diameter hub. As a result, you can shorten time to market and meet demand for LTE roaming services.



# Leverage best-in-class network performance and security

## Leverage best-in-class network performance and security

Choose your option for connecting to our global network

Roll out LTE roaming more quickly

Access diagnostic and performance monitoring tools

Rely on comprehensive support

The excellent network performance and security of SAP GRX 365 provide a reliable end-user experience almost anywhere in the world. This results in high customer retention and loyalty, as well as increased average revenue per user (ARPU).

SAP GRX 365 is built on the single, high-quality, and highly secure MPLS backbone of our IPX network. This network is designed and built to deal with the increasing demands of new mobile technologies such as LTE and 4G. Its high capacity and optimal routing enable low

latency and jitter, helping to ensure the best possible user experience for next-generation services such as IP voice and video calling.

In addition to data roaming, SAP GRX 365 supports MMS interoperability (including access to the MMS hub), roaming signaling (SIGTRAN), and Diameter hubbing for LTE roaming. Since SAP GRX 365 is an IPX service, it offers classes of service to support various applications, including voice and video over IP. SAP has substantial experience in negotiating and establishing service interoperability.

Prepare to evolve to the next stage with an IPX-enabled solution.



# Choose your option for connecting to our global network

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SAP has direct global IPX network reach with points of presence in over 150 countries throughout Europe, Africa, the Middle East, Asia Pacific, North and South America, and the Caribbean. We also offer resilient connectivity to peering points in Amsterdam and Singapore.

In most cases, mobile operators can have a dedicated connection to an in-country network node. Proximity to a network node (even to a secondary node for full resiliency) means lower connectivity costs and a better SLA for service availability. SAP GRX 365 offers Domain Name Service (DNS) with three DNS

servers in Singapore, Munich, and Swindon (United Kingdom) – all fully synchronized with the GSMA root DNS ([see figure](#) on next page).

SAP IPX 365 provides a single connection for the multiple services available on our IPX network, including SAP GRX 365. SAP IPX 365 offers two types of connectivity: dedicated connectivity and IPsec across the Internet. Each connection type can be provided with full resilience – offering a physically diverse path, with traffic balancing across the two connections, if required.



Objectives

**Solution**

Benefits

Quick Facts

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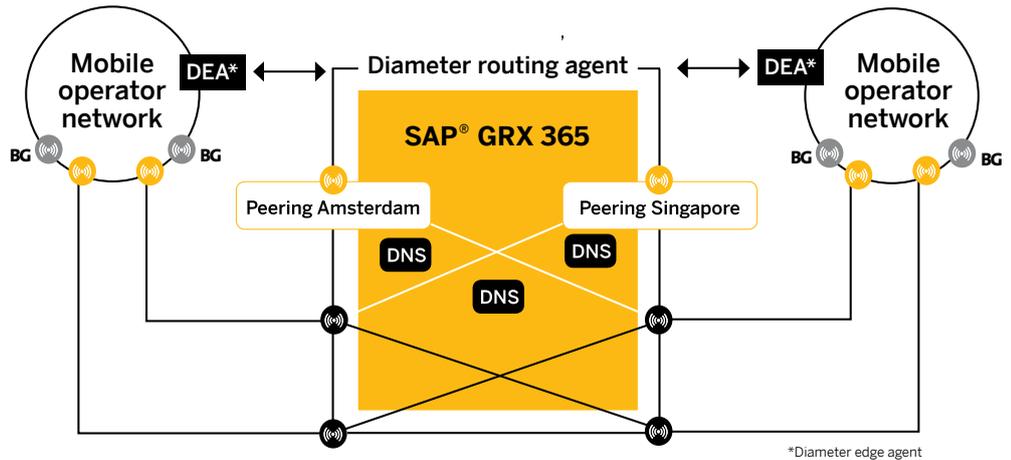


Figure 1: General Architecture of the SAP® GRX 365 Mobile Service



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## **Roll out LTE roaming more quickly**

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One of the changes resulting from the LTE evolution is that your entire core infrastructure must become IP based, which means rebuilding the roaming infrastructure that enables signaling traffic. The telecom industry agrees that signaling traffic, using the IP-based protocol Diameter, should be carried by IPX networks.

Customers expect to be able to connect to LTE networks whenever they roam across countries. However, establishing Diameter connectivity with each roaming partner slows

down the rollout of the roaming footprint, as it requires working through a lengthy process of logistics and converging differences in the implementation of 3GPP standards.

The Diameter hubbing function of SAP LTE 365 helps you overcome these challenges ([see figure](#) on next page). You simply point Diameter traffic to this hub. SAP Mobile Services coordinates standard, functional, end-to-end tests with each roaming destination, enabling new destinations to be available in days rather than weeks or months.



