

SAP Mobile Services

## **SAP® IPX 365 – One Connection for Multiple Services**

Enabling Essential Interconnection Services with a Secure, Top-Performing Private IP Network



The Best-Run Businesses Run SAP™

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# Connecting Mobile Subscribers Through SAP® IPX 365

SAP® IPX 365 mobile service offers a comprehensive service portfolio of essential interconnection services provided over a carrier-grade global IP backbone. Internetwork packet exchange (IPX) is an interconnection model for the exchange of IP-based traffic between mobile and fixed-service providers, Internet and application service providers, and “over-the-top” players. With support for key mobile services, SAP IPX 365 can help you to **increase operational efficiency and reduce interconnectivity costs**.

SAP IPX 365 enables roaming services, packet voice services, messaging services, and IPX transport. In particular, mobile operators can use SAP IPX 365 to take advantage of the following connectivity services and protocols, all through one connection:

- **Roaming services** – SAP GRX 365, SAP Roaming Signaling 365, and SAP LTE 365, Diameter hubbing
- **Packet voice services** – Roaming traffic as well as international direct dial (IDD) traffic
- **Messaging services** – SAP SMS 365, SAP MMX 365, and SAP Intelligent Hubbing 365
- **IPX transport services** – Point-to-point data transit services, such as BlackBerry connectivity, and SMS over IPX

All services offered over one connection, SAP IPX 365, comply with relevant specifications, including GSM Association (GSMA) and i3 Forum requirements.

## NETWORK PERFORMANCE AND ENGINEERING

SAP IPX 365 is built on an operator-grade multiprotocol label switching (MPLS) IP backbone. Mobile operators are directly connected to the nearest point of presence. As the SAP IPX 365 network is completely isolated from the public Internet, it provides a highly secure environment, designed and managed according to industry best practices. The resilient core infrastructure is engineered to guarantee 99.999% availability.

On the SAP IPX 365 network, each service community is securely isolated using virtual private networks (VPNs) on the backbone. A service provider only has visibility to the service community to which it is subscribed. SAP IPX 365 offers up to five classes of service to prioritize delay-sensitive and business-critical applications.

## IPX BENEFITS

SAP IPX 365 offers service providers a great opportunity to increase operational efficiencies and to reduce interconnectivity costs. There is no need to manage a multitude of interconnects on various technologies; just one IP connection is required for all essential interconnection services.

### Cost-Efficiency

Services on SAP IPX 365 are provided as separate virtual private networks over a single access to the SAP IPX 365 network. This means a cost-efficient use of network connectivity.

### Scalability

SAP IPX 365 is a highly scalable solution. Customers can upgrade their access bandwidth as needed, with port speeds available up to 1 Gbps.

### Service Quality and Availability

The network for SAP IPX 365 is engineered for high performance and resiliency and is fault resilient without loss of service. Unlike the public Internet, the private network delivers on performance parameters for packet loss, latency, and jitter.

# SAP IPX 365, Voice Connect

## IPX VOICE SERVICE

The voice connect of SAP IPX 365 is a high-quality packet voice-routing service. Customers connected to the network for SAP IPX 365 can terminate traffic to other connected operators, as well as to destinations that are off-net (breakout). On-net calls are routed directly to the destination network, with the control switch providing call control. See Figure 1.

