



FX-1005 Model



FX-1010 Model



FX-4010 Model

### Assuring Delivery Of Web Applications For Bottom Line Results

Data center simplification and the growing migration to web-enabled applications are driving the need for a new class of multi-function optimization devices. The Stampede FX Series combines both one-sided application delivery and two-sided WAN optimization into a single platform. The FX Series delivers unprecedented application performance, optimization, transparency, availability and management for existing networks.

### Productivity and Performance

The Stampede FX Series WAN optimization improves access to your applications by reducing the amount of data transferred on the link through use of various compression and caching schemes as well as accelerating reliable protocols.

### Optimizing SSL Connections

In today's global economy with workers distributed throughout the world, enterprise applications are moving into central data centers or into the cloud. As this transition happens security is becoming a high priority. To combat rogue accesses to user data, enterprises employ techniques such as SSL encryption for their sensitive information. While securing the enterprise data is the highest priority, an unintended side effect is that the encryption defeats any WAN optimization on the network. SSL optimization allows the enterprise to optimize their WAN network by opening up the encrypted session on each side of the WAN, applying various optimization techniques such as caching and compression and re-encrypting the data that goes on the WAN. This maintains end-to-end security. SSL optimization is available in the FX-1005 and the FX-1010 and the FX-4010-EN.

### Header Compression/Packet Aggregation

As real-time traffic moves to IP, there is a proliferation of traffic with small payloads. In this case, the header bytes can be 2 to 4 times the number of payload bytes. For small voice packets, compression can result in reducing the required data rate to 30 – 50% of the original. The FX will compress headers, and optionally compress payloads. The FX aggregates compressed packets into an Ethernet frame and sends it to a peer, where the packets are restored. Header compression is integrated into the traffic shaping, and maximum latency per queue can be enforced when aggregating packets. Header compression works at either L2 or L3 in the in-path configuration only.

### Traffic Shaping and QoS

The FX traffic shaping is a flexible, three level shaper that supports point-to-point and point-to-multipoint links. Traffic shaping consists of two steps, classifying the traffic into queues and draining the queues. The FX has three levels of traffic classification to allow working with multiple links, multiple users and multiple types of traffic. Classifying can be done with source/destination subnets and ports, protocol, DSCP, VLAN p/q and MPLS label/EXP. CIRs and MIRs can be established at each of the levels of classification. Each link will also have a data rate associated with it, and traffic will be shaped to that data rate. These rates can be static or they can be dynamic, with the FX having the ability to regularly poll the associated modem for the real time data rate.

### Typical Users

- Internet Service Providers (ISPs)
- Enterprise
- Offshore/Maritime
- Telecommunications Operators
- Satellite Operators
- Managed Service Providers

### Common Applications

- High-speed content delivery
- HTTP and TCP optimization & acceleration
- Corporate networks
- Mobile Backhaul

### Key Benefits

- Optimize SSL links
- Provides up to 80% bandwidth savings for HTTP traffic
- Provides up to N times efficiency when using the Multicator
- Enables measurable reduction in response time for users
- Delivers CAPEX for OPEX payback typically in 3-4 months
- Scales easily for small, medium and high volume networks
- Ensure the best traffic flow with Advanced Traffic Shaping
- Match the modem link rates with ACM tracking
- Real-time voice sessions with the use of Header Compression/Packet Aggregation

## Transparent Assured Delivery

With flexible deployment options for in-path, Cisco's Web Cache Communication Protocol (WCCP), and routed mode, the FX Series devices deliver unprecedented transparent optimization. End-to-end assurance is maintained for all applications providing transparency and the ability for existing Quality of Service (QoS) and network visibility management programs to continue monitoring the health of your network.

## Optimize VLAN Trunked Data

All appropriate Layer 5 and Layer 7 optimizations are available for tagged VLAN data, preserving or recreating the VLAN tags for optimized traffic. Caches are maintained by appliance and by VLAN. In addition, the FX-1010 will support up to 8 LAN ports, each of which is tagged with a unique VLAN ID and passed to the WAN trunk port. Classification can be done based upon the VLAN PCP bits.

## Multicator

The FX Series supports a reliable multicast. This is designed to work in a mesh network, but will also work in a hub/spoke network. In the mesh, any device can be a transmitter with the remaining devices being receivers. Multiple devices can be transmitters. The transmitter function is time shared, with a second device being given permission to transmit after the first is complete. This can work in a hub-spoke network where typically the ADC would be the transmitter, although this is not required. The process is to FTP a file from the client into the transmitter's inbox, that file is transmitted reliably in a multicast to all of the receivers. Once transmitted, the receivers FTP the file to a specified server.

## Redundancy and Fail Over

Redundancy is critical to 24/7 availability, and the FX appliance is designed to handle redundancy and fail over in three different ways; in-path, WCCP and routed. The in-path configuration is used when operating in conjunction with a CEFD modem operating with 1:1 redundancy. WCCP (Web Caching Communication Protocol) is used to allow up to 32 devices to serve in a pool, if any of the devices fail the pool's load is redistributed among the remaining appliances. The in-path configuration has a primary and a redundant device in series, the redundant takes over whenever the primary fails. The routed mode configuration relies upon an external device to redirect traffic based on availability, such as a recursive next-hop.

