

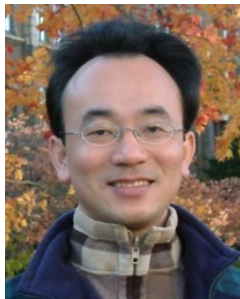
# Hot Issues of Information Management

## IT Infrastructure and Emerging Technologies: Amazon and Cloud Computing (Chap. 5)

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TLMXB4C (M0842)

Thu 7,8 (14:10-16:00) B709



Min-Yuh Day

戴敏育

Assistant Professor

專任助理教授

Dept. of Information Management, Tamkang University

淡江大學 資訊管理學系

<http://mail.tku.edu.tw/myday/>

2016-10-27



# 課程大綱 (Syllabus)

週次 (Week)	日期 (Date)	內容 (Subject/Topics)
1	2016/09/15	中秋節 (放假一天) (Mid-Autumn Festival)(Day off)
2	2016/09/22	Introduction to Case Study for Information Management Hot Topics
3	2016/09/29	Information Systems in Global Business: UPS (Chap. 1) (pp.53-54)
4	2016/10/06	Global E-Business and Collaboration: P&G (Chap. 2) (pp.84-85)
5	2016/10/13	Information Systems, Organization, and Strategy: Starbucks (Chap. 3) (pp.129-130)
6	2016/10/20	Ethical and Social Issues in Information Systems: Facebook (Chap. 4) (pp.188-190)

# 課程大綱 (Syllabus)

週次 (Week)	日期 (Date)	內容 (Subject/Topics)
7	2016/10/27	IT Infrastructure and Emerging Technologies: Amazon and Cloud Computing (Chap. 5) (pp. 234-236)
8	2016/11/03	Foundations of Business Intelligence: IBM and Big Data (Chap. 6) (pp.261-262)
9	2016/11/10	Midterm Report (期中報告)
10	2016/11/17	期中考試週
11	2016/11/24	Telecommunications, the Internet, and Wireless Technology: Google, Apple, and Microsoft (Chap. 7) (pp.318-320)
12	2016/12/01	Enterprise Applications: Summit and SAP (Chap. 9) (pp.396-398)

# 課程大綱 (Syllabus)

週次	日期	內容 (Subject/Topics)
13	2016/12/08	E-commerce: Zagat (Chap. 10) (pp.443-445)
14	2016/12/15	Enhancing Decision Making: Zynga (Chap. 12) (pp.512-514)
15	2016/12/22	Managing Projects: NYCAPS and CityTime (Chap. 14) (pp.586-588)
16	2016/12/29	Final Report I (期末報告 I)
17	2017/01/05	Final Report II (期末報告 II)
18	2017/01/12	期末考試週

# Management Information Systems: Managing the Digital Firm

**1** Organization, Management, and the  
Networked Enterprise

**2** Information Technology Infrastructure

**3** Key System Applications for the  
Digital Age

**4** Building and Managing Systems

**Chap. 5**  
**IT Infrastructure and**  
**Emerging Technologies:**  
**Amazon and Cloud Computing**

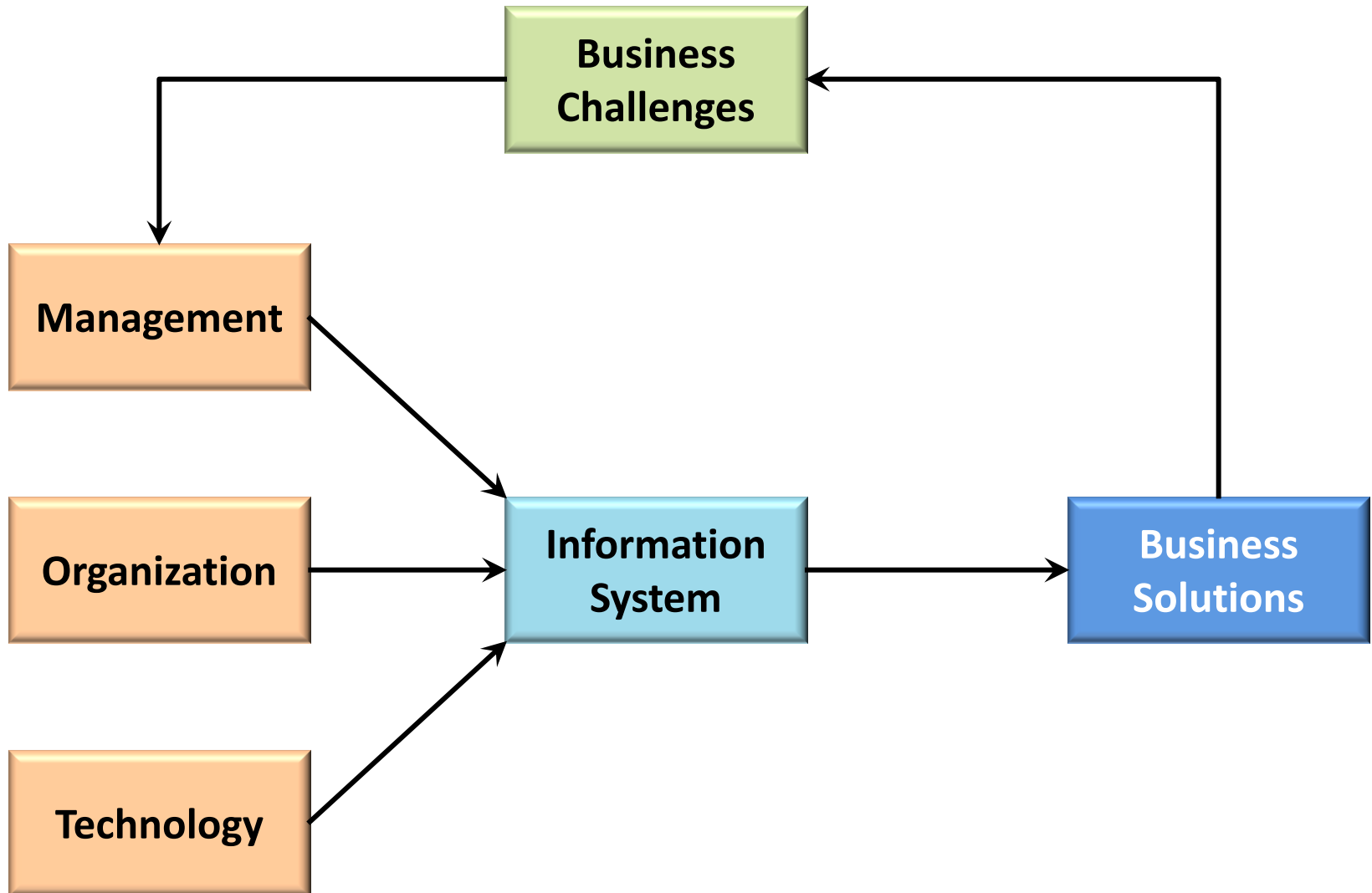
# Case Study:

