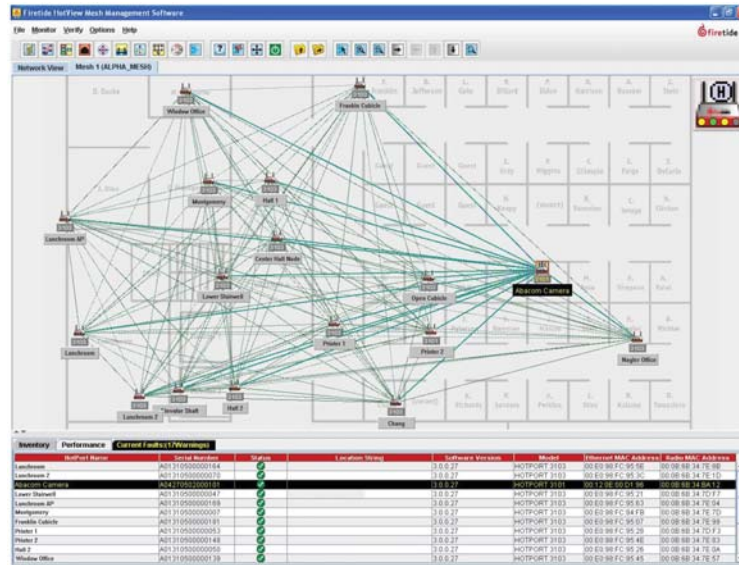




HotView Pro™ Mesh Management Software



The HotView Pro™ Mesh Management Software provides real-time monitoring and comprehensive, centralized management of HotPort™ mesh

networks deployed in an enterprise or a service provider infrastructure.

The software features a client/server architecture with an intuitive graphical user interface (GUI) for managing all mesh-wide and individual node settings for security, traffic prioritization, radio behavior, internetworking, and more.

The software's MultiMesh™ capability enables an authorized administrator to manage multiple mesh networks from a single screen. These networks can be independent, or integrated with MeshBridge™ to form a single mesh environment with up to 1000 nodes.

Real-time monitoring depicts a graphical view of active connections in the mesh

topology, along with a display of mesh/node statistics and event/fault logs. The display can be customized by importing a floor plan, map or drawing to show the physical location of all nodes in the mesh.

HotPort High Performance Mesh Network

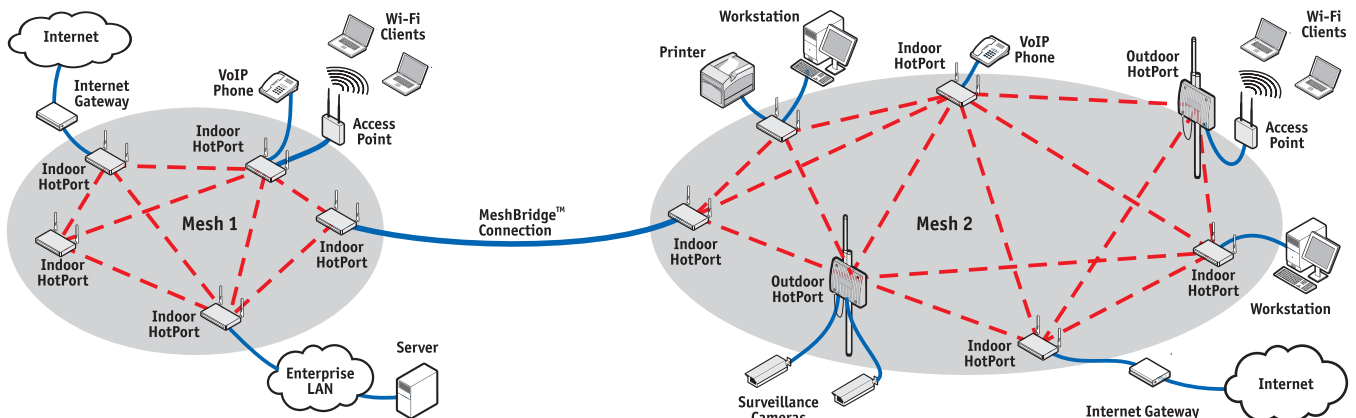
The HotPort mesh network provides a high capacity, self-healing wireless mesh network that operates seamlessly indoors and outdoors. Designed for maximum performance, scalability and ease of use, the mesh delivers a throughput of up to 25 Mbps and can operate at 2.4 GHz for maximum range and penetration, or at 5 GHz to minimize interference with wireless LANs. A special Public Safety version of the HotPort mesh network is also available for use in the USA-licensed 4.9 GHz spectrum.

