

**MANAGEMENT INFORMATION SYSTEMS 8/E**  
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# Chapter 14

## The Virtual Office

# Introduction

- Automation began in the factory
  - Numerical control (NC)
  - Direct numerical control (DNC)
  - CAD/CAM
  - Robotics
- Office automation (OA) began with IBM in the 1960's
  - Word processing
  - Magnetic Tape/Selectric Typewriter
- Office automation systems are characterized by communication

# Office Automation (OA)

- Formal and informal electronic systems
- Communication of information
- Persons inside and outside the firm are affected
- Used by managers, professionals, secretaries, and clerical employees
  - managers and professionals are collectively known as knowledge workers

# The Virtual Office

- Office work can be done at virtually any geographic location
- Must be linked by electronic communication
- Impact
  - Emerged with the appearance of low cost microprocessors
  - Teleprocessing
  - Telecommuting

# Advantages of the Virtual Office

- Reduced facility costs
- Reduced equipment cost
- Formal communications network
- Reduced work stoppages
- Social contributions
  - Those unable to leave their homes can now work in new ways

# Disadvantages of the Virtual Office

- Sense of not belonging
- Fear of job loss
- Low morale
- Family tension

*These are disadvantages to the employee!*

# Recommended Virtual Office Strategy

- Provide computer resources
- Provide access to information sources
- Provide noncomputer supplies
- Arrange to forward phone calls
- Utilize conference calls
- Schedule regular meetings
- Follow a work routine

# Virtual Organization

- Extends idea of a virtual office to an entire organization
- No ties to physical location
- Three I Economy
  - Information
  - Ideas
  - Intelligence