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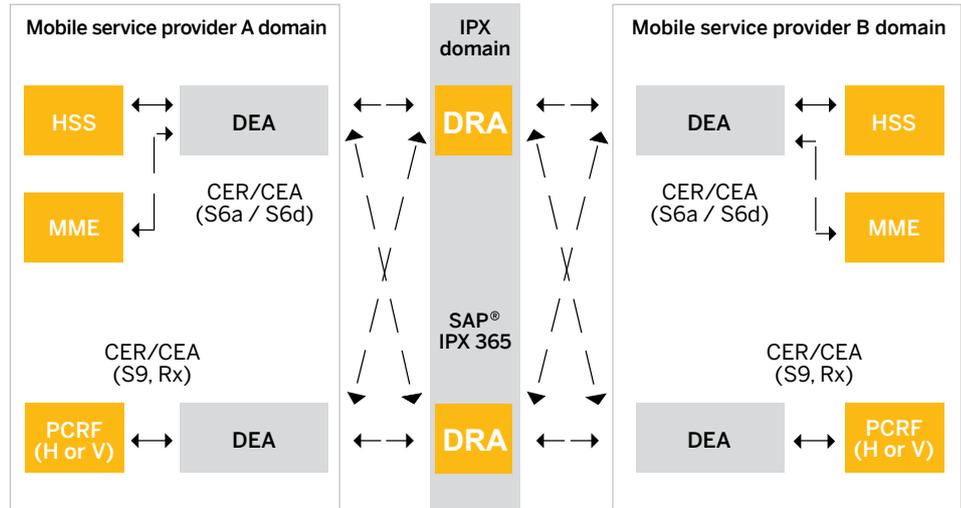
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CER/CEA: Capabilities exchange request/capabilities exchange answer    DEA: Diameter edge agent    DRA: Diameter routing agent  
HSS: Home subscriber server    MME: Mobility management entity    PCRF: Policy and charging rules function

Figure 2: Diameter Hubbing Function of the SAP® LTE 365 Mobile Service



# Access diagnostic and performance monitoring tools

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## Access diagnostic and performance monitoring tools

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The SLAs provided by SAP GRX 365 feature three types of performance targets, all of which are backed by credit policies for noncompliance:

- Service provisioning at agreed delivery date
- Service availability defined at the service level (note: this SLA item can be improved by using two connectivity links)
- Network performance per class of service (IP packet loss, latency, and jitter)

To optimize performance, SAP provides access to two Web-based tools: a diagnostics tool and a reporting tool for monitoring the performance of SAP IPX 365. The diagnostics tool offers query and diagnostic options to

help troubleshoot IP routing. Reporting for SAP GRX 365 and Diameter hubbing includes elaborate near-real-time information and historic data about the performance of the customer's Diameter traffic, the IPX network, and the dedicated connection, including the managed router (if provided). Diameter reporting also includes a set of statistics on Diameter traffic exchanged with peers. Premium reporting provides information down to the GPRS Tunneling Protocol (GTP) level, including both the control plane and user plane. All reporting is generated by a state-of-the-art analytics system using traffic analysis based on deep packet inspection (DPI).



## Rely on comprehensive support

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### **Rely on comprehensive support**

SAP supplies solutions to leading mobile operators globally. With specialists dedicated exclusively to meeting customer requirements, SAP has an excellent track record for service design and implementation. We provide comprehensive commercial, technical, and operational support at all phases of the

project lifecycle – from planning, through delivery, to ongoing maintenance and enhancement. We also offer service reliability backed by SLAs, 24x7 traffic control from our state-of-the-art network operations management centers, and a round-the-clock help desk for fault reporting and handling.

Count on SAP for world-class service and support.



## Why choose SAP GRX 365?

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With SAP GRX 365, mobile service providers like you can take advantage of one of the world's largest on-net communities to quickly roll out 2G, 3G, 3G data roaming, and LTE roaming services. With this approach, you can shorten time to market, meet growing consumer demand, and generate new revenue streams.

The global reach of SAP GRX 365 translates into lower connectivity costs and higher service availability, regardless of your geographic location. The service also lets you decrease your dependency on third-party GRX networks and peering points. And its proven network performance and security help ensure a reliable end-user experience almost anywhere in the world.

Increased revenue, higher customer satisfaction, faster time to market: SAP GRX 365 can help you reach your business goals.



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Objectives

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Solution

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Benefits

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**Quick Facts**

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**Summary**

A market-leading service with optimal network performance and security, community value, and global reach, SAP® GRX 365 is a secure IP routing service for mobile operators. This mobile service enables subscribers to roam across multiple operators and still access their home network data services.

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**Objectives**

- Increase the average revenue per user (ARPU) of connected mobile operators
- Gain access to a large on-net community
- Leverage a truly global MPLS network
- Achieve best-in-class network performance
- Optimize the end-user experience of inbound and outbound roamers

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**Solution**

- Global interconnect service enabling mobile operators to carry data traffic of roaming subscribers
- One of the world's largest on-net communities
- Ability to reach virtually every mobile network in the world thanks to extensive value-based peering

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**Benefits**

- Access a large on-net community and decrease dependency on third-party GRX networks and peering points
- Comply with all relevant GSMA and 3GPP guidelines and standards, including IR.34 and IR.77
- Improve user satisfaction with high-quality on-net data communications
- Increase inbound and outbound roaming revenue

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**Learn more**

For more information on how SAP GRX 365 can benefit your business, log on to [www.sap.com/sapmobileservices](http://www.sap.com/sapmobileservices).



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