

iFlow Director



Reduce complexity and costs associated with appliance sprawl by consolidating on a BladeCenter platform with a high-performance, low-latency statistical load balancer integrated into a 10 Gigabit Ethernet (GbE) blade switch: iFlow Director.

The iFlow Director is designed to deliver high availability, scalability and lower cost of ownership for security gateways, traffic management, service differentiation, lawful interception and network surveillance solutions.

Mobile wireless networks are changing. Voice, video, storage and data are quickly converging onto a very large scale network. The convergence of fixed and mobile networks to a common next-generation Interface Protocol (IP) infrastructure is driving exponential growth in network traffic. The iFlow Director offers high availability, scalability and low cost of ownership for traffic optimization solutions for mobile networks that include traffic management, traffic optimization, service differentiation and analytics.

In addition, network and security administrators must deliver extreme levels of availability—the ability to scale dynamically without having to reconfigure their network devices—while also minimizing costs and downtime. Networking products use industry-leading Layer 2-7 Ethernet switching experience to deliver the iFlow Director (patents pending)¹—a high-throughput, low-latency, traffic load distribution system in a 10 Gbps Ethernet switch for BladeCenter H and HT.

Capacity on demand and performance

iFlow Director provides up to 480 Gbps of wire-speed bidirectional throughput to BladeCenter, to meet your network traffic load distribution needs. With ten 10 Gbps uplink ports and fourteen 10 Gbps internal ports, the iFlow Director offers unmatched 10 Gb line rate performance, with latency as low as 1.60 microseconds.

In conjunction with the latest high-performance multicore-processing blade servers equipped with 10 Gbps Ethernet adapters, solution providers can offer cost-effective and robust solutions based on BladeCenter. The solution throughput can be scaled linearly by simply adding more blade servers and up to five additional BladeCenter chassis as demand grows.

High availability and reliability

The iFlow Director is designed with a number of advanced features to deliver high availability in mission-critical environments. The solution is built around industry-leading hardware to help eliminate any single point of failure. iFlow Director uses BladeCenter innovations—like internal monitoring, redundant network connections per blade, redundant power supplies and fans—and switching features like uplink failure detection and controlled failover with network interface card (NIC) teaming to deliver high availability.

iFlow Director also includes these high availability features:

- Rapid failure detection of server blades using Layer 2 - 7 server health-check mechanisms (link, ips, arp, ping, tcp, tcp-script, http, etc.)
- Rapid network failure detection and recovery using industry-standard VRRP protocol.
- Failover options that allow distribution of flows from a failed blade to active blades or a standby blade in the chassis

Ability to restore a recovered blade into service automatically or manually

Redirection of traffic through alternate ports if a threshold number of blades fail in order to minimize service disruption to the end users.

The iFlow Director solution improves overall system availability by reducing the number of components that can fail and disrupt communications.

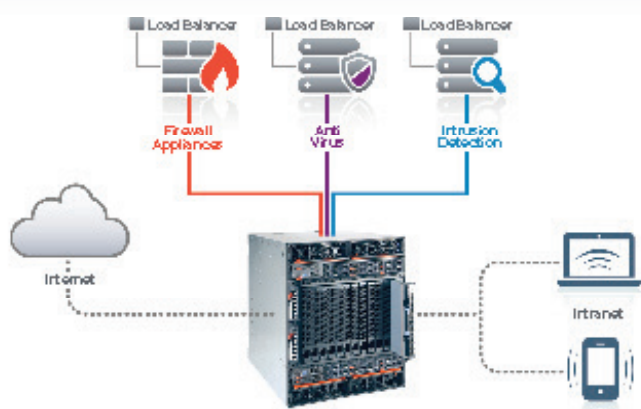
Intelligent traffic classification and distribution

The iFlow Director provides intelligent flow classification, persistent flows and parallel load distribution to significantly accelerate server and application performance.

Cost-effective and energy-efficient

The iFlow Director solution provides significant savings compared to a solution consisting of multiple stand-alone appliances, Layer 2/3 switches and load balancers. With 480 Gbps of raw throughput, the iFlow Director solution provides a game-changing price/performance advantage.

By collapsing the network access, aggregation and load-balancing layers, iFlow Director offers lower total power consumption, fewer cables and uses less rack space, which significantly reduces your total cost of ownership.

