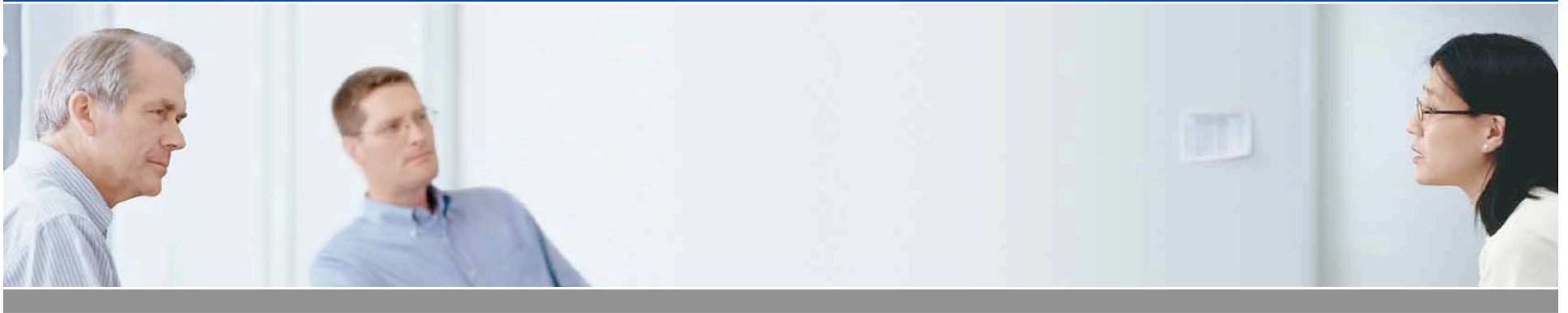


# Tape or Disk? Tape and Disk? Adapting to the Changing Storage Environment



Rick Luttrall  
Director of Marketing  
Nearline Storage

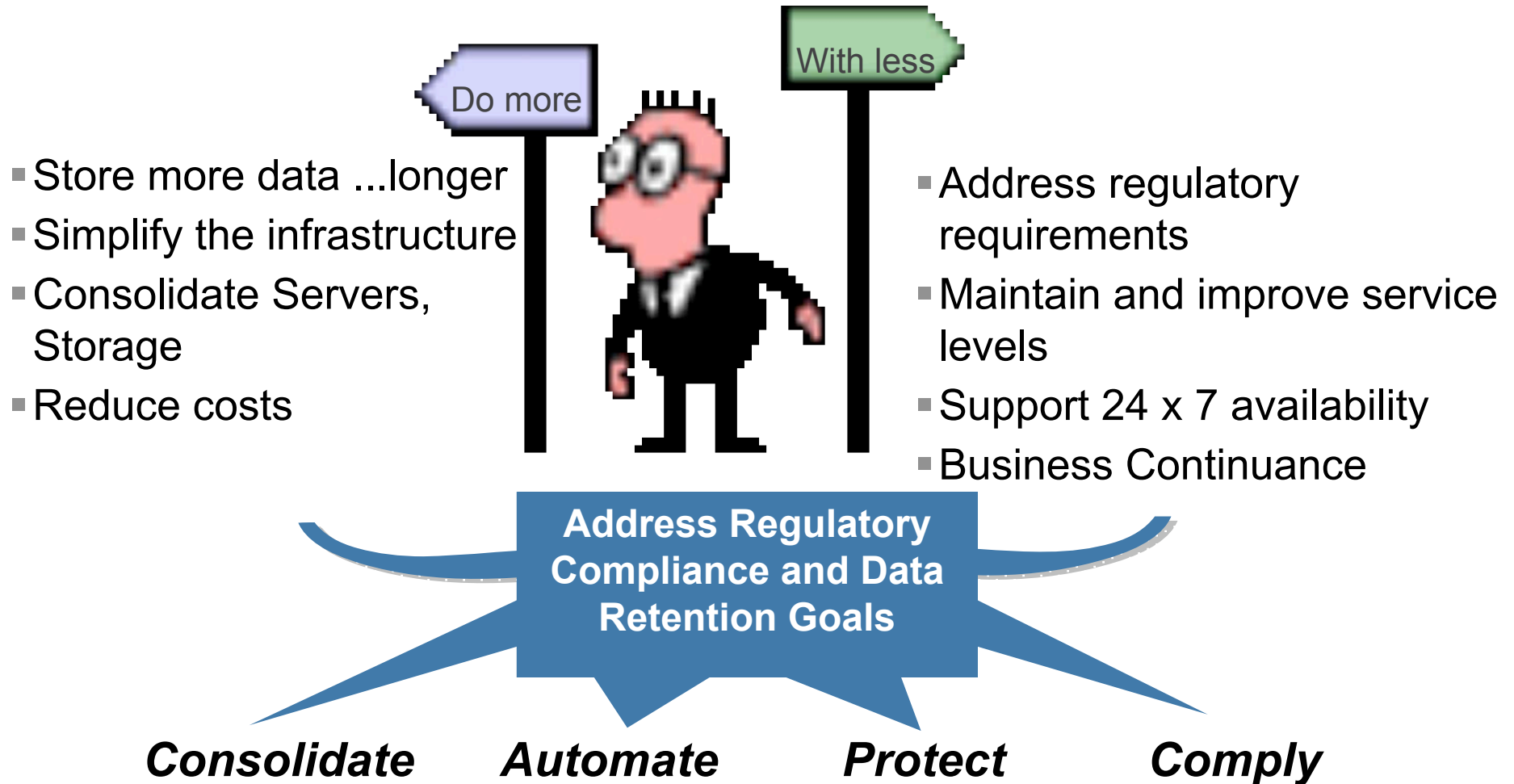


# Agenda

- Storage Management Pressures  
“The Dichotomy”
- Alternatives
- Disk or Tape
- Disk and Tape
- Questions and answers

