DOZER Rack IP/IP + AES128

IP Gateways for Reliable Delivery of multiple bitstreams – MPEG-2, H.264, H.265, data, compressed or uncompressed video, or audio over private or public Internet. Ideal for content distribution from hub to affiliates who wish to carry your content. Works well to correct packet loss and jitter across wireless IP links. Cost effective alternative to satellite content delivery. Ideal technology for CDN Operators or mobile network operators who are deploying any kind of traffic across long distances. Sold in pairs or point-to-multipoint. Works with DOZER Link™ encoders and decoders. Also available in compact version and software license versions.

Features
- Completely corrects packet loss and jitter in transmission path
- Available with Failover Option
- Underlying traffic is AES128 encrypted
- Inputs/Outputs: 2 each Gig/E ports or optional 4 Ethernet ports
- Supports IP UDP unicast and multicast, in or out, or both
- Will not examine the transport stream. It merely forwards all packets.
- IP address and ports can be remapped to different ones if necessary in the remote network
- Configurable destination port on listener for firewall traversal
- Can be configured for point-to-point or point-to-multipoint functionality
- Supports up to four destinations in primary/backup or split transmission configuration for redundant or load balanced setups
- Each device can be configured as a sender, a receiver, or both
- One DOZER transmitter can send 50+ streams to 32 DOZER receivers
- Each receiver device can output UDP on a local network to one or many different devices using second Ethernet port on unit
- Also available: Compact DOZERbox™ IP/IP + AES128 based on Shuttle® system

Applications
- Streaming live news and sports programming over congested wired or wireless LANs or WANs
- Backup to Dedicated IP for Video Delivery with delivery over Public Internet, including studio-to-transmitter links
- Replacing satellite backhaul and dedicated point-to-point lines with DOZER Rack at end points
- Protecting point to point traffic with strong AES128 encryption
- Eliminating packet loss and jitter across Metro WDM and other long haul backbones
- Works well with DOZER Link™ Encoders and Decoders
- Point to Multipoint Content or Data Delivery

Overview

The world is now awash with affordable bandwidth. Video delivery over IP is rapidly overtaking Satellite and Microwave. Pretty soon many inanimate objects and appliances will have their own IP addresses. The only problem is that the Ethernet/internet protocol was not designed with video packets in mind. The issue is that video packets must arrive at their destination within a set time otherwise they "expire" like spoiled food and are discarded. The other issue with video is that the UDP protocol does not do well with traffic congestion.

ARQ based DOZER is a proven packet loss correction technology that enables reliable delivery of UDP traffic across WANs and LANs. It corrects for packet loss, fixes jitter, and encrypts your traffic with AES 128. It is interesting that low level of packet loss can be found even across dedicated TELCO lines due to TCP packet contention. DVEO's DOZER operates at layer II of the OSI stack. This makes our technology more resilient and suitable for video and VoIP over wired or wireless links.

The DOZER Rack is used mostly with compressed video but accepts almost any bitstream with any protocol, with any kind of content. A growing list of customers are using it to transfer VoIP traffic, and others use it to send uncompressed (SMPTE 292) or lightly compressed digital video (NewTek™ NDI®) across public or private networks and LANs. The DOZER technology can be adapted for any kind of “bit” delivery task as long as there is a two-way connection.
Content Distribution to Cable and IPTV Head-ends via DOZER ARQ Equipped Origination and End Points

