Security Strategies in Web Applications and Social Networking

Lesson 13

Securing Endpoint Device Communications

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Learning Objective and Key Concepts

Learning Objective

- Describe popular endpoint communications devices and their security risks

Key Concepts

- Mobile computing
- Authentication technologies
- Overall impact on the risk landscape

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Endpoint Communication Devices

- Cell phones
- Smartphones
  - A large and growing market for accessing social sites and Web applications
- Tablets
  - Emerging market for accessing social sites and Web applications
- E-readers

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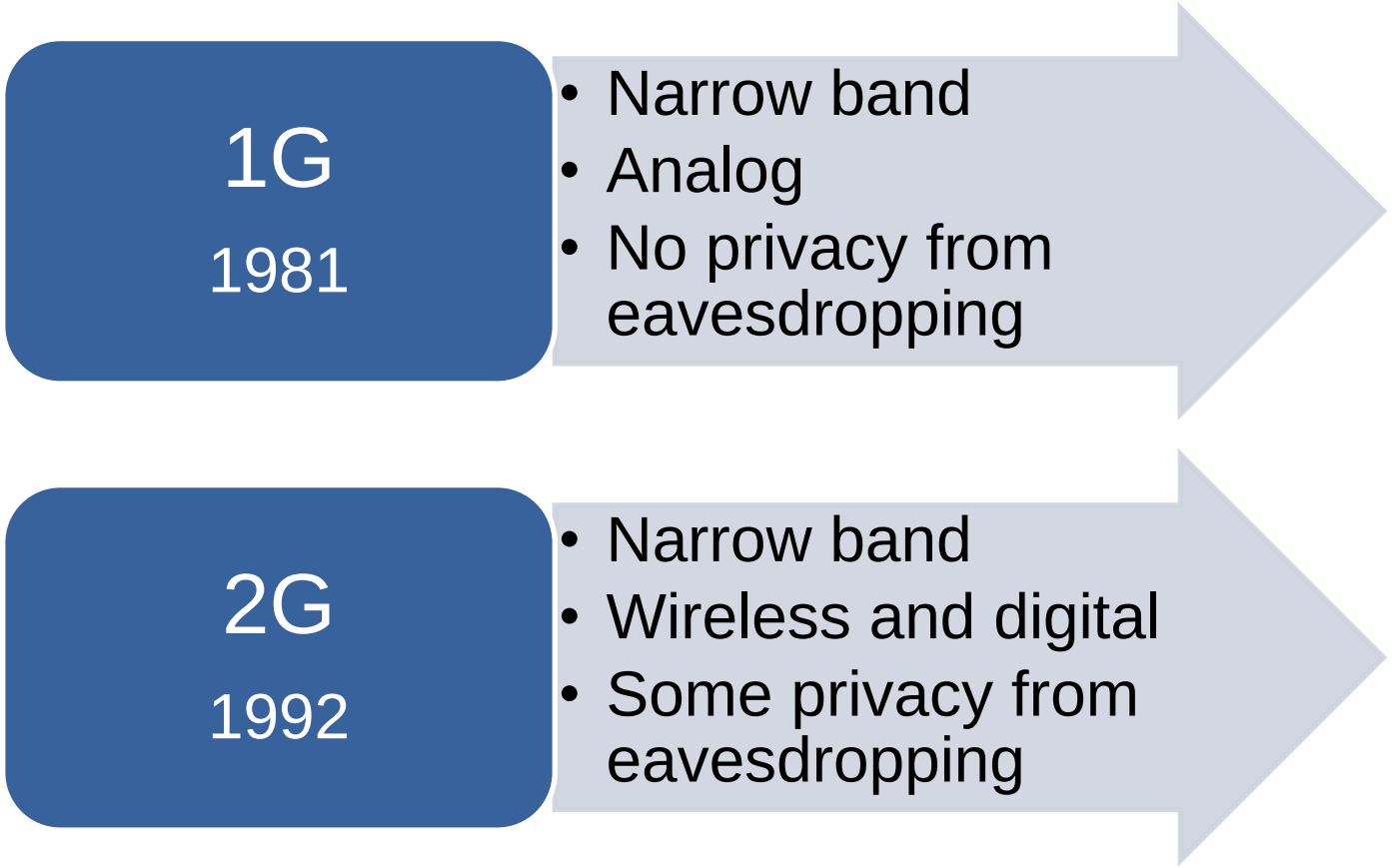
Mobile Communication Networks: Evolution



