



Firetide Wireless Mesh Solutions

Selling Guide

August 2011

Firetide Snapshot

- Headquartered in Los Gatos, CA
- Leading provider of wireless infrastructure mesh and broadband access networks
- Market leader in wireless infrastructure for public safety video surveillance
- Technology leader through continued innovation
- Over 2000 installations in 40 countries



Positioning

Leading provider of High Performing wireless infrastructure and access solutions for city-wide, government, industrial and enterprise markets

Firetide's Core Market Focus

- Government



- Transportation



- Commercial/Industrial



- Retail



- Education

Overlay Verticals

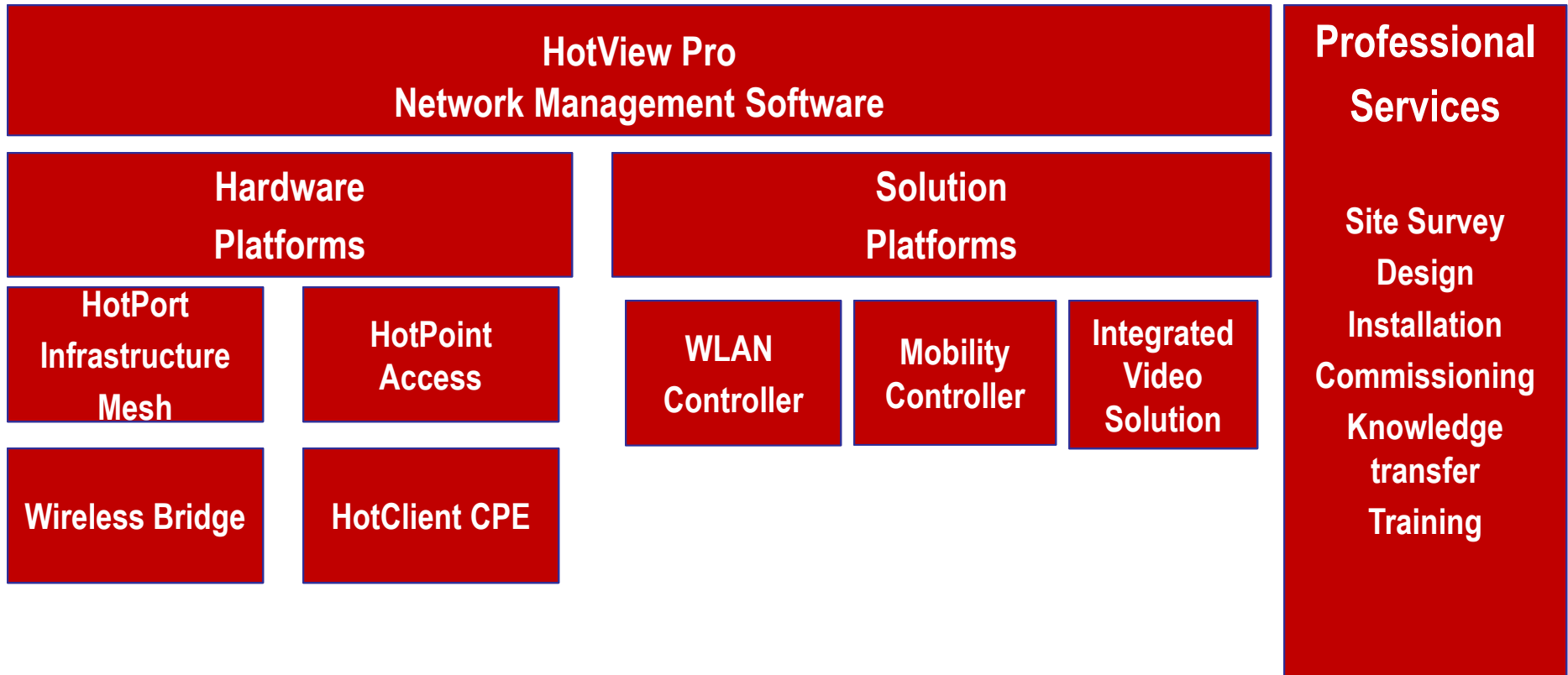
- Service Provider
- Utilities



Firetide Market Position

- IMS Research report on wireless video surveillance
 - Firetide is #1 market share in wireless mesh
 - #3 in the overall market (mesh, PtP, PtMP)

Product & Service Portfolio



Wireless Infrastructure Mesh: Core

Model	Form factor	Application	Deployment	Radio
HotPort 7020		Fixed; Mobility; 900 MHz	Outdoor	Single & dual radio
HotPort 7010		Fixed; Mobility	Indoor	Single & dual radio
Firetide IVS-100		Fixed; Mobility	Outdoor/ Indoor	Single & dual radio
Mobility Controller FMC-2000		Mobility	Indoor	N/A

