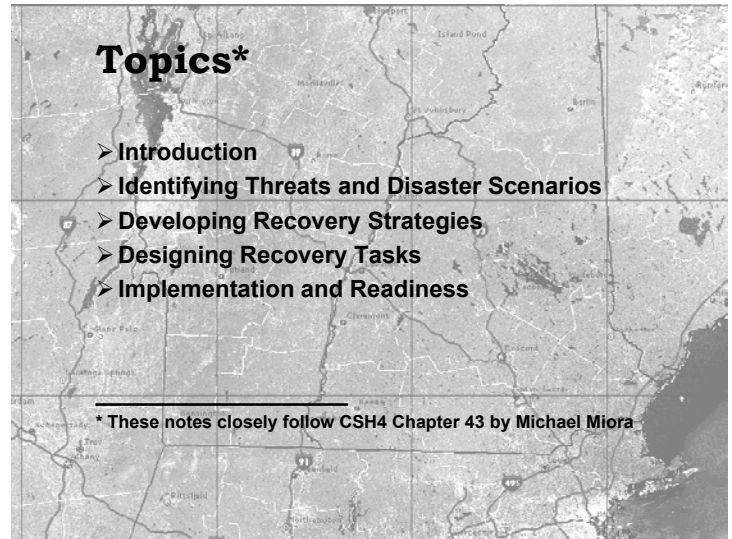


# Disaster Recovery Planning

CSH5 Chapter 59

Disaster Recovery Planning

Michael Miora



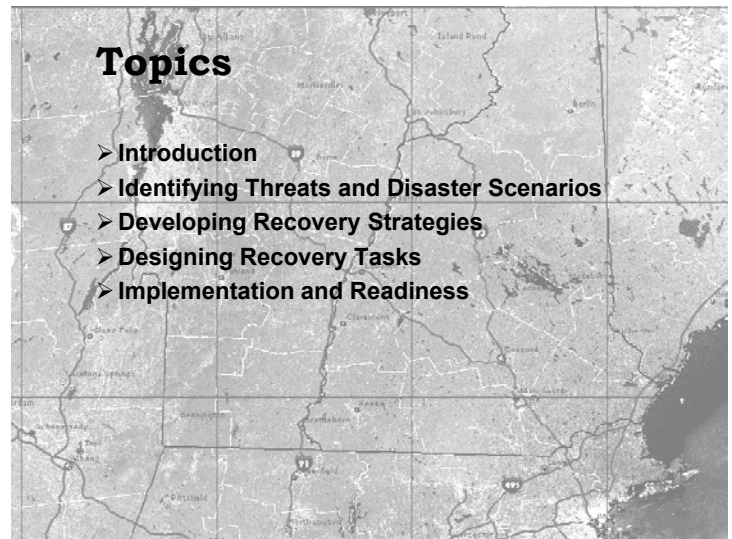
## Topics\*

- Introduction
- Identifying Threats and Disaster Scenarios
- Developing Recovery Strategies
- Designing Recovery Tasks
- Implementation and Readiness

\* These notes closely follow CSH4 Chapter 43 by Michael Miora

## Scope of DRP

- BIA determines key functions
  - ❑ Establishes sequence for recovery
  - ❑ Builds economics of case for recovery
- DRP focuses on detailed recovery strategies
  - ❑ Analyze and test critical path to recovery
  - ❑ May begin while disaster in progress
  - ❑ Establish essential services
  - ❑ Continue through to normal operations

## Topics

- Introduction
- Identifying Threats and Disaster Scenarios
- Developing Recovery Strategies
- Designing Recovery Tasks
- Implementation and Readiness

## Threats

- Compile extensive list of threats to operations
- Rely on cooperation of emergency services
  - ❑ Fire
  - ❑ Police
  - ❑ Flood district managers
- Compiling lists is useful in itself
  - ❑ Define levels of impact
  - ❑ Helps develop risk-mitigation plans



