

In today's increasingly complex and multi-tiered data centers, space and energy are at a premium while performance is an ever-present worry. Data center solution vendors must address concerns about footprint, management overhead, and performance bottlenecks. Crescendo Networks can help.

Crescendo's AppBeat Solution Suite improves application performance, security and availability while streamlining data center infrastructure and expenses. Deployed on the purpose-built Maestro Platform, the solution leverages dedicated hardware to deliver all acceleration, optimization and traffic management features in a single device with maximum performance and scalability.

For strategic partners that want to leverage these capabilities in their own solutions, Crescendo Networks offers the Maestro Platform in a blade form factor. The Maestro Blade adds multi-tier application delivery functionality without increasing the footprint, and integrates easily into a wide range of devices.

Testimonials

"With the rapid evolution of enterprise data centers, we saw a compelling reason to evolve our Giga Ethernet Data Center solutions into a multi-layer discipline. Crescendo Networks' Maestro architecture was well suited to help boost overall application performance which we believe will translate into greater and more predictable business productivity for our customers."

Henry Tso
Chief Technology Officer
H3C



Key Benefits

Application Acceleration

Maestro Blade delivers multi-gigabit acceleration for every performance requirement - all the way up to 10 Gbps. Offloading TCP connection management and SSL frees server resources for application processing, while intelligent load balancing ensures traffic is always routed to the most appropriate server or data center resource. As a result, application response time is improved by 30 -70%.

Reduced Data Center Expenditures

Maestro Blade consolidates critical application acceleration, optimization and security features in a single appliance for optimal data center efficiency and immediate ROI. By offloading processing intensive tasks from servers, available server capacity can be increased by 300-500% and server hardware requirements reduced by up to 50%. In addition, hardware based compression reduces bandwidth requirements by up to 85%.



Increased Security and Application Assurance

The Maestro Blade shields servers from malicious attacks and mediates flash crowd events, ensuring consistent application availability and security.

Fast Time to Market

With a blade form factor and open interfaces, Maestro Blade integrates easily into complementary networking solutions for quick time to market and competitive performance advantage. Maestro Blade can support the largest service providers, Web properties and enterprises.

Core Technologies

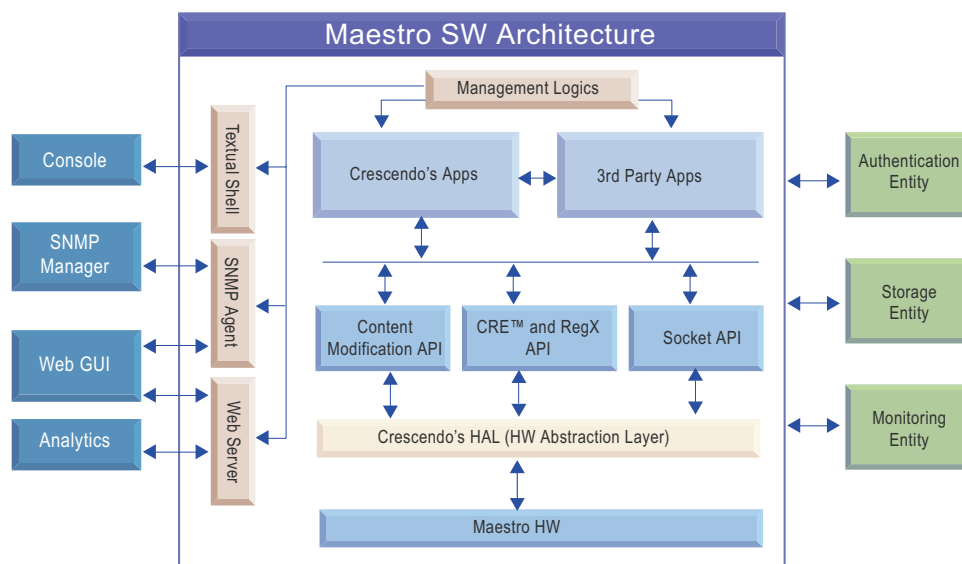
Maestro Architecture

Crescendo Networks' Maestro architecture delivers unmatched application performance and scalability. It is the only solution to implement Layer 2-7 functionality in dedicated hardware with fully integrated acceleration, optimization, load balancing and security features. Each function runs on a separate, purpose-built engine with dedicated CPU and memory resources, delivering optimal performance regardless of fluctuating traffic or concurrent feature selections.