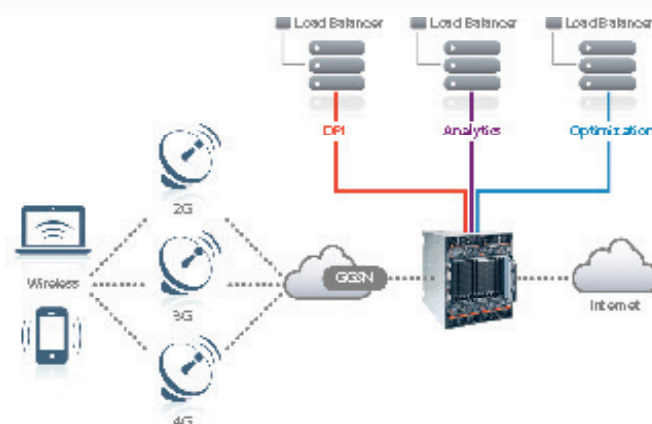


Scalable and reliable security appliance consolidation with iFlow Director

Easy integration and management

iFlow Director provides the following advantages:

- Standards-based integration with Cisco and other networks to help reduce downtime and learning curves.
- Common look and feel among networking Ethernet switches helps administrators minimize the learning curve when they have a requirement for different switches and load balancers
- Support for two command line interface (CLI) options: the networking OS CLI, as well as an industry-standard CLI.
- Easy software upgrades through a web user interface, trivial file transfer protocol (TFTP), telnet or serial download allow for easy adaptation to existing maintenance procedures.
- Enhanced security with a dedicated virtual local area network (VLAN) for managing traffic between the management module and the switch improves overall performance and security by segregating management traffic from data traffic.



Mobile wireless to internet traffic management is made easier with iFlow Director

Sample deployment scenarios:

- Wireless gateway solutions including traffic optimization, content adaptation, traffic analysis and more
- Security solutions which include DPI, firewall, intrusion detection systems (IDS) and intrusion prevention systems (IPS), web filtering, and lawful interception
- Security-in-a-box consolidation
- Traffic management and service differentiation

Why System x

System x® is the leading provider of x86 systems for the data center. The portfolio includes rack, tower, blade, dense and converged systems, and supports enterprise class performance, reliability and security. System x also offers a full range of networking, storage, software and solutions, and comprehensive services supporting business needs throughout the IT lifecycle.

Specifications

Base switch	46C9250
Single Chassis (SC) Licensing (Enables iFlow functionalities in external ports)	SC Level 1 (46C9254): 4 external ports SC Level 2 (46C9256): 10 external ports Upgrade SC Level 1 to Level 2 (46C9258)
Multiple Chassis (MC) Licensing (Enables iFlow functionalities in servers)	MC Base (46C9260): 28 servers Upgrade SC Level 1 to MC Base (46C9264) Upgrade SC Level 2 to MC Base (46C9266) MC Add on (46C9262): Adds 14 servers to MC Base. (May order up to 5 add ons for a total of 84 servers)
External ports	Up to ten 10 GbE SFP+ ports; also designed to support 1 Gb SFP or mixing if required For more options information, visit: lenovo.com/servers One 10/100/1000 Mb copper RJ-45 port used for management or data
Internal ports	14x10 GbE data paths 1 to each server bay Internal 2 ports: 100Base-T management through the AMM
Full-line rate performance and latency	480 Gbps and 1.60 microseconds latency
High performance traffic distribution	Ingress traffic is classified into flows and distributed to all server blades in parallel at wire-speed
Configurable hash parameters	Source MAC, Destination MAC, Source IP, Destination IP
Scalability	Multi-chassis support in Layer-3 mode delivers scalability to up to 84 servers across up to six BladeCenter chassis
High availability	Rapid server failure detection and recovery Rapid switch failure detection and failover to standby switch Enhanced N+1 availability for increased application throughput
Application health checks	Link, IPS, ARP, ICMP, TCP, Script based, HTTP, HTTPS/SSL, DNS, SMTP
Policy-based traffic steering and routing	Configurable rules to match on Layer 2 - 4 packet header fields and redirect packets to an outgoing port, trunk or IP next-hop.
Network optimization	Virtual LAN routing for flexible network designs Ability to select different types of traffic for load distribution
CLI	Industry-based CLI (Cisco-like) and networking OS CLI

For more information

To learn more about iFlow Director, visit: lenovo.com/servers or contact your Lenovo representative or Business Partner.

¹ 20110026527 tag-based interface between a switching device and servers for use in frame processing and forwarding 20110026403 traffic management of client traffic at the ingress location of a data center

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