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innovative solutions in a wireless world

Enterprise Mobility

Empowering the Mobile Workforce

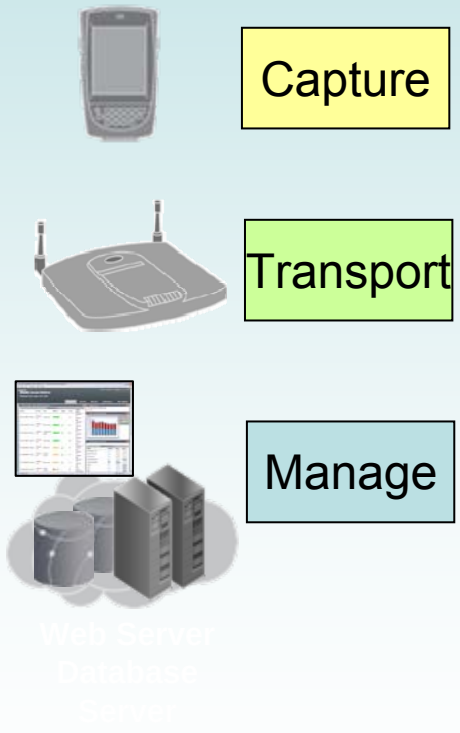
Dr. Jacob Sharony

Outline

- Why Mobility?
  - Describing the benefits of using mobile & wireless technologies
- Mobile and Wireless Challenges
  - Pointing new/unaddressed challenges for IT
- Best Practices
  - Discussing what you can do about IT

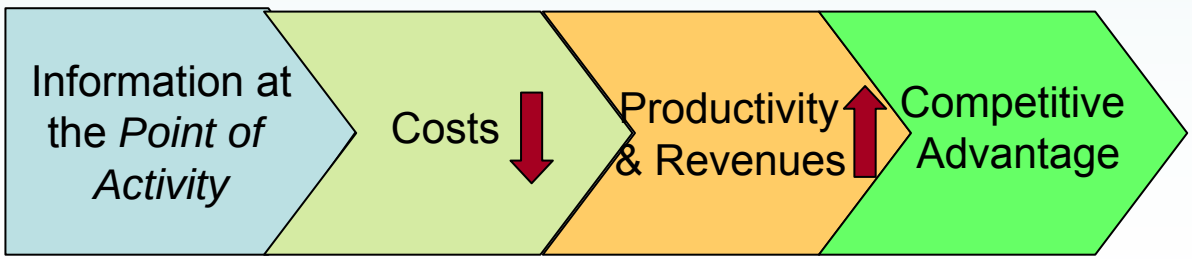
Enterprise Mobility

- Definition: Capturing and delivering *information* at the point of *activity*
- Enterprise Mobility involves data *capture*, instantaneous *transport* and *management*
- While mobile and wireless are great technology enablers they pose new and generally unaddressed challenges to IT
  - Security
  - Deployment
  - Management/Maintenance
  - Compliance



Why Mobility?

- Essential to enterprises interested in providing on-demand services *inside/outside* the firewall at the point where it matters the most - *point of activity/decision*
- Mobility enhances enterprise effectiveness by providing relevant information at the right time at the right place
- Increasing **productivity**, efficiency and responsiveness by empowering the mobile work force wherever they are



Why Mobility?
Examples from Several Verticals

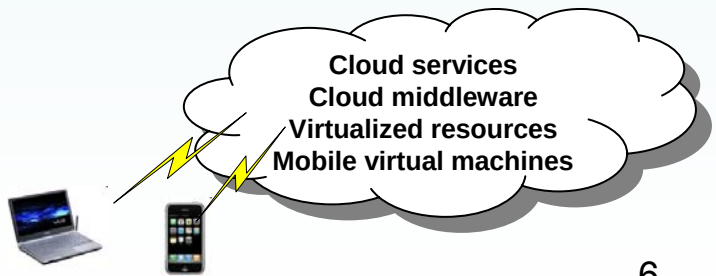
- Insurance Agents
  - Faster claim processing, e.g., at accident site

