# Heights™
Networking Platform

Elevating Your Services with Unparalleled Horsepower, Efficiency & Intelligence

The Heights™ Networking Platform is engineered to elevate your services with unparalleled horsepower, efficiency and intelligence. The platform's features were designed with the service provider and its multi-user environments in mind, from concept to operation. It combines our most efficient waveforms, Heights Dynamic Network Access (H-DNA), header and payload compression engines, WAN & GTP optimization, multi-tier Quality of Service (QoS), proven dynamic bandwidth and power management along with bi-directional Adaptive Coding & Modulation (ACM) capability to provide the highest user throughput, highest availability, and most optimal resource utilization available in the industry.

The Heights Networking Platform meets the demands of those operating on traditional wide beams while providing distinct advantages for those using or considering migrating to High Throughput Satellites (HTS). Heights can economically scale from tens to thousands of sites.

Heights leverages a single comprehensive user interface teamed with a powerful traffic analytics engine that allows you to easily design, implement, monitor, control and optimize your network. The result is an elevated Quality of Experience (QoE) for your users.

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HEIGHTS™ NETWORKING PLATFORM

HEIGHTS

INTELLIGENCE
Traffic shaping, network analytics engine & network management

INTELLIGENCE

EFFICIENCY
Leading modulation & coding, dynamic bandwidth allocation & compression techniques

EFFICIENCY

HORSEPOWER
Processing power to support your pps & Mbps requirements

HORSEPOWER
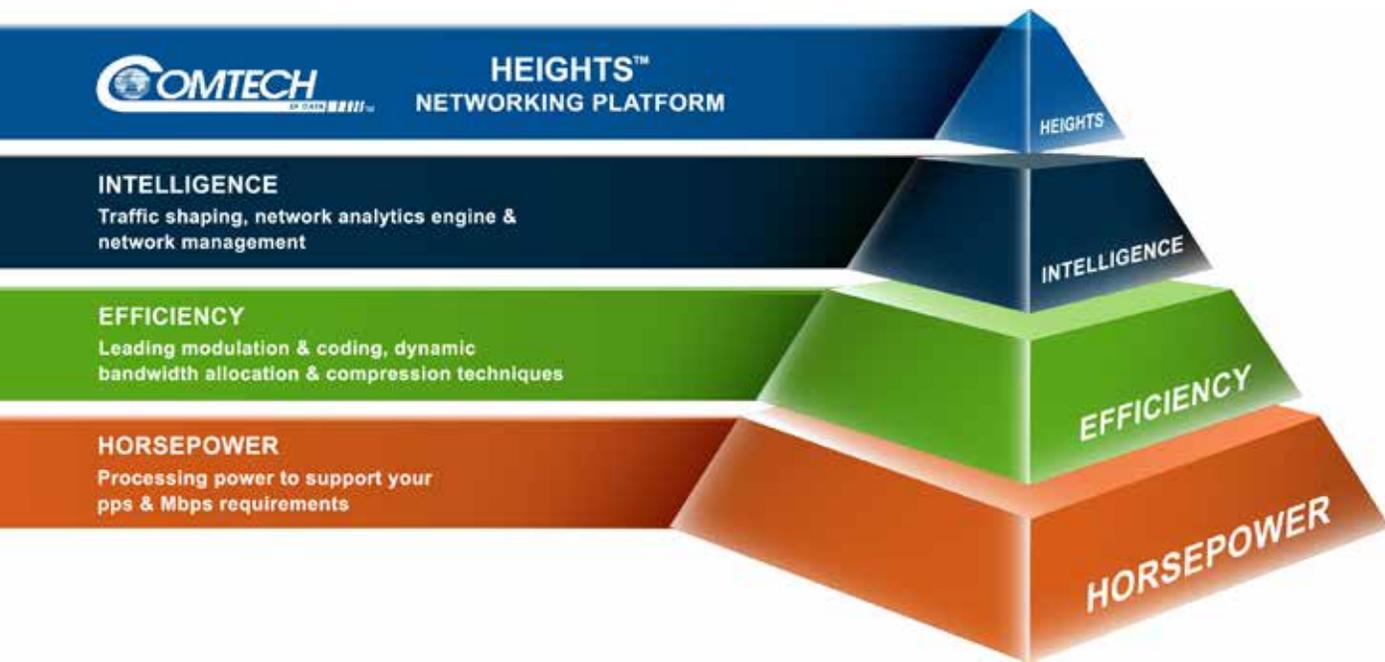
The Heights Networking Platform Solution

Heights supports multiple business models simultaneously. Modular in design, the platform consists of scalable hubs that support any satellite architecture and frequency band, and allows for multiple cost-effective expansion paths.