## Amazon and Cloud Computing (Chap. 5) (pp. 234-236)

### Should Businesses Move to the Cloud?

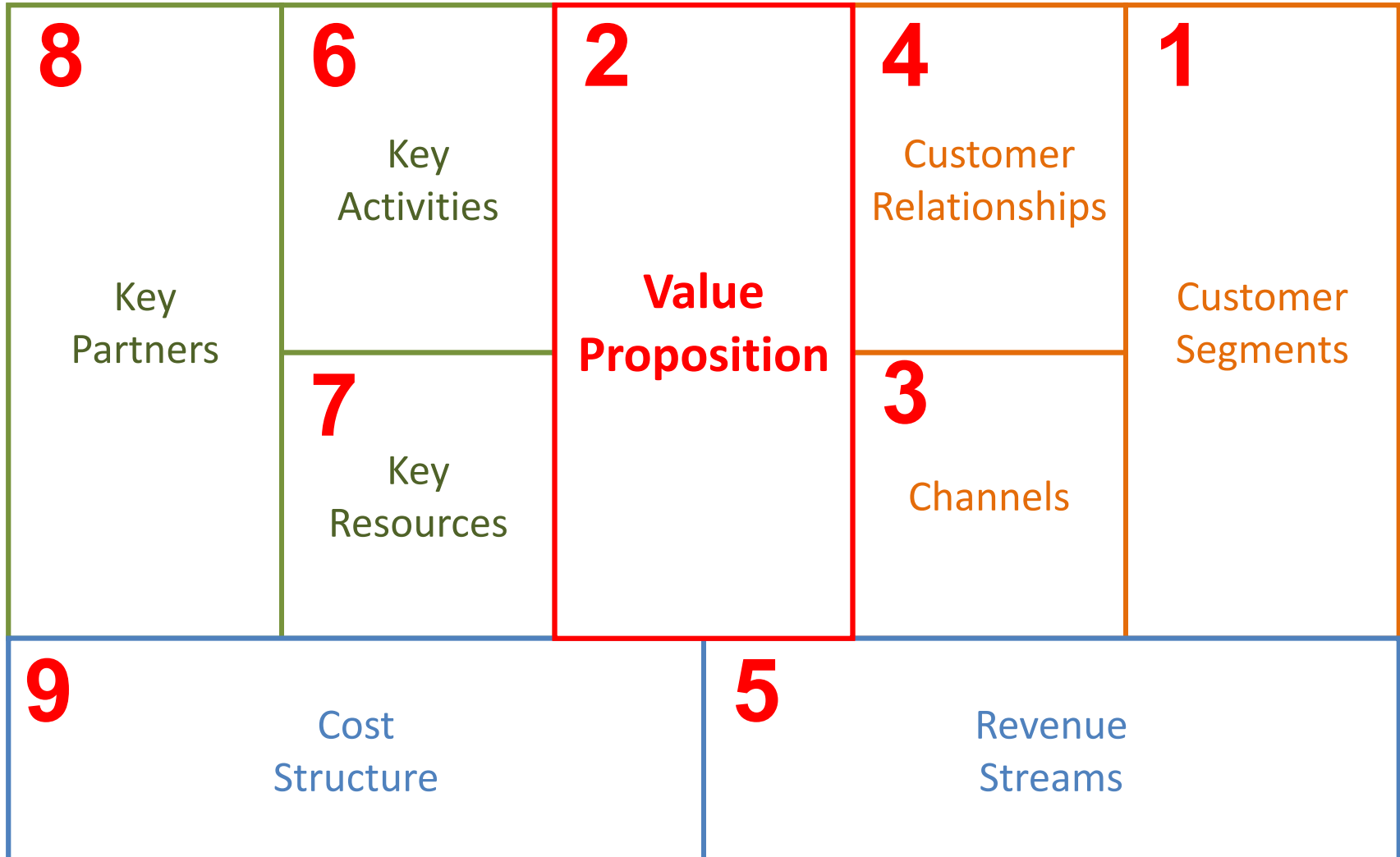
1. What business benefits do cloud computing services provide? What problems do they solve?
2. What are the disadvantages of cloud computing?
3. How do the concepts of capacity planning, scalability, and TCO apply to this case? Apply these concepts both to Amazon and to subscribers of its services.
4. What kinds of businesses are most likely to benefit from using cloud computing? Why?

# Overview of Fundamental MIS Concepts





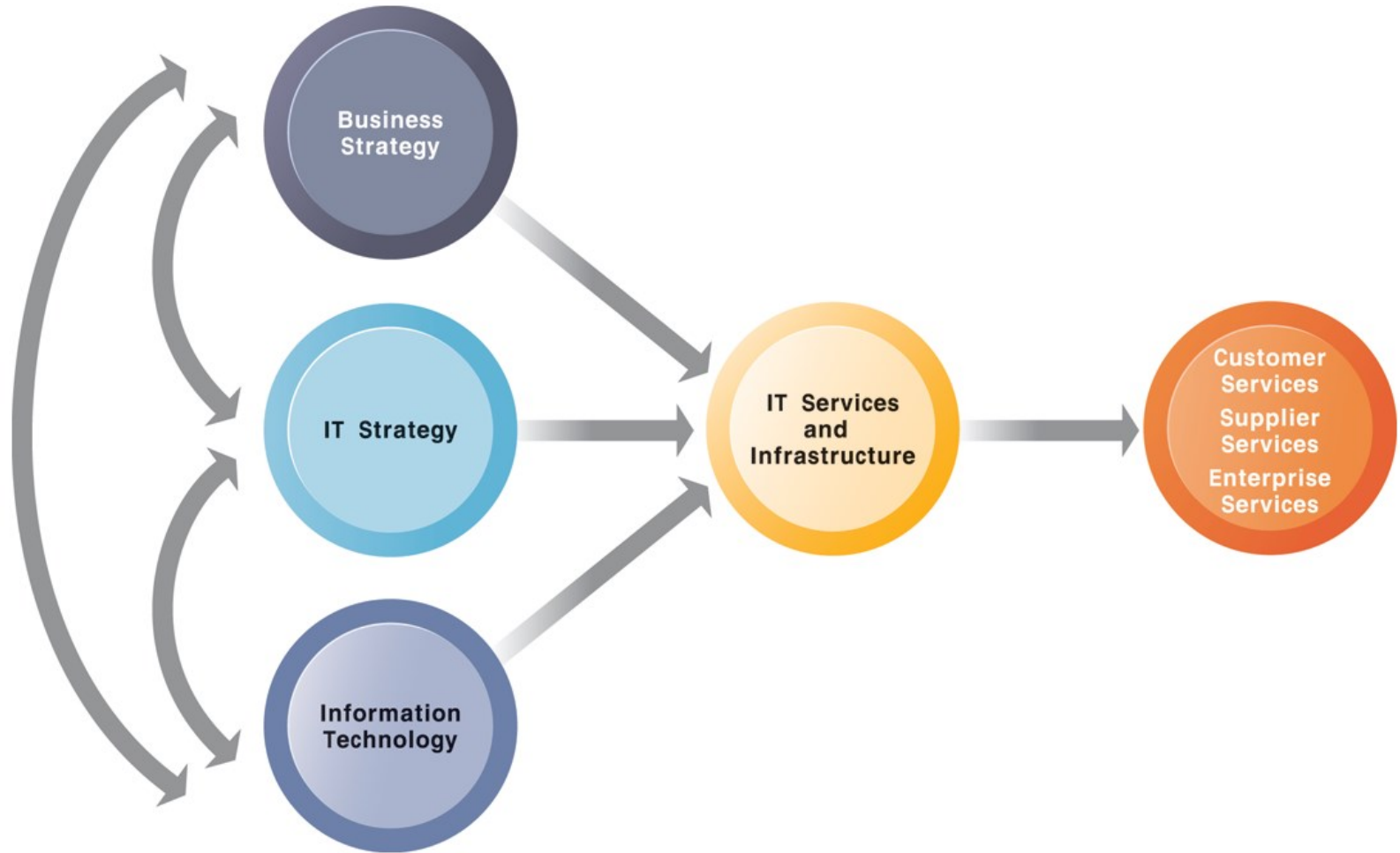
# Business Model



# IT Infrastructure

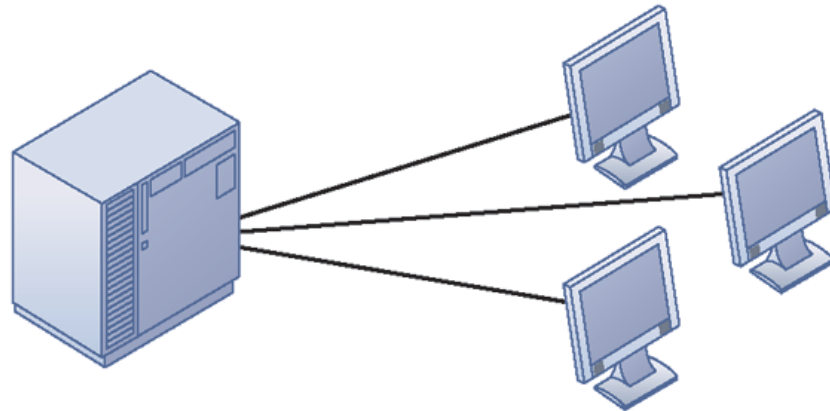
- Set of physical devices and software required to operate enterprise
- Set of firmwide services including:
  - Computing platforms providing computing services
  - Telecommunications services
  - Data management services
  - Application software services
  - Physical facilities management services
  - IT management, standards, education, research and development services
- “Service platform” perspective more accurate view of value of investments

# CONNECTION BETWEEN THE **FIRM**, **IT INFRASTRUCTURE**, AND **BUSINESS CAPABILITIES**



# STAGES IN IT INFRASTRUCTURE EVOLUTION

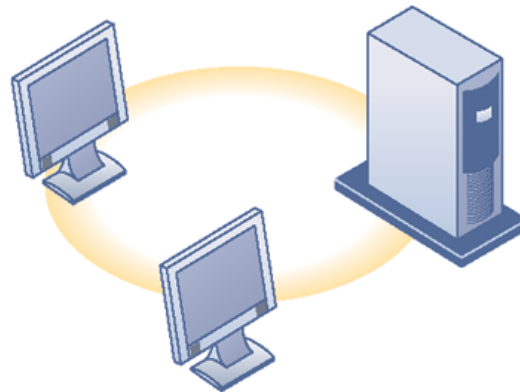
Mainframe/  
Minicomputer  
(1959–present)