**HOMELAND SECURITY ADVISORY SYSTEM**

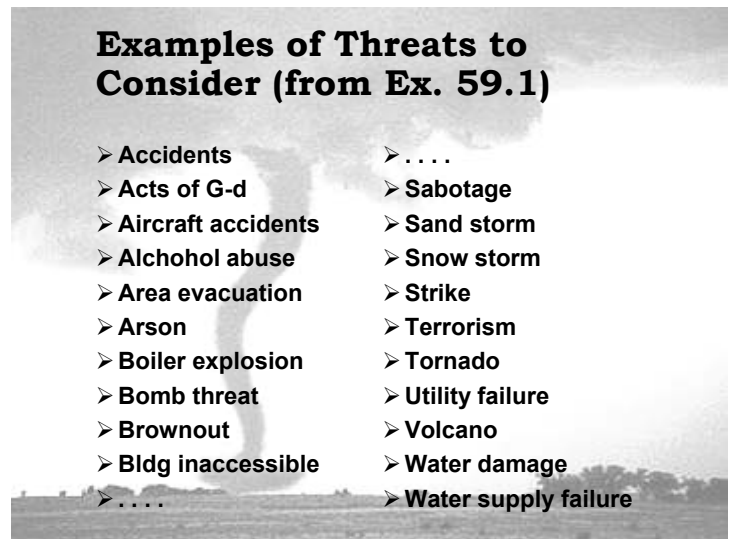
**SEVERE**  
SEVERE RISK OF TERRORIST ATTACKS

**HIGH**  
HIGH RISK OF TERRORIST ATTACKS

**ELEVATED**  
SIGNIFICANT RISK OF TERRORIST ATTACKS

**GUARDED**  
GENERAL RISK OF TERRORIST ATTACKS

**LOW**  
LOW RISK OF TERRORIST ATTACKS



## Examples of Threats to Consider (from Ex. 59.1)

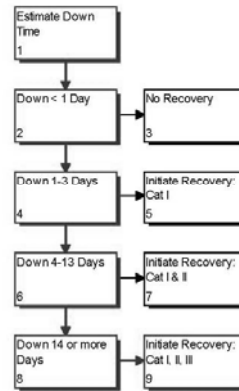
- Accidents
- Acts of G-d
- Aircraft accidents
- Alcohol abuse
- Area evacuation
- Arson
- Boiler explosion
- Bomb threat
- Brownout
- Bldg inaccessible
- . . . .
- Sabotage
- Sand storm
- Snow storm
- Strike
- Terrorism
- Tornado
- Utility failure
- Volcano
- Water damage
- Water supply failure

## Disaster Recovery Scenarios

- Apply survivable technologies to mission-critical functions
  - ❑ E.g., eliminate single points of failure where practical
  - ❑ E.g., invest in remote location for part of corporate data processing
- Escalation scenarios
  - ❑ Establish timelines for increasing application of recovery measures
  - ❑ Must plan carefully
  - ❑ Avoid ambiguity in decision points



## Escalation Timelines



Escalation Timeline

- Illustrates how DRP specifies decisions and actions
- Must identify *who makes the decision*
- Everyone has to know exactly who has authority to move to next phase
- Cannot argue about decision while disaster is in progress
- Must be practiced repeatedly (see later)

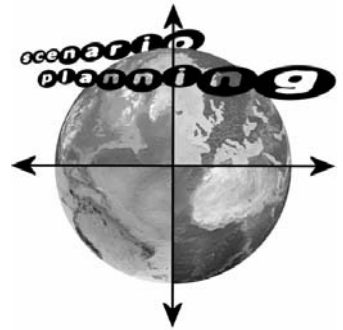
## Classifying the Damage

### Sample Classifications of Damage

Sample Classifications of Damage		
Event Description	Possible Scope of Effect	Potential Duration of Effect
Aircraft Accident	Building to Local Area	Hours to Days
Asbestos	Partial to Full Building	Days to Weeks
Bomb Threat	Building to Local Area	Hours to Days
Chemical Spill	Building to Local Area	Hours to Days
Civil Unrest/Riots	Local to Regional	Days to Weeks
Cold Weather	Local to Regional	Days
Communications Failure	Building to Regional	Hours to Days
• • •		
Snow Storm	Local to Regional Area	Days to Weeks
Volcano	Regional Area	Weeks
Water Damage	Building to Local Area	Hours to Days

## Simplifying the Scenarios

- Use complete listing to identify major scenarios of concern
- Establish key scenarios; e.g.,
  - ❑ Systems only
  - ❑ Partial building unusable
  - ❑ Full building unusable
- Expect radically different DRPs for these types of disasters
- Everything depends on specifics of the situation – no boilerplates