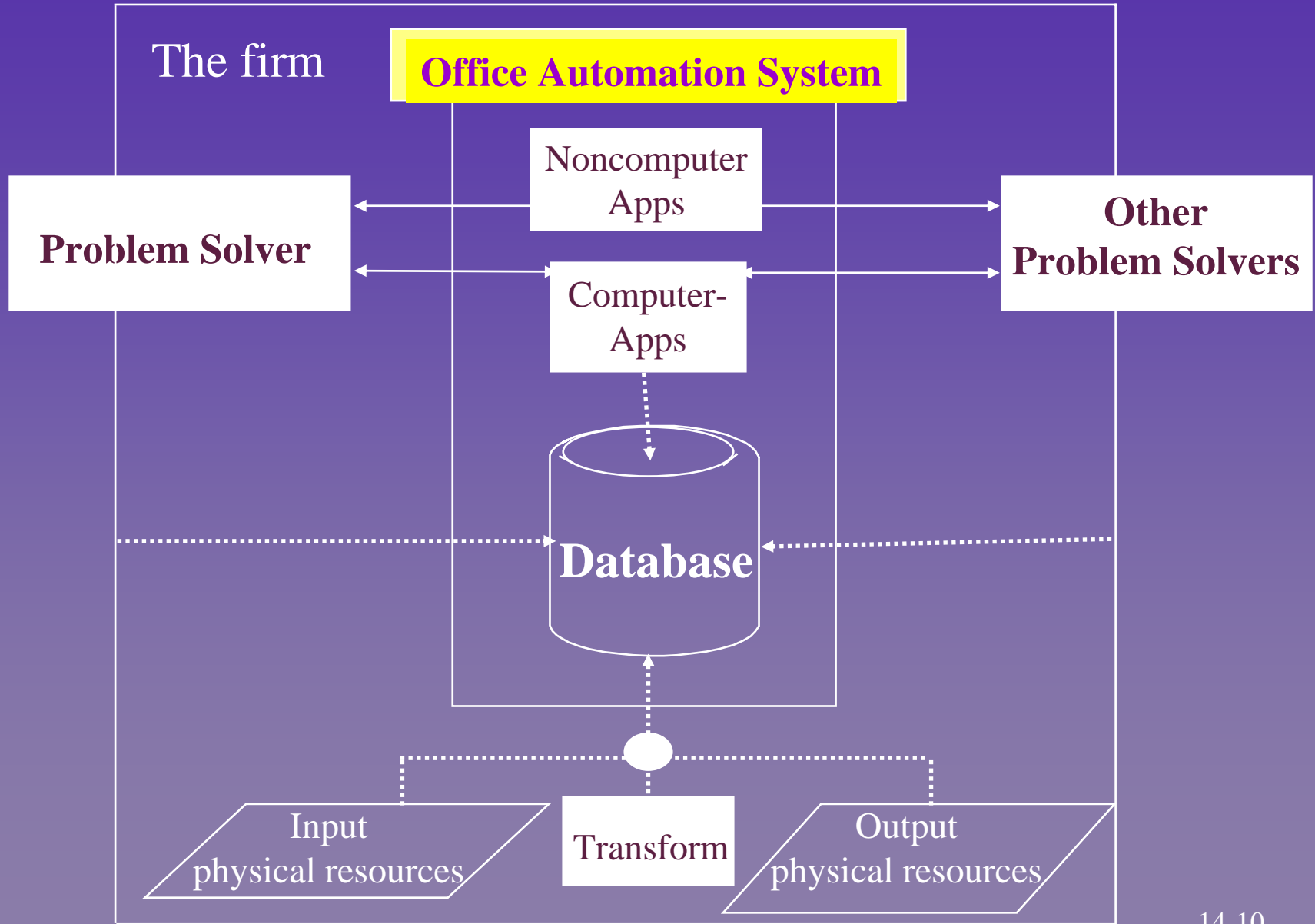
# OA Model

- Information and communication
  - No data
- Computer and noncomputer applications
- "Other problem solvers"
  - Internal
  - Environmental