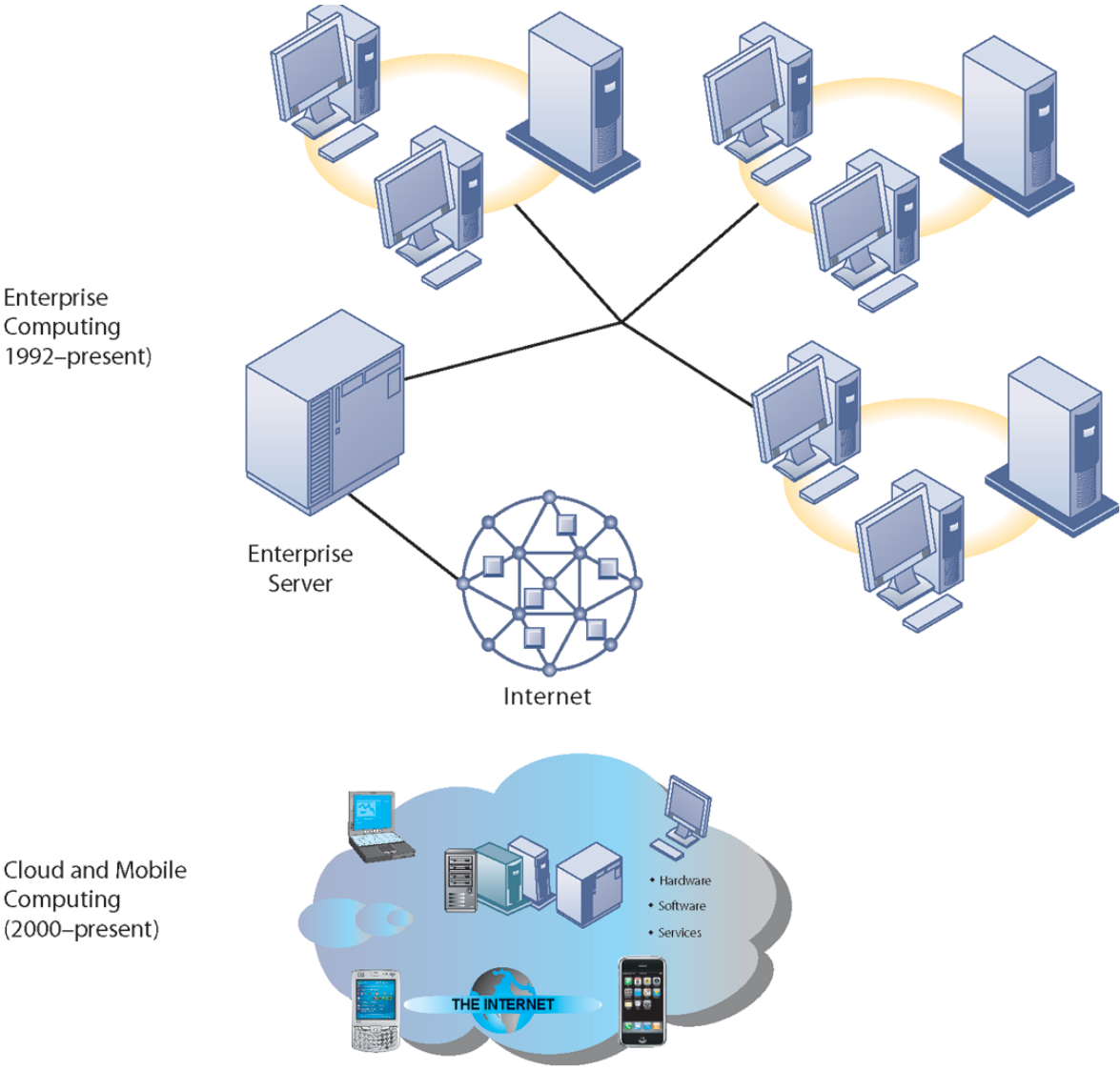
Personal  
Computer  
(1981–present)



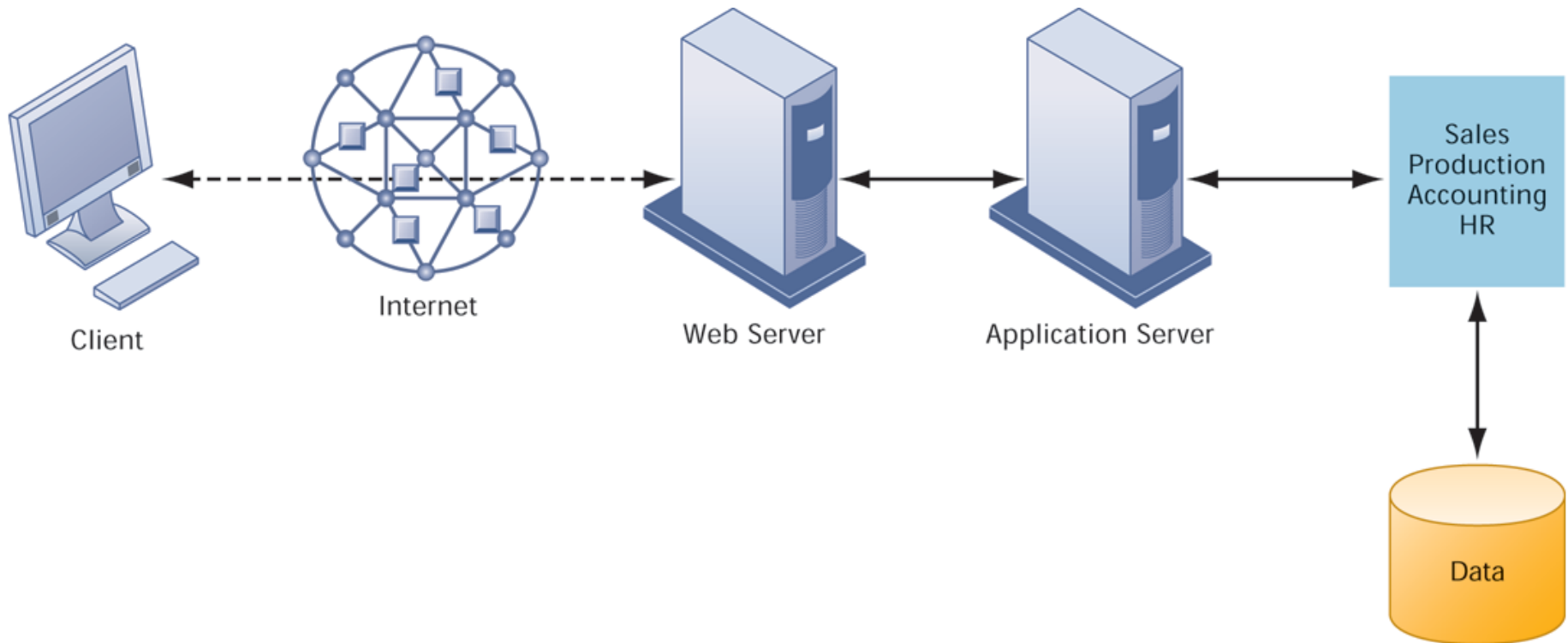
Client/Server  
(1983–present)



