

## LTE Roaming

Accelerate your move to LTE roaming, improve subscriber roaming experience, and simplify operations with Tata Communications' LTE Roaming Service.

Mobile operators are adopting LTE at a rapid pace, as subscriber demand for mobile data continues to rise. Deploying LTE roaming service however, is an expensive undertaking both in terms of time and effort, especially when you consider the need to maintain 3G and 4G networks for several years as your subscribers migrate to 4G.

As a managed service, Tata Communications' LTE Roaming Service streamlines roaming interconnect arrangements across mobile operators. Our solution replaces the need for hundreds of meshed peered associations with a single, manageable centralised interconnect point for signalling.

### Simplify Your Move to LTE Roaming and Reduce Roaming Operations Costs

LTE Roaming Service is built to simplify and cost-effectively add roaming relationships with potential connectivity to hundreds of roaming partners throughout the world. Intelligent operations solve network management complexity by greatly reducing the number of network peer associations to only two, minimising your cost of roaming operations. Routing and transport become simple and straightforward, benefiting from Tata Communications' Diameter Signalling eXchange (DSX) and IPX Connect, hosted on our industry-leading global IPX network.

### Improve Subscriber Roaming Experience

Network quality and resilience is crucial. Every day without an LTE roaming service means the potential loss of hundreds of customers to the competition. Carrier-grade reliability is achieved through Diameter routing mated pair node technology with concurrent local and geographical redundancy. Through our topology hiding feature, security and availability are enhanced as our service architecture hides the LTE core network from external security IP threats and DDoS attacks. Combined with proactive monitoring, 24X7 technical support, and carrier class availability, customers receive greater resiliency and higher performance safeguarding against any signalling storm that could result in service deterioration or even worse, network failure.

### Faster Time to Market

Tata Communications' LTE Roaming Service offers a means for operators to fast-track their LTE roaming service roll-out, streamline LTE roaming connectivity cost effectively, and quickly scale roaming operations as the number of roaming partners multiply. Mobile operators can reduce their time to market with single end-to-end service management and delivery for data roaming and mobile signalling, including provisioning, end-to-end inter-operator connectivity testing, and troubleshooting.



*"Total global roaming users will increase sharply from 485.9 million in 2011 to 752.2 million by 2015."*

*Informa*

### Benefits

- Reduce time, costs, and risks to market with managed service
- Ensure success with seamless provisioning and rapid troubleshooting via end-to-end inter-operator connectivity testing
- Improve reliability and reduce costs and risks with fewer roaming associations required with LTE partner networks
- Improve roamer satisfaction with quality and availability backed by robust SLAs, 24X7 support desk, proactive monitoring, and global network with industry leading uptime
- Guarantee easier partner service compatibility and subscriber QoE with support of protocol interoperability between current and legacy transports
- Managed- service offering reduces OPEX when compared to the in-house option with predictable pricing service model, even during traffic spikes

## Tata Communications' LTE Roaming Service

LTE Roaming is built on our Diameter Signalling eXchange (DSX) platform and IPX Connect service for 3G/4G data roaming. The solution provides a centralised LTE roaming solution for subscriber mobility management, authentication (S6), policy control (S9), and payload transport (S8) between the operator's network and hundreds of roaming partners. Together with our established 2G/3G roaming service (SCCP), Tata Communications provides an all-in-one offer supporting both 2G/3G and 4G roaming service under one solution framework, providing operators a scalable upgrade path to 4G along with the ability to support multiple roaming services across a single managed carrier-grade IPX connection.



*"LTE is the fastest developing mobile communications system technology ever."*

GSA

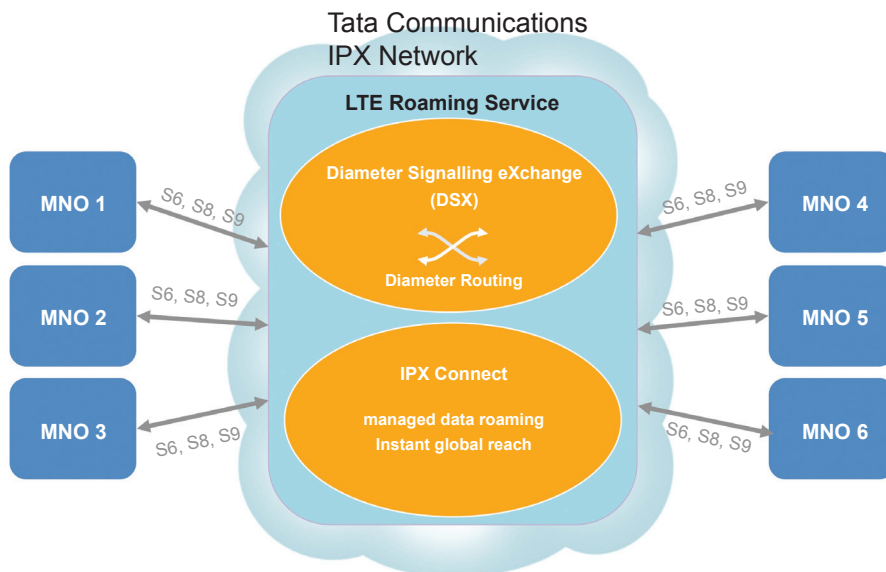
GSA forecasts 209 commercial LTE networks in 75 countries by end of 2013

## Tata Communications Advantages

Hosted on Tata Communications' own global IPX network with market leading reliability, service availability and reach, Tata Communications LTE Roaming Service is backed by the experience of operating the worlds largest mobile signalling on-net network for critical applications for mobile operators worldwide. Tata Communications roaming partners are continually being added further expanding operators' worldwide reach for their LTE roaming subscribers. Additionally, Tata Communications operates the largest cable submarine system providing a solid and an unparalleled backbone for IPX framework and LTE Roaming service. Mobile Operators benefit from Tata Communications' ability to customise IPX network services to specific mobile operators' requirements with the added benefit of being able to quickly add capacity as needed. Plus, with full visibility of both the application and physical network layers, Tata Communications can quickly and effectively troubleshoot and resolve issues in a timely manner.

## Features

- Full Support of S6, S8 and S9 interfaces
- Load balancing and congestion control
- Interwork across different Diameter Agent implementations
- Industry leading availability over global IPX network
- Real-time monitoring of diameter signalling traffic and reports on roaming service
- Migration path from GRX to IPX
- Flexible QoS supporting mix of up to 6 classes of service
- Conforms to GSMA IR88, IR77, and IR34, 3GPP TS 29.272



S6 Interface = Subscriber roaming authentication and mobility management  
 S8 Interface = Data session signalling and transport  
 S9 Interface = QoS & Policy signalling

## About Tata Communications

Tata Communications is a leading global provider of a new world of communications. With a leadership position in emerging markets, Tata Communications leverages its advanced solutions capabilities and domain expertise across its global and pan-India network to deliver managed solutions to multi-national enterprises, service providers and Indian consumers.

The Tata Global Network includes one of the most advanced and largest submarine cable networks, a Tier-1 IP network, with connectivity to more than 200 countries and territories across 400 PoPs, and nearly 1 million square feet of data center and colocation space worldwide.

Tata Communications' depth and breadth of reach in emerging markets includes leadership in Indian enterprise data services, leadership in global international voice, and strategic investments in operators in South Africa (Neotel), Sri Lanka (Tata Communications Lanka Limited) and Nepal (United Telecom Limited).

Tata Communications Limited is listed on the Bombay Stock Exchange and the National Stock Exchange of India and its ADRs are listed on the New York Stock Exchange. (NYSE: TCL).