- Sales Force
  - Access to critical business information at customer site
- Building Inspection
  - Faster building permit processing

- Field Technician
  - Access to user manuals, schematics and troubleshooting
- Tele-worker/Road Warrior
  - Always connected to their enterprise, more productive

Why Mobility?
The Mobile Cloud

- The mobile trend will be helped by emerging high speed open IP broadband wireless networks (WiMAX, LTE) and faster mobile processors.
- Some of the technical challenges/complexities of cloud computing are further amplified when dealing with enterprise mobility:
  - *Scalability*: deploying / managing 1000's of heterogeneous devices
  - *Securing* limited capability devices using open IP transport
  - Efficient and secure *application distribution / maintenance*



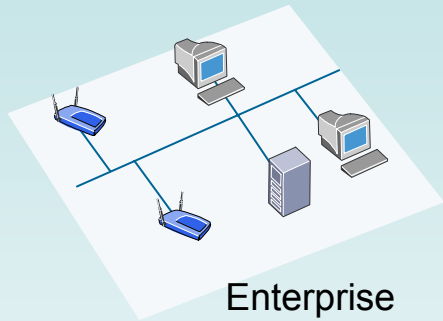
Mobile and Wireless Challenges

- Security
  - How to secure the Enterprise network, mobile devices and applications?
- QoS
  - How to provide adequate coverage & capacity for multimedia services in a fluctuating signal environment?
- Deployment
  - How to deploy multitude of heterogeneous devices with different capabilities?
- Monitoring/Management/Maintenance
  - How to manage a network with assets that are not visible?

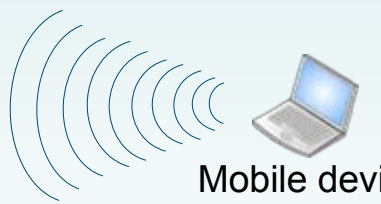
Mobile and Wireless Challenges

Security

- Three possible vulnerabilities: corporate data network, mobile device, mobile applications
- Encryption, VPN are not sufficient - will not prevent compromising of your network
- Any mobile device might compromise your corporate data network:
  - Security holes due to un-patched applications
  - Viruses and other malware on mobile device
  - By association to rogue/modified AP's (WLAN) inside/outside the firewall



