



*Multi Service Network Optimizer*

*DTX-600*



## At a Glance

- Up to 24 trunk and bearer bitstreams
- More than 20:1 compression providing Toll Quality voice
- Services convergence - true integration of Toll Quality voice, Fax, VBD and native data
- SPRINGS Micro-packet technology - full bearer utilization
- Intelligent end-to-end compression
- Unmatched scalability - minimum up-front investment

# DTX-600

## Multi Service Network Optimizer



The DTX-600 is a high-capacity multi-service, multi-rate voice and data compression system, designed to serve as a network optimizer platform in diverse network applications and end-user environments.

The DTX-600 can simultaneously compress Toll Quality voice, Fax, Voice Band Data (VBD), native data (e.g.V.35), and signaling. The system improves transmission media efficiency and helps achieve maximum bandwidth utilization and guaranteed QoS of traffic payloads.

Utilizing leading edge technologies and techniques, such as 8 Kbps CS-ACELP algorithm, end-to-end compression, and SPRINGS Micro-packets model, the DTX-600 can serve as a high-capacity multi-service circuit multiplication platform or can provide end-to-end service concentration.

Veraz Networks is a leader in implementation of Toll Quality voice and data compression algorithms and real-time signal recognition and classification techniques, which greatly enhance the customer's ability to integrate your system into any environment and provide a comprehensive service and interface with every signaling protocol.

The DTX-600 is the CPE Veraz Networks' new generation of network optimizer systems. The system was designed to provide optimized solutions for the various network environments that challenge established operators and carriers, as well as new service providers.

The DTX-600 can be positioned on various network scenarios, providing high-gain circuit multiplication and multi-services concentration over heavy-traffic international and domestic routes or Point-Of-Presence (POP) to Customer-Premises-Equipment (CPE) links.

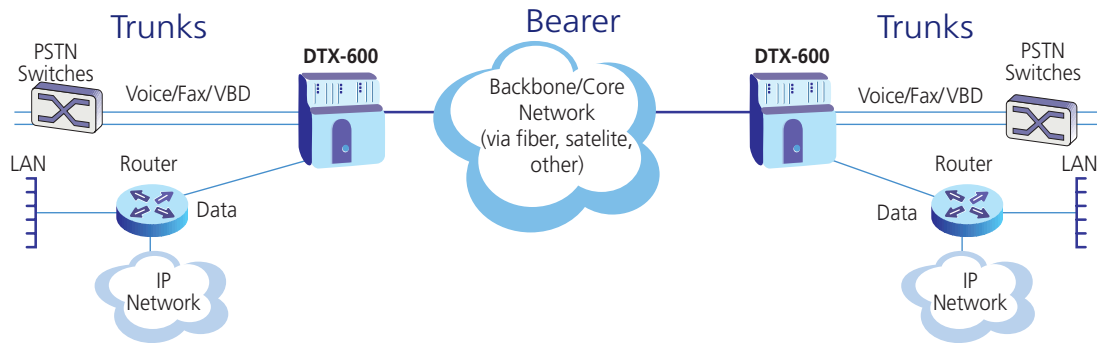
### DTX-600 features

- More than 20:1 compression ratio for Toll Quality voice traffic (fully compliant with ITU-T G.729 CS-ACELP algorithm)
- Unmatched performance at 27:1 voice compression
- Supports Variable Bit Rate (VBR)
- Supports Toll Quality Service in multiple compression/decompression cycles using end-to-end compression technology
- Fax demodulation / remodulation - standard and non-standard Fax protocols
- Voice Band Data (VBD) compression
- V.32 and V.32bis demodulation/remodulation
- Efficient native data transmission over the bearer (option)
- V. series trunk support: V.35 (option)
- Efficient integration of PSTN and packetized services
- Full and dynamic bearer bandwidth utilization
- Optional Signaling Compression (PRI, SS7)
- Optional 2x2 Mbit Bearer Support for native data
- Internal echo canceller
- Modes of operation:
  - Single destination / point-to-point
  - Multi-clique
  - Multi-bearer
  - Multi-destination
  - Combined multi-clique and multi-bearer
- Full system redundancy (cluster configuration up to 16:1)
- DTX-600-ISC data link interface, in compliance with ITU-T Q.50
- Remote in-band management through the bearer
- V.35 Bearer Support for thin-route satellite connections
- Interface to third-party equipment

