



College of Information Studies

University of Maryland Hornbake Library Building College Park, MD 20742-4345

Backup and Recovery

Session 6

INST 346

Agenda

- Introducing Mike
- Finishing audio compression
- Backups
- Analysis Teams

Basic Audio Coding

- Sample at twice the highest frequency
 - 8 bits or 16 bits per sample



- Speech (0-4 kHz) requires 8 kB/s
 - Standard telephone channel (1-byte samples)
- Music (0-22 kHz) requires 172 kB/s
 - Standard for CD-quality audio (2-byte samples)

Risks

- Accidental alteration or deletion
- Malicious alteration or deletion
- Storage device failure
- System failure
- Catastrophe

Strategies

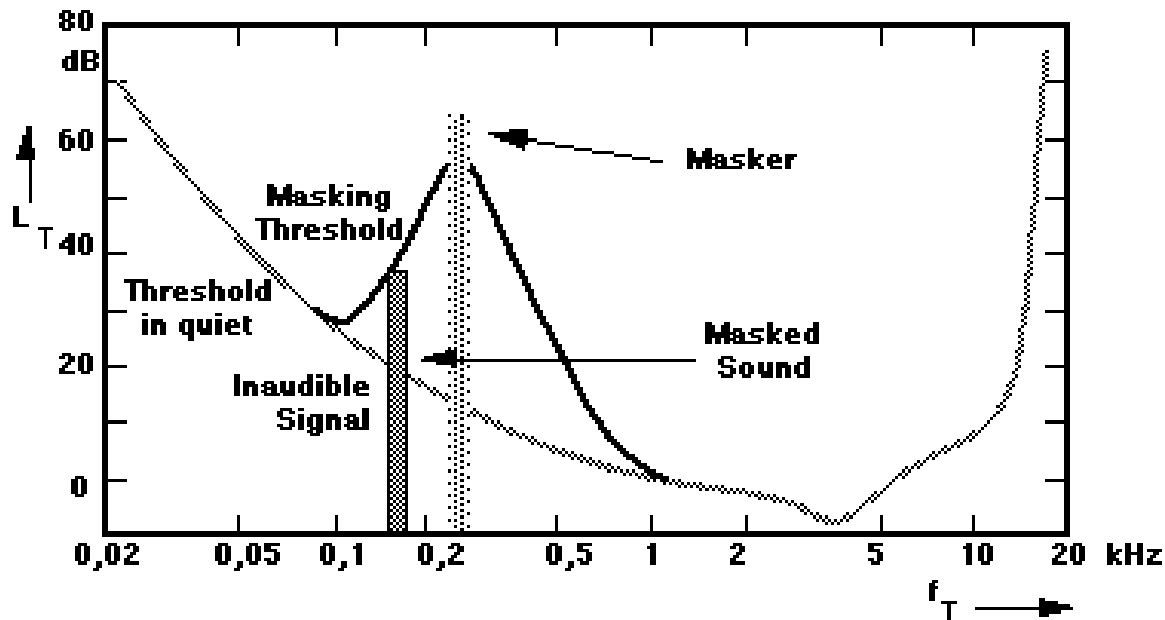
- Change log
- Staged deletion
- Redundant storage
- Redundant systems
- Redundant sites

Tape Backup

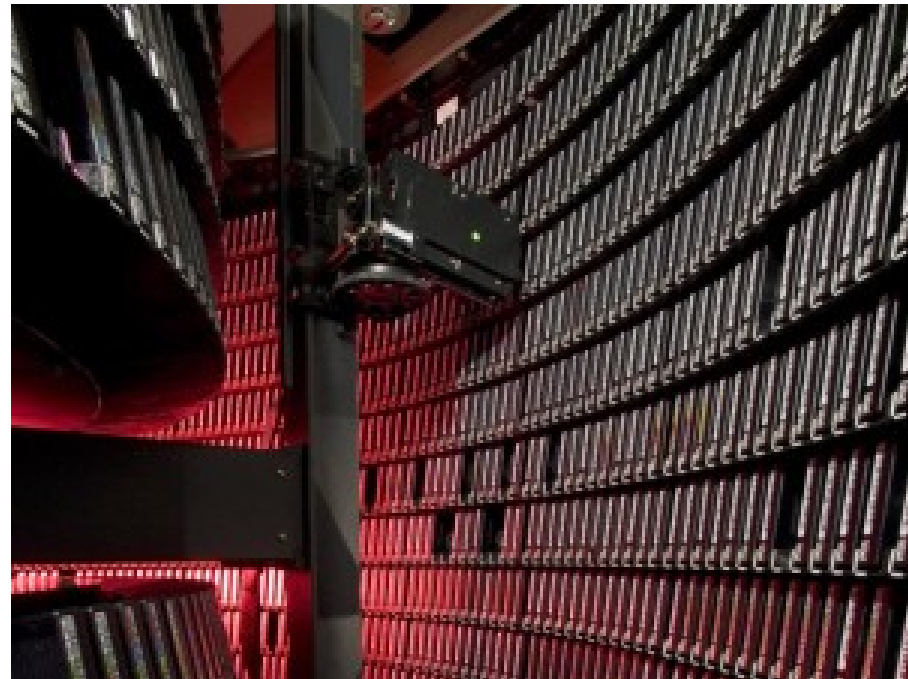
- LTO-8 cartridges
 - 12 TB uncompressed (~30TB compressed)
 - 9.25 hour full-tape write time
 - Optionally encrypted
 - Mountable as a “disk-like” file system for recovery

