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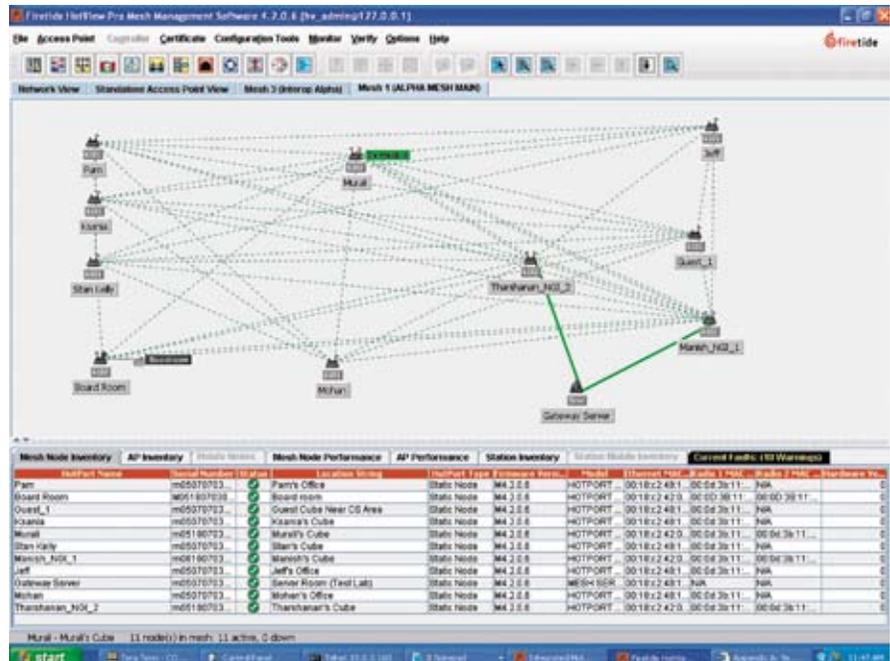
HotView Pro™ Network Management Software

HotView Pro provides centralized management and control of single or multiple Firetide networks with an intuitive web based user interface. It is a sophisticated, yet simple-to-use platform for configuring, monitoring, and managing HotPort® mesh nodes and HotPoint® access points.

Firetide Multi-Service Network

The Firetide mesh system provides a high capacity, self-healing wireless mesh network that operates seamlessly indoors and out-doors. Designed for maximum performance, scalability, mobility and security, the mesh delivers throughput of over 150 Mbps per radio link.

Firetide's patented AutoMesh™ routing protocol makes the mesh fully self-forming and self-healing, to afford rapid deployment and dependable operation for both static and mobile mesh infrastructures. Mesh-wide performance is constantly optimized with unique AutoMesh features such as flow based routing, congestion control, cost-based bandwidth metrics and industry-leading low latency. Multiple auto-sensing 10/100/1000 Mbps Ethernet ports on each HotPort node create a virtual Ethernet switch, providing direct con-nectivity to devices such as video surveillance cameras and Wi-Fi access points, forming a high-performance multi-service infrastruc-ture. The mesh nodes can operate in bonded or linear radio mode and support 900 MHz, 2.4 GHz, 4.9 GHz and 5 GHz bands.

In the bonded mode, both radios are combined to operate as a single interface that provides double the bandwidth of a single radio equivalent. This is ideal for bandwidth-intensive applications such as video surveil-lance, resulting in crystal clear video images. This mode also provides a "fat pipe" for point to point wireless backhaul—for example, to connect two mesh networks. In the linear mode, both radios operate independently enabling sustained bandwidth levels over an unlimited number of hops. This enables long linear topologies, such as when networking a railway line, and provides a sustained level of service to every node, which is also critical for large municipal networks.

Optimal Network Performance

The HotView software incorporates a number of unique flow control, traffic prioritization and management capabilities to deliver high throughput and low latency needed to support concurrent voice, video and data communications.

- Bandwidth metrics improve overall throughput by selecting best transmission paths based on link capacity, link type, hop count, and link retransmission count.
- During high network utilization, HotView manages and mitigates traffic congestion on a per flow basis. Three levels of congestion control are triggered by traffic in transmit queues and overall link capacity.
- Mesh traffic can be prioritized by Ether-net port or by 802.1p QoS based high, medium, or low field values in order to optimize video or voice applications.
- With flow-based routing traffic is balanced across the mesh to best optimize aggre-gate throughput and increase network performance. Flows are established between source and destination nodes and are balanced based on link-specific traffic loads and class-of-service priorities.
- Network performance can be optimized in crowded environments by manually remov-ing redundant links from the mesh.