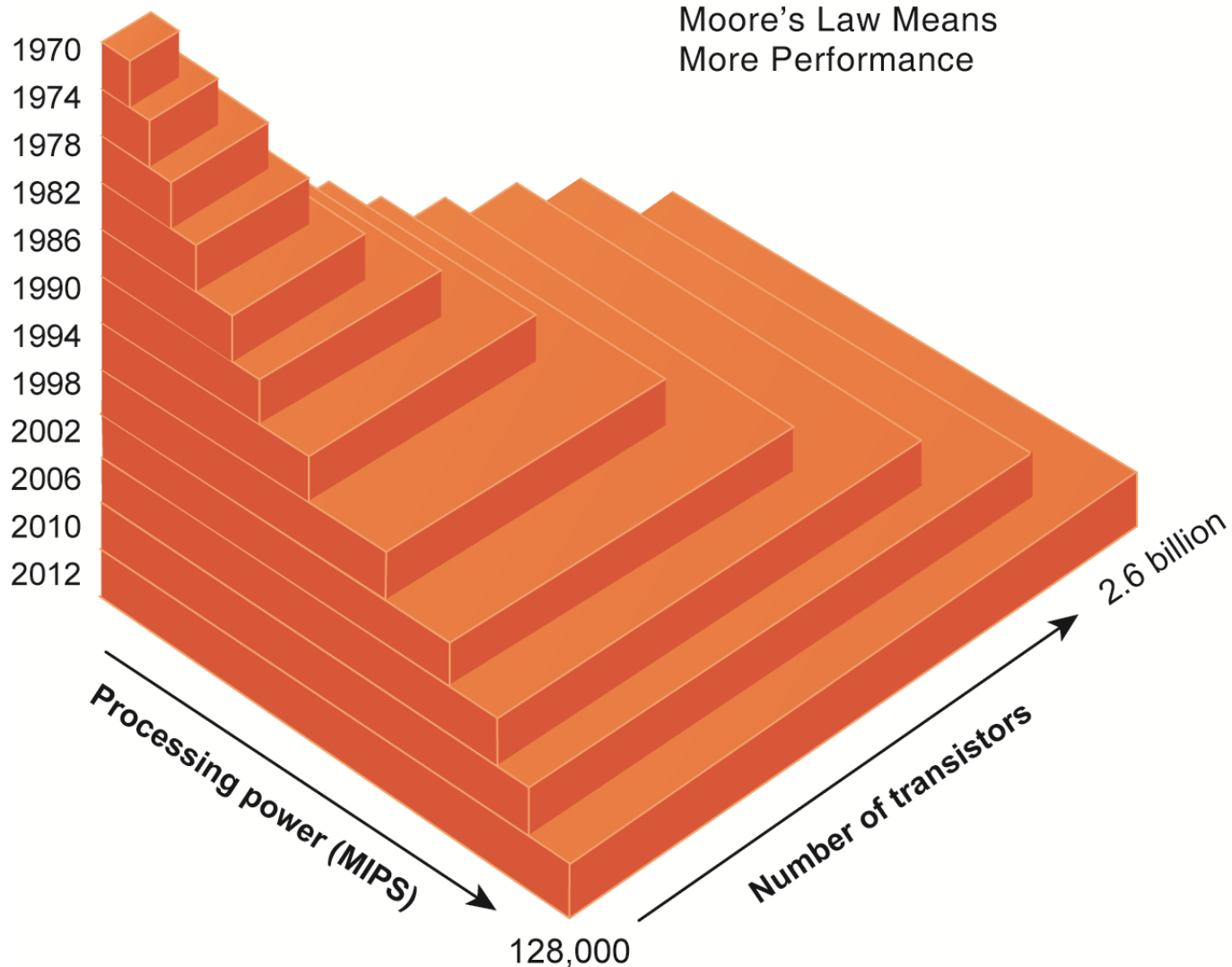
# STAGES IN IT INFRASTRUCTURE EVOLUTION



# A MULTITIERED CLIENT/SERVER NETWORK (N-TIER)



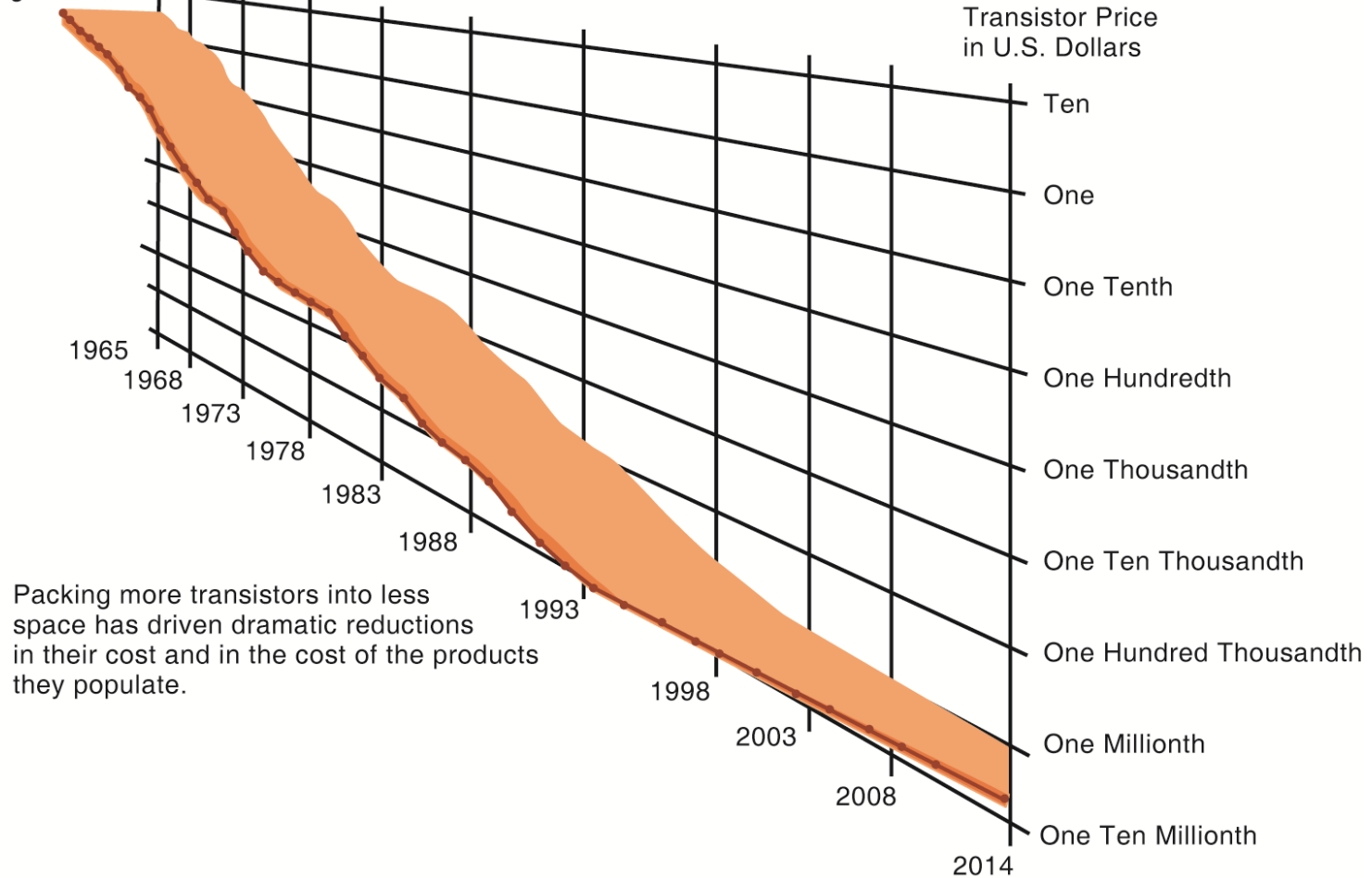
# MOORE'S LAW AND MICROPROCESSOR PERFORMANCE



# FALLING COST OF CHIPS

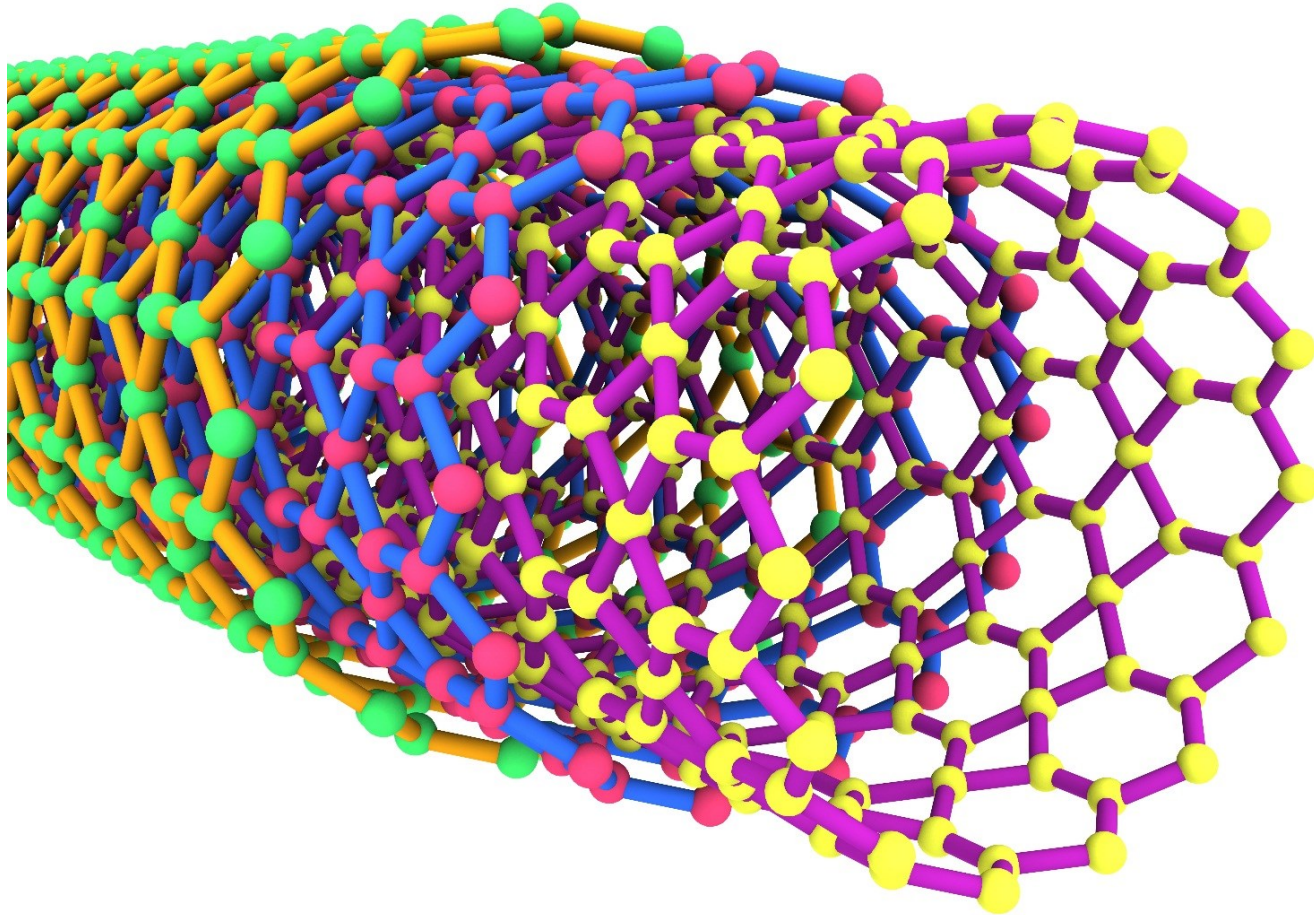
**Moore's Law Means  
Decreasing Costs**