Music Compression

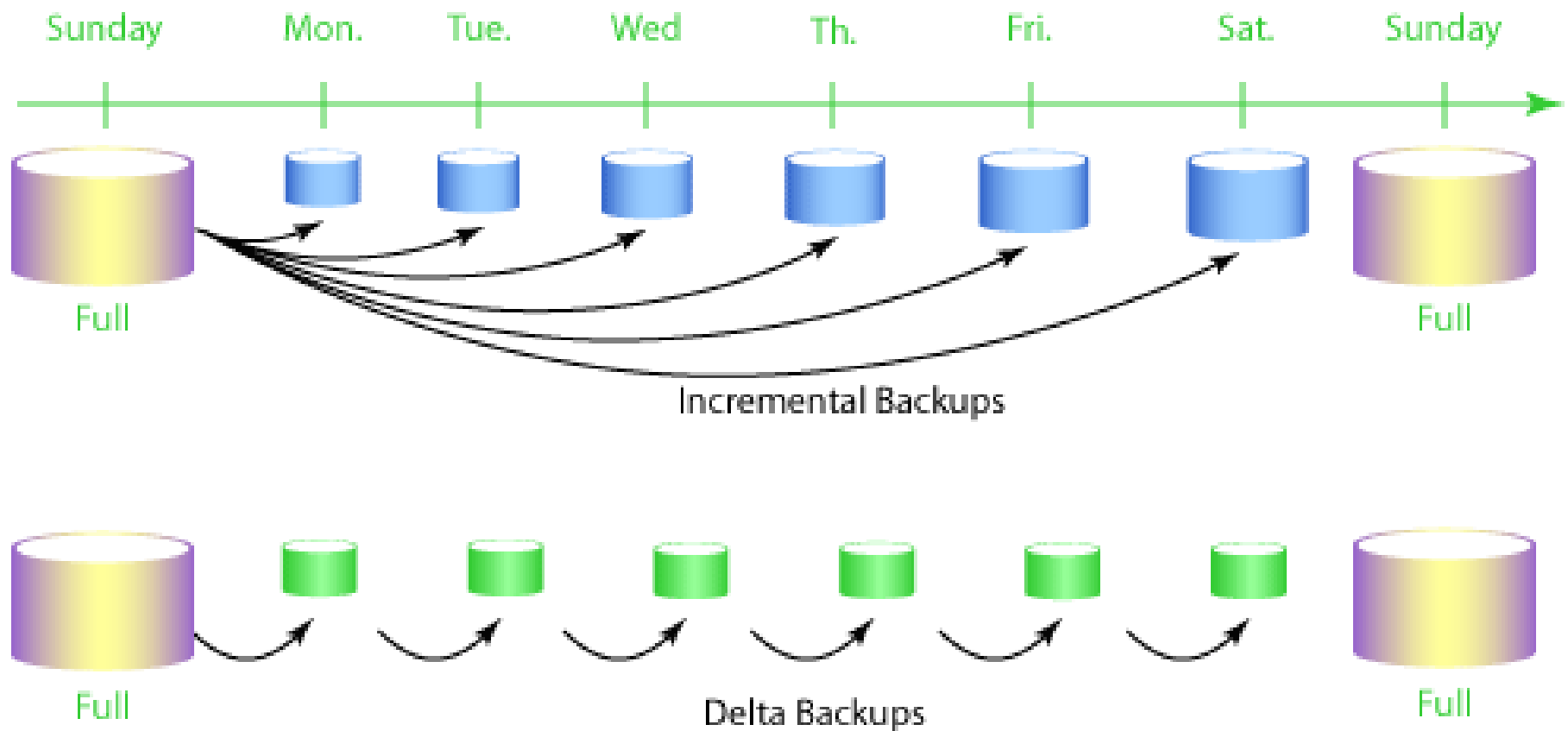
- Opportunity:
 - The human ear cannot hear all frequencies at once
- Approach:
 - Don't represent “masked” frequencies
- Standard: MPEG-1 Layer 3 (.mp3)