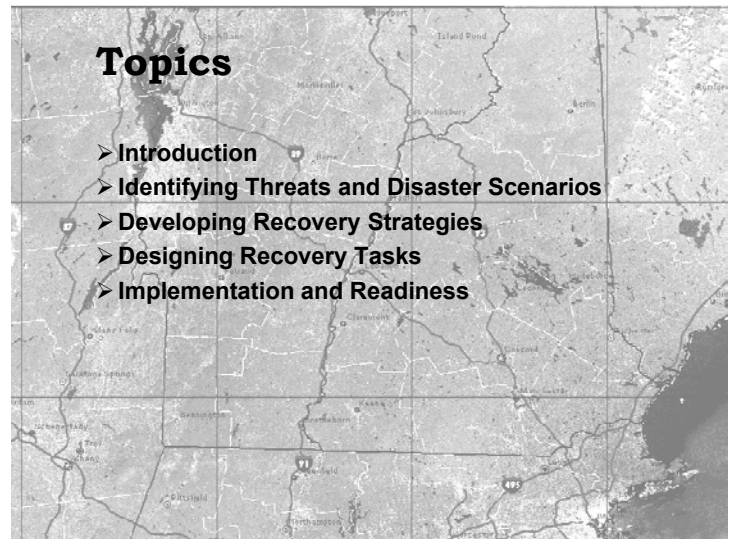
## Categories of Functionality

- Category I
  - ❑ Essential, mission-critical and time-sensitive
- Category II
  - ❑ Essential, mission-critical but later in sequence
- Other
  - ❑ Necessary but not immediately critical

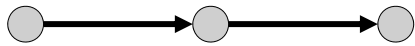


## Topics

- Introduction
- Identifying Threats and Disaster Scenarios
- Developing Recovery Strategies
- Designing Recovery Tasks
- Implementation and Readiness

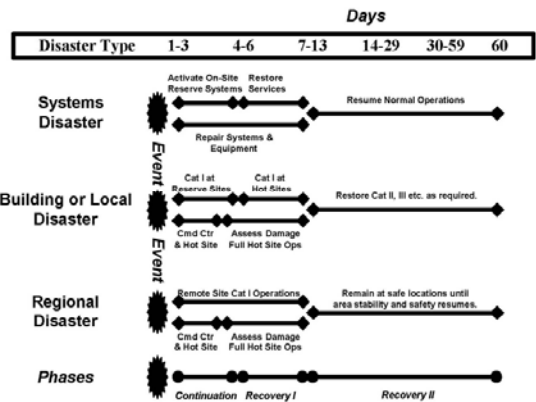


# Recovery Phases



- Expect to identify 3 basic phases
  - ❑ Continuation of critical functions (Continuation)
  - ❑ Recovery of critical functions (Recovery I)
  - ❑ Recovery of other functions (Recovery II)
- Exhibit 43.4 in CSH4 is **WRONG**
  - ❑ Text says, "Exhibit 43.4 shows an example of such phasing"
  - ❑ Actually, the Exhibit shows options for recovery strategies (used later)
  - ❑ Next slide shows correct diagram

# CSH5 Exhibit 59.4



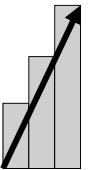
# Continuation

- Begins immediately at time of disaster
- Support Category I functions as best as possible
- Respect time frames defined by BIA
- Consider possible alternate task assignments for people whose regular duties are impossible



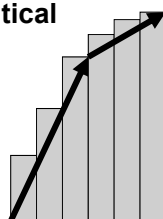
# Recovery I

- Restore nearly full functionality to Category I functions
- Can start shortly after Continuation Phase has stabilized
- But usually starts quickly during Continuation Phase
  - ❑ Minimize period of degraded functions for Category I
  - ❑ Use overlapping recovery to degree possible



# Recovery II

- Continue recovery of lesser, later functions
- All of these timelines are *planned*
- Do not assume that you can play it by ear
- No time to debate and discuss critical path during recovery phases



# Range of Strategies

Strategy	Activation	Cost	Testability	Availability	Reliability
<b>The "Ideal Strategy"</b>	<b>Fast</b>	<b>Low</b>	<b>Excellent</b>	<b>High</b>	<b>Excellent</b>
Reserve Systems	Fast	Low	Excellent	High	Excellent
Internal Redundancy	Fast	Medium	Poor	Medium	Good
Commercial Providers	Fast	Varies	Excellent	High	Excellent
Hot Site	Fast	High	Excellent	High	Excellent
Mobile Data Centers	Medium	Low	Medium	High	Good
Reciprocal Agreements	Slow	Low	Poor	Low	Poor
Priority Replacement	Slow	Low	Poor	Low	Poor
Cold Site	Slow	High	Poor	High	Poor

