

Wireless Video Architectures



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- **Why Video Surveillance?**
- **Technical Introduction to Video Surveillance**
- **Wireless Architectures for Video Surveillance**
- **Video Surveillance Applications**
- **Case Studies**
- **Q & A**



- Perimeter, public monitoring solutions are becoming a key component for enterprises
- Educational, healthcare and financial institutions are beginning to rely on surveillance systems to ensure safety within their premises
- Public safety organizations depend on archived data from video monitoring systems to reduce vandalism in troubled neighborhoods
- Live traffic surveillance is increasingly being used as a tool in community protection
- Terrorist threats and public safety challenges continue to drive the need for high quality remote surveillance and timely response



Technical Introduction to Video Surveillance



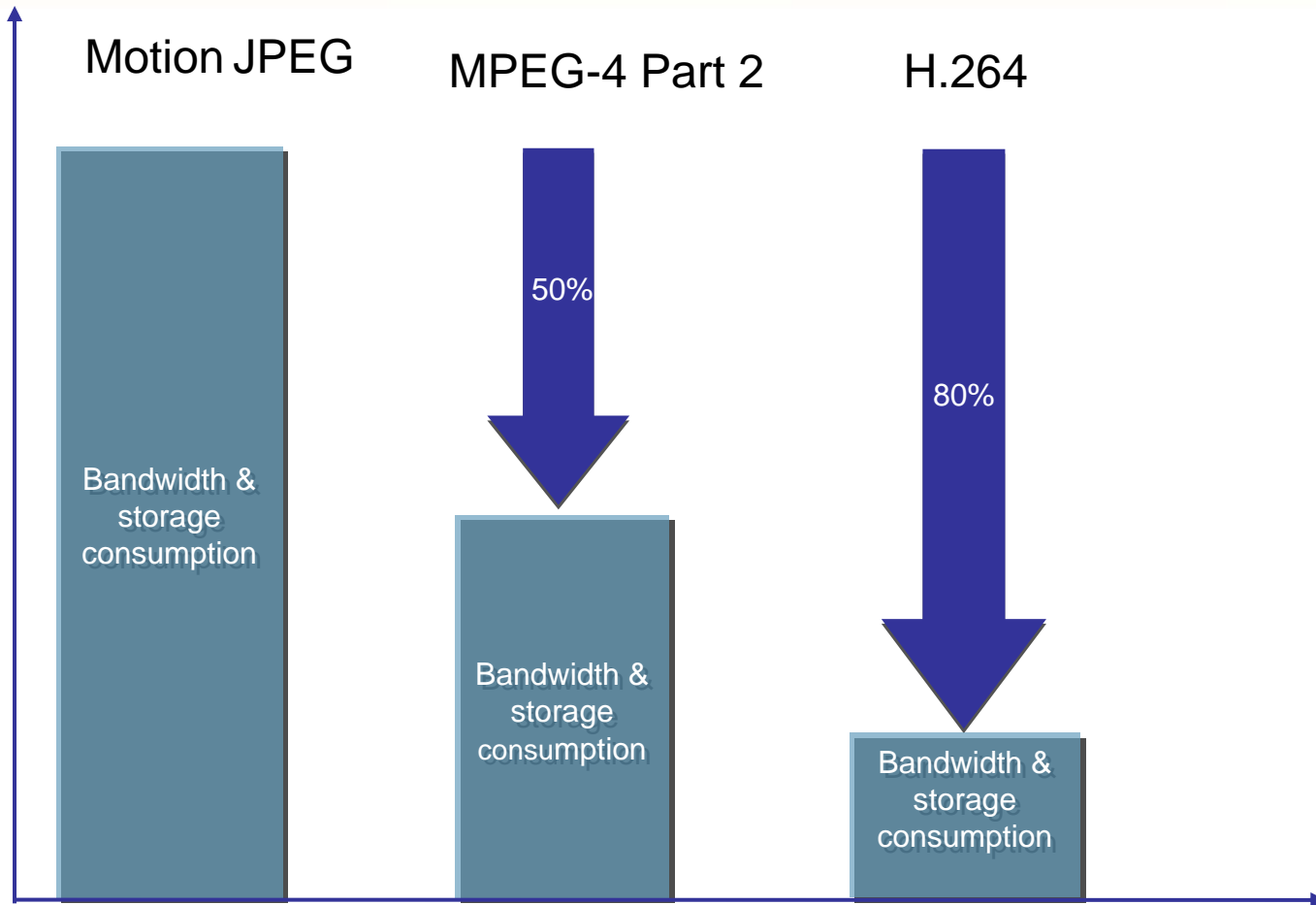
- 2 major standards for HDTV:
 - > SMPTE 296M is normally called “720p”
 - > SMPTE 274M is called “1080i” and “1080p”
 - > 720 are used for broadcasting of HDTV (TV at home)
 - > 1080 are used in Blu-ray and computer graphic
- HDTV demands higher color fidelity
- HDTV most full frame rate 25/30 or/and 50/60
- HDTV is 16:9 format
- Why is it important?
 - > Critical where clear, sharp images are required
 - > Guaranteed to provide a certain resolution, frame rate, and color fidelity
 - > HDTV video can easily be shown on HDTV monitors or Computer screens



