



Motorola Wireless Networking Solutions

Endless Possibilities
for Security Organizations

Motorola Wireless Networking Solutions.

Solving Security Networking Issues.

Connectivity Challenges

- Older infrastructure
- Large physical spaces
- Large mobile population
- Temporary buildings
- Cost containment

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- **Cost Effective Solutions**

Motorola Wireless Networking Solutions offers high-speed connectivity at a cost that is substantially less than wire lines.

- **75 years of knowledge and experience**

The name Motorola stands for the ultimate in wireless communications expertise. Motorola is also well regarded for its outstanding warranties, support and service.

- **Customer Peace of Mind**

Only available through a Motorola Authorized Networking Solutions Provider who has the technical “know how” to create wireless solutions you can count on.

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Remove Wiring Challenges

Wiring can be cost-prohibitive for older facilities or even restricted in historically-significant buildings

No right-of-way requirements to cross roads or waterways

Able to redeploy with minimal expense

Reduce security risk of laying wires

Install quickly — hours or days, not weeks or months

Reuse equipment

No permits

Connect permanent or temporary campus buildings quickly and easily

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What does this mean to you?

Remote Monitoring and Video Surveillance

Can incorporate camera and video

Detect breaches and receive alerts with sensor applications

Cost Savings and Quick Return on Investment (ROI)

Significantly Reduce/Eliminate Monthly T1 Costs in some cases

Typical 12-18 months cost savings pays for system

Safe, Secure & Reliable

Industry standard Wi-Fi Protected Access (WPA) for LAN

Redundancy Application – Wireless back up, just in case wired system is disrupted (WAN)

Plenum Rated – required for Access Points (APs) installed in ceilings (minimizes chance of theft)

Physical lock – minimize mischief, theft for APs located in public areas

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What does this mean to you?

Higher Performance

Up to 300 Mbps Motorola Point to Point Bridge Solutions products

802.11g LAN products based on higher performance chipset than other products

Transports data, voice or video

About Motorola Wireless Networking Solutions

Choose from a wide range of solutions:

Wireless Internet Platform

Wireless LAN (802.11)

Wireless WAN

Indoor and outdoor usage

Incorporate camera and video for surveillance

Designed to support last mile for small, medium and large facilities

Including campuses with multiple buildings

Large coverage available

**Up to 124 miles with Motorola Canopy™ Wireless Broadband system
(Point to Point Bridge Solutions)**

Use anywhere there is coverage

Perfect for mobile populations

About Motorola Wireless Networking Solutions

WAN Product Offering

Extend or backup fiber links

Motorola wireless networking products can work with almost any outdoor surveillance cameras

LAN Product Offering

View images locally at each facility

Enables personnel to receive alarms on devices such as

Desktops

Laptops

PDA's

Security Solutions – Video Surveillance

- **Eliminate trenching for wires and save money**
- **Quickly deploy virtually anywhere**
- **Easily reposition or expand the network**
- **Transmit hi-resolution images in real- time**
- **Ensure unsurpassed reliability**
- **Choose from a wide range of solutions**

Security Solutions – Airport Parking

Problem

Increase surveillance capabilities at employee parking facilities and eliminate recurring costs

Solution

Using the Motorola Point to Point Bridge Solutions, and Panasonic Video Surveillance Cameras, creates a network security system that supports the monitoring of a number of parking lots from a central location while enabling interaction with travelers who required assistance at remote sites

Full motion cameras relay full motion sound & video to command centers where security monitors activity and can control cameras, gates and phones



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System Security

WLAN Security Threats

Eavesdropping

Unauthorized access

Stealing Internet access bandwidth

Access to sensitive data

Rogue AP

Enterprises need to adjust security policies

Sophisticated attacks

WEP attack (using weak keys to find actual WEP key)

Brute force or dictionary attacks

Replay or forgery attacks

Man-in-the-middle attacks

Denial of service attack

Wireless LAN Security

Original wireless LAN Security (as defined up to 802.11b)