Firetide Infrastructure Mesh

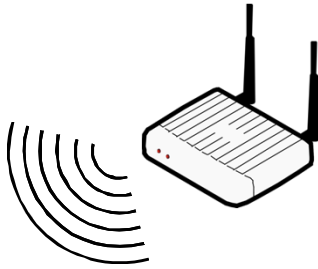
- **Throughput, reliability and security of wire**
 - Up to 300 Mbps outdoors/400 Mbps indoors in PtP
 - 100-150 Mbps sustained over multiple hops
 - Fiber-equivalent 0.9 ms latency per hop
- **Convenient upgrade path**
 - From non-MIMO to MIMO
 - From single radio to dual-radio



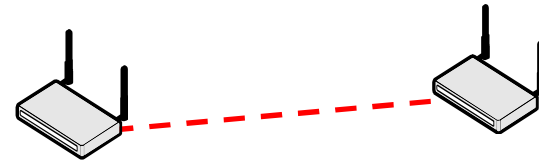
Technology Overview

Wireless Infrastructure Topologies

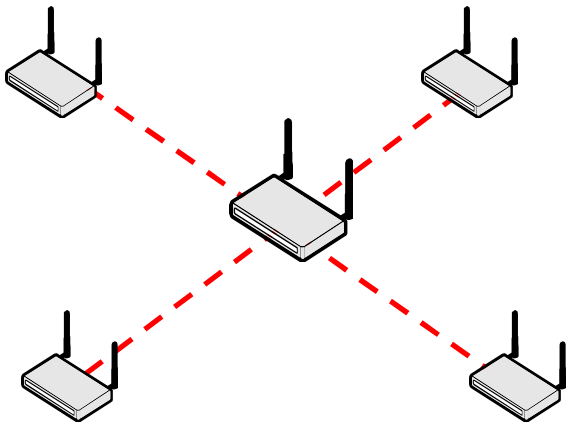
Wi-Fi Access



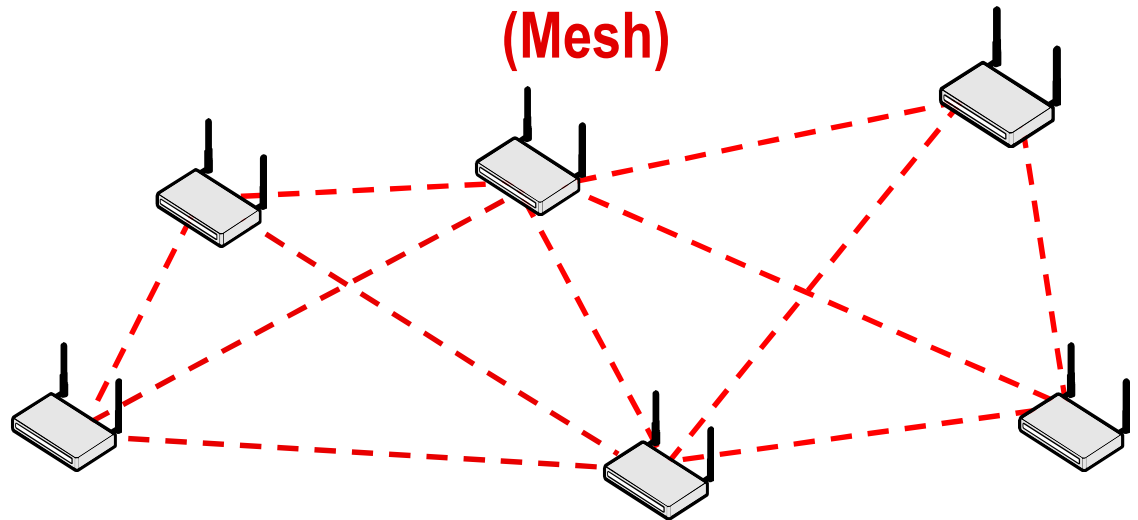
Point to Point



Point to Multi-Point



**Multi-Point to Multi-Point
(Mesh)**



Key Technology Differentiators

Customer Benefit	Infrastructure Mesh	Mesh AP	PtP	PtMP
Scalability for video	●	◐	◐	◑
Security	●	◑	●	●
Infrastructure Mobility	●	◑	◐	◐
Reliability	●	◑	◐	◐
Backhaul requirement	Every 10-15 hops	Every 2-3 hops	Every link	Every base station
Investment Protection	Indoor and outdoor, multiple applications (data, video, voice)	Indoor and outdoor, access point based, data support only	Outdoor only, complex network management, no scalability	Outdoor only, complex network management, limited scalability

Why is Redundancy Important?

