# Internet Endpoint System 100

## Internet Endpoint System

- **Video, telephony, TDM over IP and serial applications work without errors over your IP network.**
- **Works with existing routers and switches.**
- **Achieve leased line performance over IP networks:**
  - ***- BER of $10^{-9}$ or better***
  - ***- No dropped or out-of-order packets***
  - ***- Minimal latency***
- **Compact 1 RMU chassis supports video, serial, TDM over IP, and DS-1 end point devices.**
- **Slash over-provisioning costs.**


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## Convergence In A Compact Package

Rivulet Queuing lets your existing IP network deliver real-time traffic with zero packet loss and minimal latency. Unlike legacy QoS products, Rivulet can guarantee timely, error-free delivery of multiple simultaneous real-time data flows. The Rivulet IES-100 delivers Rivulet Queuing in a compact one Rack Mount Unit (RMU) chassis. It is ideal for locations that don't require multiple ports and large- scale processing power.

Instead of operating separate networks for voice, video, and data, you can deliver them all over your existing IP network and maintain or improve network performance. This saves you a lot of money. Not only that, you can use more than 80 percent of your IP bandwidth for real-time traffic. This means no more over-provisioning or barely used big pipes, which saves you even more money. It adds up to a quick, healthy, and continuing ROI. Rivulet delivers convergence that really works.

### Link Real-Time Equipment to Your IP Network

High IP quality and financial savings arrive at your site in a box – a Rivulet Internet Endpoint System. All Rivulet IESs move a real-time device's data on and off an IP network. The IES-100 provides up to four ports to support a wide range of equipment and demanding applications. Private line replacement, medical video, videoconferencing, video production, video surveillance, VoIP, storage networks, data encryption programs – any application that requires real-time performance (very low latency and delay with a continuous BER of $10^{-9}$ or better) will find it in an IES-100.

Most types of equipment can connect to an IES-100 through its array of standards-based ports: T-1/E-1/J-1, video, SHDSL, FireWire®, TDM over IP, and many types of serial connections. An IES-100 can support up to four ports and two of these different media types.

After packetizing the client's data stream, the IES-100 controls the flow of packets to the IP network's edge routers or switches through its Gigabit Ethernet ports. The controlled flow of packets – a rivulet – prevents collisions. It eliminates contention for network resources and the resulting packet loss. At the far end, a second IES returns the data to its native format.

### Works With Your Existing IP Network Equipment

The IES-100, like all Rivulet Queuing technology, is compatible with common routers and switches. IESs do not route packets themselves and do not directly manage or control routers or switches. Because it works outside the routing environment, before packets enter the edge routers, Rivulet Queuing does not add a processing burden to routers and switches or increase packet overhead. Rivulet Queuing works with and enhances most traffic engineering and QoS implementations.

Rivulet technologies and equipment are designed to eliminate packet loss caused by switch or router queue overflow and congestions-avoidance methodologies. Packet loss caused by network equipment failures, broken cables, and similar infrastructure problems cannot, obviously, be prevented without circuit redundancy.

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## Solid and Reliable

Each IES functions independently and autonomously. No single point of failure can affect the rest of the Rivulet environment.

The IES-100 uses the same Compact PCI bus design and runs the same reliable Linux operating system and applications as the rest of the Internet Endpoint System family.

## Multiple User Interfaces

A Rivulet-enabled network saves you more than just money. It also saves you time and gives you new network management options.

Each IES-100 can be controlled with its own Cisco-like command line interface. Administrators can run the CLI over a direct console connection or an Ethernet link.

The optional Real-Time Global or Enterprise Manager application controls multiple individual endpoint systems from a single window. It adds high-level service management tools wrapped in an easy-to-use Java-based graphical interface. It is an open design that supports add-in modules such as a billing system interface, gatekeepers, and soft switches. An open API supports third-party and OEM plug-ins.

## IES-100 Configuration

**1. Start with the base chassis and the three required core system components.**

**Communications Control Module**
- Network Interfaces: 2 Gigabit Ethernet ports
- Control Interface:10/100 Base-T LAN port
- Console port

**Network Clock Unit**
- GPS input port
- BITS input port

**Power Supply Unit**
- PSA-50: 110/220 VAC

**2. Choose peripheral cards to support your real-time applications.**

**Symmetrical High-bitrate DSL Peripheral**
- SHP-52: Two SHDSL ports

**Digital Video Peripheral**
- DVP-51: One S-video port
- XGP-51: One XGA/VGA port
- PAL/NTSC
- Includes CODEC

**FireWire® Peripheral**
- FWP-51: One IEEE 1394 port
- FWP-52: Two IEEE 1394 ports

**Serial Service Peripheral**
- SSP-51: One serial port
- SSP-52: Two serial ports
- Supports V.11, V.28, and V.35

**T-1/E-1 Peripheral**
- TEP-51: One RJ-45 port
- TEP-52: Two RJ-45 ports
- Supports T-1, E-1, and J-1 carriers

## Technical Specifications

The IES-100 uses a Compact PCI midplane bus. Fully loaded, the chassis supports up to four media ports. A communications control module, a network clock unit, power supply, and fans are integrated.

### Chassis

17 inches (43 cm) W w/o mounting flanges x 11.87 inches (30.1 cm) D x 1 RMU (1.75 inches / 4.4 cm) H

Approximately 12 pounds (5.4 kg)

### Electrical

AC Input: 100 to 240V ~4A, 50-60Hz

Output Power: 200 W maximum

### Temperature

Operating: 32° to 122° F (0° to 50° C)

Storage: -40° to 158° F (-40° to 70° C)

### Altitude

Operating: -197 to 40,000 feet (-60 - 12,191 meters)

### Humidity

Operating: 5% - 95% non-condensing

### Compliance

EMI: FCC Part15, Class A approved

Telco: FCC Part 68 approved (when configured with DS-1media ports)

Safety: CSA approved