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FACTSHEET

BGAN, FleetBroadband, SwiftBroadband from Stratos

IP addressing and Service Access Options

Stratos provides customers with a range of flexible IP address and access type solutions. These include public, private, dynamic and static IP addresses as well as various end-to-end streaming and private network solutions. These are designed to increase security, save money and offer the highest flexibility in terms of access and application requirements.

IP Communication

Data Communication between BGAN, FleetBroadband (FBB) and SwiftBroadband (SBB) terminals and the Internet or a corporate network runs over the IP protocol. To enable this communication, the terminal requires access to the network with an IP address. An IP address can be seen as a telephone number for data communication.

Empower Your Network

Stratos' value-added infrastructure, that takes care of all data traffic, IP addressing and the Trench Firewall, is located in Amsterdam, New York and Hong Kong. Situated between the Satellite path and the Internet, the infrastructure can be linked to your corporate network. Each Stratos POP benefits from its own regional infrastructure with local terrestrial, Internet access and region-based IP addresses.

Public Versus Private IP Addresses

The IP address range is subdivided into Public and Private IP address ranges:

- **Public IP Addresses**
Consists of globally unique IP addresses, which means that an IP address is given to a single device and cannot be used by anyone else on the Internet to identify themselves with.
- **Private IP Addresses**
These are not used on the Internet, but can be used by any company to manage internal communication within corporate networks. It is therefore possible that a private IP address is used within several different networks.

Dynamic versus Static IP addresses

IP addresses can also be classified by the way they are used:

- **Dynamic IP Addresses**
Not fixed for a certain device; each time the terminal connects to the network, a new IP address is obtained. This IP address is then kept until the terminal logs off.
- **Static IP Address**
Fixed and tied to a certain SIM card. It does not change every time the terminal logs on.

Therefore, a generic division can be made between public dynamic, public static, private dynamic and private static IP addresses.

Network Address Translation (NAT)

To enable terminals with a private IP address to access the Internet, they must be assigned a public IP address from the viewpoint of the Internet. This process is called network address translation and can be done by the Stratos value added infrastructure.

Private IP Access™ from Stratos

A perfect fit for most BGAN, FleetBroadband and SwiftBroadband users, Private IP Access provides terminals with a private dynamic IP address in the range 10.x.x.x. Stratos Trench takes care of the necessary NAT to allow terminals to access the Internet. There is no extra charge for Private IP Access.

Private IP Access is ideally suited for customers with typical office application needs like web browsing, email, ftp and instant messaging. Several VPN solutions are also supported, but the success rate is highly dependent on the setup of the corporate VPN access node. More complex applications like video conferencing, certain crypto equipment and the use of servers are not supported by Private IP Access.

Public IP Access™ from Stratos

With Public IP Access, terminals get a single public IP address from Stratos' range of public IP addresses. There is no NAT. Terminals are accessible from the Internet on the same IP address as the one used for traffic to the Internet. This address can be dynamically or statically allocated:

- **Public IP Access Dynamic**
This public dynamic address will change with each data session.
- **Public IP Access Static**
The User Terminal always gets the same IP-address regardless of its location.

Upon activation Customers select the entry point to the Internet, called 'Home-POP', in Stratos Dashboard (Amsterdam, New York or Hong Kong). The Home-PoP chosen should be closest to Internet destinations typically used by the customer.

Forced Routing countries: some countries have a legal requirement that all traffic that originates from that country is first routed to a national POP of that country before being routed onwards. This is currently applicable for China. Australia and Russia Forced Routing is expected mid 2010. Stratos offers the option to allow the customer to disable a Forced Routing APN on a SIM card which means that the terminal will not be able to run data traffic in that country.

Public IP Access is ideally suited for applications that require a public IP address. Some typical application examples are crypto devices, videoconferencing units, IP telephony, some VPN applications and web and email servers. Of course, all the applications that function with Private IP Access will also work with Public IP Access. There is a small monthly fee for Public IP Access.

Key advantages of Public IP Access for customers:

- The User Terminal always gets the same IP-address regardless of its location.
- There is no address translation happening on this address so an ideal fit for most applications
- By making it the default user profile in Stratos Dashboard the end user does not have to fill in any username/password anymore
- Simplified troubleshooting for Service Provider

Origin of Stratos IP address ranges

Home-POP Region	IP Address Range
Amsterdam	212.165.96.0/20
New York	216.86.240.0/20
Hong Kong	180.94.48.0/21

Note: The old range for the I4-Americas/I4-AsiaPac: 212.165.64.0/20 and the old range for China Forced Routing 212.165.92.0/22 will be phased out by mid 2010.

Note: IP-ranges given here are valid now. Stratos reserves the right to change and expand public IP ranges for the BGAN family of services

BusinessAccess™: A Private Network Solution

BusinessAccess provides a fully private network or Closed User Group solution between BGAN users and the corporate network by means of a secure interconnection via Leased Lines (FR, ATM, MPLS) or IP/VPN (VPN tunnel between Stratos POP and customer location). This is set up via the global StratosNexus network. IP addressing will be tailored to the specific needs of the relevant corporate network.

GuaranteedAccess™: An End-to-end Streaming Solution

BGAN Streaming by default guarantees a certain bandwidth up to the boundary of the satellite network. Without special arrangements, time-critical data will be constrained by the limits of best effort Internet. Getting data through with a reliable performance is only possible if the whole network supports some form of guaranteed bandwidth end-to-end. This is where GuaranteedAccess comes in. It ensures end-to-end streaming bandwidth and can run via ISDN or Leased Lines.

Overview of IP Access options

	Static		Dynamic		NAT
	Public	Private	Public	Private	
Private IP Access				√	√
Public IP Access	√		√		
BusinessAccess		√		√	
GuaranteedAccess		√		√	

About Stratos

Stratos is the world's trusted leader for vital communications. With more than a century of service, Stratos offers the most powerful and extensive portfolio of remote communications solutions including mobile and fixed satellite and microwave services. More than 20,000 customers use Stratos products and industry-leading value-added services to optimize communications performance. Stratos serves U.S. and international government, military, first responder, NGO, oil and gas, industrial, maritime, aeronautical, enterprise, and media users on seven continents and across the world's oceans. For more information visit www.stratosglobal.com.

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