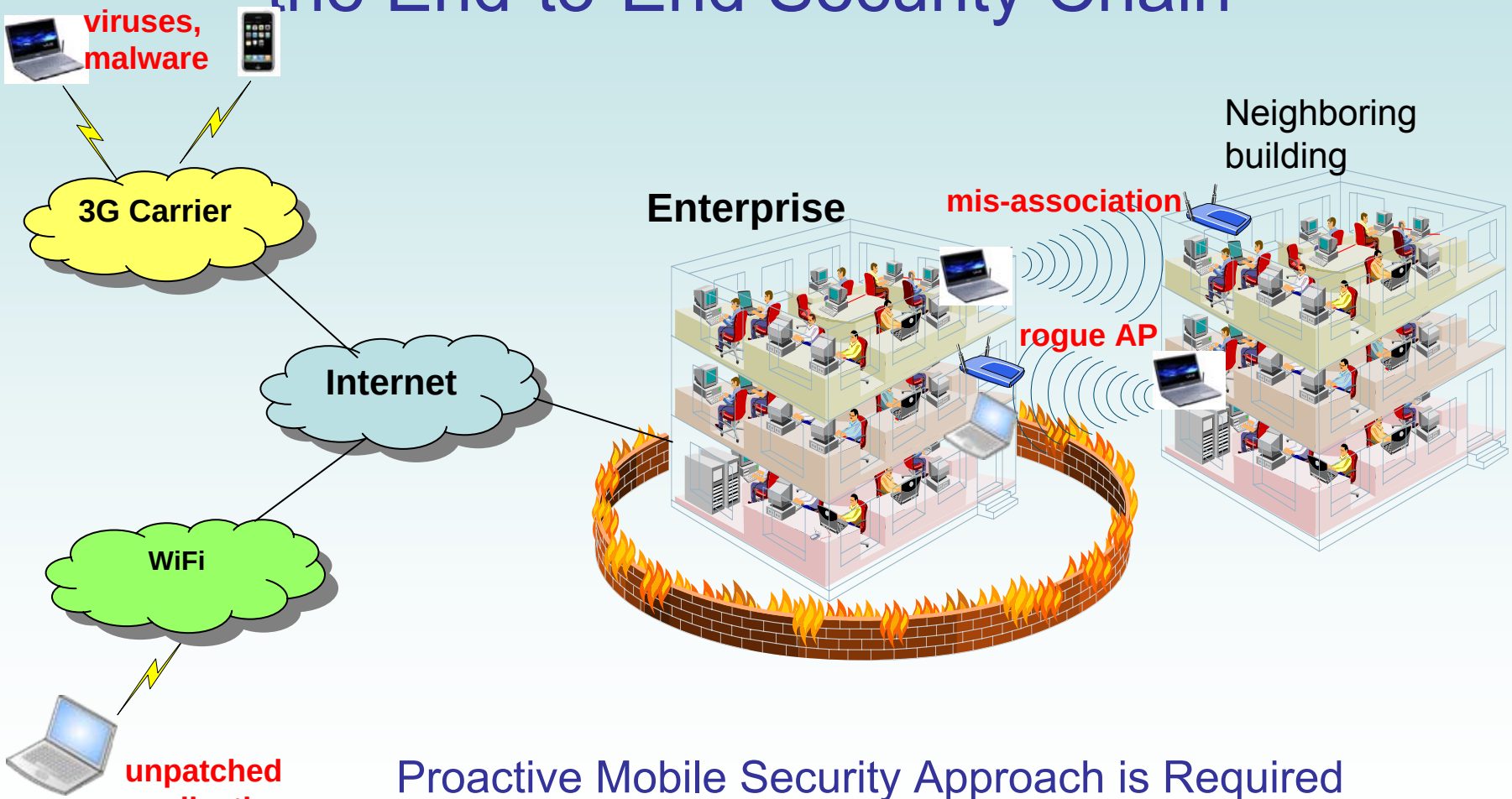
Enterprise network



Mobile device

Application

The Mobile Device is the Weakest Link in the End-to-End Security Chain



Proactive Mobile Security Approach is Required

Best Practices / What You Can Do about IT

- Proactive Security and intrusion prevention
  - Monitor the “air” for any rogue/modified AP’s in the enterprise
  - Identify, locate and disable rogue AP’s
  - Make sure your devices do not associate with neighboring WLAN’s
- Central mobility management – Mobility as a Service (MaaS)
  - For better control all mobile data backup/restore, SW patching and virus & malware scanning should be centrally managed (minimal user intervention) → reduce end user responsibilities
- Role-base policy management
  - Define policies for personnel/devices access, application distribution/maintenance

Best Practices / What You Can Do about IT

- Application distribution – The Enterprise "App Store"
  - Only enterprise-approved applications will be allowed to be installed per user/device type
- Risk Mitigation of lost/stolen/compromised devices
  - Try to locate device and/or wipe its data
- Plan for Mobility
  - Plan/validate your WLAN for adequate coverage, capacity and QoS for good user experience
- Enterprise visibility (tracking your assets)

Enterprise Visibility

- Seeing what is not visible – it is hard to manage something you cannot see
- Asset tracking
  - What do you have?
  - How many do you have?
  - Where is it?
  - What is its status?
- Technologies: 3-4G, WiFi, RFID, GPS

Summary

- Wireless/mobility could increase productivity (reducing costs and increasing revenues) resulting in competitive advantage
- Wireless/mobility pose new challenges to IT (security, deployment, management)
- Plan for mobility: coverage, capacity, QoS
- Proactive security monitoring and intrusion prevention
- Policies regarding users/devices/applications
- Centralized device management for data backup/restore, app distribution/patching, virus/malware scanning, SW upgrades

