# Mobile 2G, 3G, and LTE IP Optimization
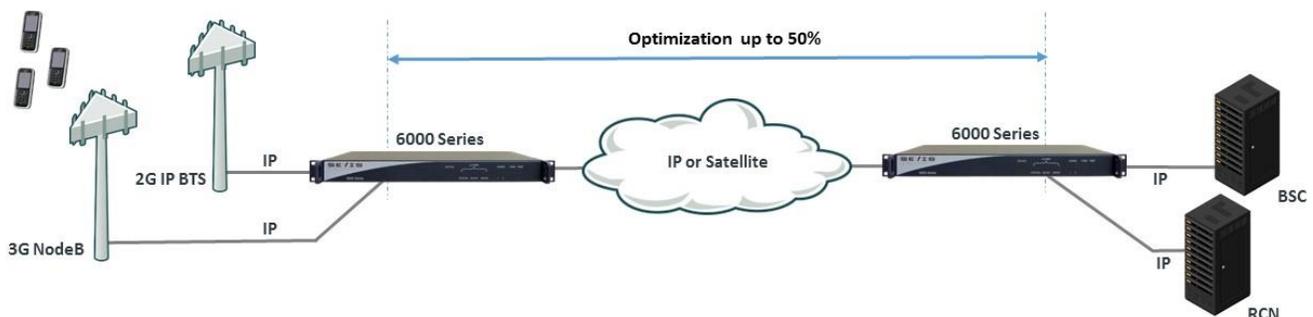Intelligent Optimization

## Overview

Optimize IP RAN traffic providing a migration path for all 2G and 3G sites over one backhaul network.

**Optimization significantly reduces OPEX costs**.  A mobile network contains an array of transport technologies with IP transport as the desired solution. IP transport works well in urban areas but is difficult to deploy in remote areas or at locations where 2G and 3G RAN equipment operate in parallel.  Maintaining large heterogeneous backhaul solutions across a complex network results in large CAPEX and OPEX expenses, downtime, and difficult-to-solve network engineering challenges.  IP migration over copper, fiber, microwave, and satellite links is necessary.

**Mobile traffic aware transport is required to achieve 50% optimization** while enhancing the user experience. Intelligent network and service optimization algorithms maximum optimization, reduce latency, reduce jitter, prioritize mobile services, and ensures up-time of high revenue generating traffic.
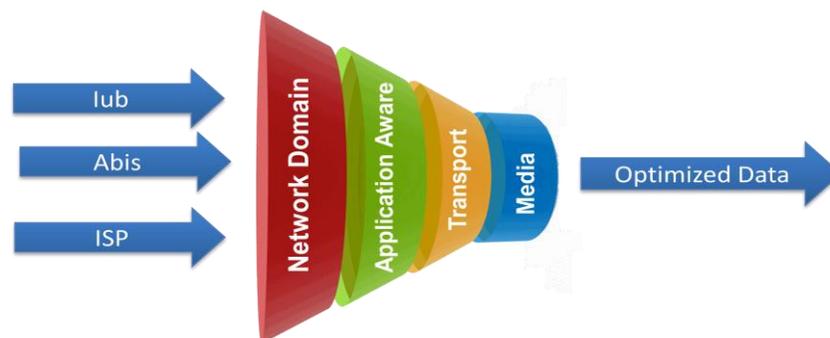
**Engineered for highly available and extreme environmental conditions** is critical. A single solution must serve all conditions, whether in a temperature controlled facility or in a non-temperature and humidity controlled enclosure at a remote site.  Low power with high traffic capacity is needed.   Remote monitoring and auto-provisioning reduces network isolation while options for high availability configurations is ensures uptime.

The Sevis 6000 Series IP optimization platform brings mobile networks, transport technologies, and mobile data aware intelligence together to reduce OPEX costs while improving backhaul availability.

## IP Optimization

Sevis' IP Optimization solution processes IP traffic using a multi-stage optimization algorithm designed specifically for mobile networks. This algorithm leverages mobile and network transport domain expertise. The stages are defined as:



**Network Domain:**  Process incoming traffic and apply mobile traffic aware intelligent optimization techniques to ensure the network is using the most efficient voice codecs, reserving the proper number of resources for packet service, and prioritizing access domain mobile traffic.