# An OA Model

Environment

Communications  $\xrightarrow{\hspace{1cm}}$  Information



Environment

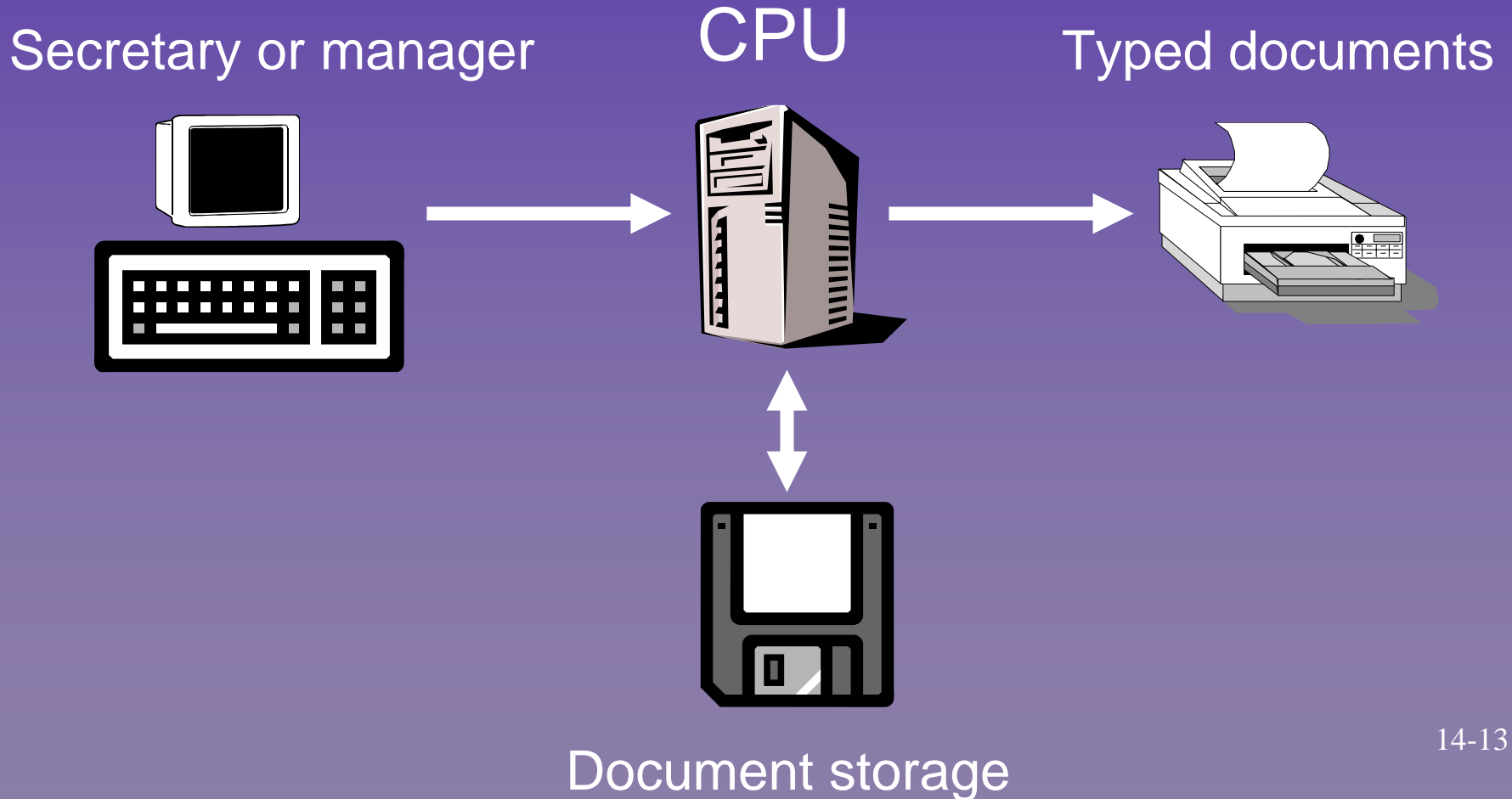
# Office Automation (OA) Applications

- Word processing
- Electronic and voice mail
- Computer calendaring
- Audio conferencing
- Video conferencing
- Computer conferencing
- FAX
- Videotex
- Imaging
- Desktop publishing

# Word Processing

- Use of a computer to perform automatically many of the tasks necessary to prepare typed or printed documents
- Contribution to managers is the preparation of more effective communications

# A Word Processing System



# Electronic Mail (E-mail)

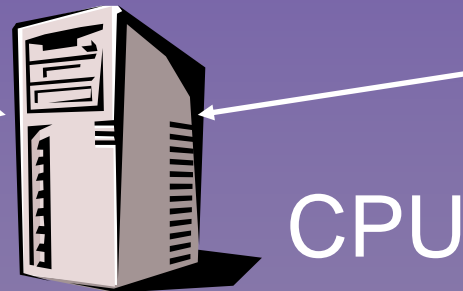
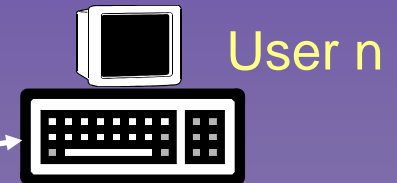
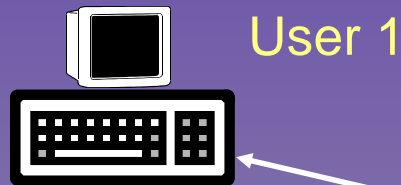
- Use of a computer network that allows users to send, store and retrieve messages using terminals and storage devices
- Good when two-way conversation is not needed
- Easy asynchronous communication
- Eliminates phone tag