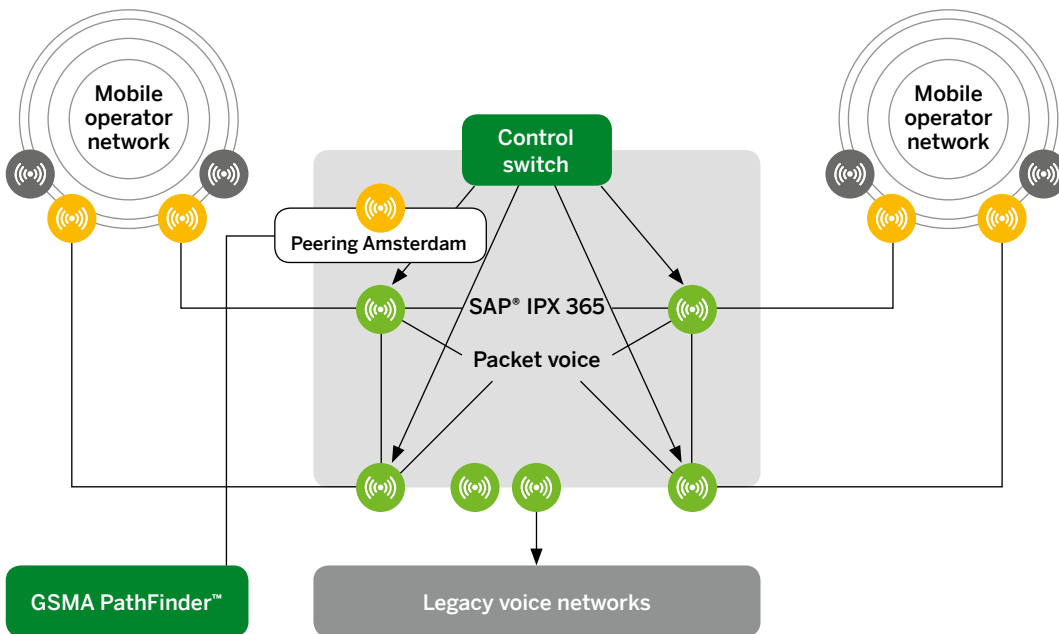
The service helps ensure delivery of caller-line identification (CLI) for mobile destinations as well as termination to roaming codes (MSRNs) for mobile destinations. Quality is assured via predefined answer seizure ratio (ASR) and network efficiency ratio (NER) benchmarks at the destination level. In addition, reporting is provided on average call duration (ACD) and post-dial delay (PDD).

## POWERED BY GSMA PATHFINDER™

An important part in managing the voice business is control of termination rates. Key to this is identifying the “ownership” of the destination mobile number, enabling the routing calls for that number directly to the right network.

IPX voice service makes this possible because of its access to the GSMA PathFinder™ number discovery service. In countries where mobile number portability has been introduced, the GSMA PathFinder number resolution service can correct the destination network for ported numbers, thus enabling direct routing of calls.

Figure 1: Packet Voice Interworking



# Roaming Services

## DATA ROAMING, SIGTRAN, AND LTE DIAMETER

Voice and data roaming are a significant part of a mobile service provider's business. Excellent international connectivity is therefore of paramount importance to a service provider. When traveling, customers must be able to use mobile services as if they are in their home network. Visiting mobile users must also be offered the best possible service in order to maximize inbound roaming revenue.

### Enabling International Data Roaming with SAP GRX 365

SAP GRX 365 has been commercially available for more than a decade. With a direct footprint of nearly 100 mobile service provider networks, extended to full global coverage through value-based peering, SAP GRX 365 is one of the largest GRX service communities in the market. SAP GRX 365 includes a domain name system (DNS) service with locations in London, Frankfurt, and Singapore.