Energizing  
Communications

# Applications

## Carrier Point-to-Point

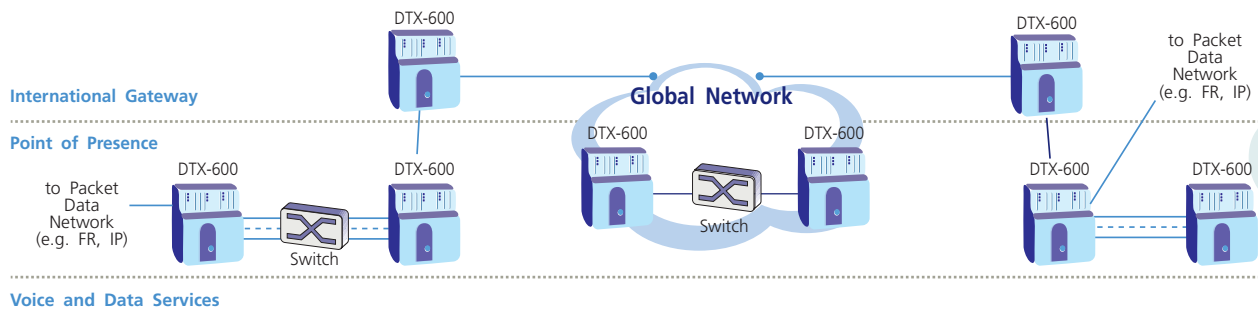


In this application, two DTX-600 terminals are connected by a single bearer (E1/T1). The DTX-600 terminals may be located at an international gateway, long distance switch

or at a tandem switch site. The bandwidth is dynamically shared between the PSTN services (voice, Fax, VBD) and the data services (HDLC-based links).

In addition to a high compression rate, this application provides the following advantages: guaranteed system performance and QoS, and Fast convergence of voice and data services.

## Global Carrier Network



In this application, multiple DTX-600 terminals accommodate varied traffic profiles including Voice, VBD, Fax and native data across the various network segments. The application provides an overall solution to traffic handling over complex global networks. From the near-end customers' premises, via Point-of-Presence (or Central Office), to an international gateway,

to a global carrier international worldwide network, to the far-end international gateway, via a Point-of-Presence and into the destination's customer premises.

The DTX-600 End-to-End Compression (EtEC) technology ensures that traffic quality is preserved (Toll Quality), despite the passage

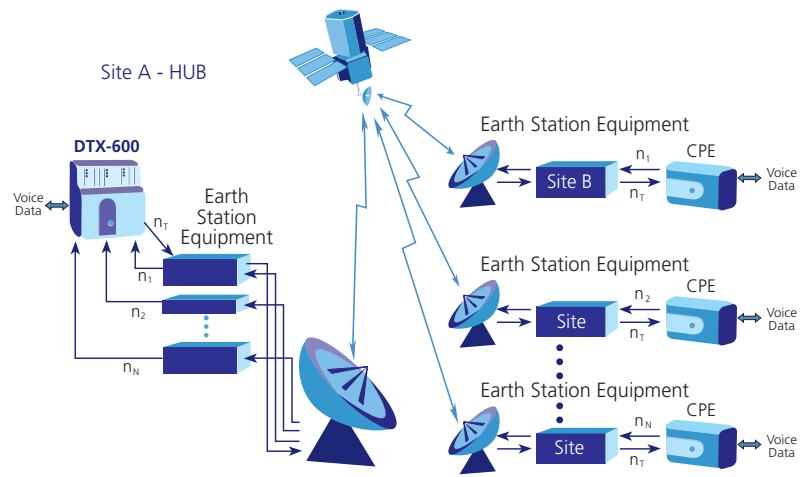
of traffic through multiple terminals along complex routes.

In addition, because the transmitted traffic does not require multiple compression/decompression cycles, the total delay for all traffic types (voice, Fax, VBD) is dramatically reduced.

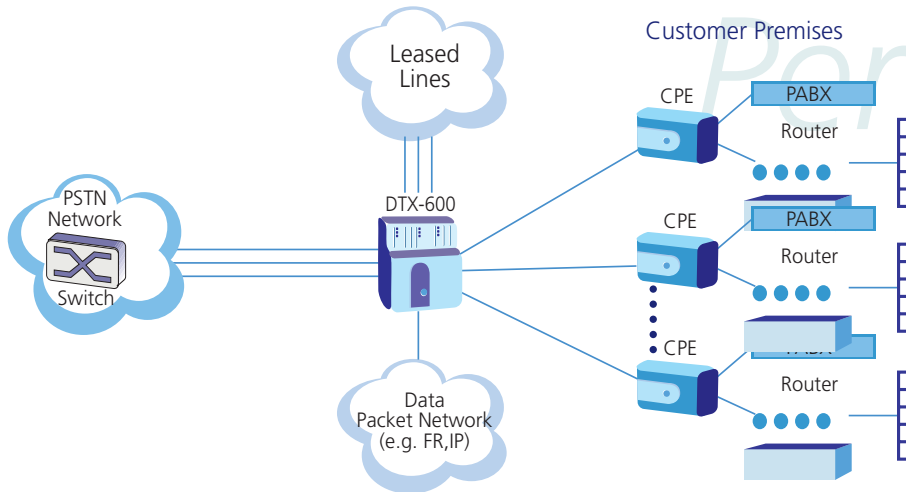
## Satellite-Based Application

In situations where a network of thin-route traffic links converge on one point (hub), a system of DTX-600 terminals placed at the routes' remote end connected to another DTX-600 in combined multi-bearer and multi-clique mode at the hub can provide substantial savings in compression equipment and bandwidth resources.