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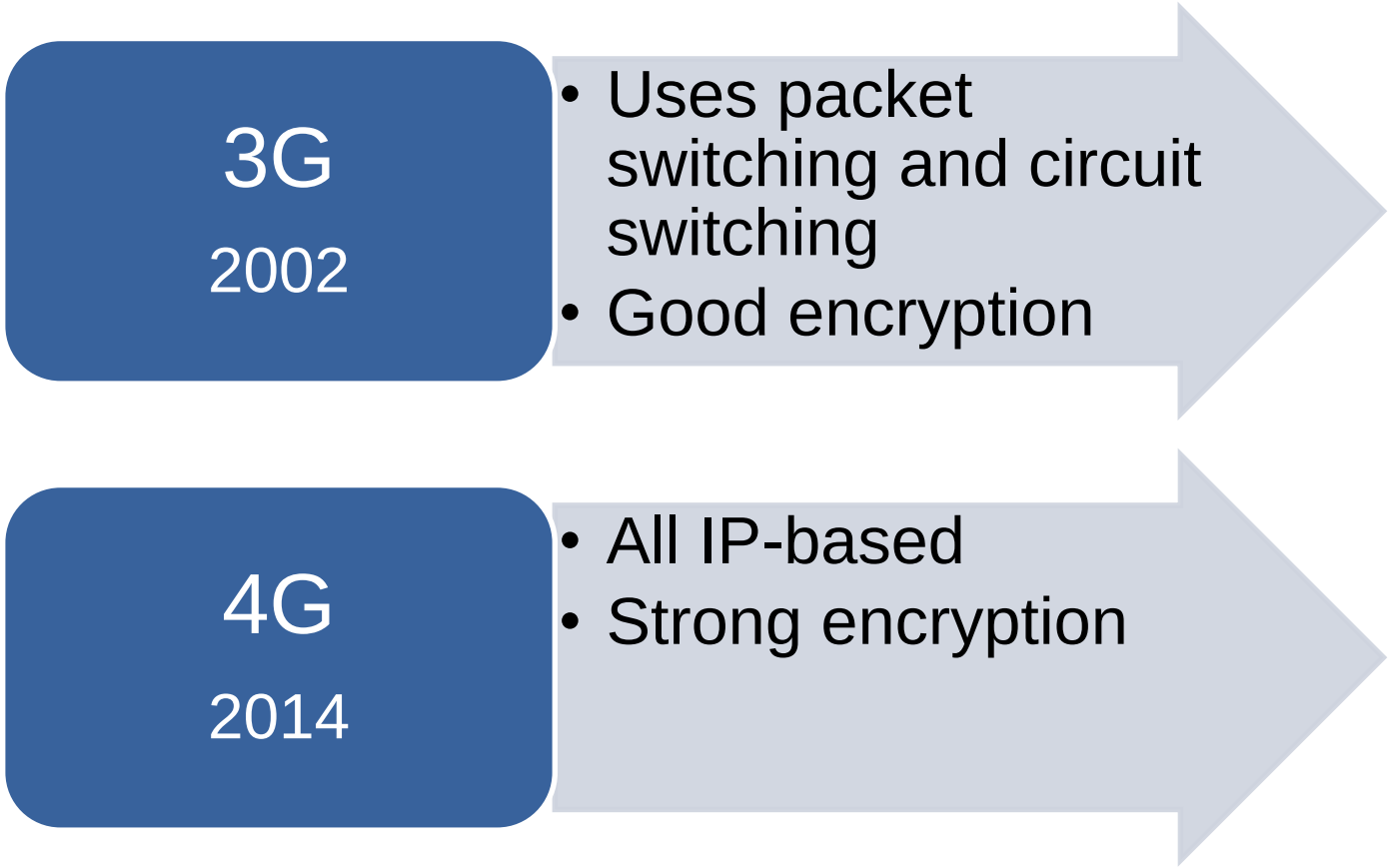
Mobile Communication Networks: Evolution (Continued)