Playout Server
HD-SDI

Origination Point 1
DOZER Rack IP/IP
IP w/DOZER

Origination Point 2
DOZER Link HD-SDI IP Encoder w/DOZER
IP w/DOZER

Origination Point 3
DOZER Link ASI Gateway w/DOZER
IP w/DOZER

Origination Point 4
DOZER Link 8VSB/QAM/DVB-T2 Encoder w/DOZER
IP w/DOZER

Gearbox II — 2-16 channel IP, RF or HD-SDI in or out
HD-SDI/RF out
IP out

End Point 2
DOZER Link ASI Gateway w/DOZER
IP w/DOZER

End Point 3
DOZER Link IP HD-SDI Decoder w/DOZER
IP w/DOZER

End Point 4
DOZER Rack IP/IP
IP out

End Point 5
Atlas II Packaging Server w/DOZER
IP out

The Internet or other wired or wireless IP Networks

NOTES
• Typical H.264 encoder bitrates = 5 Mbps
• DOZER Link: Input + Output: IP or ASI
• Each destination will need 5 Mbps
• Up to 32 end points per “encoder”
• All DOZER connections encrypted w/AES-128
• Gearbox: Up to 16 inputs via IP, RF or HD-SDI

ENCODER INPUT
• SDI, HD-SDI
• ASI
• QAM
• 8VSB
• DVB-T2
• ISDB-T
• Etc.

DECODER-END POINT OUTPUT
• HD-SDI
• IP
• ASI

Title: Content Distribution – Cable & IPTV Head-ends
Project: DOZER Link & DOZER – Origination & End Points
Date: February 20, 2019
Rev. 5

www.dveo.com
**Specifications**

**IP Inputs:** Any Digital Bitstream Connection Between DOZERs

| IP protocols | UDP with AES128 |

**Administration**

<table>
<thead>
<tr>
<th>Access</th>
<th>Web interface, ssh interface, with passwords</th>
</tr>
</thead>
<tbody>
<tr>
<td>SNMP</td>
<td>Monitoring and alerts</td>
</tr>
<tr>
<td>UPTIME™</td>
<td>Optional Failover software</td>
</tr>
</tbody>
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**CPU and Operating System**

<table>
<thead>
<tr>
<th>CPU</th>
<th>Intel® Xeon® processor</th>
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<tbody>
<tr>
<td>OS</td>
<td>DVEO embedded Linux® on SSD</td>
</tr>
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**Other**

<table>
<thead>
<tr>
<th>Latency</th>
<th>About six times the Ping Time</th>
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<tbody>
<tr>
<td>Bandwidth Overhead</td>
<td>7% typical, but depends on network issues</td>
</tr>
<tr>
<td>NIC Option</td>
<td>4 Port Ethernet NIC</td>
</tr>
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</table>

**Physical & Power**

<table>
<thead>
<tr>
<th>Size – 1 RU high</th>
<th>19 x 14.96 x 1.7 inches (W x D x H)</th>
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<tbody>
<tr>
<td></td>
<td>483 x 380 x 43.4 mm (W x D x H)</td>
</tr>
<tr>
<td>Voltage</td>
<td>100-240V, 4-2A, 60-50 Hz, 220 watts</td>
</tr>
<tr>
<td>Operating Temperature</td>
<td>10°C to 35°C</td>
</tr>
<tr>
<td>Humidity</td>
<td>20% to 90% non-condensing</td>
</tr>
<tr>
<td>Weight</td>
<td>15 lbs. (6.8 kg)</td>
</tr>
<tr>
<td>Conformities</td>
<td>UL, CSA, FCC, CE, RoHS</td>
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**Security**

Ports security scanned to MIL requirements prior to shipment

**Benefits**

- Smooth Error Free Delivery of Compressed Video Across Public Internet with Guaranteed Upload and Download
- Transits Most Firewalls
- Saves Money versus Private Point to Point Connections
- Can be added to most of our products and others’ products
- All Content is Encrypted with AES128 between units
- Linux® based reliability
- Can eliminate need for satellite delivery of point-to-point

**Inputs/Outputs – Non Telco Version**

- LAN   WAN (Either can be used for IP Input or Output)

**Sample of GUIs**

**Ordering Information**

DOZER Rack IP/IP + AES128 in 1 RU system (typically sold in pairs)
Also Available:
Compact DOZERbox IP/IP + AES128 (typically sold in pairs)
DOZER ARQ: LIC – DOZER software added to DVEO encoder and gateway appliances or as a license for your device
DOZER Rack IP/IP + AES128: TELCO – Redundant power supply and Ports

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