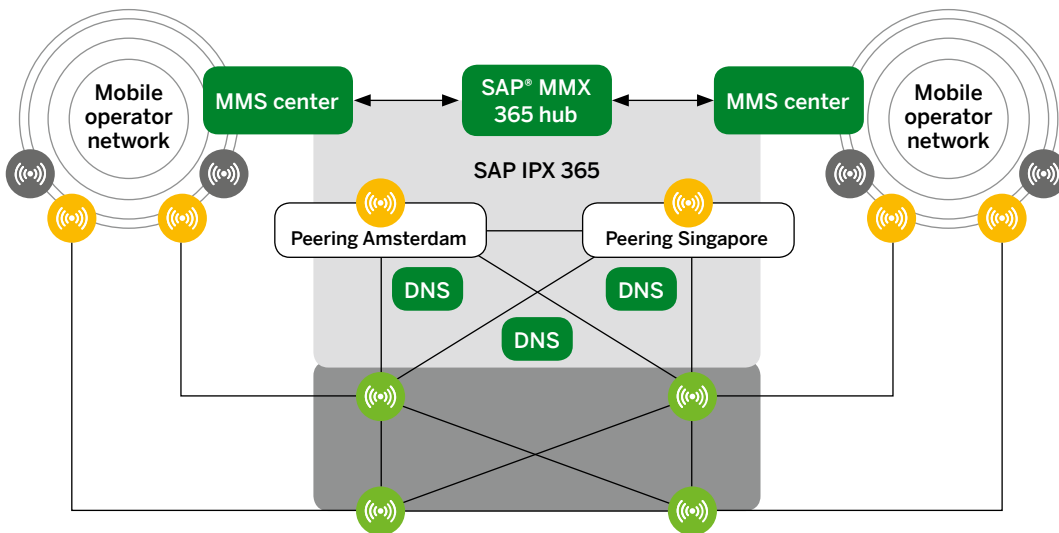
### SAP Roaming Signaling 365

The service provides transit routing of Signaling System Number 7 (SS7) protocols, signaling messages used for international mobile roaming. The signaling messages – including SMS messages – are routed between a mobile operator and its roaming partners.

### SAP LTE 365

In order to facilitate the deployment of roaming between LTE networks, SAP IPX 365 offers a Diameter hubbing functionality. With SAP LTE 365, providers need only one Diameter connection to reach all of their roaming partners. See Figure 2.

Figure 2: Connecting Through Diameter Hubbing



# Messaging Services and IPX Transport

## GLOBAL MESSAGING – SMS AND MMS HUBS

SAP is a global leader for SMS and MMS interoperability, reaching over 990 operators and 6.1 billion subscribers and processing more than 1.8 billion messages per day.

### SAP MMX 365

SAP MMX 365 is a “one-stop shop” MMS interoperability solution. It allows a mobile operator to send MMS messages to – and receive MMS messages from – other operators through a single IP connection and under a single commercial contract. The service replaces the need for the mobile service providers to establish bilateral connections and contracts with their interconnect partners. It includes financial clearing of all MMS messages exchanged between mobile service providers, even in situations where one party prefers to settle termination rates and the other does not.

Access to the MMS hub via your IPX connection is available with SAP GRX 365.

### SAP SMS 365

SAP SMS 365 provides focused solutions to meet the messaging needs of virtually any operator around the world. While the interoperability network is fully integrated, the focused concept provides national, regional, and global markets a tailored solution designed for specific business models and technical requirements. SAP SMS 365 offers a flexible set of features that provide unparalleled reach and reliability for global SMS interoperability.

One such service is SAP Intelligent Hubbing 365. This service enables mobile operators the flexibility to select the most cost-effective and high-quality SMS routes, via hub or bilateral delivery, to an SMS interworking roaming partner destination, anywhere in the world.

Access to the SMS hub via your IPX connection is available as part of a signaling service as well as independently.

## IPX TRANSPORT

Service providers connected to SAP IPX 365 can use their connection to exchange traffic bilaterally, with a guaranteed end-to-end service-level agreement.

### SAP IPX 365, Connectivity for BlackBerry Services

SAP IPX 365 provides connectivity between BlackBerry data centers and wireless service providers around the world. SAP IPX 365 provides wireless service providers with a reliable and cost-efficient solution for connecting to the BlackBerry-hosted service.

This connectivity service is configured in a completely redundant setup, with dual links to the wireless service provider and dual links into the BlackBerry data centers.

### SAP IPX 365, SMS Hubbing

Now you can access the SAP SMS 365 hub via SIGTRAN over an SAP IPX 365 connection. Help ensure a secure and quality-assured interconnection over IPX, and enable a single connection to interconnect all voice, data, and SMS services. SMS over IPX minimizes costs by using IP exchange instead of leased-line connectivity.

## CUSTOMER SUPPORT AND SERVICE

SAP Mobile Services, a division of SAP, supplies interconnectivity solutions to leading service providers across the world. With specialists dedicated exclusively to meeting our customers' requirements, we've established a world-class reputation for service design and implementation. Our service reliability is backed up by service-level agreements, 24x7 traffic control from our state-of-the-art network operations management centers, multilingual fault reporting and handling, and an around-the-clock help desk.

## FIND OUT MORE

To learn more about how SAP can enable mobile services, call your SAP representative today or visit us on the Web at [www.sap.com](http://www.sap.com).

[www.sap.com/contactsap](http://www.sap.com/contactsap)

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