Moore's Law  
Begins 1965

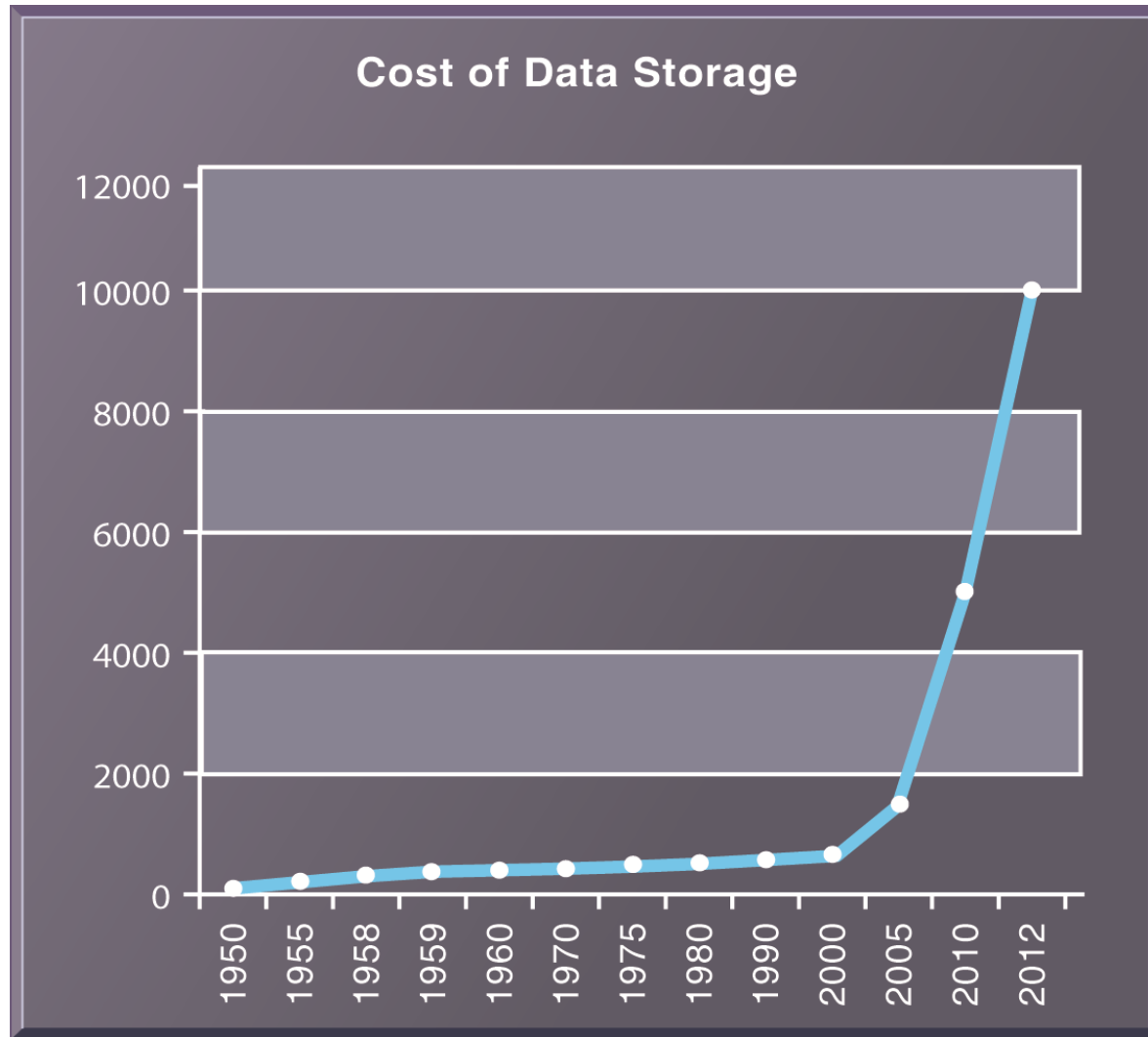




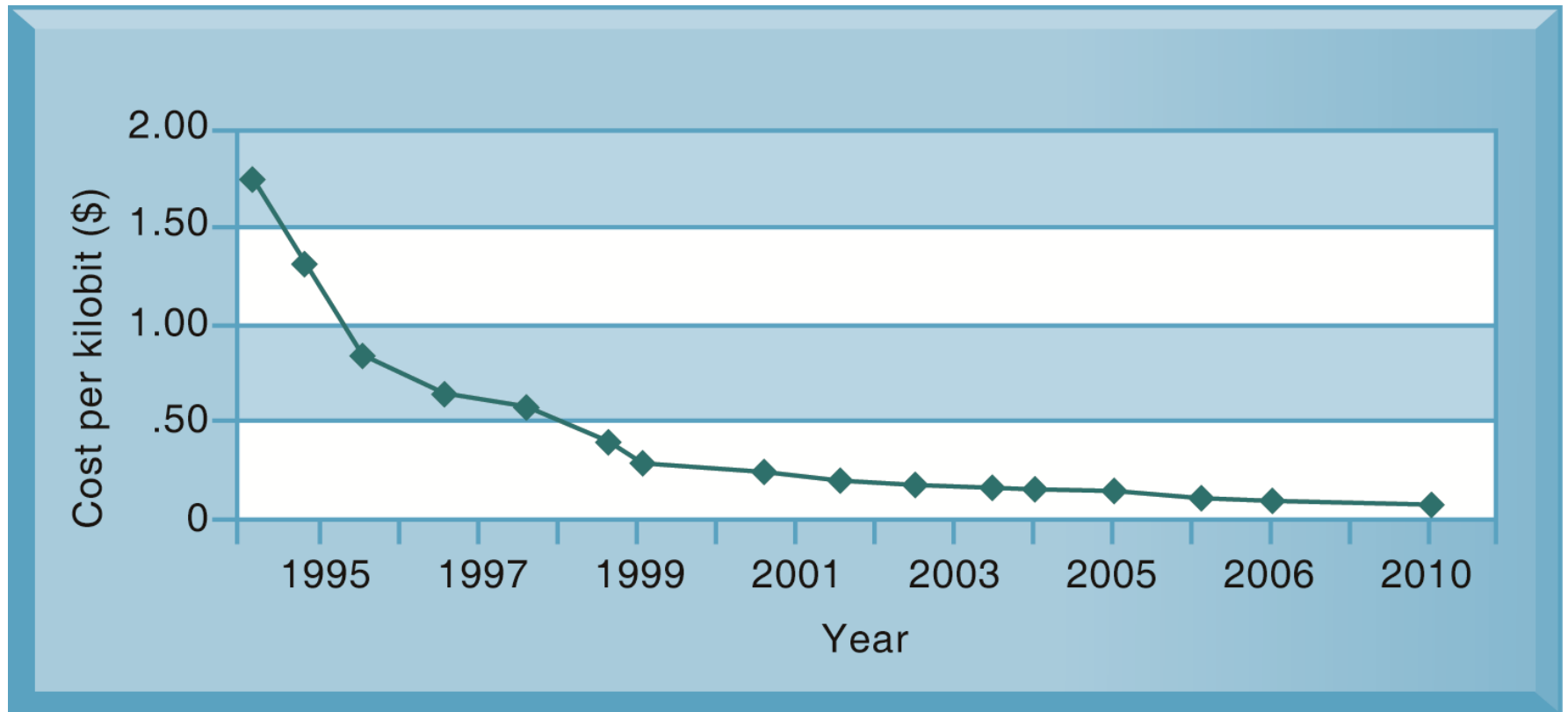
# EXAMPLES OF NANOTUBES



# THE COST OF STORING DATA DECLINES EXPONENTIALLY 1950–2012



# EXPONENTIAL DECLINES IN INTERNET COMMUNICATIONS COSTS

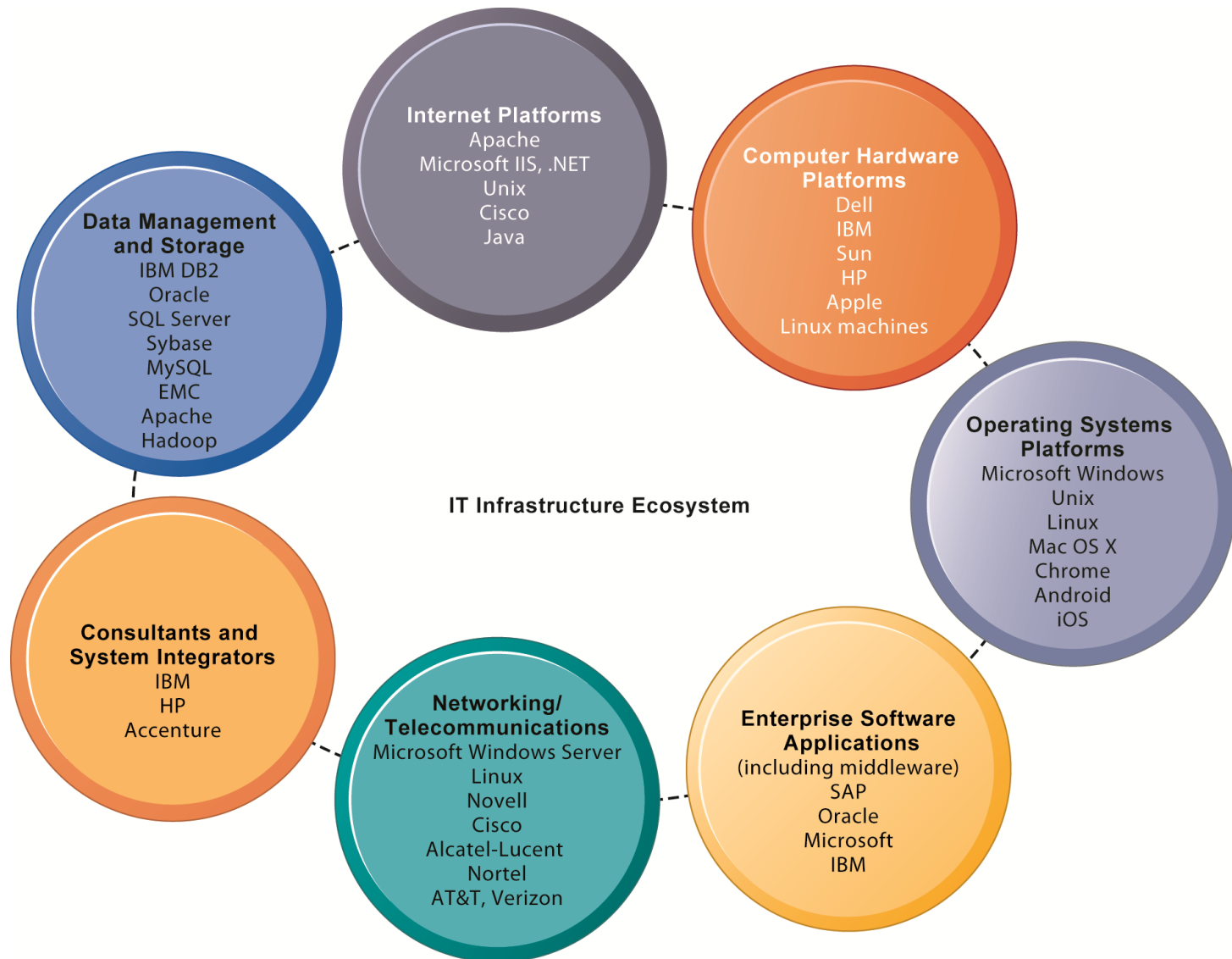


# IT Infrastructure

## has seven main components

1. Computer hardware platforms
2. Operating system platforms
3. Enterprise software applications