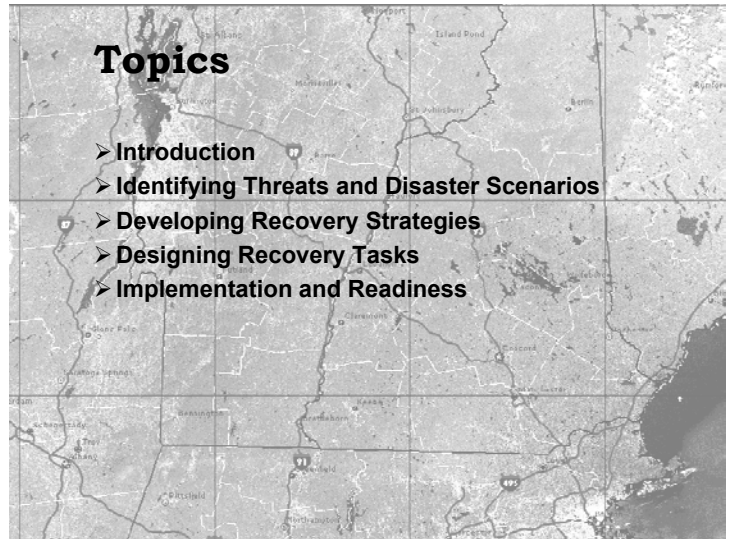
# Data Backup Scenarios



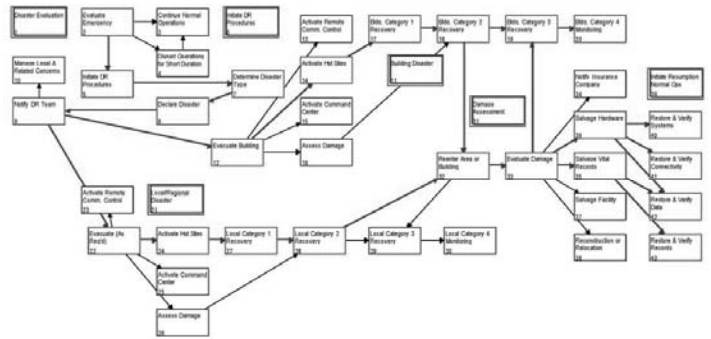
“Data backup is a key function in all system installations. The best recovery strategy, chosen to meet recovery timelines according to the BIA, is useless without a backup from which to restore and resume operations. Data backup is perhaps the single most critical element of a disaster recovery plan, yet only 31 percent of U.S. companies have backup plans and equipment.” – *Michael Miora, CSH5 59*

# Topics

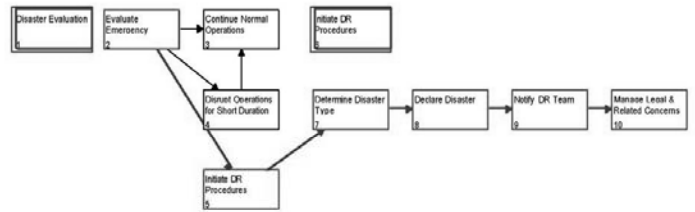
- Introduction
- Identifying Threats and Disaster Scenarios
- Developing Recovery Strategies
- Designing Recovery Tasks
- Implementation and Readiness