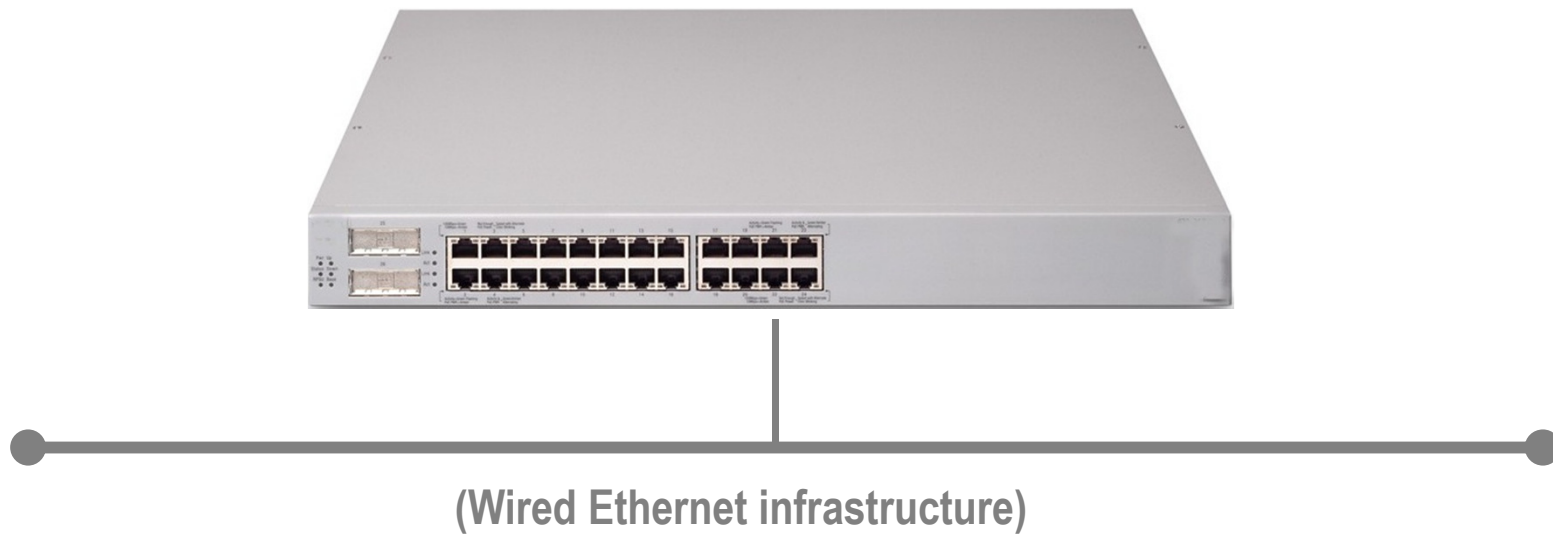
- Wireless gear is very reliable....
- ...but it is frequently installed on light poles which aren't