4. Data management and storage
5. Networking/telecommunications platforms
6. Internet platforms
7. Consulting system integration services

# THE IT INFRASTRUCTURE ECOSYSTEM



# Contemporary Hardware Platform Trends

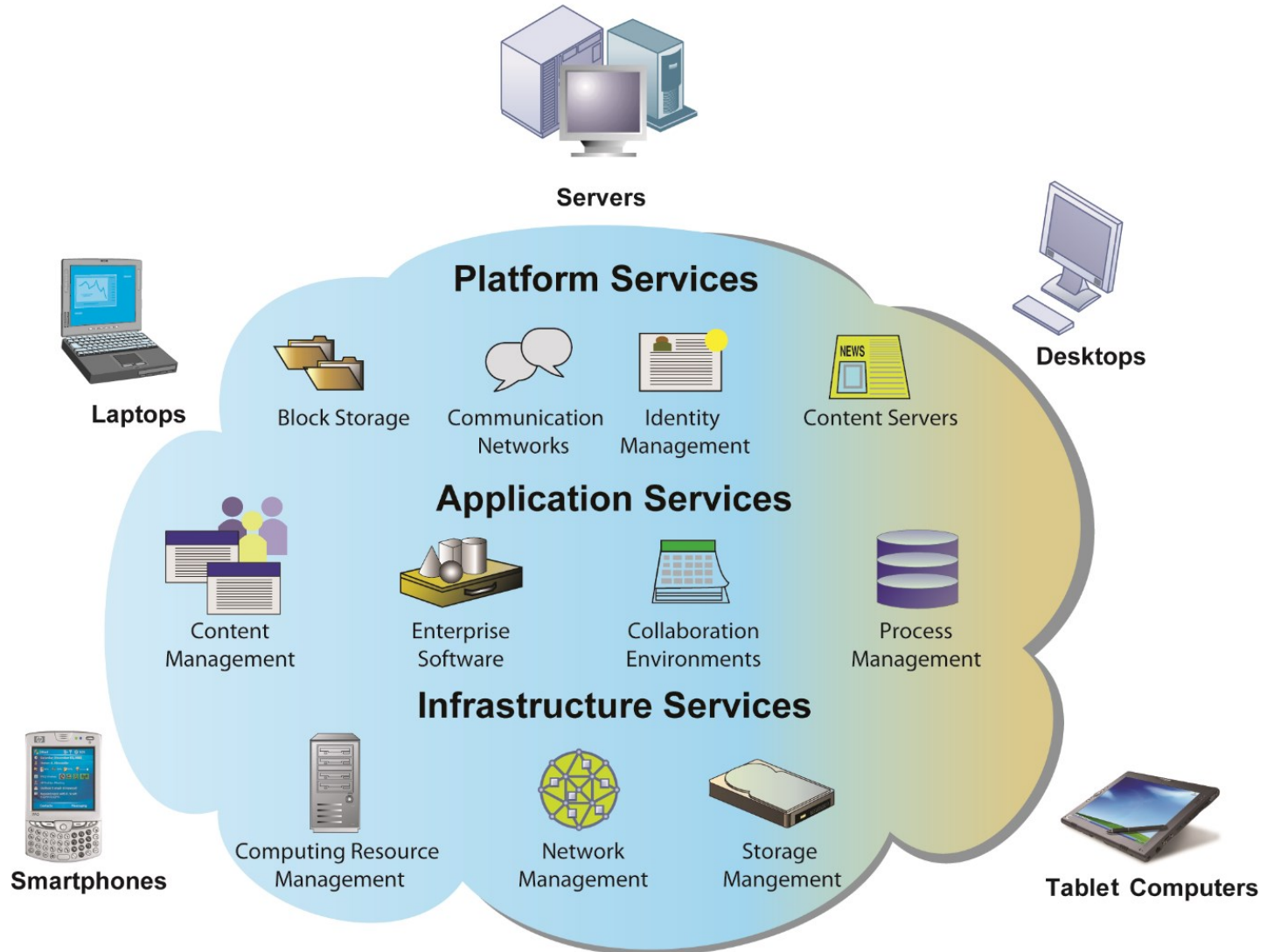
- The Mobile Digital Platform
- Consumerization of IT and BYOD
- Grid computing
- Virtualization
- Cloud Computing
- Green Computing
- High-Performance and Power-Saving Processors
- Autonomic Computing