# An Electronic Mail System

Mail display and entry

Mail display and entry

Mail display and entry

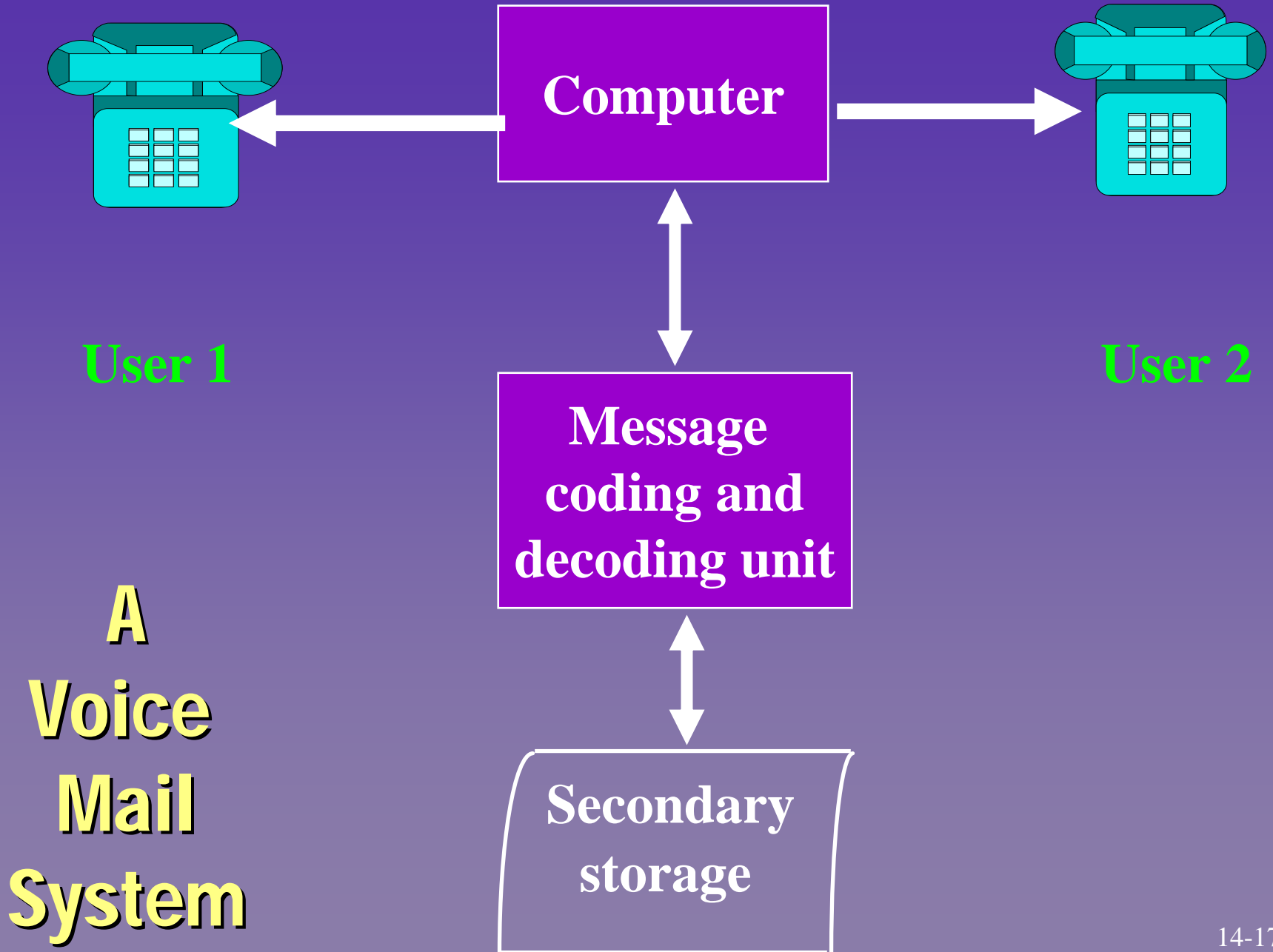


Mail storage

# Voice Mail

- Like e-mail except messages are sent and received over telephone systems in audio form
- Requires computers with an ability to store audio messages digitally and convert them back upon retrieval
- Managers do not have to type
- Less equipment and infrastructure than e-mail