Tape Handling



Backup Strategies



Some Considerations

- Tape reliability
- Tape reuse
- Disclosure risk
- Decorrelated risk

Analysis Teams: Goal

- Relate what we are learning to recent events
- Gain some team experience
- Gain some research experience

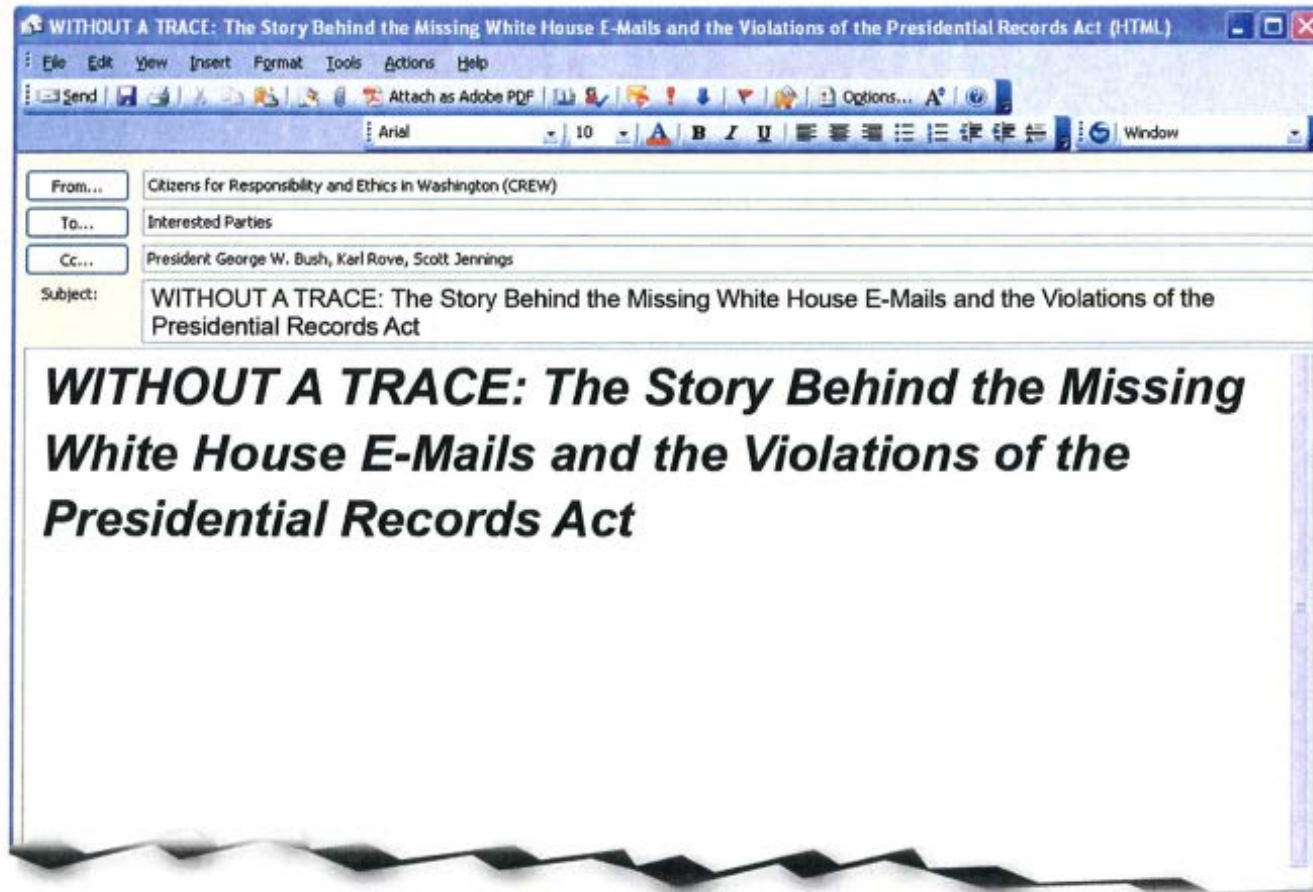
Analysis Team: Process

- Five people per team (maybe 4)
- One “seed reading”
- Meet briefly with me one week prior
- Divvy up the research task
 - Do additional research to fill out the picture
- Centralize creation of presentation materials
- Choose one to three speakers
- Practice a 10 minute in-class talk
- Maximum of 5 points
 - Usually all members will get the same score

Audience: Process

- No preparation required
- Make notes on key reactions
 - Online or paper
- Upload your notes to ELMS discussion forum by the end of the same day
 - 0.5 points each for substantive comments on six of 10 presentations (other than your own)
- Team and everyone who has commented will see your comments

Analysis Team 1



Analysis Team members are listed in ELMS

Before You Go!

- On a sheet of paper (no names), answer the following question:

What was the muddiest point in today's class?