# Cloud computing

- On-demand (utility) computing services obtained over network
  - Infrastructure as a service (IaaS)
  - Platform as a service (PaaS)
  - Software as a service (SaaS)
- Cloud can be public or private
- Allows companies to minimize IT investments
- Drawbacks: Concerns of security, reliability
- Hybrid cloud computing model

# CLOUD COMPUTING PLATFORM

## Cloud Computing

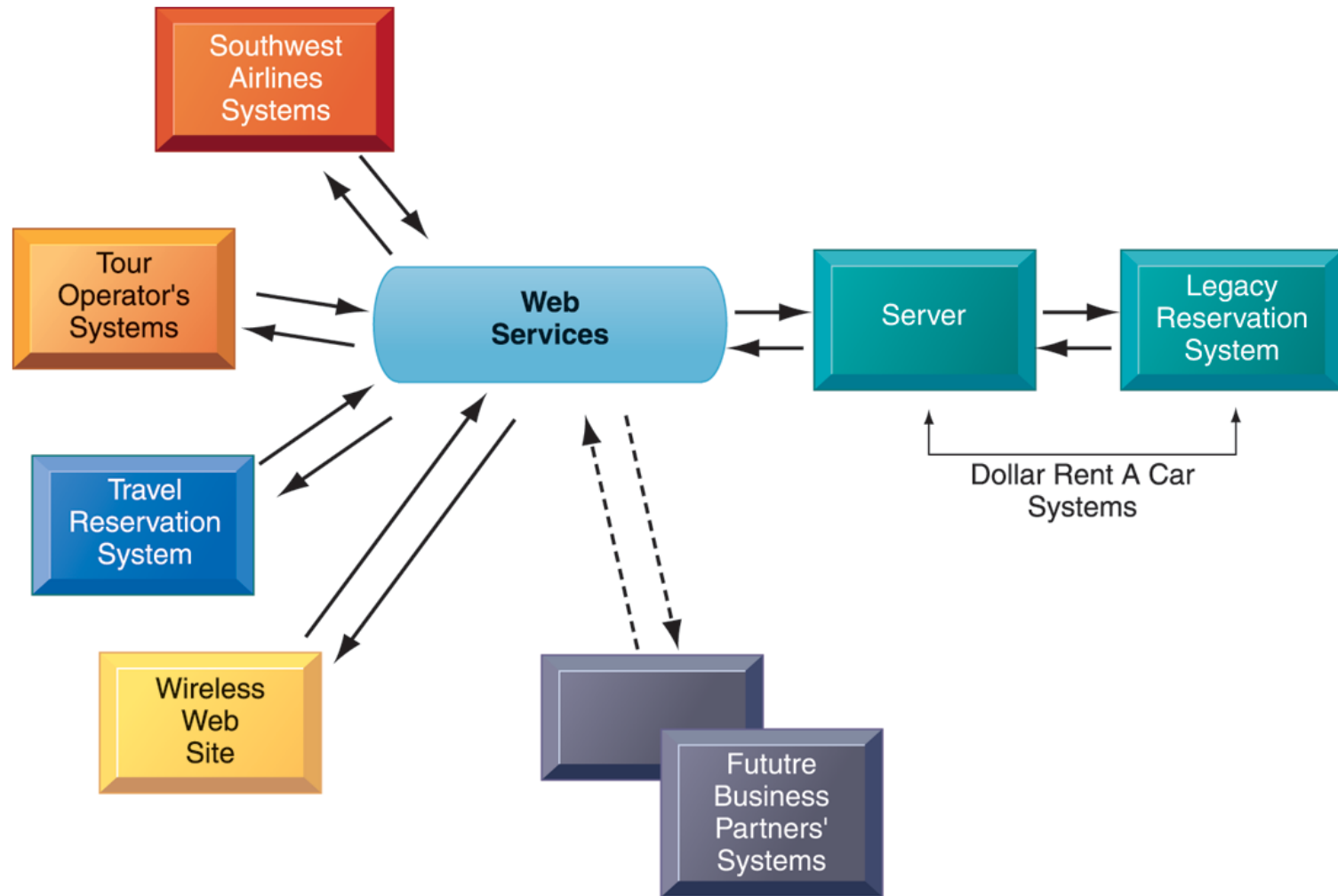




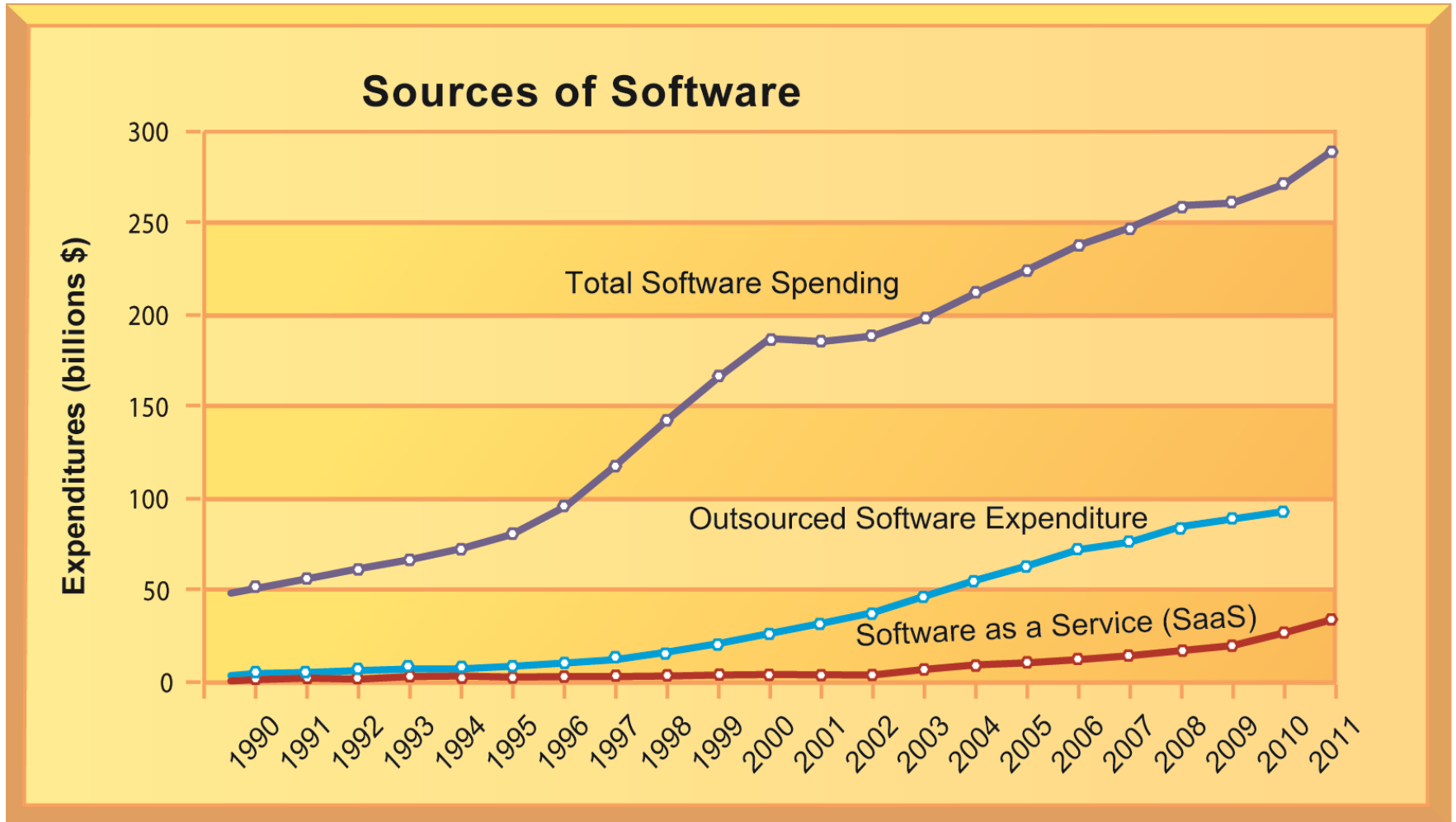
# Contemporary Software Platform Trends

- Open Source Software
- Linux
- Software for the Web
  - Java
  - HTML and HTML5
- Web Services
- Service-Oriented Architecture (SOA)
- Software Outsourcing
- Cloud Services