- H.264 (MPEG-4 Part 10) for professional network video surveillance
 - > H.264 replaces MPEG-4 Part 2
- H.264 is the first, global video standard shared across all industries
 - > Business
 - Video surveillance, telecommunications, broadcasting...
 - > Consumer
 - HD-DVD/Blu-ray, iPod, QuickTime, Flash, YouTube, XBox, PlayStation 3, mobile phones, video cameras...
- H.264 – ultimately a common video compression platform that is future-proof



H.264 compression (example savings)



Excellent surveillance quality that ensures image usability in challenging conditions

- Complex and constantly changing lighting
- Complex picture composition, backlighting
- Large area overview
- High level of detail needed
- Vibration
- Clear images of rapidly moving objects and persons



- > **Automatic day and night functionality**
- > **Auto-iris for optimal image quality**
- > **High-quality transparent dome cover**
- > **H.264 video compression** – great bandwidth and storage savings without compromising image quality
- > **Additional features**
 - > Wide dynamic range and backlight compensation
 - > Electronic image stabilization
 - > Progressive scan, even for PTZ cameras
 - > High zoom capabilities



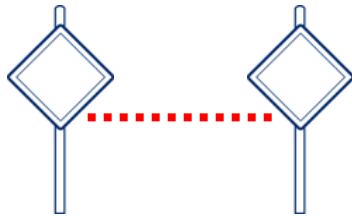
Equipment should offer several features to withstand tough operating conditions

- > Water- and dust-proof (IP66-rated)
- > Wide operating temperature range, e.g. -40 °C to 55 °C (-40 °F to 131 °F)
- > Sun / weather shield for protection against direct sunlight, snow and rain
- > Vandal-resistant design, hardened casings