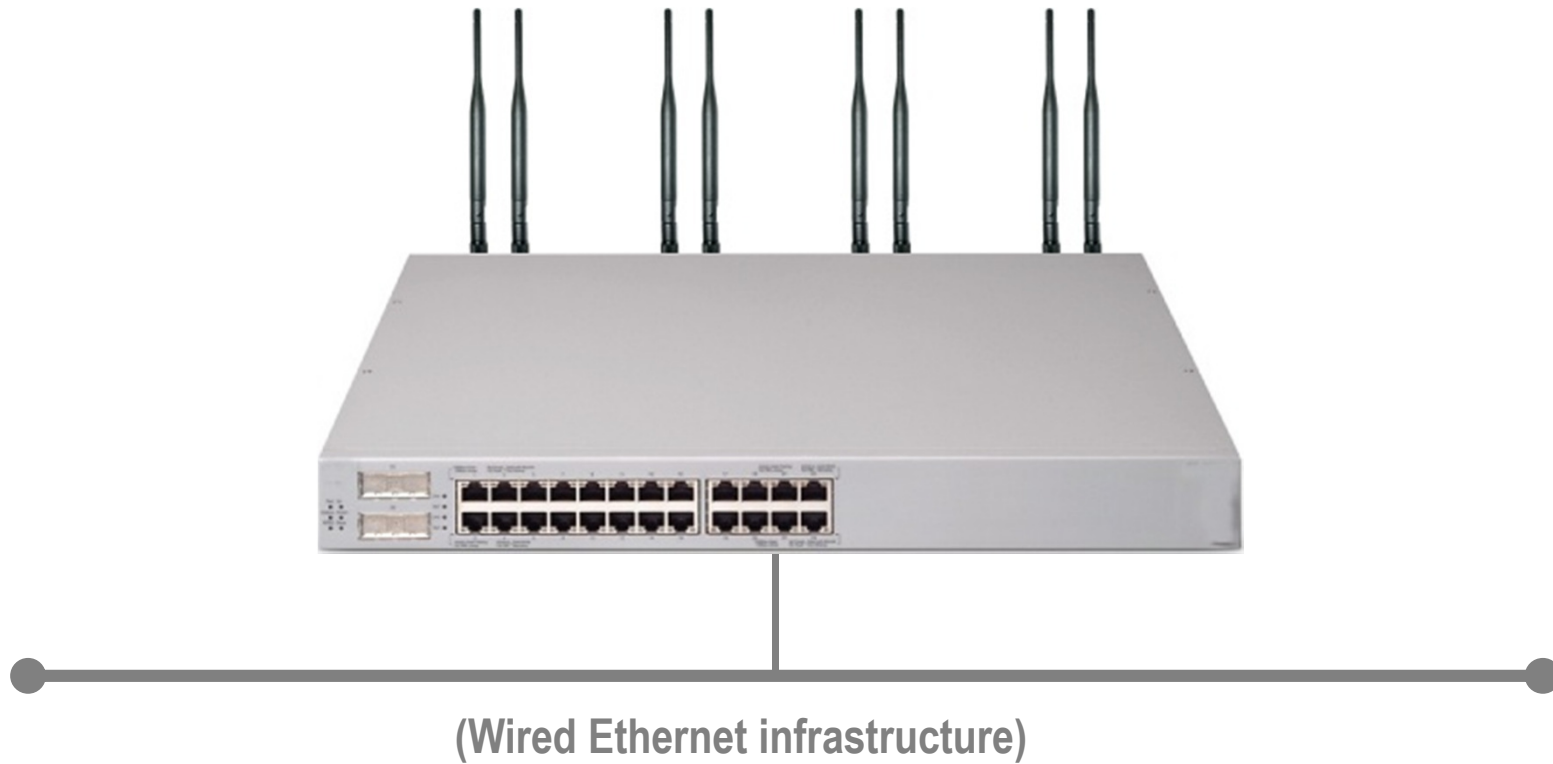
Not All 'Wireless Mesh' Created Equal

Imagine a Traditional Wired Switch

Most efficient mesh utilizes L2 distributed wireless switch architecture

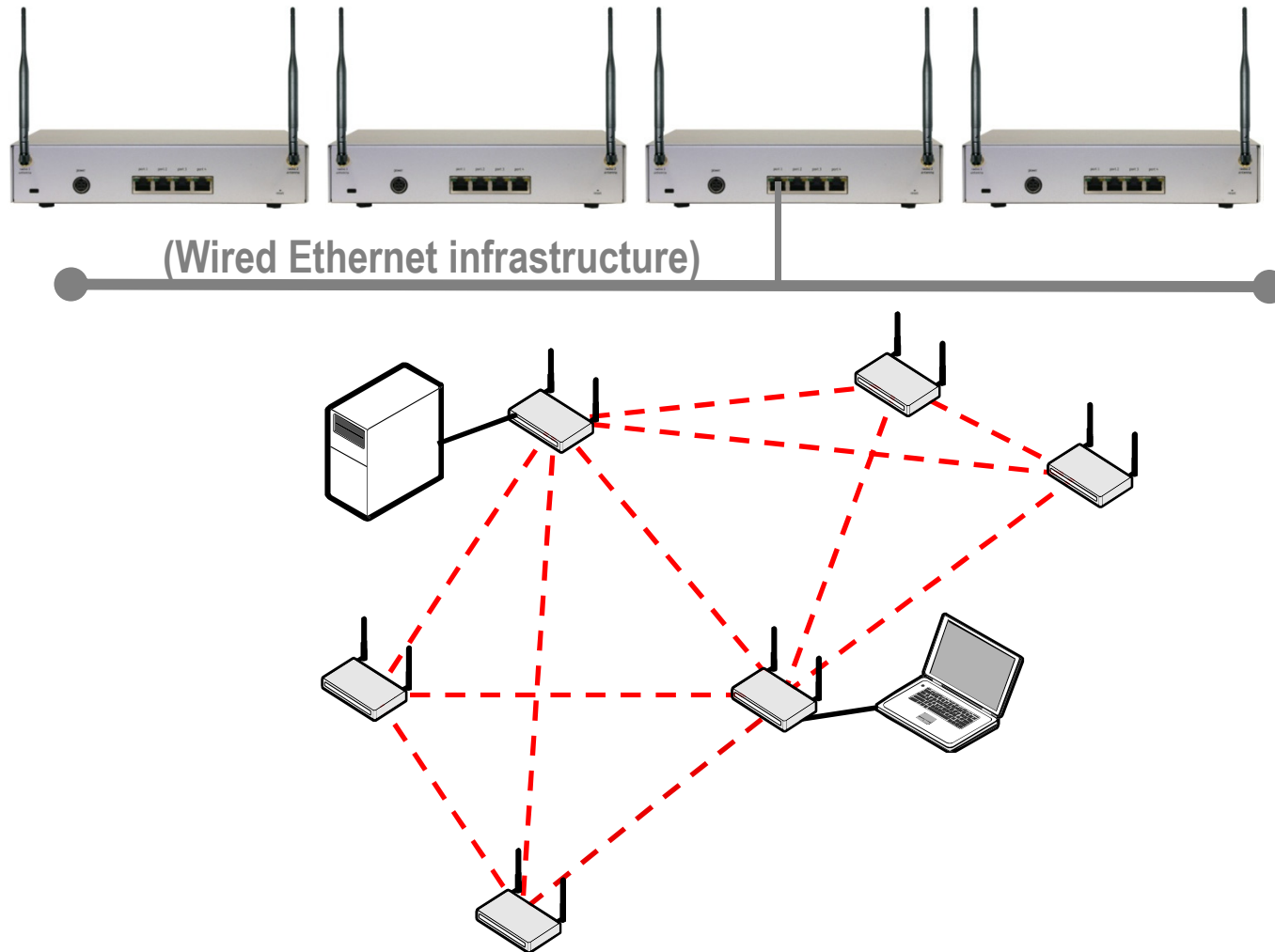


Now, Give Each Port Wireless Capability

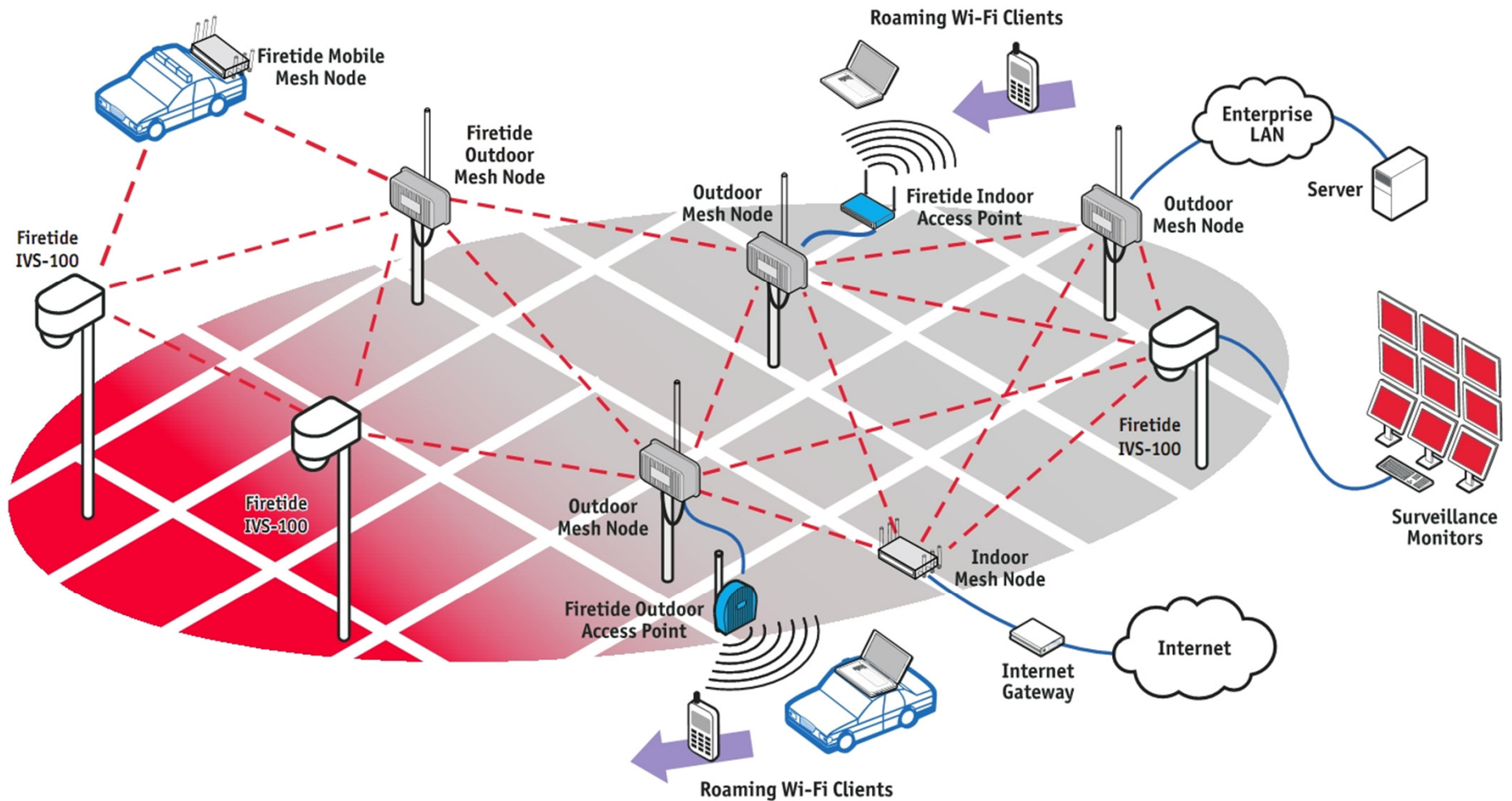


Separate the Ports...

Bingo, a Virtual Ethernet Switch!



Metro-scale Mesh Networks



Competitive Positioning

- No other vendor has:
 - 11n based static and mobile infrastructure solution
 - Highest performing (throughput/latency) wireless network
 - Highest price to performance ratio
 - Patented End-to-End Security