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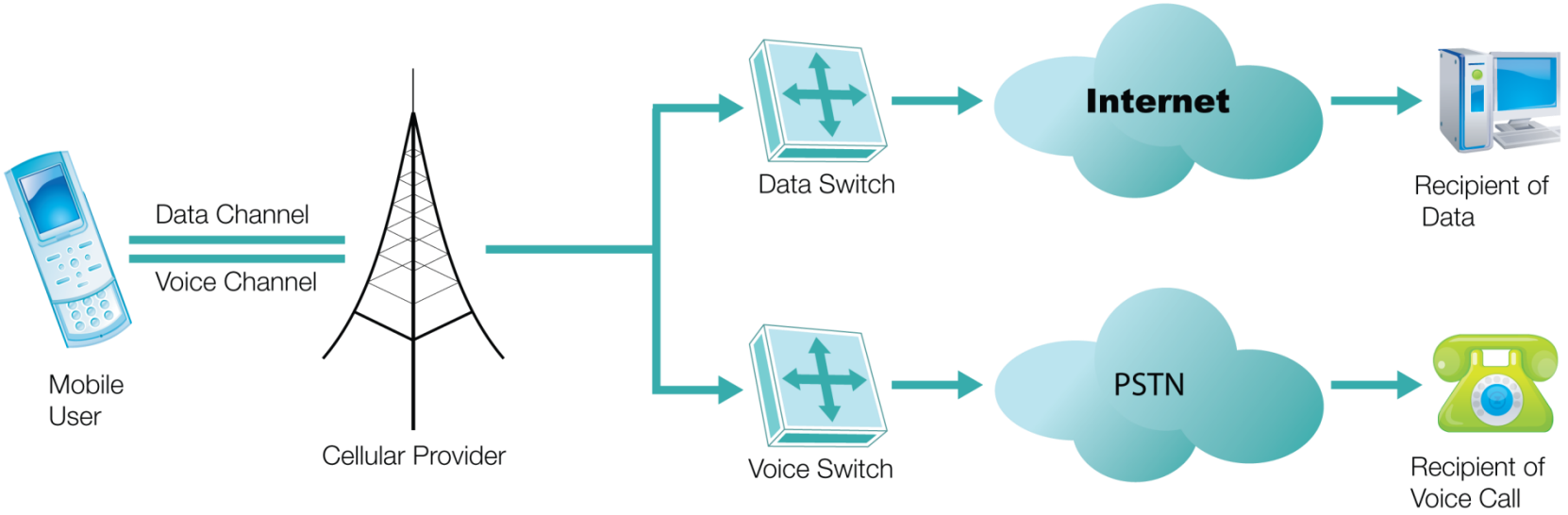
Basic 3G Routing



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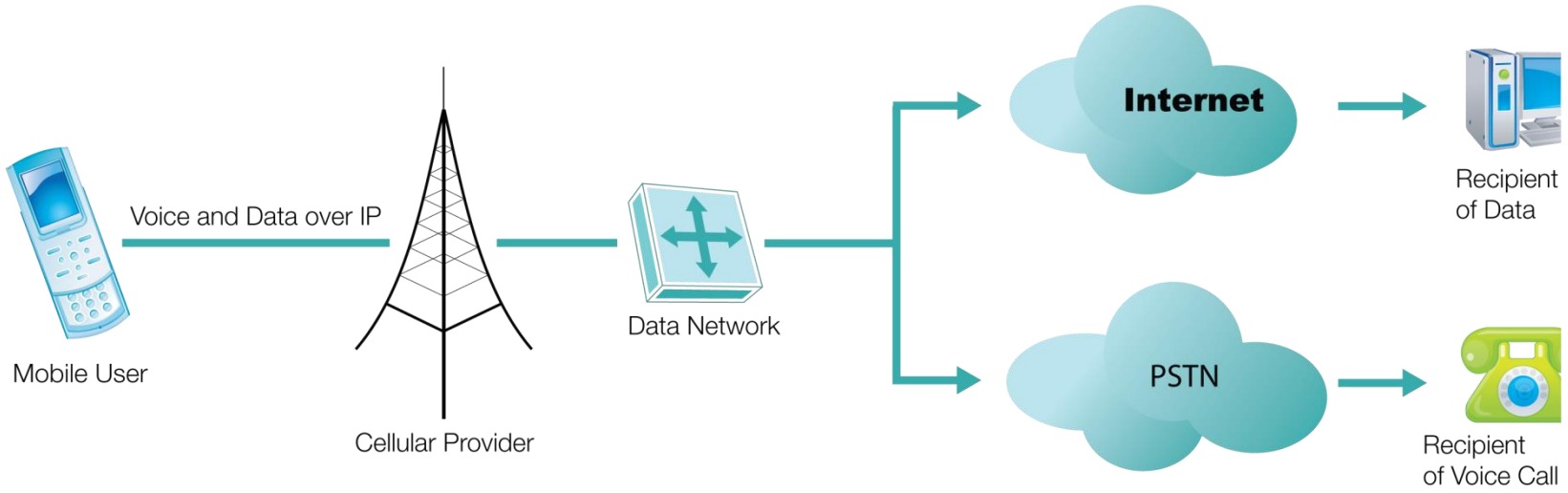
Basic 4G Routing