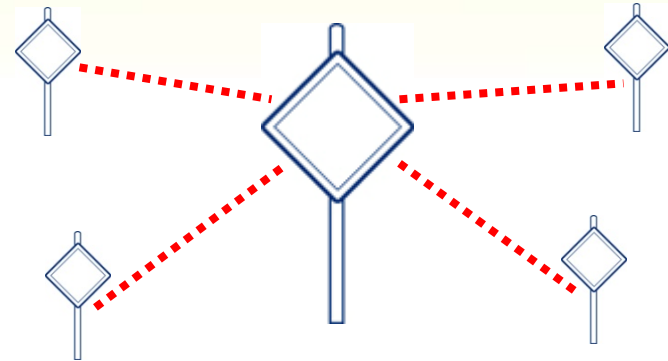


Wireless Architectures for Video

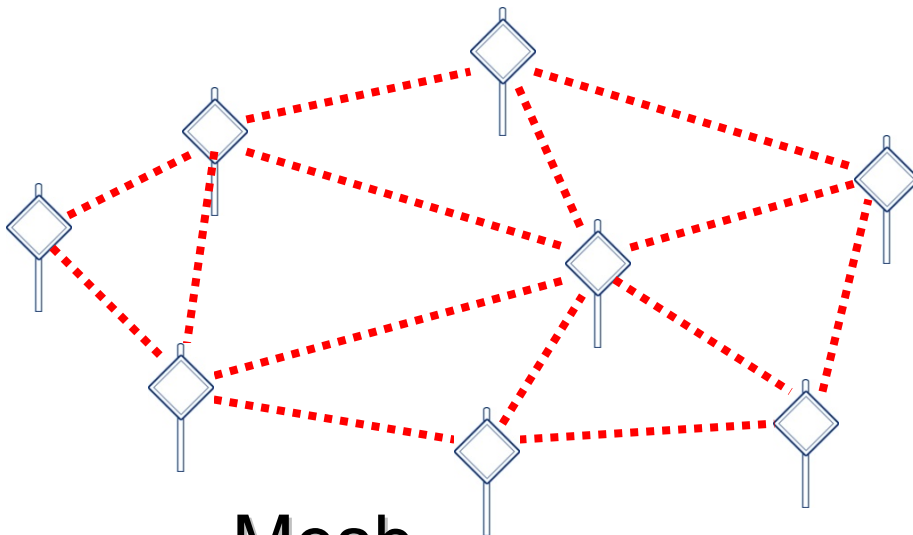




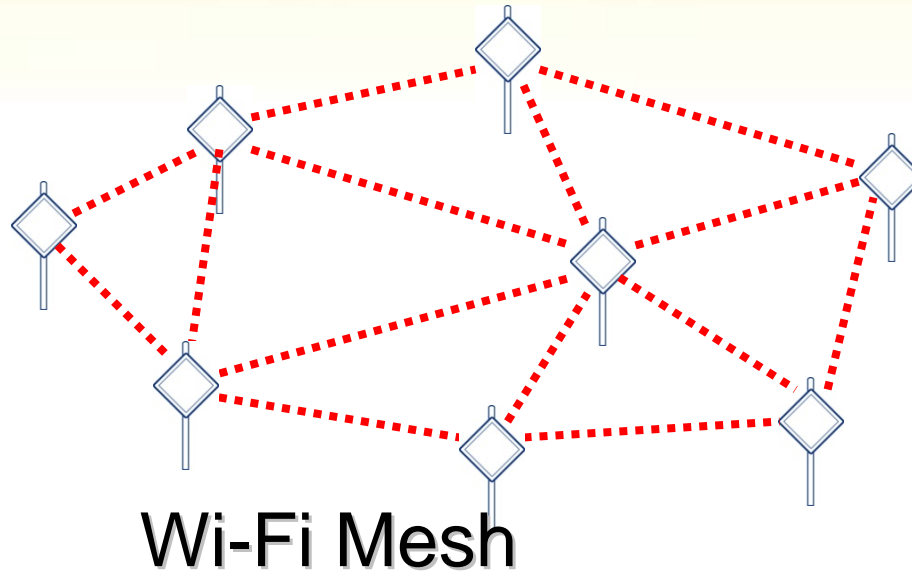
Point-to-Point



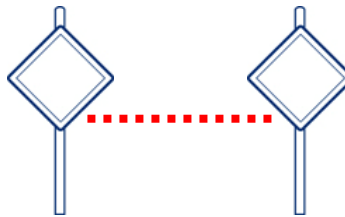
Point-to-Multipoint (Star)



Mesh

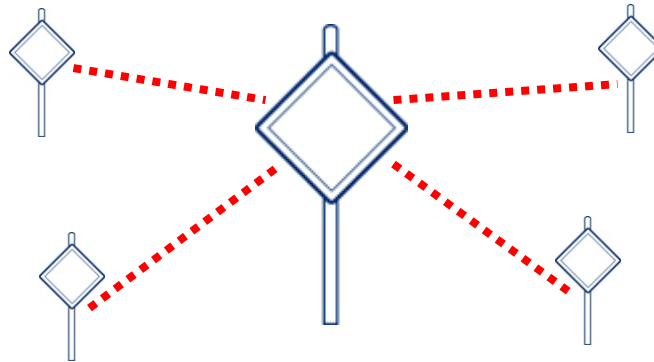


Pro's	Con's
Establishes connections dynamically/automatically	Dynamic bottlenecks
Adds a degree of fault tolerance	Difficult to control
Easy deployment for standard municipal WiFi networks	Increased latency
Simplified sparing	Shared capacity
Repeater function for avoiding obstacles	Requires higher signal-to-noise ratio (SNR) due to use of omni-directional antennas