Mesh Routing Protocols

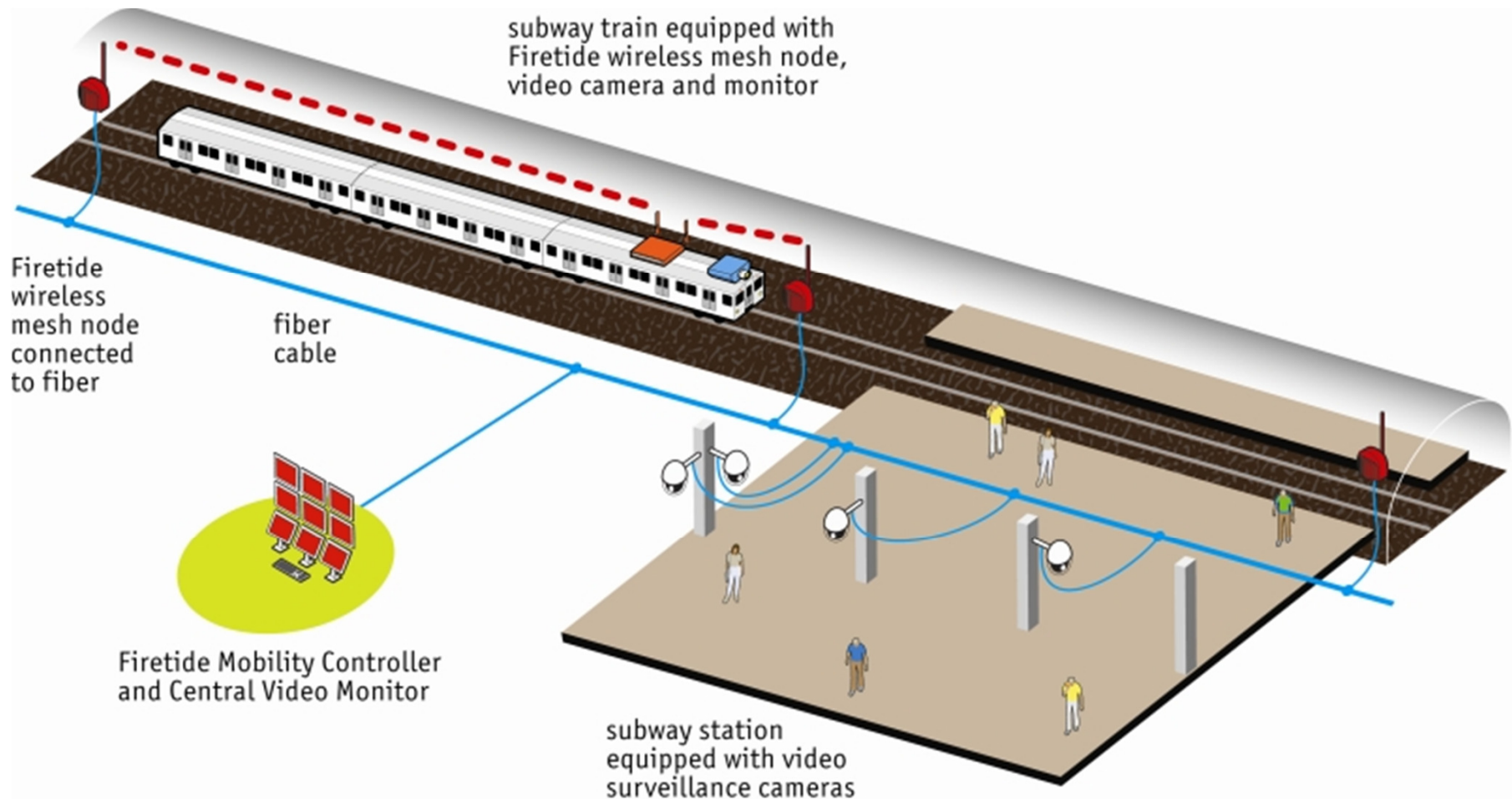
■ Firetide AutoMesh[®] Protocol

- Built from the ground up, for wireless
- Patented routing protocol
- All the benefits from L2/L3
- Flow based management
- Load balancing
- 18 patents
- 2 years initial R&D, 5 years of refinement