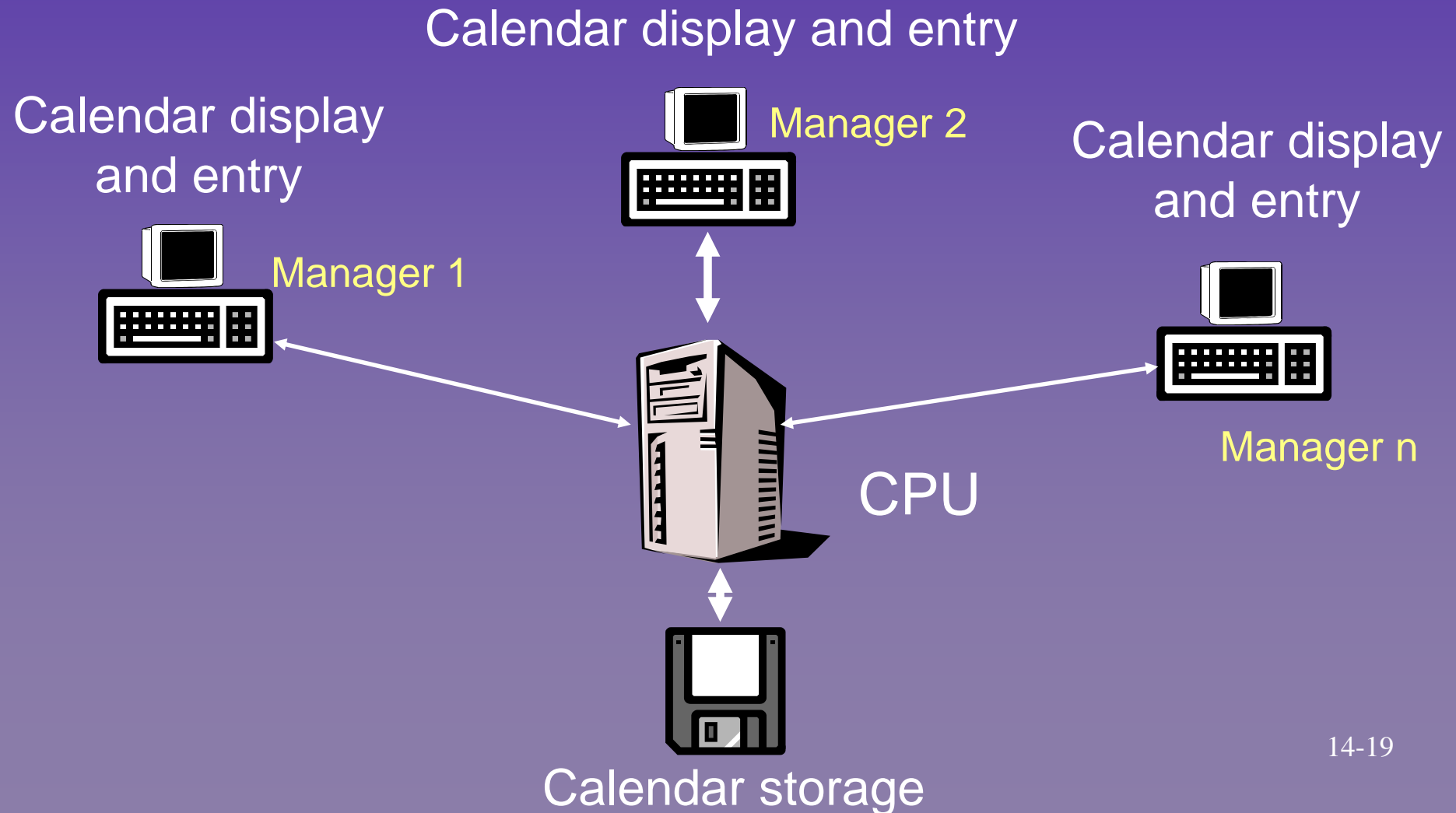




# Electronic Calendaring

- Use of a networked computer to store and retrieve a manager's appointment calendar
- Allows other managers' calendars to be accessed
- Facilitates scheduling
- Does not communicate problem-solving information

# An Electronic Calendaring System



# Audio Conferencing

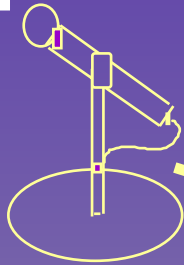
- Uses voice communications equipment to establish an audio link between geographically dispersed people
- Conference call was first form of this system

# Rules for Added Efficiency in Audio Conferencing

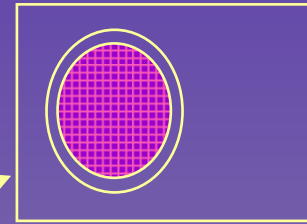
- Have a moderator
- Keep participants to a manageable size
- Send an agenda first
- Identify yourself when speaking
- Keep a taped record
- Distribute a hard copy transcript or meeting minutes

# An Audio Conferencing System

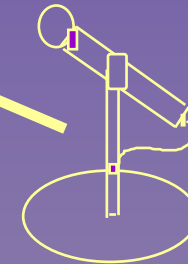
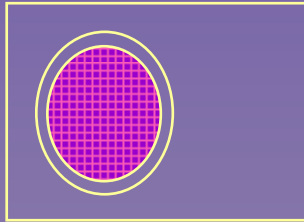
Location 1