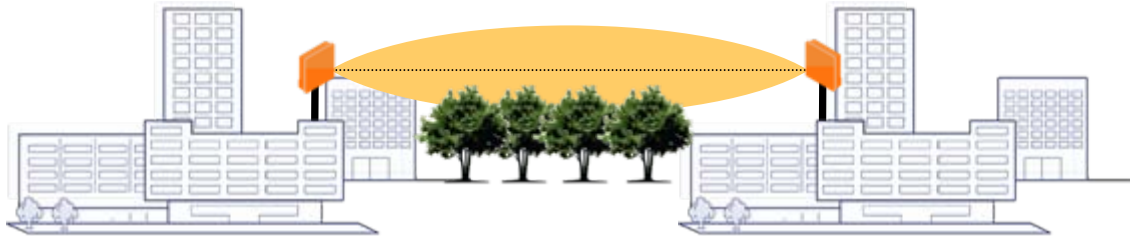
Point-to-Point

Pro's	Con's
Dedicated access	Higher cost per end point
Increased reception and transmission levels	Sometimes more difficult to align
Less vulnerable to interference	Excess/under-utilized capacity
Lower latency than most shared mediums	Increased head-end equipment
Simplified troubleshooting	

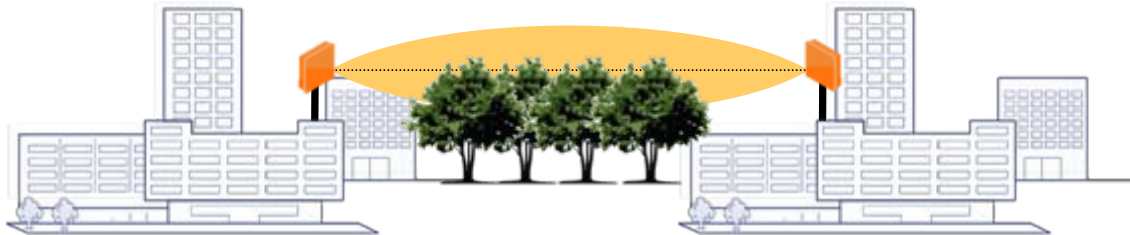


Point-to-Multipoint (Star)

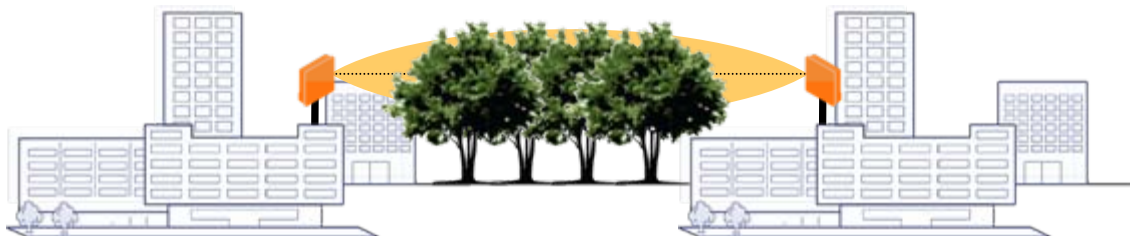
Pro's	Con's
Cost effective	Wider antennas increase exposure
Efficient means of sharing capacity	BSUs can provide a single point of failure for multiple SUs
Decreased head-end footprint	Requires more attention to throughput planning
Simplified alignment	



Line-of-Sight (LOS)