- To reduce network traffic and improve overall performance, broadcasts can be contained to a single mesh or multiple contiguous meshes.
- Static Route Assignments can be imple-mented to ensure the highest possible performance between any two source and destination nodes.
- In poor RF environments transmit data rates can be locked-in at a lower rate to reduce re-transmissions and ensure con-stant throughput.
- Multi-Hop optimization reduces conten-tion in mesh topologies with numerous redundant paths.
- Received Signal Strength (RSSI) Threshold settings prioritize paths by link quality.
- For improved performance over longer dis-tance routes, the Extended Range feature enables timing parameters to be optimized for longer propagation times.
- Adjustable transmit power levels mini-mize interference within the mesh, while Dynamic Frequency Selection (DFS) mini-mizes radio/radar interference.
- Virtual LANs segment and direct traffic along specific VLAN routes.

Highly Scalable Networks

The virtual-Ethernet architecture of HotPort systems combined with the AutoMesh routing protocol provide superior scalability with the following features:

EthernetDirect™ – With EthernetDirect a HotPort mesh can be seamlessly extended to a wired backbone or any two mesh nodes can be interconnected with a high speed full-duplex 100 Mbps wired link, reducing overall hop counts. This feature also allows two portions of a single mesh network to be linked across a routed IP network.

Internetworking with Other Domains – Any HotPort mesh can internetwork with any other LAN/WAN domain, including the Inter-net or an enterprise network. A node des-ignated as a Network Gateway Interconnect (NGI) provides the basic connection; multiple NGI nodes add multi-path performance and redundancy. A standby Gateway Server can be optionally configured to ensure seamless failover from standby to active. A separate node can be designated as a Gateway Server to consolidate multiple NGIs into a single, high-bandwidth link. HotView also supports IEEE 802.1q VLAN tagging of packets travers-ing the mesh to and from other network domains.
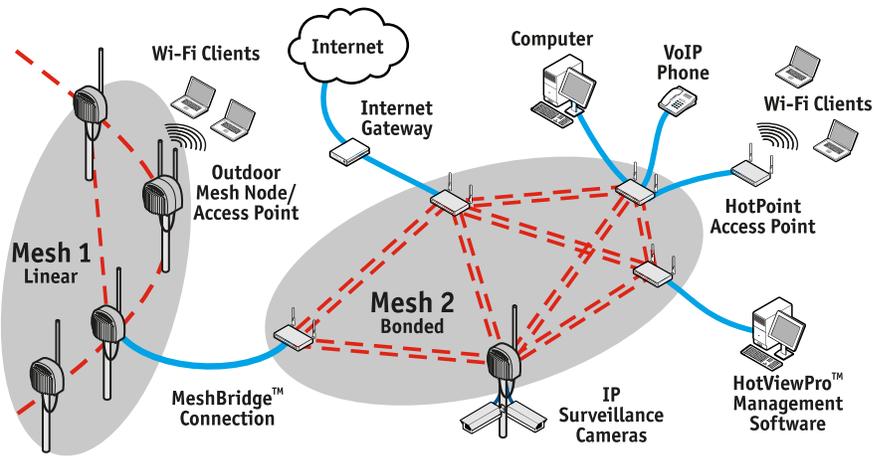
Firetide Wireless Network

Maximum End-to-End Security

The HotPort system provides a set of layered security options in order to ensure multi-level data integrity, access control, and intru-sion protection both across the mesh and to the client.

- For end-to-end traffic encryption, admin-istrators can enable Advanced Encryption Standard (AES) at 128 or 256 bits, WPA2 (256-bit key) and/or WEP at 104/128 or 40/64 bits (6000 models only).
- Traffic can 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.
- Mesh node ESSID encryption and suppres-sion prevents unauthorized viewing of HotPort mesh nodes, even with sophisti-cated wireless monitoring tools.
- Mesh nodes are digitally signed, requiring certificate based acceptance before any HotPort node can join the mesh.

- Firmware upgrades are also certifi-cate-based, requiring nodes to accept upgrades only from trusted and digitally signed sources.
- In addition to security across the mesh backbone, the HotPoint AP is 802.11i compliant and supports 802.1x RADIUS authentication, VPN tunneling and filter-ing, and SSID suppression.

Unmatched Mobility

In addition to supporting mobile Wi-Fi clients as they roam from cell-to-cell, HotPort mesh nodes provide an entirely mobile infrastructure. This enables unique applications such as real time video and high-quality voice calls as well as uninter-rupted Wi-Fi access on moving vehicles such as police cars, fire trucks, buses and trains. The HotPort AutoMesh protocol delivers seamless roaming with zero-packet loss and zero-handoff delay.