Short-Lived Transaction (SLT)

Maestro Blade includes Crescendo's patent-pending SLT technology, which provides unmatched performance for TCP termination and optimization.

Advanced connection management offloads TCP overhead by consolidating connections. Unique request processing technology buffers requests and responses during transaction flow. Response optimization technology shields servers from WAN-based TCP overhead, for maximum throughput.



This dedicated hardware design gives the AppBeat solutions a substantial advantage over other solutions that experience resource contention and performance degradation issues with multiple features enabled.

Hardware and Software Interfaces

The Maestro Blade can be integrated in any blade chassis or switch architecture. By providing L2 to L7 capability in hardware, Maestro supports application layer processing using a standard Linux-based platform with minimum processing overhead. It uses the following APIs:

- Socket-Based API: data-path handling
- Multi-Layer Access API: processing any protocol at the OSI level
- Content Acceleration API: content level parsing and modification in RegEx and/or XML format

Maestro Blade Configurations

Choose from the available Maestro Blade configurations based on your target customer needs.

- **CN 7710**
Multi purpose entry-level blade platform targeted at small to medium organizations. Offers up to 1 Gbps throughput.
- **CN 7740**
Integrated blade platform targeted at medium to large organizations with high performance, multiple features and throughput needs. Offers up to 4 Gbps traffic acceleration.
- **CN 7790**
Carrier grade blade platform targeted at large web sites and service providers with massive traffic volumes requiring processing of up to 10 Gbps throughput.

AppBeat™ Solution Suite

Crescendo Networks delivers the first application delivery solution suite that accelerates, optimizes and controls performance across all application tiers, from the web front-end to the transaction level. Using the Maestro Blade, you can integrate the AppBeat solution suite in your networking device.

AppBeat DC

AppBeat DC is an application delivery controller that accelerates Web application performance while increasing server efficiency and improving application security and availability.

TCP Offload, Multiplexing and Acceleration

AppBeat DC reduces server processing load by offloading TCP termination, eliminating connection setup, teardown and management processes on servers.

Content Compression

With its dedicated, solid-state compression processor, AppBeat DC can compress content by up to 85%, operating at speeds of up to 3 Gbps with zero latency.

SSL Offload and Acceleration

AppBeat DC offloads SSL processing from servers, using dedicated hardware to accelerate SSL session setup and data encryption.

Comprehensive Load Balancing

Local load balancing determines the optimal server for each request based upon actual HTTP load. Global Server Load Balancing distributes traffic across geographically separated data centers.

Application Assurance and Availability

AppBeat DC maintains a normalized operating environment even under heavy loads, shielding servers from erratic client behavior, malicious attacks (DDoS) and flash crowd events.

AppBeat SC

AppBeat SC is an application service controller that monitors, analyzes and controls performance at the application and transaction level.

Transaction prioritization

Define the users, applications and transactions that are of highest business priority and AppBeat SC will ensure these transactions are served first in times of heavy load.

Detailed performance reporting

Historical, trending and real-time reports offer visibility into transaction information, response time behavior under load, application capacity limits, and system performance.

Transaction Logging

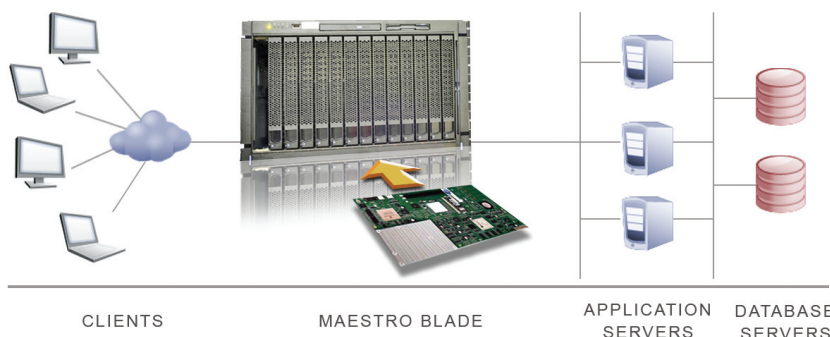
AppBeat SC logs every http transaction that is sent to the application. Elaborated performance statistics such as response time, classification, size and more, are collected for each transaction.