Heights Hubs – Multiple Hub configurations are offered, each enabling connectivity with existing IP infrastructure and capable of providing user IP throughputs of over 700 Mbps per outbound.

- Heights Solo & Solo Mini Hubs for private networks – Supports one outbound and shared bandwidth pool for inbound connections.
- Heights VNO & custom Hub configurations for service providers and large private networks – Supports Virtual Network Operator (VNO) operations and the hosting of multiple networks simultaneously, each with its outbound and inbound connections.

Powerful Remote Gateways – The remote gateways meet the unique, vertical-specific needs of end users at industry-leading user IP throughputs of up to 200 Mbps. Each remote is assigned bandwidth on-demand from a shared pool by the Heights Dynamic Network Access bandwidth allocation engine. This enables Heights to blend the flexibility of MF-TDMA with the efficiency of SCPC. In addition, each remote leverages its own optimal modulation and coding method and is not "limited" to a combination that disadvantages remote gateways to allow for worst-case operation, as is the case with a static or adaptive TDMA method.

Unparalleled Horsepower to Support End User Traffic Demand

The Heights platform is designed to support the traffic loads of demanding users on traditional or HTS satellites. Remote Gateways incorporate the industry's most powerful IP packet processing capability, providing the best support for handling intensive real-time voice and video applications along with high data rate mission-critical applications and Internet access.

Seamless integration with Bridge Point-to-Multipoint (BPM) Mode or Routed Mode

In addition to routed mode, Heights supports BPM mode for true layer 2 operation enabling seamless integration with service provider networks. A Heights network operating in BPM mode can be viewed as an Ethernet switch supporting VLAN and MPLS while benefiting from bi-directional IP optimization, WAN & GTP optimization, multi-tier QoS, ACM and dynamic bandwidth management. Heights remotes include extensive VLAN support including VLAN Access mode, trunk mode and QinQ. In BPM mode, remotes support traffic classification and QoS by VLAN ID, as well as MPLS Traffic Class Field.

Oil & Gas
Empowering onboard "applications-aware" networks

Cruise & Cargo
Allowing enhanced onboard passenger & crew experience

NGOs & Enterprise
Supporting changing & increasing business applications for end users relying on connectivity

Mobile Backhaul
Offering the most robust & cost-effective means to roll out 3G/4G/LTE advanced services into the most remote areas

Groundbreaking Efficiency to Minimize OPEX

By leveraging multi-layer optimization, Heights provides the industry's most attractive economics and net efficiency for a VSAT networking platform.

Heights Dynamic Network Access – H-DNA is an evolutionary dynamic network access technology designed for Heights return links capable of providing the stringent jitter and latency requirements of the most crucial applications. H-DNA is fast, flexible and uncompromising, delivering unprecedented benefits, including:

- Rapidly adapts to changing environments
- Delivers superior efficiency & Quality of Experience
- Instantly assigns capacity based on network-wide demand
- Intelligently utilizes total network bandwidth at all times

Efficiency Boost Waveform (EB) for Outbound – Provides DVB-S2X like performance, controlling operating costs while providing over 700 Mbps outbound user IP throughput per network, ideal for new HTS designs.

VersaFEC®-2 Waveform for Inbounds – Brings optimal application performance with DVB-S2X like efficiencies with 80-90% decrease in end-to-end latency for connection-oriented and interactive applications that are adversely affected by long roundtrip times.

Adaptive Coding & Modulation (ACM) – The advantage of bi-directional ACM, enabling users to maximize throughputs and availability depending upon weather conditions, variable beam location, and terminal size while being able to meet stringent SLAs.

Compression – A highly robust lossless compression engine and IP header compression technique operate in conjunction to further maximize net efficiency while maintaining the integrity of mission-critical information.

WAN Optimization and GPRS Tunneling Protocol (GTP) Mobile User Data Traffic Optimization – Heights Remote Gateways incorporate embedded WAN optimization for Internet traffic and GTP optimization for mobile traffic, greatly improving user QoE through higher throughput and faster response time. Based on our patented TurboStream Performance Enhancement Protocol (PEP), it mitigates TCP performance issues across long delay links.

Multi-Tier QoS – Leverages a powerful classification and traffic shaping engine that ensures that the highest "value" traffic is prioritized, ensuring the most important services are uninterrupted and business applications continue to function properly.