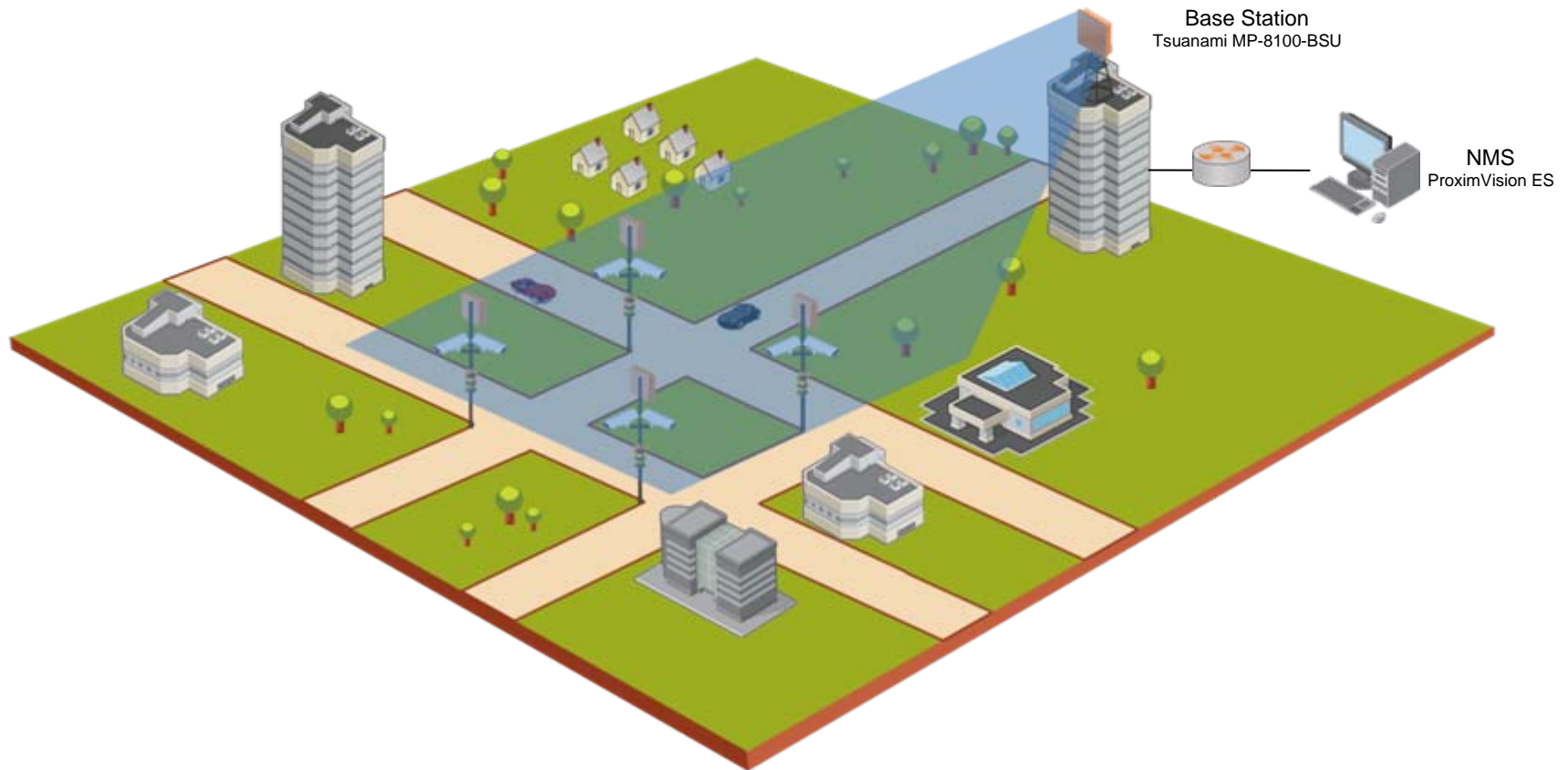


Near Line-of-Sight (nLOS)



Non Line-of-Sight (NLOS)

LOS refers to both visual line-of-sight and clear radio line-of-sight (Fresnel Zone). In nLOS locations, there is clear visual line-of-sight but the radio line-of-sight is blocked. In NLOS locations, both visual and radio lines-of-sight are blocked.



- Quick to deploy: Often in hours and days
- Affordable: 20-70% less expensive than wired options
- Flexibility: Can be deployed anywhere
- High capacity
- Mobility at vehicular speeds
- Reliability: 99.995% availability
- Outdoor and indoor



- Asset and Community Protection by monitoring
 - buildings and parking lots
 - public entry/exits
 - sensitive areas: ATMs and etc
 - cafeteria, halls, and library
 - high traffic areas: highways, bridges, tunnels, and dams
 - public areas: parks and walkways