Location *n*



Audio Channel



# Video Conferencing

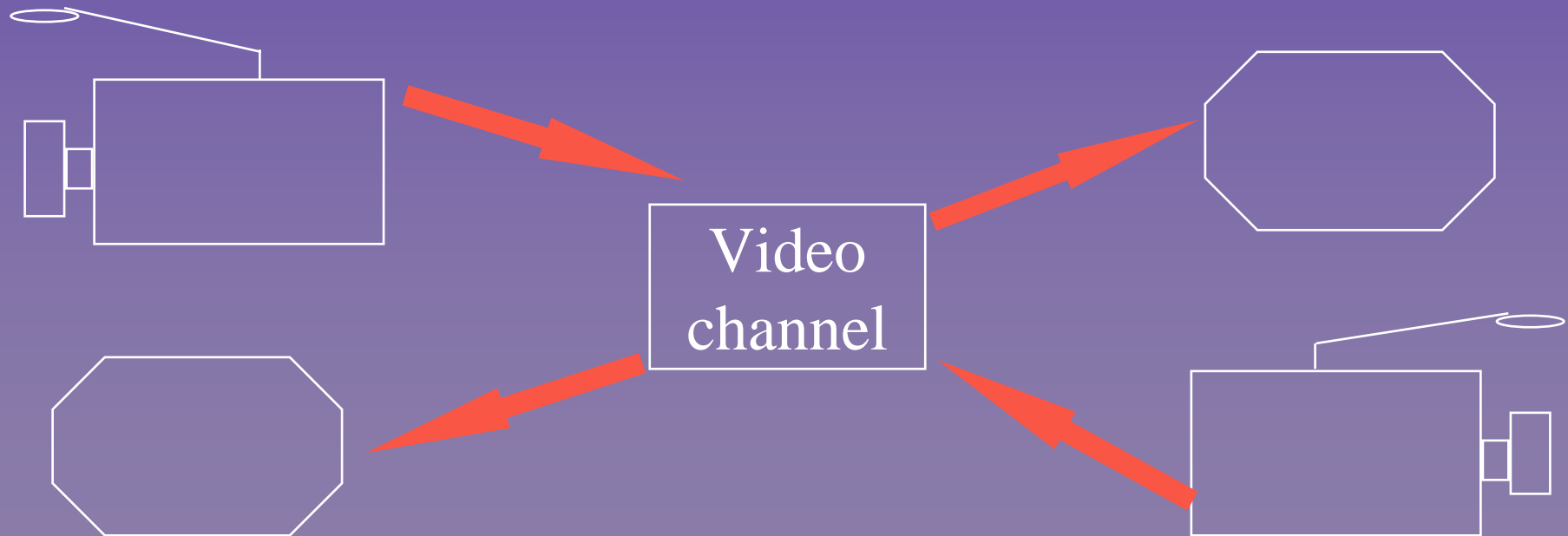
- Use of television equipment to link geographically dispersed conference participants
- Three general configurations
  - One-way video and audio
  - One-way video and two-way audio
  - Two-way video and audio

# Video Conferencing

Location 1



A. One-way video transmission



B. Two-way video transmission



# Desktop Video Conferencing

- Video and audio equipment are attached to each workstation in the network enabling the two-way communication of picture and sound
- Technical concerns
  - Many desktop computers are powerful enough already
  - Requires high-speed communications network
  - Cost is typically less than \$1,000 for the additional equipment to make a standard PC a desktop video station

# Computer Conferencing

- Uses a networked computer that allows participants with some common characteristic to exchange information regarding a particular topic
- One of the largest was an IBM PC computer conference
  - Over 4,000 topic areas
  - Over 40,000 members
- Computers must be networked together

# Teleconferencing

☰ Incorporates all other conferencing techniques

☰ Includes:

- audio
- video
- computer conferencing

# FAX

Uses special equipment that can read a document at one end of a communication channel and make a copy at the other end