The diagram at the side shows several DTX-600 terminals connected to IDR or VSAT earth station equipment at remote locations. Each DTX-600 terminal processes its voice and data traffic and places it on the relevant group of bearer channels (cliques). The satellite links converge at a hub site earth-station which is connected through bearer links to a DTX-600 terminal in combined multi-bearer and multi-clique mode.



## Integrated Multi-service Concentrator - POP Applications



Competitive solutions for the POP-to-CP and POP-to-POP network segments demand real integration of PSTN and packetized data services over one or more links while providing Toll Quality voice and high quality Fax, VBD and QoS for native data.

Featuring multi-service integration, the DTX-600 and a third party CPE enables the operator to expand the connectivity capabilities to the end-customer's telephony and data devices at the customer premises, and to the various circuit-switched, packet-switched and leased-line service networks at the POP side.

## Management System

To provide an extensive management system capable of delivering fault management, configuration management, security management and performance management services for the DTX-600, Veraz Networks has

developed a unique management platform called xMS.

The xMS is a modular, PC-based (Windows 2000) management application, designed to

provide the operator with a user-friendly, intuitive management tool, covering all the functions required to easily and efficiently configure and monitor multiple terminals -both locally and from any remote authorized location.

# Technical Specifications

## Traffic Features

Compression ratio for voice:

- More than 20:1 (Toll Quality)
- Up to 27:1 (unmatched performance)

Speech encoding algorithms - CS-ACELP

Supports VBR - Variable Bit Rate

Supports DSI - Digital Speech Interpolation

VBD and Fax compression - proprietary algorithms

Fax and VBD call protection - Forward Error Correction (FEC)

G3 standard and non-standard Fax

Data efficient transmission - HDLC flag removal

## Trunk Data Interfaces

E1 - 2.048Mbps Balanced 120w/ Unbalanced 75w

T1 - 1.544Mbps Balanced 100w

Physical types - V.35, channelized E1/T1

Bit rate - Up to 1.984 Mbp

## DTX-600 / Switch Interface

- ITU-T Rec Q.50, Types A and B
- Customized interface (optional)
- DLC - Dynamic Load Control per clique/bearer
- Operator selectable DLC ON/OFF threshold

## Operation Mode

- Single destination (Point-to-Point)
- Multi-clique - up to 8
- Multi-bearer - up to 8
- Combined multi-clique and multi-bearer

## Cluster Configuration

- Backup protection - up to 16:1
- Active standby mode - standard

## Signaling

- Supports signaling compression (R2D, SS7, PRI, and others)

## Echo Cancellation

- Built-in (optional)
- ETL - Echo Tail Length Max 96 msec (standard 64 msec)

## Power Requirements

Input range DC: -36 VDC to -72 VDC

Power consumption: 225W (per shelf)

## Dimensions

DTX-600 - Compact chassis

- Height: 448mm (17.6 inch)
- Width: 445mm (17.5 inch)
- Depth: 270mm (10.6 inch)
- Weight (nominal): 20kg (47.5 lbs)

## Product Safety

The DTX-600 is certified/licensed to the following (where applicable):

- UL 1950, 3<sup>rd</sup> Edition, for the US
- CSA 22.2 NO. 950 for Canada
- GR-1089-Core
- CE compliance with the Low Voltage Directive 73/23/EEC on the basis of the following standards:
  - EN 60950 Amd.4
  - AS/NZS 3260 Amd.4, for Australia and New Zealand

## Electro-Magnetic Compatibility (EMC)

The relevant requirements for EMC are:

- Europe (EU) - according to the EMC Directive (89/336/EEC)
  - EN 300386-2
  - Emissions - EN55022 - Class B
  - Immunity - ENG1000- 2,3,4,5,6
- North America
  - Emissions - according to FCC rules, part 15
  - Bellcore GR-1089

## Environmental Conditions

The DTX-600 is designed for operation both at the customer premises and the central office.

The system was designed to meet and/or exceed the most rigorous environmental standards, including:

- ETSI - ETS300019
- Bellcore - GR-63

Note: Compliance is with relevant items in standards.

## Type Approval

- US - FCC 68
- CE - TTE

## Operation

- Temperature range: from -5°C to 50°C
- Humidity range: from 5% to 95% (relative humidity)

## Storage & Transportation

- Temperature range: from -40°C to 70°C
- Humidity range: from 5% to 95% (relative humidity)