- Securing buildings and sensitive areas
 - > runways
 - > waterways

- Reducing crime and violence in troubled areas

- Perimeter security for military, restricted areas





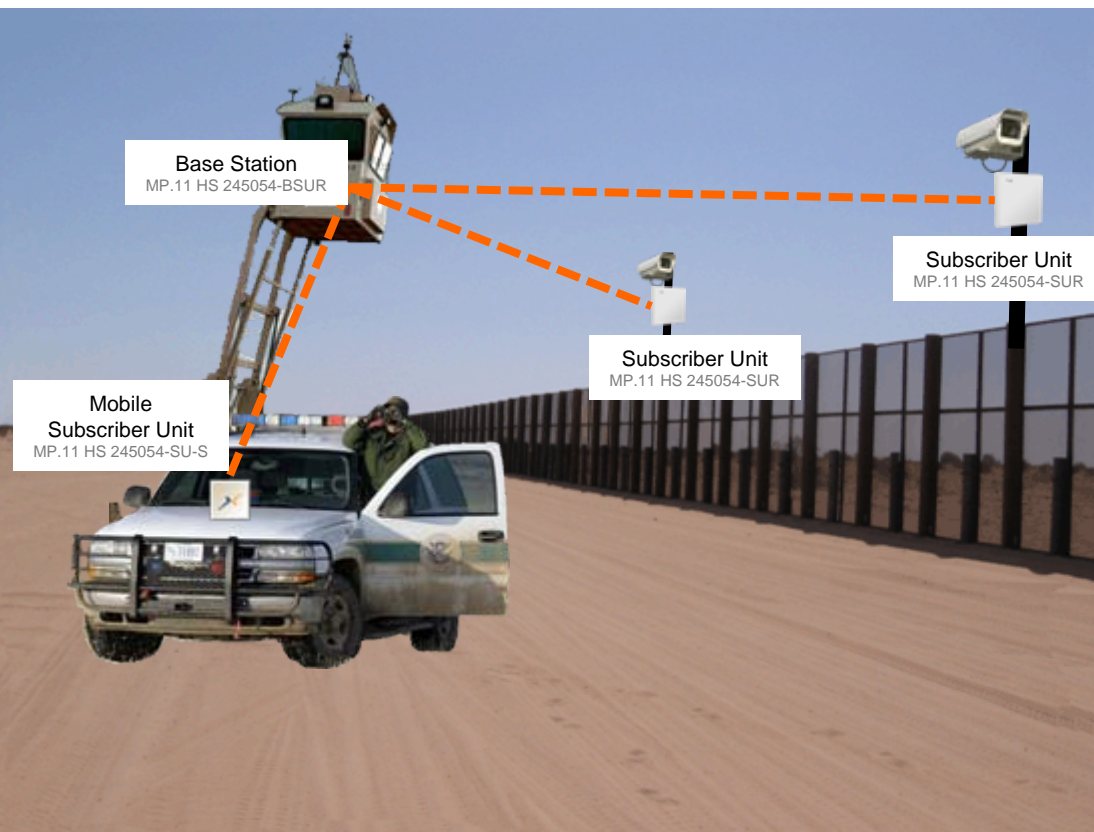
Border Patrol Tower

MP.11 HS Base Station connected to video surveillance cameras and mobile subscriber units in vehicles to aid in enhancing border security



Video Surveillance

MP.11 HS Subscriber Units linked to video cameras to wirelessly transmit real-time video feeds back to command center



Products



MP.11 HS Base Stations / Subscriber Units (1.8, 2.4, 5.1 – 6.08 GHz)

- 245054-BSUR
- 245054-SUR
- 245054-SUA



MP.11 HS Mobile Base Stations / Subscriber Units (1.8, 2.4, 5.1 – 6.08 GHz)

- 245054-BSU-S
- 245054-SU-S

HQ Base Camp



MP.11 HS Base Station communicating with UAVs using FastConnect and HDWireless technology through military-grade encrypted wireless links (AES-256)



Mobile Deployments

Tsunami Mini Subscriber Units, the size of a deck of cards, can be embedded into mobile vehicles



Products



Base Station / Subscriber Unit - MP.11 HS (1.8, 2.4, 5.1 – 6.08 GHz)

- 245054-BSUR
- 245054-SUR
- 245054-SUA



Mobile Embedded Base Station / Subscriber Unit - MP.11 HS (2.4, 5.1 – 6.08 GHz)

- Tsunami Mini -BSU
- Tsunami Mini-SU

Video Surveillance Case Studies



Challenge

- With a peak tourist population of over 1.5 million people, Turkey's port city of Bodrum needed a video surveillance network to help ensure the security of both residents and tourists
- Monitor the highly-trafficked port

Products

- A city-wide wireless video surveillance network connecting over 70 cameras
- Tsunami MP.16 3500 licensed band WiMAX
- 67 Tsunami MP.16 Subscriber stations
- 37 Tsunami MP.16 Base stations

Applications Enabled

- WiMAX radios enabled the network to be deployed in a matter of months.
- The city of Bodrum saved an estimated \$60,000 per month on leased line costs.
- Safety for residents , tourists and traffic in and out of the port



Application

- Countywide Wireless Network, US Chemical Weapons Depot and 9 cities in the 700 sq mile area utilize the network