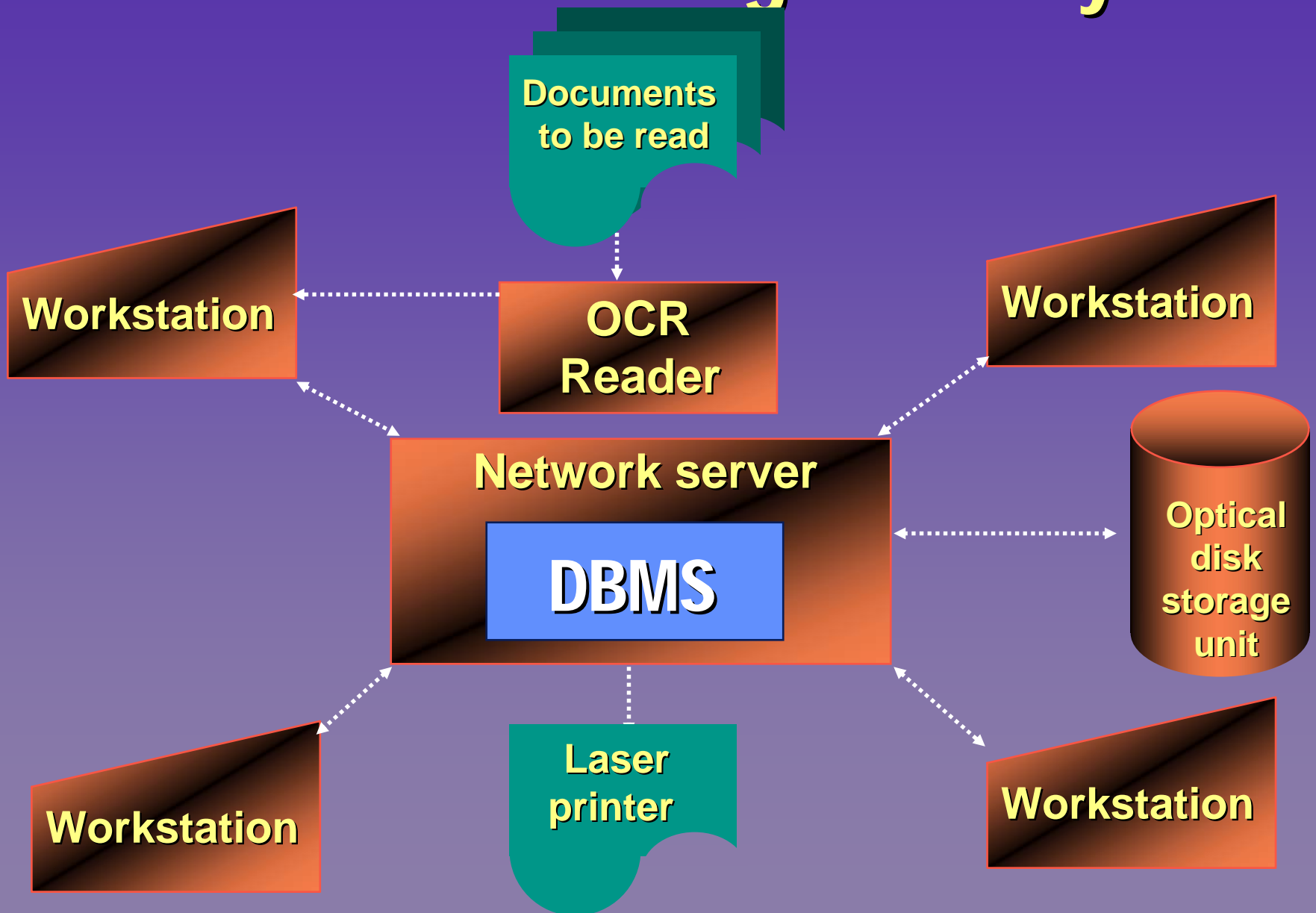
# Videotex

- Uses a computer to store and display a stored narrative and graphic material on a CRT screen
  - Can be created in the firm's own computer
  - Can be owned by a service and accessed by the firm (such as the Dow Jones News / Retrieval Service)
  - Can be owned by other firms

# Imaging

- Uses optical character recognition (OCR) to convert data on paper to a digital format for storage in a secondary storage device
- Performed by a document management (DM) system
- Conserves space since documents are not stored in paper form