Firetide's AutoMesh protocol makes the mesh fully self-forming and self-healing, with both load-balancing and automatic failover capabilities, to afford rapid deployment

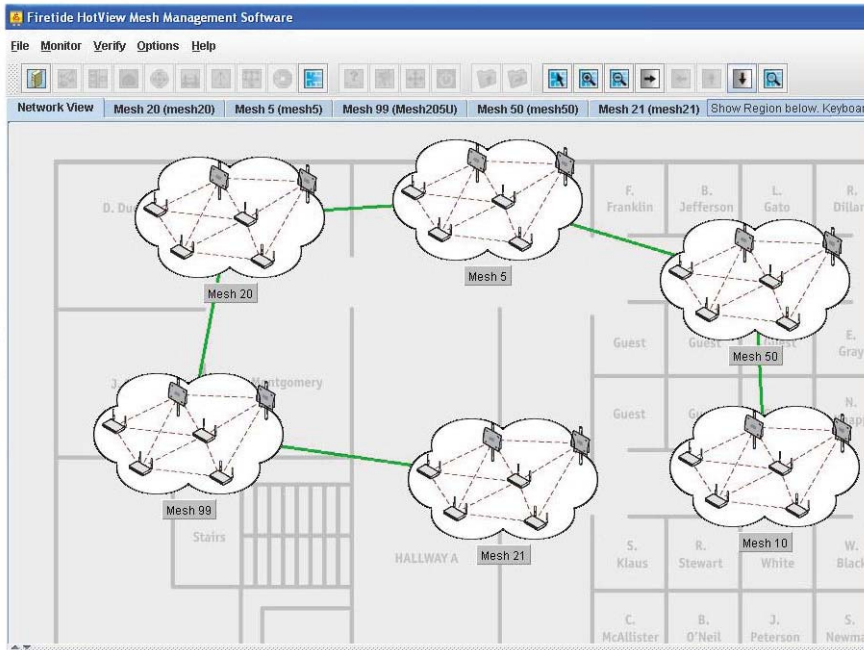
and dependable operation. Multiple auto-sensing 10/100 Mbps Ethernet ports on each HotPort node provide plug-and-play connectivity to Ethernet devices, such as access points or video surveillance cameras, MeshBridge integration and LAN/WAN internetworking.

Client/Server Architecture

HotView Pro is implemented in a traditional client/server design. The server utilizes a database to store (and optionally export) mesh and node configurations, operating statistics, the fault log records, administrator access privileges, and user preferences. One or more clients provide the intuitive GUI for the many management tools. The client and server functions operate across a LAN or WAN, or can be collocated on a single platform. Strong packet encryption secures all client-server and server-mesh communications.



Firetide HotPort™ Wireless Mesh Network



HotView Pro enables management and interconnection of multiple mesh networks

Managing Multiple Mesh Networks

Each local or remote HotView Pro client is capable of managing one or more HotPort mesh networks at a time. The MultiMesh feature displays all mesh networks, including any MeshBridge connections, in a single comprehensive view, and also allows each mesh to be displayed separately.

MeshBridge Integration

The MeshBridge feature is used to connect multiple mesh networks into a single, integrated mesh environment with up to 1000 nodes. The MeshBridge link can be established using a direct, wired connection, or made via any separate switched or routed LAN or WAN infrastructure. MeshBridge helps extend reach and enhance performance, and permits optimal utilization of multiple available RF spectrum and channels in campus or metropolitan applications.

Multi-user Management

HotView Pro allows multiple administrators to be assigned different management capabilities. Each administrator is granted a set of password-protected access privileges, including the ability to change (Read/Write) or simply monitor (Read Only) either a single mesh or multiple mesh networks. To support good change management practices, only one user at a time is granted full Read/Write capability for any mesh.

Optimal Mesh Performance

The HotPort High Performance Mesh Network has several features that together deliver the high throughput and low latency needed to support concurrent voice, video and data communications.

- Traffic can be prioritized by class of service (CoS) designation.
- Multi-Hop Optimization reduces contention in mesh topologies with numerous redundant paths.
- Received Signal Strength (RSSI) Threshold settings prioritize paths by link quality.
- Adjustable transmit power levels minimize interference within the mesh, while Dynamic Frequency Selection (DFS) minimizes radio/radar interference.
- Virtual LANs segment and direct traffic along specific VLAN routes.
- EthernetDirect enables substitution of a wireless link with a high speed full-duplex 100 Mbps wired link between any two nodes. This feature also allows two portions of a single mesh network to be linked across a routed IP network.