■ Competition Protocol

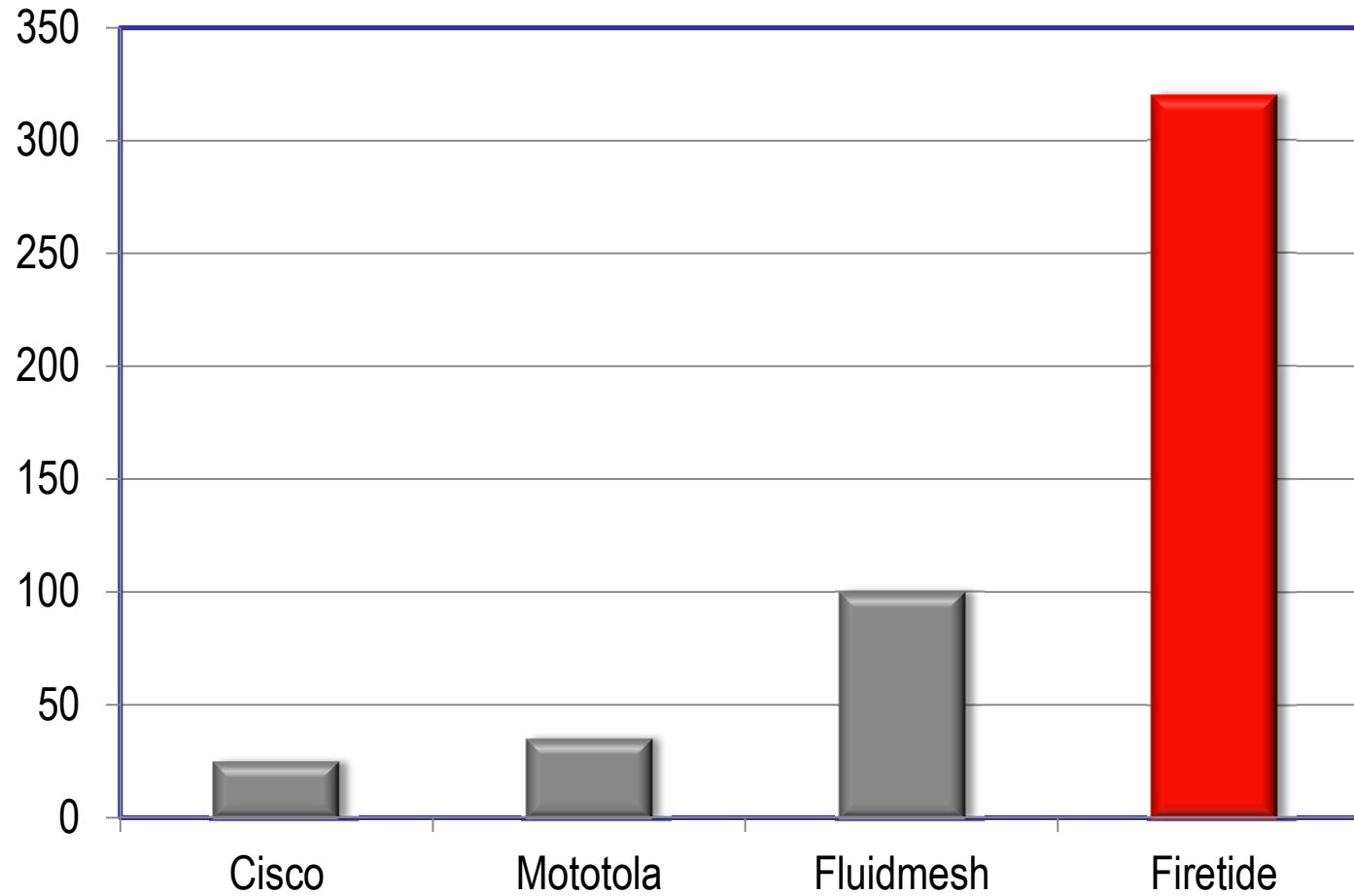
- Either L2 or L3
- Packet look up
- High Jitter
- No seamless infrastructure mobility