# A Document Management System

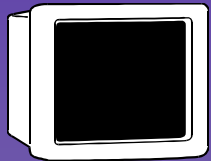


# Desktop Publishing

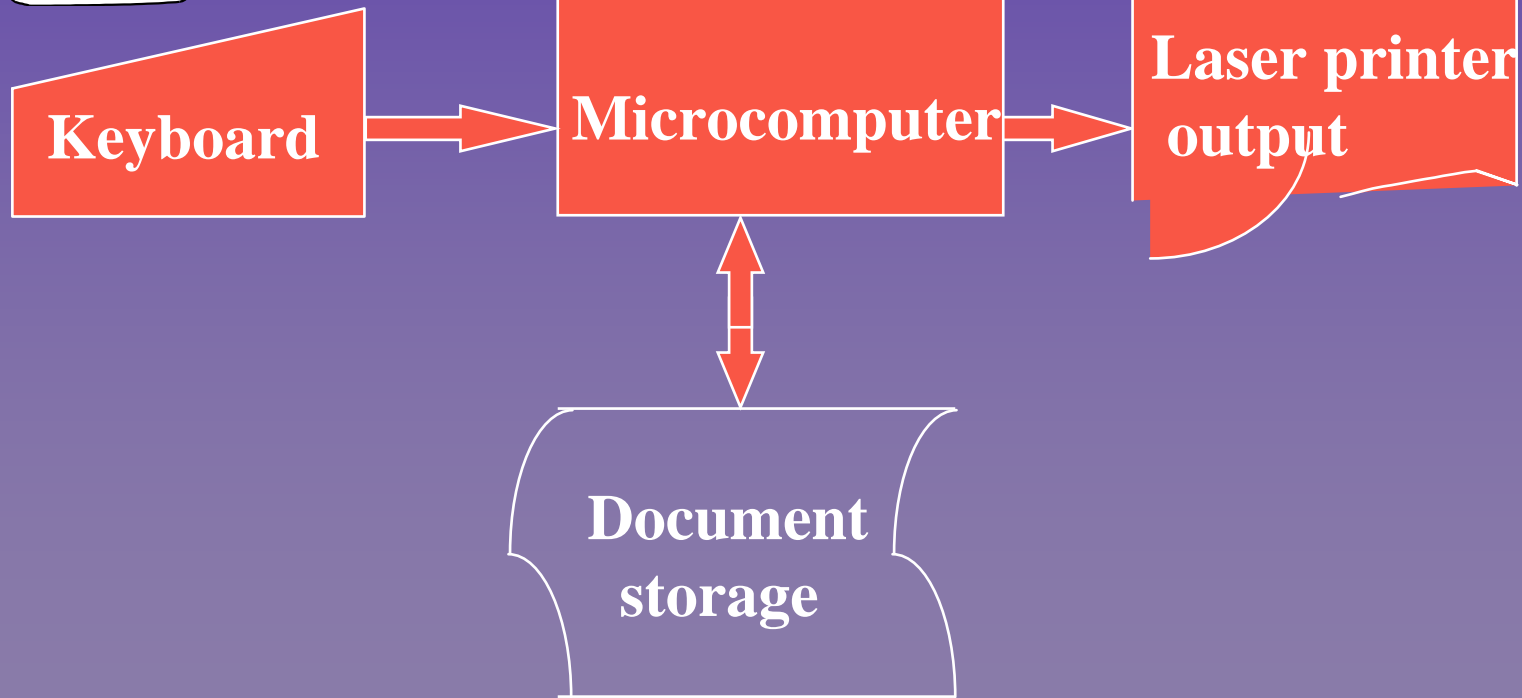
- Uses a computer to prepare output that is very close in quality to that produced by a typesetter
- Requires high resolution monitor and printing devices
- Three areas of applications
  - administrative
  - technical
  - corporate



# Desk-Top Publishing System



High-resolution  
screen



# OA and Virtual Office in Perspective

- Aimed at the heart of business problem solving
  - Supplements interpersonal communications
  - Provides opportunity for better communications

# Summary

- Early OA was directed at secretarial staff and clerks
- Communication needs of managers and knowledge workers were recognized
- Virtual office concept emerged
- Goal of OA is increased productivity

# Summary [cont.]

- Variety of applications
  - Word processing
  - E-mail
  - Voice mail
  - Electronic calendaring
  - Audio conferencing
  - Video conferencing
  - Computer conferencing
  - Fax
  - Videotex