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Mobile Communication Methods

- Voice
- Internet Browsing
- E-mail and Instant Messaging (IM)
- Short Message Service (SMS) or Text Messaging
- Multimedia Messaging Service (MMS)

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Mobile Communication Security Risks

- Mobile communication devices are easily lost or stolen
- Voice
  - Conversation eavesdropping, although much less likely since the introduction of 2G networks

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Mobile Communication Security Risks (Continued)

- Mobile Internet Browsing and E-Mail
  - Many of the same risks with personal computer (PC)–based Internet browsing
  - Increased use of mobile devices for social networking sites can make them more vulnerable
- SMS or Text Messaging and MMS
  - Sensitive information can be intercepted in transit and viewed in plaintext

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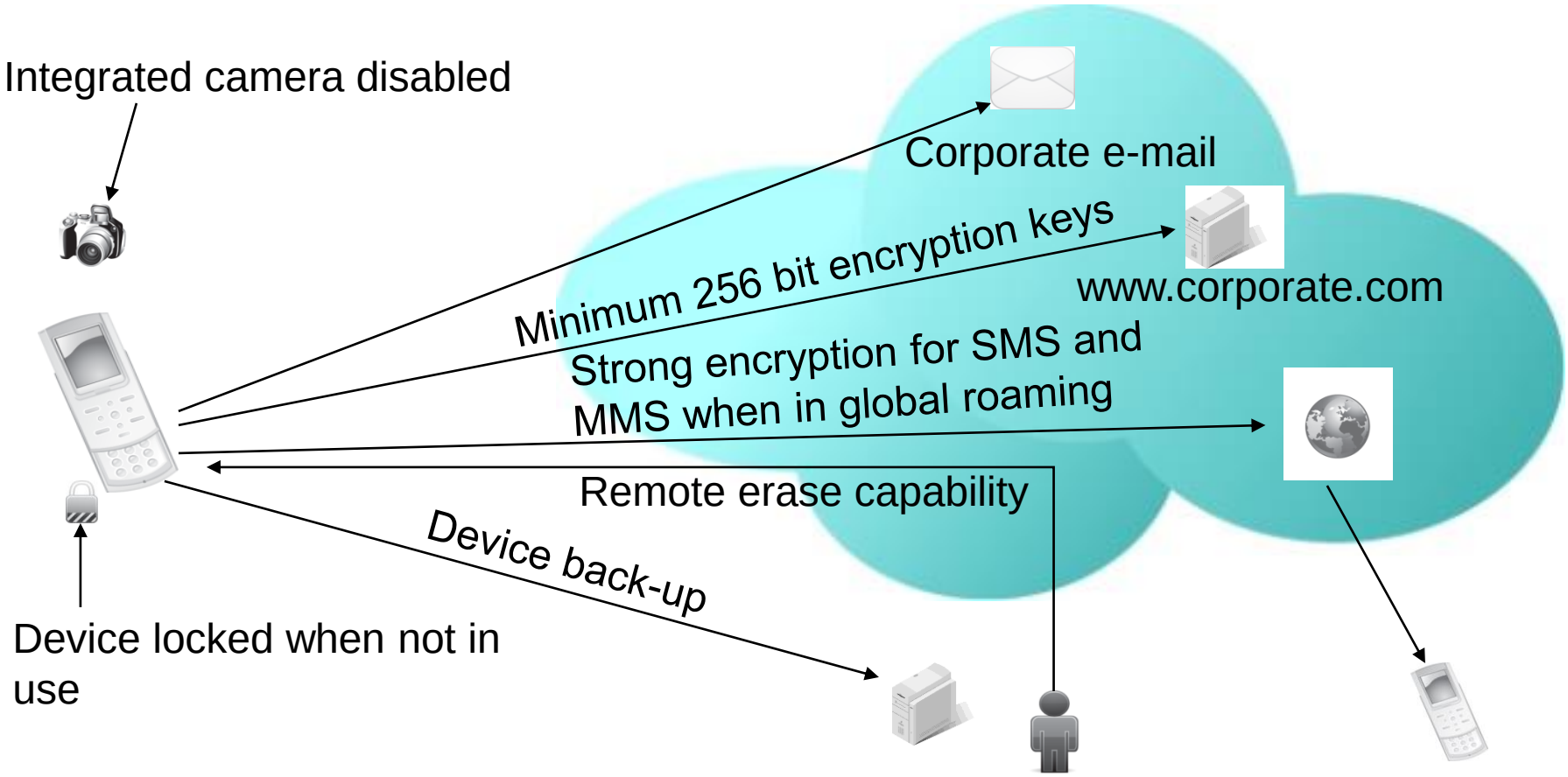
Securing Mobile Devices