## Management

The FX platforms provide total insight through real-time information including over 100 real-time statistics providing extensive details on all inbound and outbound traffic via SNMP. Historical data for days or months are easily integrated into existing Network Management Systems via SNMP, simplifying capacity planning, trending, network issues, and application troubleshooting. Management information can be obtained via an intuitive Web GUI or SNMP. Firmware upgrades can automatically be pushed to the FX Series Remotes. The FX Series remotes poll the FX Series ADC for updates. When the ADC is updated; each remote will download the update and automatically update itself.

## Flexibility

The FX Series platforms provide a comprehensive range of flexible options for total transparent 24/7 operation within your existing or growing network infrastructure. No matter what your application acceleration or WAN optimization requirements are today or in the future, the FX Series platform solutions will handle all your business critical applications with ease. Whether your installation requires small, medium or large branches or the consolidation of multiple remote or enterprise data centers, we have the solution for your organization's needs.

## Compatible with Advanced VSAT Solutions

The Stampede FX Series products can be added to an Advanced VSAT Solutions network for WAN optimization and application acceleration.

## Solutions

Deploy the Stampede FX Series (ADC) as a single-sided solution to optimize traffic from your outbound channel. For a two-sided solution, add the FX Series Remote (REM) appliance or our remote software clients and achieve the ultimate in application acceleration and WAN optimization.



FX-1005 Back Panel



FX-1010 Back Panel



FX-4010 Back Panel

## Specifications

### Hardware

| Model  | FX-1005  | FX-1010   | FX-4010   | FX-4010-D   |
|--|--|---|---|---|
| <b>Form Factor</b>                                     | 1RU  | 1RU   | 1RU   | 1RU   |
| <b>Weight</b>  | 2.6 lbs. (1.2kg)   | 13.3 lbs. (6.0 kg)  | 15 lbs. (6.8 kg)  | 15 lbs. (6.8 kg)  |
| <b>Dimensions (h x w x d)</b>                          | 1.7" x 8.5" x 7.4"<br>(43 x 215 x 188 mm)  | 1.7" x 17.0" x 15.6"<br>(44 x 431 x 395 mm)   | 1.7" x 16.8" x 14.0"<br>(43 x 427 x 356 mm)   | 1.7" x 17.2" x 14.5"<br>(43 x 437 x 369 mm)   |
| <b>Memory</b>  | 4 GB   | 4 GB  | 16 GB   | 16 GB   |
| <b>Storage</b>   | (1) 160 GB SATA  | (1) 160 GB SATA   | (1) 1 TB SATA III   | (1) 1 TB SATA III   |
| <b>Network Interface (GE) Ports/Fail-to-Wire Pairs</b> | 4/1  | 11/0  | 4/1   | 4/1   |
| <b>Serial Ports</b>                                    | 1  | 1   | 1   | 1   |
| <b>USB Interface Ports</b>                             | 2  | 2   | 2   | 2   |
| <b>Rack Mount Kits</b>                                 | 1 or 2 units in 1RU  |   |   |   |
| <b>Power Supply – UL Approved, FCC Compliant</b>       | Requires a 60 W/12V power adapter with lock  | 200 W ATX power supply unit with input range of 90~264V @ 47-63 Hz  | Single Power (200 W) Auto (100V-240V)   | 410W DC-DC power supply (24-pin) with harness Voltage Range -36V to -72V Max Input 18A @ -48V                             |
| <b>Power Supply Safety/EMC Certifications</b>          | EN 61000/IEC 6100-Compliant<br>Australian AS/NZS Class A<br>FCC Part 15 Subpart B<br>Canada ICES-003 Class A<br>Europe/CE Mark<br>ROHS | EN 61000/IEC 61000-Compliant<br>Australian AS/NZS Class A<br>FCC Part 15 Subpart B<br>Canada ICES-003 Class A<br>Europe/CE Mark<br>ROHS | EN 60950/IEC 60950-Compliant<br>Canada – CUL Listed<br>Germany –TUV Listed<br>Europe/CE Mark<br>CCC Certified<br>ROHS | EN 60950/IEC 60950-Compliant<br>Canada - CUL listed<br>Germany - TUV Certified<br>Europe/CE Mark<br>CCC Certified<br>ROHS |
| <b>Environment</b>                                     | Operating temp 0 ~ 40°C<br>Storage temp -20 ~ 60°C<br>Humidity 5 ~ 90%   | Operating temp 0 ~ 40°C<br>Storage temp -20 ~ 60°C<br>Humidity 5 ~ 90%  | Operating temp 10~ 35°C<br>Storage temp -40 ~ 70°C<br>Humidity 8 - 90%  | Operating temp 5 ~ 35°C<br>Storage temp -40C ~ 70°C<br>Humidity 5 ~ 95%   |