Robust Intelligence to Maximize QoE

Throughout the life of a network, a great deal of intelligence is required to ensure end users are delivered a maximized QoE. The Heights platform provides different layers of intelligence through network design tools, a powerful analytics engine and a deep bench of industry experts available as an extension of your operations organization.

NetVue™ Integrated Management System – A single intuitive graphical user interface that monitors and controls network equipment, providing the level of real-time network insight required to run an optimal network. Features a robust, comprehensive network management and analytics engine that allows users to intelligently maximize resources, ensure network uptime and provide the elevated levels of service that are required to support fixed and remote sites.

Comtech Network Planning Tool (CNPT) – An invaluable comprehensive "toolkit" that analyzes different network architecture design options and generates budgetary designs along with total traffic efficiency, allowing the user to select the most optimal solution prior to network rollout.

Ongoing Support via ESS – As end user demands and cost pressures continue to increase, consultation with satellite networking experts teamed with 24x7 engineering support to ensure a network is optimal has become a necessity. Our ESS Prime service is backed by a team of seasoned satellite network engineers who have designed, implemented and optimized networks around the world, and leverage this expertise daily to provide users with their best solution.
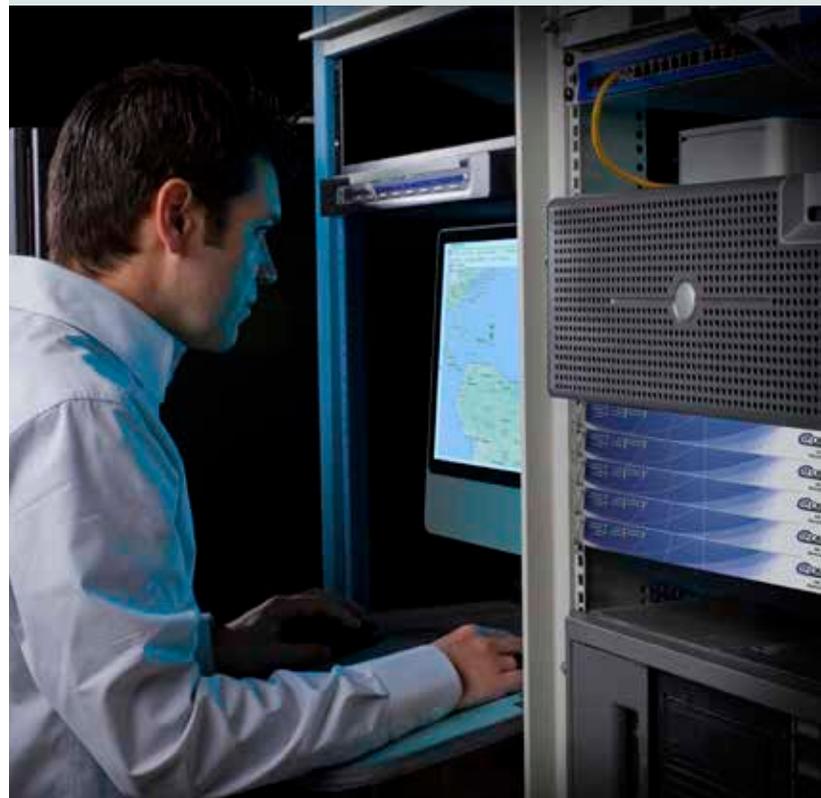
Benefits of the Heights Networking Platform

The Heights Networking Platform provides the industry's premier support for premium enterprise services and mobile connectivity for networks ranging from tens to thousands of sites. Benefits include:

Differentiate Your Services

- Meet multimedia traffic demands via unparalleled throughput

- Ensure that latency and jitter sensitive applications operate properly to maximize productivity

- Support multi-user networks, providing individualized service levels on a single shared platform

- Consult with platform experts before, during & after network implementation to maximize QoE

Increase Your Margins

- Leverage the most attractive cost economics over the life of your network via multi-layer optimization

- Maintain optimal operations via single powerful analytics engine to maximize resource utilization

- Operate simultaneously on multiple satellites and frequencies with cost-effective expansion paths

- Transition all or part of your network onto HTS spot beams by leveraging future-proof design

Grow Your Business

- Tie costs to revenue via gradual network expansion

- Offer and leverage array of business models to increase market share

- Address new markets & generate new revenue via intelligent network design and optimal resource utilization

- Enhance remote terminal performance via bi-directional ACM and seamless beam and hub transition

In a world of "me-too" offerings, differentiation comes from challenging convention and partnering with a satellite platform provider that enables you to defy the norm. Contact us today – We'll help you determine how Heights can elevate your services with its unparalleled mix of horsepower, efficiency and intelligence.

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