Service Set Identifier (SSID)

- Vulnerable to snooping, misconfiguration

Shared Key Authentication

- Vulnerable as a group password; easily exploited due to WEP flaws

WEP Encryption

- Vulnerable implementation of RC4 algorithm

MAC Address Authentication

- Vulnerable to spoofing, stolen devices, requires configuration

Key security issues:

No mutual authentication between client and wireless LAN infrastructure

Network subject to 'man-in-the-middle' attack

Device-based authentication, not user-based

MAC addresses can be spoofed, devices lost or stolen

Shared, static encryption key

Network vulnerable to brute force attacks

WLAN Security Minimum Requirements

Wireless LAN security should address:

Access Point Authentication

Per User and Per Session Authentication

Unicast & Broadcast Key Management

Mitigation of Network Attacks

Solving 802.11 Security Issues Today

Security Vulnerabilities

Weak authentication

Authentication methods based on device, not user

Weak encryption

Solving 802.11 Security Issues Today

Today's Solutions

- Two-way mutual authentication between AP and client
- User based authentication
 - i.e. username/password
- Dynamic per user, per session WEP keys
- Automatic re-keying
- Much more

Solving 802.11 Security Issues Today

Enterprise-class Access Points and clients implement all of these solutions to allow simple, safe deployment of 802.11b, 802.11a and 802.11g wireless networks.

Interoperable Security Evolution

	Past	Past Year	First Half of 04
Authentication	802.11 & MAC Address Auth	WPA w/ 802.1X Auth	802.11i w/ 802.1X Auth
Encryption	WEP w/ Fixed Keys & No Encryption	WEP, WEPplus w/ Rotating Keys or Per Frame Keys, WPA TKIP w/ Per Frame Keys	CCMP (AES) w/ Key Hierarchy
Interoperability	Interoperable w/ WEP Clients	Interoperable w/ WEP and WPA Clients	Interoperable w/ CCMP Clients
Strength	Static Keys can be broken	Stronger: Cannot be broken with available tools	Strongest

Wireless Security Enhancements

Client session accounting records

Record client logon and logoff times with Motorola Access Point

Enhanced wireless LAN client management

Status of associated clients and ability to disassociate specific clients

Future security developments

Detection of Rogue Access Points

**Often deployed by employees internal to
organization unfamiliar with security risks**

SNMP v3 support

Eliminate ability to manipulate AP parameters
through SNMP management tools



Motorola Wireless Networking Solutions Product Portfolio



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Product Portfolio

Wireless LAN Products

- Motorola WiAP-110
 - WiAP-200
 - WiAP-200M
- (Access Points for indoor use)

Peripherals

- Panasonic Cameras, DVR/NDR, and other accessories
- RAD Multiplexers

Wireless WAN Products

Point-to-Point and Point-to-Multipoint Configurations

Motorola Canopy™

Wireless Broadband Systems

- Outdoor Access Point
(2.4, 5.2, 5.7 GHz, 900 MHz)
- Outdoor Subscriber Module
(2.4, 5.2, 5.7 GHz, 900 MHz)
- Point to Point Bridge Solutions
(2.4, 5.2, 5.7 GHz, 900 MHz)
- Outdoor Cluster
Management Module

Wireless LAN (WLAN) – Indoor

The Motorola family of WLAN products consists of:

Access Points

WiAP-100

WiAP-110

WiAP-200

WiAP-200M

Accessories



WiAP-110/200/200M

Peripherals

Video Surveillance

- Pelco Analog Cameras
- Panasonic IP Network Cameras



T1 Replacement products:

RAD Data Multiplexers



The Motorola Canopy™ Wireless Broadband System. Point-to-point and Point-to-Multipoint Configurations.



**Access Point (AP)
Cluster**



**Point to Point Bridge
Solutions**



Subscriber Module (SM)