HotPort Mesh Configuration

The various default settings for a HotPort mesh can be changed mesh-wide with a single action. Mesh-wide configuration parameters include radio mode and channels, Extended Service Set Identifier (ESSID), country code (not applicable for HotPort Public Safety systems), mesh IP address, and the traffic encryption type and strength.

The screenshot shows the 'Mesh 1' configuration window. It includes a 'Jump To Mesh Tab...' dropdown, 'Move Mesh...', and 'Logout Of Mesh...' buttons. Below these is a 'Mesh Summary' section with the following settings:

Mesh Name	: ALPHA_MESH
IP Address	: 10.0.3.5
ESSID	: ftMeshLgCorp2
Radio Mode	: 5.725-5.850 GHz OFDM
Radio Channel	: 157
WEP Security	: enabled
AES Security	: enabled
Multi-hop Optimization	: disabled
RSSI Threshold	: -85
Hysteresis Window	: 3
Country Code	: United States (840)

Mesh Configuration

Individual Node Configuration

HotView Pro also provides centralized control over all nodes in the HotPort mesh network(s). Administrators can view details in a drop-down node summary display, and make changes to the node's configuration of Ethernet ports, assigned name and location description, and transmit power setting.

The screenshot shows the 'Window Office' node configuration window. It features a list of actions: 'Rename HotPort...', 'HotPort Location...', 'Port Configuration ...', 'Change Transmit Power ...', 'Statistics ...', 'Reboot HotPort ...', 'Move HotPort ...', 'Configure this node as a Gateway Server node ...', 'Refresh configuration for this HotPort ...', 'Delete this HotPort from Nms ...', 'Import Mesh Wide Configuration from this HotPort ...', and 'Apply Mesh Wide Configuration to this HotPort ...'. Below the actions is a 'Node Summary' section with the following details:

HotPort Name	: Ozzie's Office
Serial Number	: A0131050000164
MAC Address	: 00:E0:98:FC:95:5E
Radio MAC Address	: 00:08:6B:34:7E:8B
Model Number	: HOTPORT 3103
Ethernet Ports	: 4
Software Version	: 3.0.0.27
Boot Software Version	: 1.0.0
Transmit Power (dBm)	: 17
VLANs	: none
Gateway Groups	: none
Multicast Groups	: none
Bridge Groups	: none
Location	:

Node Configuration

Custom Backgrounds

Views can be customized with an imported background bitmap image, such as a floorplan, campus or street map, or aerial photograph. The individual nodes are then “dragged and dropped” to their real-world physical location. The resulting display shows the actual layout of the mesh topology, complete with lines indicating the many links or hops (wireless or wired) among all nodes. This powerful mesh-wide view is frequently used when adding new nodes or changing the location of existing ones, as well as for monitoring, optimizing, troubleshooting and otherwise managing a HotPort mesh.

Real-Time Monitoring and Statistics

HotView Pro affords at-a-glance monitoring of one or more mesh networks. The information includes network status (throughput performance, radio signal strength and noise, and node uptime), performance statistics (radio behavior, neighboring links and Ethernet ports), and current/logged faults. Statistics and log files can be exported for offline analysis. The fault log displays the severity, date and time, node location, fault type, and description of every fault or error encountered on the mesh.