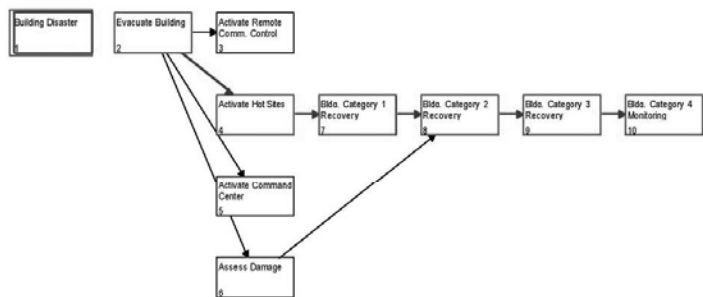
# The Overall Plan



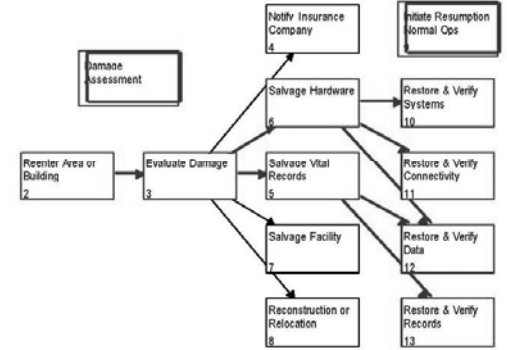
# Beginning Sequence



# Middle Sequence

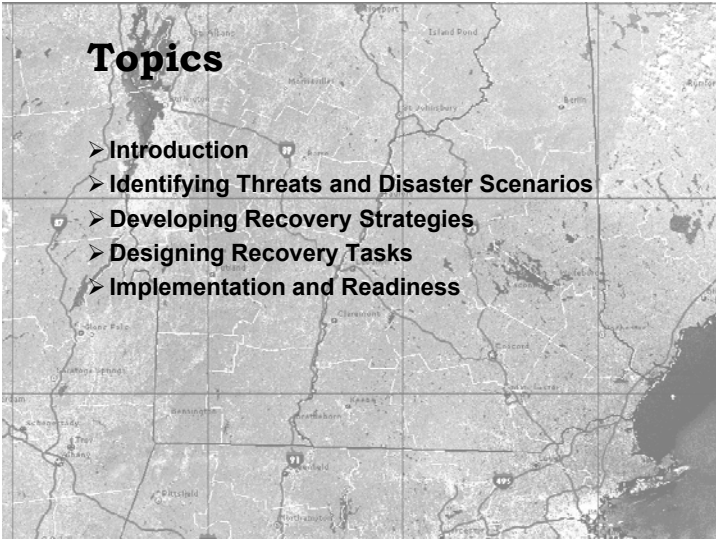


# End Sequence



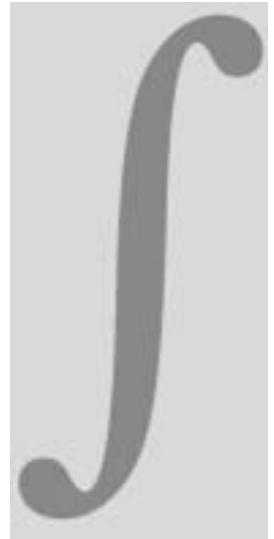
## Topics

- Introduction
- Identifying Threats and Disaster Scenarios
- Developing Recovery Strategies
- Designing Recovery Tasks
- Implementation and Readiness



## Rehearsals

- Phased testing
  - ❑ Bottom-up approach
  - ❑ Limited tests in restricted areas
- Integrate tested procedures in larger aggregations
- Ideally, use separate test facilities
- Involve real users



26

Copyright © 2010 M. E. Kabay. All rights reserved.

## Intensive Record-Keeping



- Assign *scribes* who observe and take notes
- Have time-keepers with stop-watches to help scribes
- Use video-cameras where possible (use timestamps)
- Useful for intensive analysis of errors
- Leads to rapid development of corrections and improvements

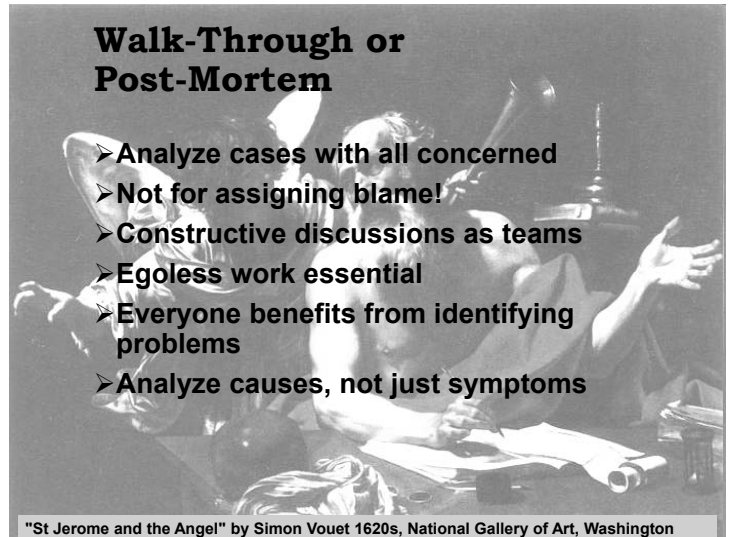


27

Copyright © 2010 M. E. Kabay. All rights reserved.