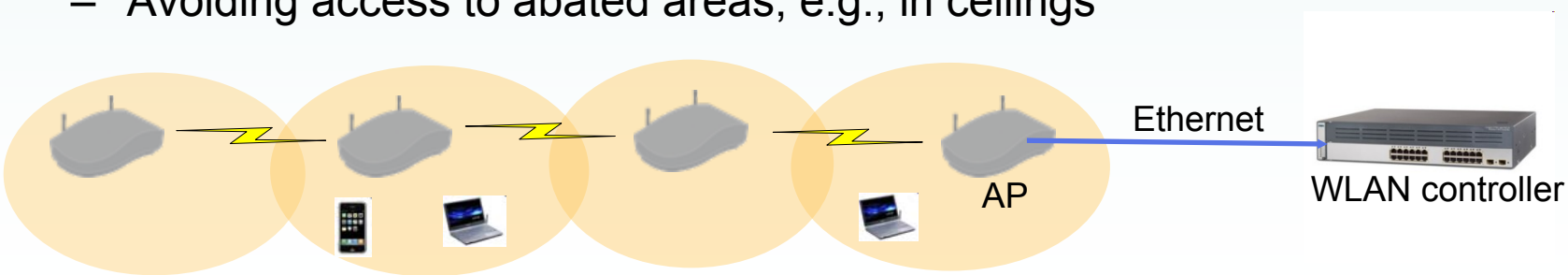
Thank You!

Dr. Jacob Sharony
jacob@mobiusconsulting.com
(631) 546-5840

Backup

Why Mobility?
Cost Effective Infrastructure

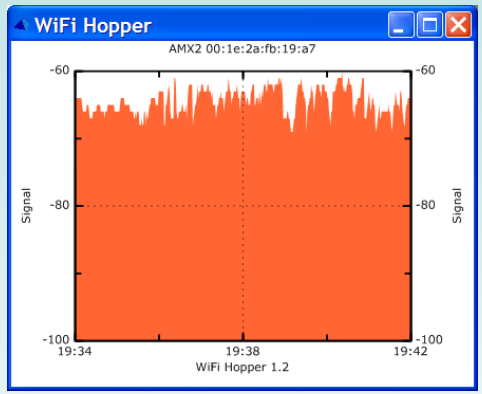
- The first wave of mobility provided wireless **access** to mobile computing devices
  - This could potentially reduce significantly the number of Ethernet ports and switching equipment
- New high speed multiple-radio AP's are capable of creating wireless infrastructure backbone using mesh links
- Using wireless backhaul links between AP's and WLAN controller will also result in
  - Reduction in labor costs and materials (less pulled cables)
  - Avoiding access to abated areas, e.g., in ceilings



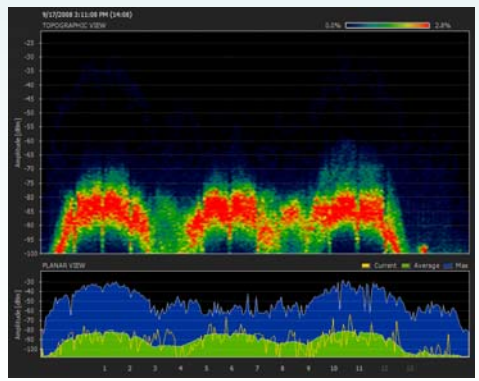
Mobile and Wireless Challenges

The Wireless Channel / QoS

- The wireless signal/channel is fluctuating in time (environmental changes)
- Intermittent coverage holes
- RF signal can leak out of your premises
- Interference (unlicensed band 2.4, 5 GHz)
- Possible capacity limits when using video streaming, VoIP, etc.
- Invisible wireless network – hard to manage



Signal strength varies dynamically



2.4 GHz “busy” spectrum

Plan for Mobility
WLAN Coverage/Capacity/QoS

- It is important to ensure that there is good *coverage* and *capacity* throughout the enterprise
  - For good user experience
  - Security (prevent mis-association)
- In conference rooms and areas where you expect dense video and VoIP traffic add capacity AP's
- Pre/post deployment site survey will help in the RF design/validation of the WLAN