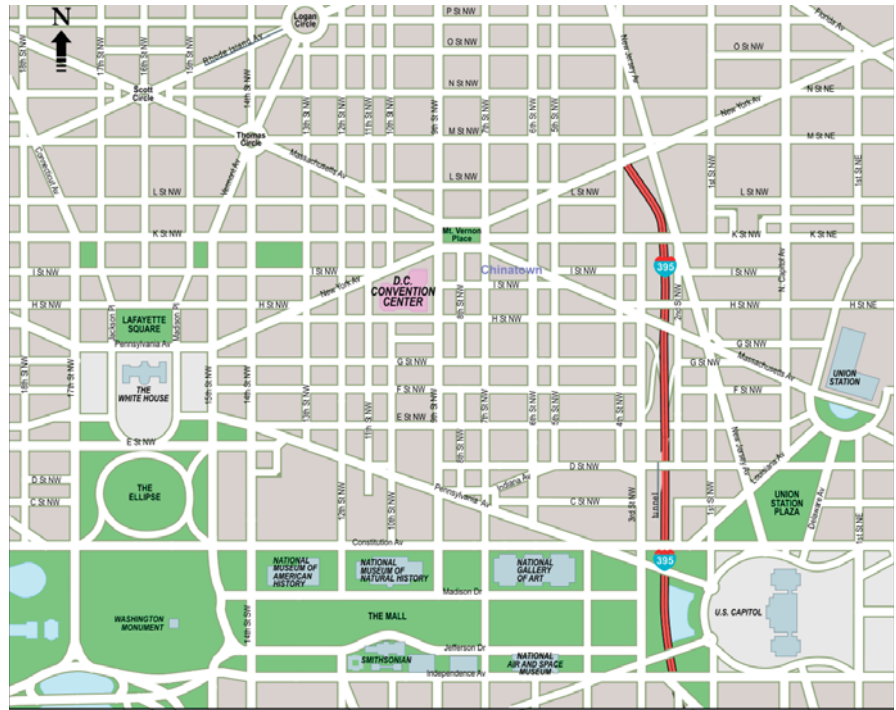
Internetworking with Other Domains

Any HotPort mesh can internetwork with any other LAN/WAN domain, including the Internet or an enterprise network. A node designated as a Network Gateway Interconnect (NGI) provides the basic connection; multiple NGI nodes add multi-path performance and redundancy.

A separate node can be designated as a gateway server to consolidate multiple NGIs into a single, high-bandwidth link. HotView also support IEEE 802.1q VLAN tagging of packets traversing the mesh to and from other network domains.

Mesh Security Provisions

HotView Pro offers a choice of packet encryption and address filtering provisions to ensure the security and integrity of a HotPort mesh. For end-to-end traffic encryption through the mesh, administrators can enable Advanced Encryption Standard at 128 or 256 bits and/or Wired Equivalent Privacy at 104/128 or 40/64 bits. Traffic can also be filtered by MAC address. This form of access control can be configured on either an explicit Allow or Deny basis. VLANs, which segment traffic within the mesh, add yet another layer of security.



Custom backgrounds such as this city map can be imported to show relative locations of mesh nodes on floor plans and maps.

Managing Inventory

The information captured and maintained by HotView Pro provides an automatic, up-to-date inventory of all HotPort nodes. Details about each node include its model number, serial number, MAC address and software version. This application also allows administrators to assign a unique node name and a description of each node’s physical location.

Easy Mesh Updates

HotView allows all nodes in any mesh network to receive software updates concurrently in one easy operation. This simplifies the task and ensures that all nodes share the most current software, while preserving the mesh/node configurations and unique identifying information. Software updates can be downloaded from the Firetide web site.

S7 Statistics

Statistics Last Refreshed at: Fri May 20 18:28:59 PDT 2005

Neighbor Statistics

Neighbor Node	RSSI (dbm)	Input Packets	Output Packets	Input Bytes	Output Bytes	Data Rate (kbps)	Packets Dropped	Total Retries
57	-77	168088	184325	9114631	15595686	54000	974	223
67	-77	168087	7512	9114585	1505564	54000	0	174

Ethernet Port Statistics

Port	Input Packets	Output Packets	Input Bytes	Output Bytes	Packet Collisions	Receive Errors
1	0	0	0	0	0	0
2	0	0	0	0	0	0
3	0	0	0	0	0	0
4	0	0	0	0	0	0

Radio Statistics

Link Quality	RSSI (dbm)	Noise (dbm)	Input Packets	Output Packets	Input Bytes	Output Bytes	Transmit Cr.	Receive Err.	Retransmit	Retransmit	Dropped Pa...
100	-77	-98	168088	184325	9114631	15595686	643	61101	0	0	974

OK

Mesh Node Statistics



HotView Pro™ Mesh Management Software

HotView and HotView Pro Feature Summary

Each HotPort mesh node includes a standard version of the HotView software for basic node configuration and management of a single mesh network. HotView Pro is optional software with advanced features including client/server architecture and multiple mesh management. The table below compares the capabilities of HotView and HotView Pro.

Feature or Function	HotView	HotView Pro
Architecture	Integrated	Client/Server
MultiMesh Management	No	Yes
MeshBridge Integration	No	Yes
Concurrent Administrators	One	Multiple
EthernetDirect	No	Yes
Class of Service Traffic Prioritization	Yes	Yes
Transmit Power / Multi-Hop / RSSI Threshold	Yes	Yes
Virtual LANs	Yes	Yes
Mesh/Node Configuration Settings	Yes	Yes
Node Statistics & Fault Log	When Active	Persistent
Background Image Import	Yes	Yes
Database / Export	No	Yes
NGI(s) & Gateway Server Internetworking	Yes	Yes
AES/WEP Encryption & Access Control	Yes	Yes
Inventory Management	Yes	Yes
Mesh Software Update	Yes	Yes
HotPort/Public Safety (4.9 GHz)	Yes (USA only)	Yes (USA only)

Other Firetide Mesh Products



HotPort Outdoor Mesh Nodes



HotPort Indoor Mesh Nodes



HotPort 4.9 GHz Public Safety Mesh Network



Antennas and Accessories

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