## Walk-Through or Post-Mortem

- Analyze cases with all concerned
- Not for assigning blame!
- Constructive discussions as teams
- Egoless work essential
- Everyone benefits from identifying problems
- Analyze causes, not just symptoms



"St Jerome and the Angel" by Simon Vouet 1620s, National Gallery of Art, Washington

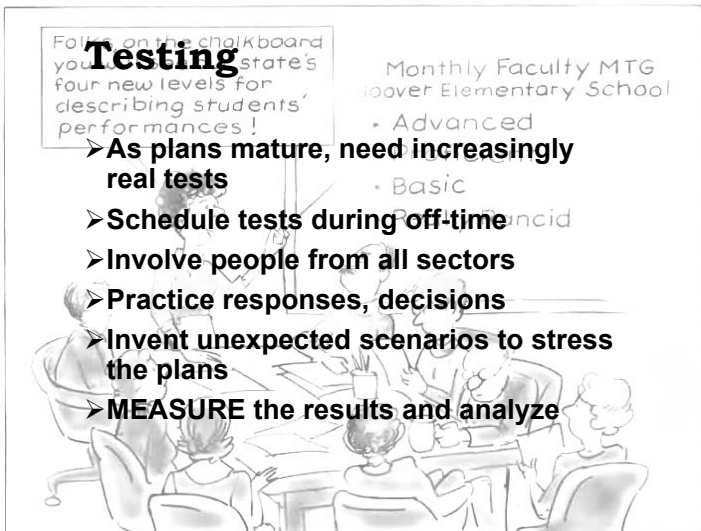
## Testing

Follow on the chalkboard you state's four new levels for describing students' performances!

Monthly Faculty MTG  
Hoover Elementary School

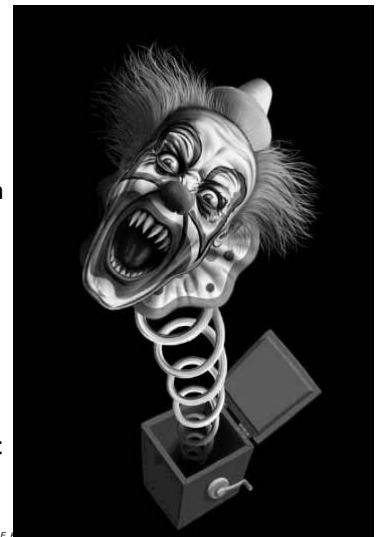
- Advanced
- Basic

- As plans mature, need increasingly real tests
- Schedule tests during off-time
- Involve people from all sectors
- Practice responses, decisions
- Invent unexpected scenarios to stress the plans
- MEASURE the results and analyze



## Live Tests

- Most difficult to arrange
- DO NOT TRY TO SURPRISE PEOPLE
- Can themselves result in disaster if not carefully planned
- Ideally, use sectional tests with unannounced times (but with advance notice of general plans)
- If possible, plan for simulated tests on weekends
- Should schedule at least one full test per year



30

Copyright © 2010 M. E. Kabay. All rights reserved.

## Training Film



- *Ready for Anything*
- Commonwealth Films
- You can use this film for extra points (see later)



## Review Questions (1)



1. Why is compiling lists of possible threats helpful in DRP?
2. What is an *escalation scenario* in DRP? What are the required attributes of the escalation scenarios?
3. How can one simplify an extensive list of possible disasters for the purpose of DRP?
4. What are Miora's three categories of functionality in DRP?
5. What are Miora's three phases of recovery in DRP?
6. Why are reciprocal agreements so badly rated in the range of recovery strategies discussed in CSH5 Chapter 59?

32

Copyright © 2010 M. E. Kabay. All rights reserved.

## Review Questions (2)



6. What are the characteristics of the ideal DRP strategy (one that may not be attainable in practice)?
7. Which of the strategies for DRP rates the highest in attaining the ideal?
8. Why is data backup such an essential component of DRP?
9. Why are rehearsals such an important element of DRP?
10. What are the essential ground rules of a walk-through in a DRP analysis of a rehearsal or test?

33

Copyright © 2010 M. E. Kabay. All rights reserved.

# DISCUSSION



34

Copyright © 2010 M. E. Kabay. All rights reserved.