### Single Sided with the Application Delivery Controller (ADC)

| Model(s)                                       | FX-1005-ADC        | FX-4010-ADC, FX-4010-ADC-EN, FX-4010-D ADC & FX-4010-D ADC-EN |
|--|--------------------|---|
| <b>Max Accelerated Sessions</b>                | 3,000              | 30,000  |
| <b>Data Rate Options Mbps</b>                  | 1, 2, 4, 6, 10, 15 | 10, 15, 25, 45, 70, 155, 310                                  |
| <b>Load Balancing via WCCP</b>                 | ✓                  | ✓   |
| <b>Connection Management</b>                   | ✓                  | ✓   |
| <b>Traffic Shaping with ACM (d)</b>            | ✓                  | ✓   |
| <b>IP Source Preservation</b>                  | ✓                  | ✓   |
| <b>Optimize VLAN Tagged Data</b>               | ✓                  | ✓   |
| GZIP Compression (b)                           | ✓                  | ✓   |
| Image Reduction (c)                            | ✓                  | ✓   |
| <b>Content Caching</b>                         |                    |   |
| Static Caching                                 | ✓                  | ✓   |
| <b>Redundancy for In-Path and Routed Modes</b> | ✓                  | ✓   |

### Two Sided with the ADC and the Remote

| Model(s)                                 | FX-1005-REM/ADC    | FX-1010-REM         | FX-4010-REM/ADC, FX-4010-REM/ADC-EN, FX-4010-D REM/ADC & FX-4010-D REM/ADC-EN |
|--|--------------------|---------------------|---|
| <b>Max Accelerated Sessions (a)</b>      | 6,000 (a)          | 6,000               | 30,000 (a)  |
| <b>Data Rate Options Mbps</b>            | 1, 2, 4, 6, 10, 15 | 2, 4, 6, 10, 15, 25 | 10, 15, 25, 45, 70, 155, 310, 700(f)  |
| <b>Header Compression Rate (PPS) (e)</b> | 35,000             |                     | 700,000(f)  |
| <b>Load Balancing via WCCP</b>           | ✓                  |                     | ✓   |
| <b>SSL Optimization</b>                  | ✓                  | ✓                   | ✓ - Only Models:<br>FX-4010-REM/ADC-EN & FX-4010-D REM/ADC-EN                 |
| <b>Connection Management</b>             | ✓                  | ✓                   | ✓   |
| <b>Traffic Shaping with ACM (d)</b>      | ✓                  | ✓                   | ✓   |
| <b>IP Source Preservation</b>            | ✓                  | ✓                   | ✓   |
| <b>VLAN Support</b>                      | ✓                  | ✓                   | ✓   |
| <b>Multicator</b>                        | ✓                  | ✓                   | ✓   |
| <b>Content Reduction</b>                 |                    |                     |   |
| Bi-directional Compression               | ✓                  | ✓                   | ✓   |
| Image Reduction (c)                      | ✓                  | ✓                   | ✓   |
| Dynamic Data De-duplication              | ✓                  | ✓                   | ✓   |
| <b>Content Caching</b>                   |                    |                     |   |
| Static Caching                           | ✓                  | ✓                   | ✓   |
| Cache Differencing                       | ✓                  | ✓                   | ✓   |
| <b>TCP Optimization</b>                  | ✓                  | ✓                   | ✓   |
| <b>TCP Connection consolidation</b>      | ✓                  | ✓                   | ✓   |
| <b>Auto Updates to the Remotes</b>       | ✓                  | ✓                   | ✓   |

**Notes:**

- a) The FX-1005 as an ADC, will handle 3000 concurrent sessions.
- b) Maximum accelerated WAN rates are a function of compressibility. If all content is being GZIP compressed with a ratio of greater than 4:1, the maximum WAN rate may not be accelerated.
- c) The number of images handled per second is a function of image size.

|                    | <b>FX-4010-ADC</b>     | <b>FX-1005-ADC</b>     |
|--------------------|------------------------|------------------------|
| <i>Images Size</i> | <i>Images Per Sec.</i> | <i>Images Per Sec.</i> |
| 10 KB              | 1800                   | 80                     |
| 50 KB              | 1000                   | 35                     |
| 500 KB             | 100                    | 35                     |

- d) Available as either a stand-alone feature or part of the WAN optimization product. As a stand-alone feature, the maximum data rate is 700 Mbps. When purchased with the WAN optimization, the data rate is limited to the WAN optimization rate.
- e) Packets per second (PPS) is 50% outbound and 50% inbound. Header compression is not supported in the FX-1010. Available as either a stand-alone feature added to the base configuration or part of the WAN Optimization product. When purchased without the WAN Optimization feature, the maximum data rate is 700 Mbps. When included with the WAN Optimization, the data rate is limited to the WAN optimization rate.
- f) Header compression only.

**Configuration Models:**

- Base Configuration with QoS only as option with no WAN Optimization
- Option 1 Header compression (rates up to 700 Mbps) with no WAN Optimization
- Option 2 WAN Optimization including QoS and Header compression with WAN Optimization rates as shown in the tables

FX-1000 and FX-4000 – While new units are no longer available, customers with these units can obtain the latest software releases from our web site.

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