Advanced Management Architecture

Client/Server Architecture – HotView Pro is implemented in a tra-ditional client/server design. The server utilizes a database to store and export mesh and node configurations, operating statistics, fault log records, administrator access privileges, and user preferences. One or more clients provide the intuitive GUI for the many manage-ment tools. The client and server functions operate across a LAN or WAN, or can be collocated on a single platform.

Managing Multiple Mesh Networks – Each local or remote HotView Pro client is capable of managing one or more HotPort mesh net-works from a single screen. Multiple networks can be independent, or integrated to form a single mesh environment. 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. The MultiMesh feature displays all mesh networks in a single comprehensive view, and also allows each mesh to be displayed separately.

Multi-user Management – HotView Pro allows multiple admin-istrators 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. HotView Pro also includes a default ID lockout feature that enables redefinition of default user IDs to thwart possible brute-force attacks.

SNMP Management – SNMP management allows network administra-tors to customize and integrate management of individual or multiple HotPort mesh networks into a network management system such as HP OpenView or IBM NetView. SNMP enables large enterprises and system integrators to customize mesh management for their users.

Real-Time Management

Real-Time Monitoring and Statistics –
HotView Pro affords at-a-glance monitoring
of one or more wirless networks. The
informa-tion includes network status,
performance statistics, and current/logged
faults. Statis-tics 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
encoun-tered on the network.

Managing Inventory – The information
captured and maintained by HotView Pro
provides an automatic, up-to-date inventory
of all HotPort nodes and HotPoint access
pointsDetails about each node include its
model number, serial number, radio 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 and Secure Mesh Updates – HotView
allows all or selected Firetide devices in any
network to receive software updates concur-
rently in one easy operation. This simplifies
the task and ensures that all devices share
the most current software, while preserv-ing
existing mesh/node configurations and
unique identifying information. Individual
device security is enhanced with certificate-
based firmware upgrades which require
devices to accept upgrades only from
digitally signed sources.

Heirarchical Product Navigation – This
feature allows you to reduce the complexity
of managing network infrastructure. With
HotView Pro network manage-ment
software you can navigate across Hot-Port,
HotPoint products and hierarchically view
different segments.

Access Features

HotView and HotView Pro network
manage-ment software provides
performance and statistics monitoring for
HotPoint and HotClient access products.
Access points can be connected to HotPort
mesh nodes or directly to a wired
infrastructure.

Hotspot Features - HotView allows configu-
ration of layered hotspots within one geo-
graphic area. Using VLANs, you can
configure different logical networks for
different types of users within one physical
network. For example, police, the public, and
city officials can log in to separate virtual
networks. Additional hotspot features include
captive portal management and the ability to
create a 'walled garden.' Captive portal
manage-ment feature facilitates user
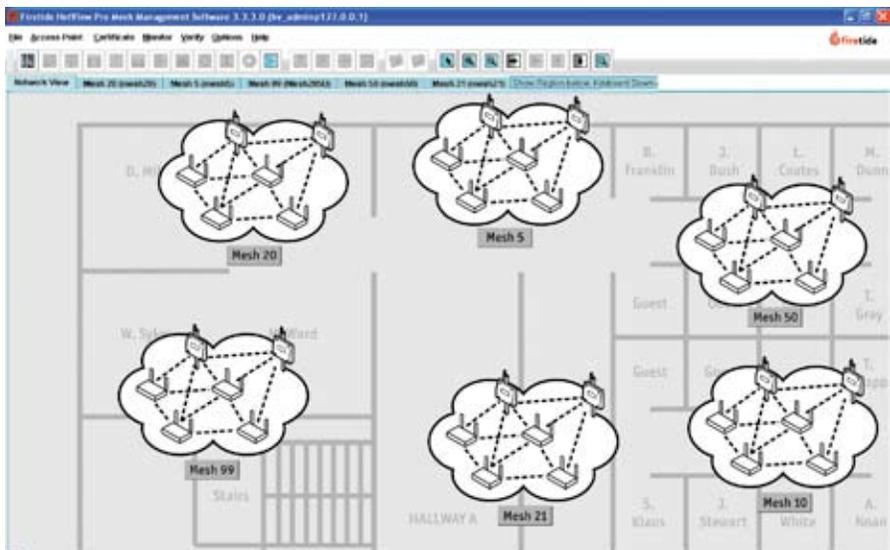authentication and grants full or limited
('walled garden') access.

Exportable real-time mesh node statistics

HotView Pro enables management and interconnection of multiple mesh networks

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

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