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Securing Mobile Devices (Continued)

- Use strong encryption
  - Browser should be able to use Secure Socket Layer (SSL)
  - Voice and messaging services should have encryption capability
  - Encrypt storage area on the device
  - Encrypt the device itself

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Securing Mobile Devices (Continued)

- Strong authentication
- Lock device when not in use
- Disable unneeded functions on the browser
- Install anti-phishing capabilities and other best practices for Internet-related service usage

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Securing Mobile Devices (Continued)

- Provide capability to remote erase in case of loss or theft
- Disable the integrated camera
- Use backup best practices to ensure lost data can be recovered

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Summary

- Endpoint communication devices
- Evolution and impact of the mobile communication networks
- Securing mobile
- Authentication methods

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Virtual Lab

- Recognizing Risks and Threats Associated with Emerging Technologies

If your educational institution included the Jones & Bartlett labs as part of the course curriculum, use this script to introduce the lab:

“In this lesson, you explored mobile computing and Web application security from the perspective of endpoint devices. You began by examining the evolution of mobile communication networks, from 1G through 4G. Then you considered the risks to organizations whose employees use mobile devices to browse the Internet and access social networking sites. The in-class discussion explored the challenges of securing Web applications and data for mobile users.

In the lab for this lesson, you will explore risks, threats, and vulnerabilities inherent with cloud computing, social networking, and mobile computing. You will read the National Institute of Standards and Technology (NIST) Definition of Cloud Computing and review the best practices put forth by the Cloud Security Alliance (CSA) and European Network and Information Security Agency (ENISA). You also will use your research to identify the top three security risks and recommend mitigations for each.”

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OPTIONAL SLIDES

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Impact of Mobile Device Communications

- Improved productivity for employees while working away from the office
- Explosion in the use of mobile devices for Internet browsing
- Newer Web applications to support the growing demand for mobile devices
- Benefits of using mobile devices weigh the security risks associated with their use

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Authentication Methods

Type of Authentication	Security Risk
Basic authentication ▪ Traditional user name and password ▪ IP address or host name ▪ Provide unique ID	Medium to high
Multi-factor authentication ▪ Name and password + Smart card ▪ Name and password + Biometric ▪ Biometric + One-time password	Medium to low
Cryptography	Low

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Who or What Authenticates to Applications?

- Users
- Internal Systems and Applications
- External Systems and Applications

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