# HOW DOLLAR RENT A CAR USES WEB SERVICES



# CHANGING SOURCES OF FIRM SOFTWARE



# Software outsourcing and cloud services

- Three external sources for software:
  1. Software packages and enterprise software
  2. Software outsourcing
    - Contracting outside firms to develop software
  3. Cloud-based software services
    - Software as a service (SaaS)
    - Accessed with Web browser over Internet
    - Service Level Agreements (SLAs): formal agreement with service providers

# Software outsourcing and cloud services

- Mashups
  - Combinations of two or more online applications, such as combining mapping software (Google Maps) with local content
- Apps
  - Small pieces of software that run on the Internet, on your computer, or on your cell phone
    - iPhone, Android
  - Generally delivered over the Internet

# Management Issues

- Dealing with platform and infrastructure change
  - As firms shrink or grow, IT needs to be flexible and scalable
  - Scalability:
    - Ability to expand to serve larger numbers of users
  - For **mobile computing** and **cloud computing**
    - New policies and procedures for managing these new platforms
    - Contractual agreements with firms running clouds and distributing software required

# Management Issues

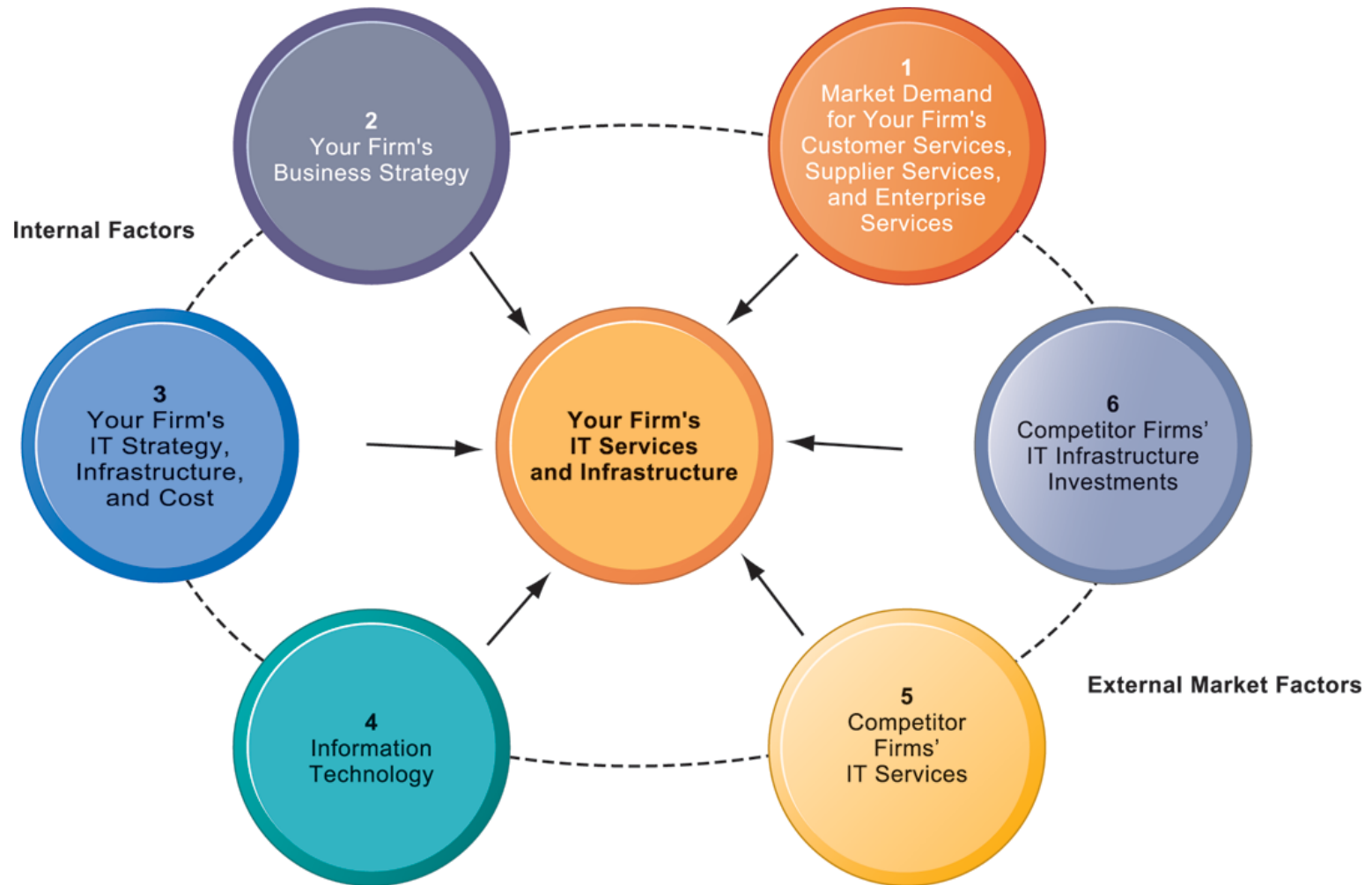
- Management and governance
  - Who controls IT infrastructure?
  - How should IT department be organized?
    - Centralized
      - Central IT department makes decisions
    - Decentralized
      - Business unit IT departments make own decisions
  - How are costs allocated between divisions, departments?

# Management Issues

- Making wise infrastructure investments
  - Amount to spend on IT is complex question
    - Rent vs. buy, outsourcing
  - **Total cost of ownership (TCO)** model
    - Analyzes direct and indirect costs
    - Hardware, software account for only about 20% of TCO
    - Other costs: Installation, training, support, maintenance, infrastructure, downtime, space and energy
    - TCO can be reduced through use of cloud services, greater centralization and standardization of hardware and software resources



# COMPETITIVE FORCES MODEL FOR IT INFRASTRUCTURE



# Competitive forces model for IT infrastructure investment

1. Market demand for firm's services
2. Firm's business strategy
3. Firm's IT strategy, infrastructure, and cost
4. Information technology assessment
5. Competitor firm services
6. Competitor firm IT infrastructure investments

# Case Study:

## IBM and Big Data (Chap. 6) (pp. 261-262)

### Interactive Session: Technology: Big Data, Big Rewards

1. Describe the kinds of “big data” collected by the organizations described in this case.
2. List and describe the business intelligence technologies described in this case.
3. Why did the companies described in this case need to maintain and analyze big data? What business benefits did they obtain?
4. Identify three decisions that were improved by using “big data.”
5. What kinds of organizations are most likely to need “big data” management and analytical tools? Why?

# 資訊管理專題

## (Hot Issues of Information Management)

1. 請同學於資訊管理專題個案討論前  
應詳細研讀個案，並思考個案研究問題。
2. 請同學於上課前複習相關資訊管理相關理論，  
以作為個案分析及擬定管理對策的依據。
3. 請同學於上課前  
先繳交資訊管理專題個案研究問題書面報告。
4. 上課時間地點：  
週四 7,8 (14:10-16:00) B709

# References

- Kenneth C. Laudon & Jane P. Laudon (2014),  
Management Information Systems: Managing the  
Digital Firm, Thirteenth Edition, Pearson.
- Kenneth C. Laudon & Jane P. Laudon 原著，  
游張松 主編，陳文生 翻譯 (2014)，  
資訊管理系統，第13版，滄海