Solution

- Tsunami MP.11 5054
- Tsunami.GX (PtP)
- ORiNOCO® Wi-Fi access points (Mesh)
- Axis PTZ Cameras

Why Proxim and Axis

- Improved team logistics; 65% reduction in paperwork
- More efficient traffic stops
- Real time traffic monitoring
- Eliminated 4000 radio calls per month



Application

- Real time monitoring and surveillance of the docking harbor at the port of Santa Lucia in Saint Raphael located between Cannes and Saint Tropez in France to ensure asset protection and manage entry and exit of boats

Solution

- Tsunami MP.11 5054-R Platform
- Axis Cameras - PTZ

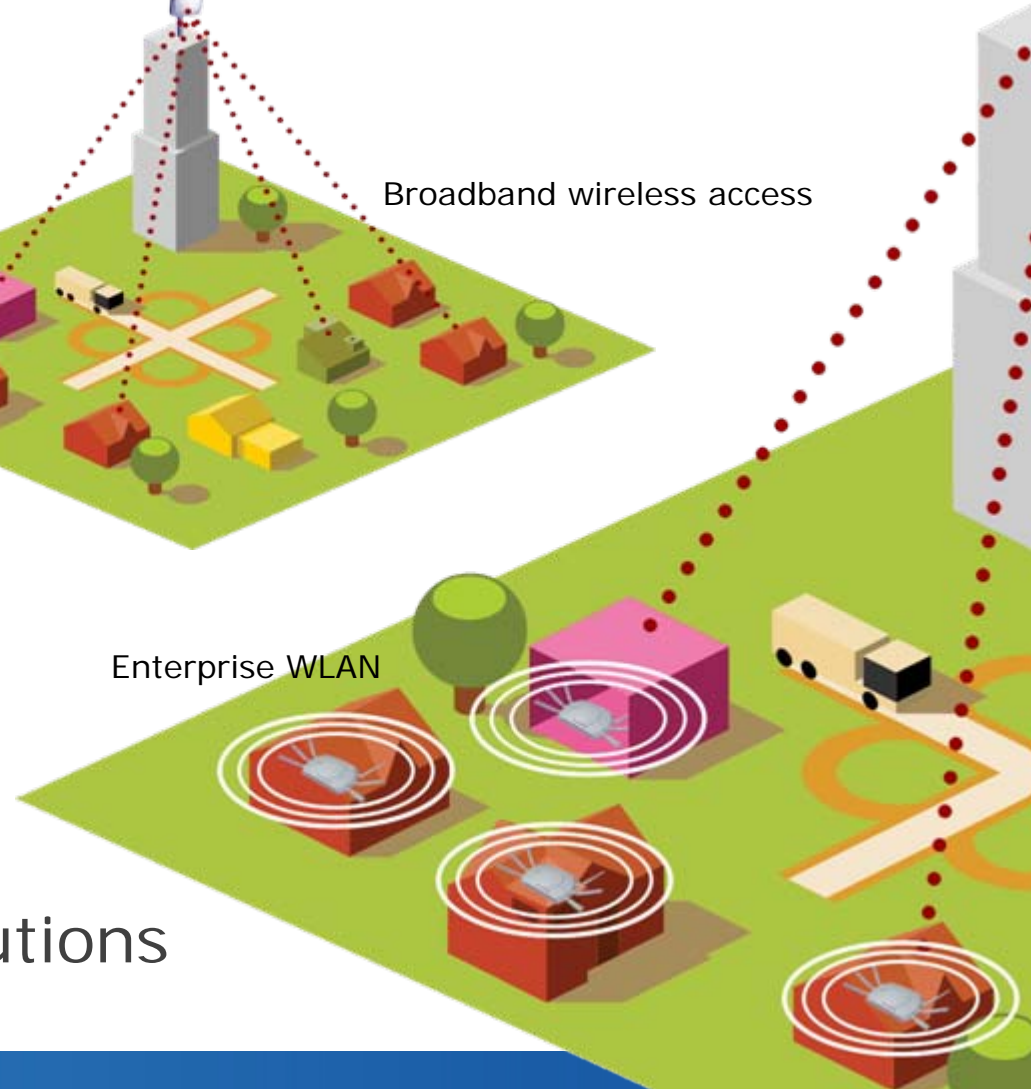
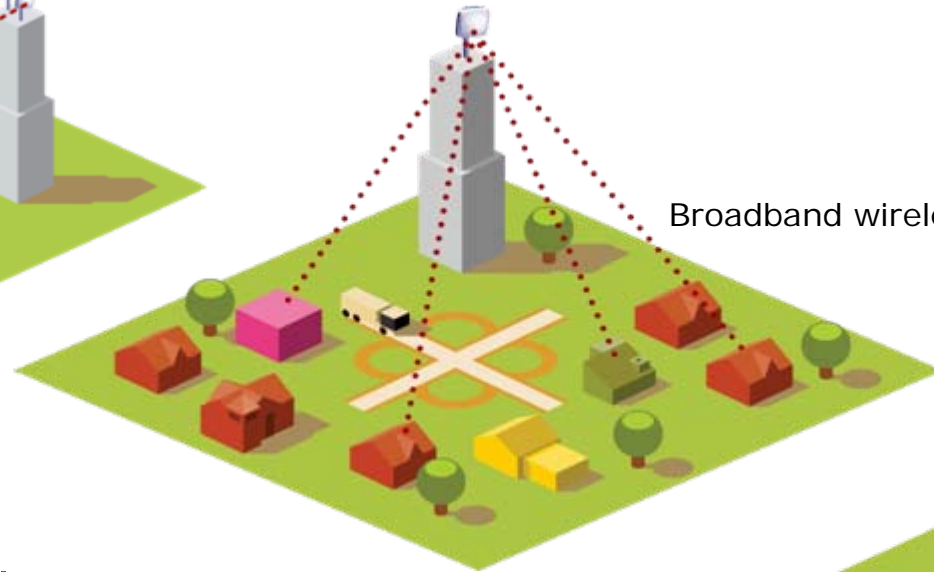
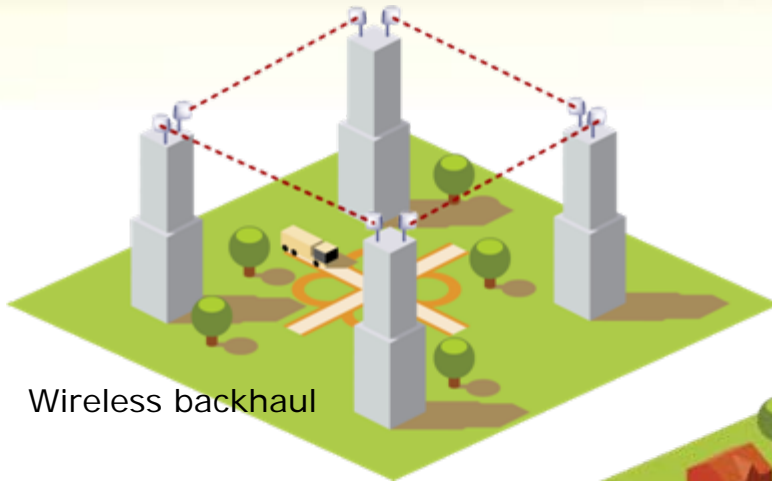
Why Proxim and Axis

- Quick and Easy Installation
- Complete coverage of the port area
- Tsunami MP.11 provided throughputs higher than 10 Mbps



Proxim Wireless





- Wireless backhaul
- Broadband wireless access
- Enterprise WLAN

End-to-End Wireless Solutions

Backhaul / PtP



QB-8100 Series

Tsunami.G X and Lynx.GX



Gigalink

Access / PtMP



MP-8100 Series

Tsunami MP.11 Indoor



Tsunami MP.11 5012



Tsunami MP.11 Outdoor



WLAN/Wi-Fi MESH



ORiNOCO AP-8000

ORiNOCO AP-4000/700



Outdoor Access Points

ORiNOCO 802.11 a/b/g/n Client Cards



ProximVision Unified Network Management

- **Product Information:**

- > <http://www.proxim.com/products/>

- **Case Studies:**

- > <http://www.proxim.com/learn/library/casestudies/>

- **Channel Partner Programs:**

- > <http://www.proxim.com/partners/becomepartner/>

- **A&E Programs:**

- > <http://engineers.proxim.com>



To reach a Proxim sales representative, please call +1.408.383.7600, email us at sales@proxim.com, partnerprogram@proxim.com or go to our website <http://www.proxim.com/about/contact/> for more information.

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