Mobility



- Seoul subway; 55 mph, **zero** packet loss

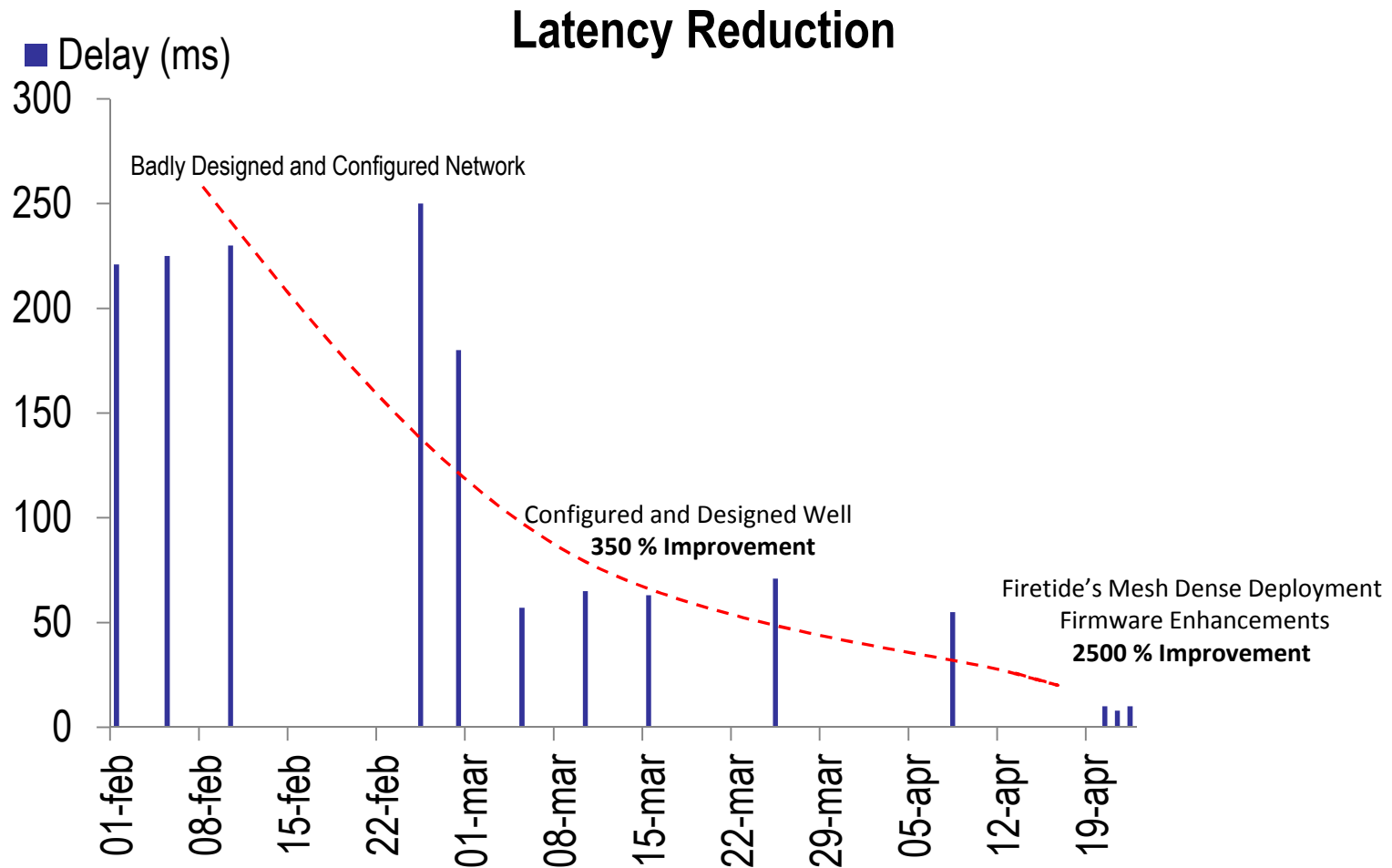
Throughput figures



Firetide Wireless Network Design

- Proper Network Design and channel planning
- Firetide Mesh Software - Dense Deployment Optimizations
 - Enhanced Auto Rate for MIMO
 - Accurate Noise Floor Calibrations
 - Improved Radio link resiliency
 - Jitter Reduction
- Measured Performance after Firetide Mesh Software updates:
 - 120 Mbps per radio on 40 Mhz channel
 - 50 Mbps per radio on 20 Mhz channel
 - Less than 1 ms per hop, 10 ms end to end across 3 to 4 hops

Network Performance



Other reasons to choose Firetide

- Successfully completed over 2000 deployments, worldwide
- History of major (100+ node) networks
- FIPS 140-2 Certification
- AES 256 bit vs. AES 128 bit
- 5th generation of wireless infrastructure mesh, designed & optimized for real-time applications



Working with Firetide

Focused on Your Success

■ Public Bid Processes (RFx process)

- Mining/Leads
- Response templates
- A&E specifications
- Assistance with RFP questions

■ Local Sales Team

- Inside Sales (good starting point of contact)
 - Registration
 - Webinars
 - Sales support
- Regional Sales Manager (RSM)
 - Sales training & ride along
- Systems/Sales Engineer (SE)
 - Design support
 - Technical questions

Firetide Extranet

<http://partners.firetide.com>

Online Training



Firetide Professional Services

■ Turn Key Solution

- Adaptable – from site survey to complete turnkey
- Flexible – project based
- Firetide will provide an estimate for both labor and equipment
- Local Firetide team will facilitate



Contact Us



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Thank You

Mesh Competitive Detailed

Customer Benefit	Firetide (7000 series)	Cisco (Cisco Mesh AP 1524)	Motorola MeshAP 7181	Proxim OriNoCo WiFi Mesh
# of backhaul Radios	2	2	2	1
MIMO Capability on Mesh	Yes	No	Yes	No
Radio Modes & Frequencies for backhaul	A/B/G/N 2.4 GHz; 5 (5.1 to 5.8) GHz; 4.9 GHz	2.4 Ghz 5 Ghz 4.9 Ghz (Different flavor product for frequency band)	Radio 1 – b/g/n Radio2 – a/n Limited to 5.4 – 5.8 No Support for 4.9 Ghz	4.9 Ghz or 5 Ghz
MIMO Tx Power	400mW	400 mW	High Power (exact conducted power N/A)	High Power 20 dBm
Effective User Throughput	Up to 200 Mbps per radio	14 Mbps per radio	Claims only modulation rate	25 Mbps
QoS	End to End 802.1p Compliant	No End to End Standard Local AP based 802.11e	No End to End Standard Local AP based 802.11e	QoS Tagging for PTZ camera traffic and VOIP
Security	End to End	No End to End	No	128 bit AES. No End to End
Firetide Confidential	256 bit AES	Local 128 bit AES	End to End Local AES	

Mesh Competitive Detailed

Customer Benefit	Firetide (7000 series)	Cisco (Cisco Mesh AP 1524)	Motorola MeshAP 7181	Proxim OriNOCO WiFi Mesh
# of Ethernet Ports & Capacity	4 GigE interfaces on indoor 3 GigE interfaces on outdoor	1 10/100 Ethernet Port + 1 Fiber Port	2 10/100/1000 Ethernet Ports.	1
Installation Assist Tools	Inbuilt Antenna Alignment	None	Partial Support	None
Interference Avoidance Tools	Inbuilt Spectrum Analysis, Power Meter	Only Spectrum Analysis	None	None
Network Fault Detection	Automatic Ethernet Loop Detection	None	None	None
Fully Integrated Antennas	3 in 1 MIMO antennas	N/A	3 in 1 downtilt MIMO antenna with mechanical remote control	None