**Application aware:**  Integration with third party vendors to provide solutions such as remote switching.

**Transport:**  IP traffic is processed at OSI layers three through six.  A proprietary mobile network tailored Robust header Compression (RoHC) algorithm is applied.  This mobile network aware version of RoHC treats the forward and backward IP paths independently, supporting multiple IP route QoS network architectures.   Packet aggregation of UDP traffic is applied using multiple queues, each with independently configured user defined priority and temporal depth (latency).   Packet variation is preserved across WAN interfaces and precisely recreated at the far end node.  UDP, TCP, and SCTP traffic is independently processed. Finally, independent QoS tags are applied to outgoing traffic.

**Media:**  A lossless compression algorithm is applied to all outgoing WAN traffic along with support for standard or jumbo Ethernet frames.   Integration between the optimizer and satellite modem is supported enabling dynamic traffic processing based on satellite link capacity. The IP Optimizer operates in bridged mode eliminating network reconfiguration or changes to network routing.

Sevis' IP Optimization platform runs side-by-side with Sevis' 6000 Series Abis optimization solution.  KPIs and network statistics area fully integrated between the systems ensuring a single view into both 2G, 3G and LTE overlay networks.  Similar CLIs along with an SNMP interface ensure ease of use.

The IP Optimization solution also supports auto-discovery of mated pairs eliminating the need for coordinating installation of hub and remote sites. It also prevents network downtime due to misconfiguration of systems. Deployments are fast and require no coordination between sites.

| | MODEL 6104-DC | MODEL 6116-DC |
|---|---|---|
| ETHERNET PORTS | 2 x (10/100) & 1 x (10/100/1000) | 1 x (10/100) & 2 x (10/100/1000) |
| M&C PORT | 1 | 1 |
| CLOCKING | Stratum 2 and optional GPS | Stratum 2 |
| POWER | Dual -48VDC | Dual -48VDC |
| POWER CONSUMPTION | 22W | 30W |
| SIZE | 1U 19" rack mount | |
| DIMENSIONS | 17"W x 1.71"H x 6.62"D (43.2cm x 4.34cm x 21.9cm) | |
| OPERATING TEMPERATURE | -20°C to +65°C | |

**Summary of Benefits:**

Sevis' IP Optimization solution provides the following benefits:

- Best in class optimization
    - Optimization levels exceeding 50% for IP RAN equipment
    - Service aware intelligent optimization techniques with integration of 3rd party solutions
    - Service priority queuing with user defined latency and packet variation delays
- Designed for mobile traffic optimization
    - Supports all QoS architectures used for mobile backhaul - VLAN tagging and DSCP
    - Robust packet variation algorithms ensure exact duplication of network traffic
    - Includes patent pending optimization algorithms for mobile voice and packet service traffic
- Integrated with Sevis' Abis optimization solutions
    - Runs side-by-side with Sevis' Abis optimizer - similar configuration and user interface
    - Integrated KPIs and traffic statistics for a single, holistic view of network optimization
- Turnkey solution providing simple deployment strategies
    - Bridge mode architecture preventing the need to reconfigure network nodes
    - Auto discovery of mated pair eliminates configuration errors and coordination between sites
    - Easy to use CLI for provisioning and web interface for network monitoring

Sevis' mobile backhaul optimization solutions are leading the market through best-in-class Abis and Iub interface optimization techniques, including network aware Intelligent Optimization features. Don't settle for simple transport optimization solutions but rather intelligent, service aware solutions focused on improving optimization, increasing network reliability, and enhancing the user experience - supporting 2G, 3G, and LTE.

## About Sevis Systems

Sevis Systems is a leading provider of enhanced mobile backhaul and signaling applications to mobile network operators. Several of the world's largest mobile operators rely on Sevis products to enable new services and increase operational efficiencies within their networks. Sevis products are sold worldwide via a network of OEM and distribution partners.

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