Service-level monitoring and alerting

AppBeat SC monitors and maps application transactions and end user response times. It aligns performance with desired service levels for applications and transactions, and alerts IT of pending problems.

Application performance dashboard

The dashboard provides graphical, at-a-glance insight into the application performance, including most requested transactions, average response time, and system load.



◀ *Maestro Blade integrates seamlessly into existing datacenter blades, providing multi-gigabit application acceleration.*

Maestro Blade Summary

Feature Summary

Application Acceleration

True TCP termination/offload/acceleration

- Eliminates the overhead of connection setup and tear down, handles a large number of client connections, and multiplexes requests to a controlled number of persistent server connections

Compression

- Real time compression
- Supports Gzip, Deflate (decompressed by Web browser)
- Hardware-based, zero latency

SSL

- Hardware based SSL offload for session setup and bulk data transmission
- Client side and server-side SSL functionality

Load Balancing (Layer 4 and 7)

- All decisions made at the request level
- Flexible layer 7 rules: URL, file-type, headers, etc.
- URL rewriting capabilities for requests being sent to servers
- Best server selection based on actual server load
- Application-level client persistence
- L4 load balancing with TCP acceleration
- Global server load balancing

Application Protection

Protection from DDoS attacks

- SYN Flood, Land, Teardrop, Smurf, Ping Of Death, Open/Close, ICMP Unreachable, ICMP Redirect, Looping UDP Ports, Fraggle, UDP Flood, TCP Flood

Application Assurance

- Guarantees application operation under any load

Redundancy/High Availability

- Active/Passive for hot standby
- Active/Active for load sharing
- Configuration synchronization between redundant devices

On-demand Resource Control

Virtual ADC (vADC)

- Partition AppBeat DC resources

Elastic Resource Control

- Measure application performance
- Allocate minimum resources for service level obligation

AppBeat SC Feature Summary

Transaction Prioritization

- Define users, applications and transactions based upon business priority
- Ensures prioritized transactions are served first

Performance Reporting

- Historical, trending and real-time reports
- Visibility into transaction information, response time and application capacity limits

Transaction Logging

- Logs every HTTP transaction
- Collects performance statistics on response time, classification, size and more

Service-level monitoring

- Monitors and maps application transactions and end user response times
- Aligns performance with desired service levels

Application Performance Dashboard

- Provides graphical, at-a-glance insight into performance
- Includes metrics on most requested transactions, average response time and system load

Management

AppBeat can be managed through a comprehensive, easy-to-use interface. Highlights include:

- Remote configuration and management
- Web GUI
- Command Line Interface (CLI)
- Telnet/SSH
- RS232 serial console
- SNMP compliant
- Event reporting through, event logs or syslog
- Dual images, multiple configurations

System Specifications

Open System

- Standard host processor, single/dual cores
- Linux OS

System Interfaces

- Up to 10x10/100/1000 copper
- Up to 10x 1 Gbps fiber
- Single 10 Gbps XAUI

Physical Dimensions

- Customizable to your chassis

Power

- AC Input
- Voltage:
 - 90-250 VAC @ +6%, -10%
 - Frequency: 50-60 Hz
- Maximum current: 3.0 A

Certifications

- EMC:
- EN 55022
 - EN 55024
 - FCC part 15, Sub-part B
 - ICES-003A
 - VCCI 2002

Environmental

- Operating temperature: 0° to 40° C
- Storage Temperature: -40° to 85° C
- Relative Humidity: 5% to 95% non-condensing
- Operational Altitude: 0 to 10,000 ft. (0 to 3,000m)
- Acoustic Noise: 70 dB maximum

Safety

- EN 60950
- IEC 60950
- UL 60950
- CSA CS22.2 No. 950

Blade Performance	CN7710	CN7740	CN7790
L4 Throughput	1 Gbps	4 Gbps	10 Gbps
L7 Throughput	1 Gbps	4 Gbps	10 Gbps
Compression Throughput	500 Mbps	3 Gbps	6 Gbps
SSL Throughput	500 Mbps	1 Gbps	4 Gbps
SSL TPS & Handshakes/second	5K	20K	40K
L4 concurrent connections	500K	1M	4M
L4 new connections/second	75K	150K	300K
L7 TPS	75K	150K	300K