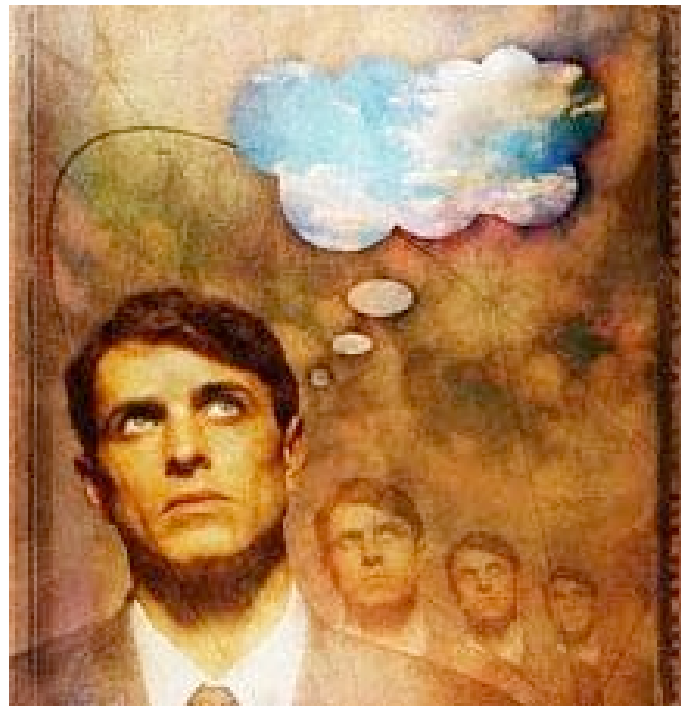


# IT Management Dichotomy



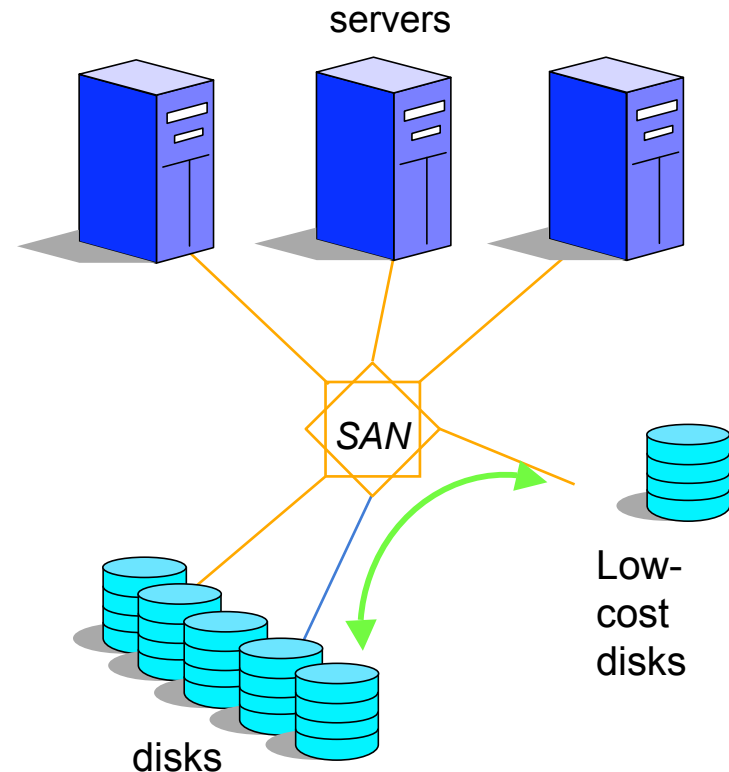
# Alternatives

## Disk or Tape.?



# Disk Options

- Disk acting like tape
  - Looks “virtually” like tape!
  - With and without real tape
- Disk acting like disk
  - Disk files
  - Back it up to tape



*RAID, replication, snapshots cloning.....*

**Quicker recovery!**

# Disk or Tape?

- **Disk storage susceptible to outage**
- **Data corruption can go unnoticed**
- **Scale for growth**
- **Cost options vary**
- **Tape is removable and portable**
- **Make copies to tape to save disk space**
- **Tape = infinite capacity**
- **Least expensive**

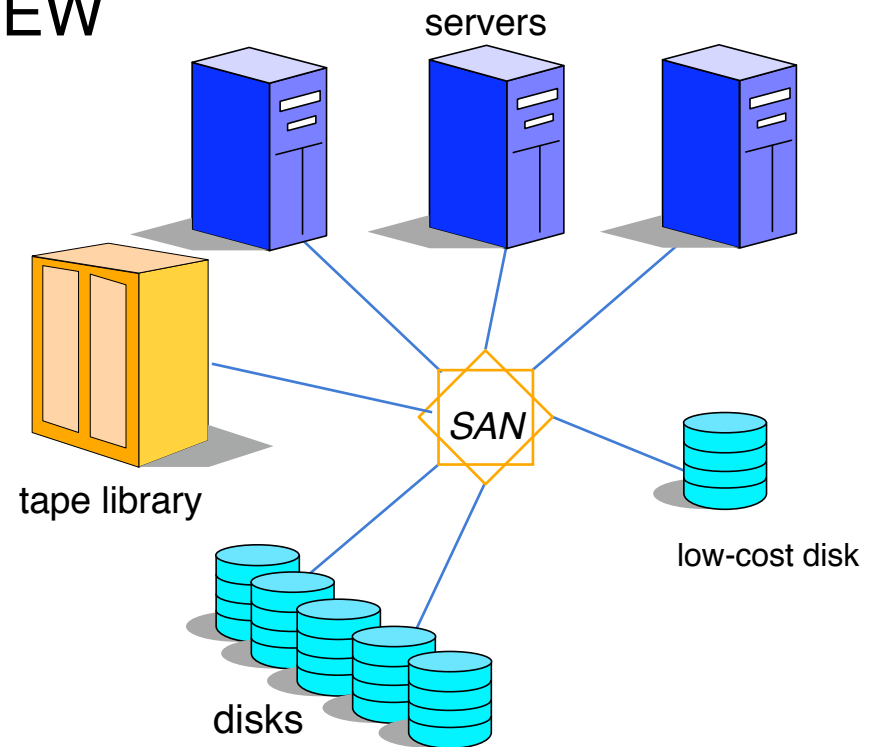
Not all data is created equal....  
...therefore, neither should storage



# Disk and Tape

## ■ Disk to disk to tape = NOT NEW

- Software policy managed
- Manage based on access
- Multiple tiers of disk and tape
- Tape technologies (Ultrium, SDLT, DDS/DAT, VS...)
- Tape automation
- SAN-based disk
- Direct-attached disk
- NAS



# Multilevel Protection and Recovery

	Level	Protection	Recovery Time	Protects Against
Disk-based	1	RAID mirroring	instant	device failure equipment failure
	2	snaps clones	seconds to minutes	device/equipment failure data corruption user error site destruction
	3	remote replication two-stage backup		
Tape-based	4	tape backup and restore	minutes to hours	data corruption equipment failure user error site destruction virus & hacker attacks natural disasters
		off-site storage	hours to days	



NOTE: Optical may also be used when speed *and* remove-ability are required



# Closing thoughts

- Data protection is more important than which technology to choose
- Disk and tape will continue to be part of a data protection solution
- Disk provides the fastest recovery
- Tape provides the highest level of protection

## *Recommendation:*

A multilevel solution based on a foundation of tape technology and implementing disk technology based on recovery needs, is a more complete solution





# Questions?

# LTO Ultrium – The Ultimate Tape Format

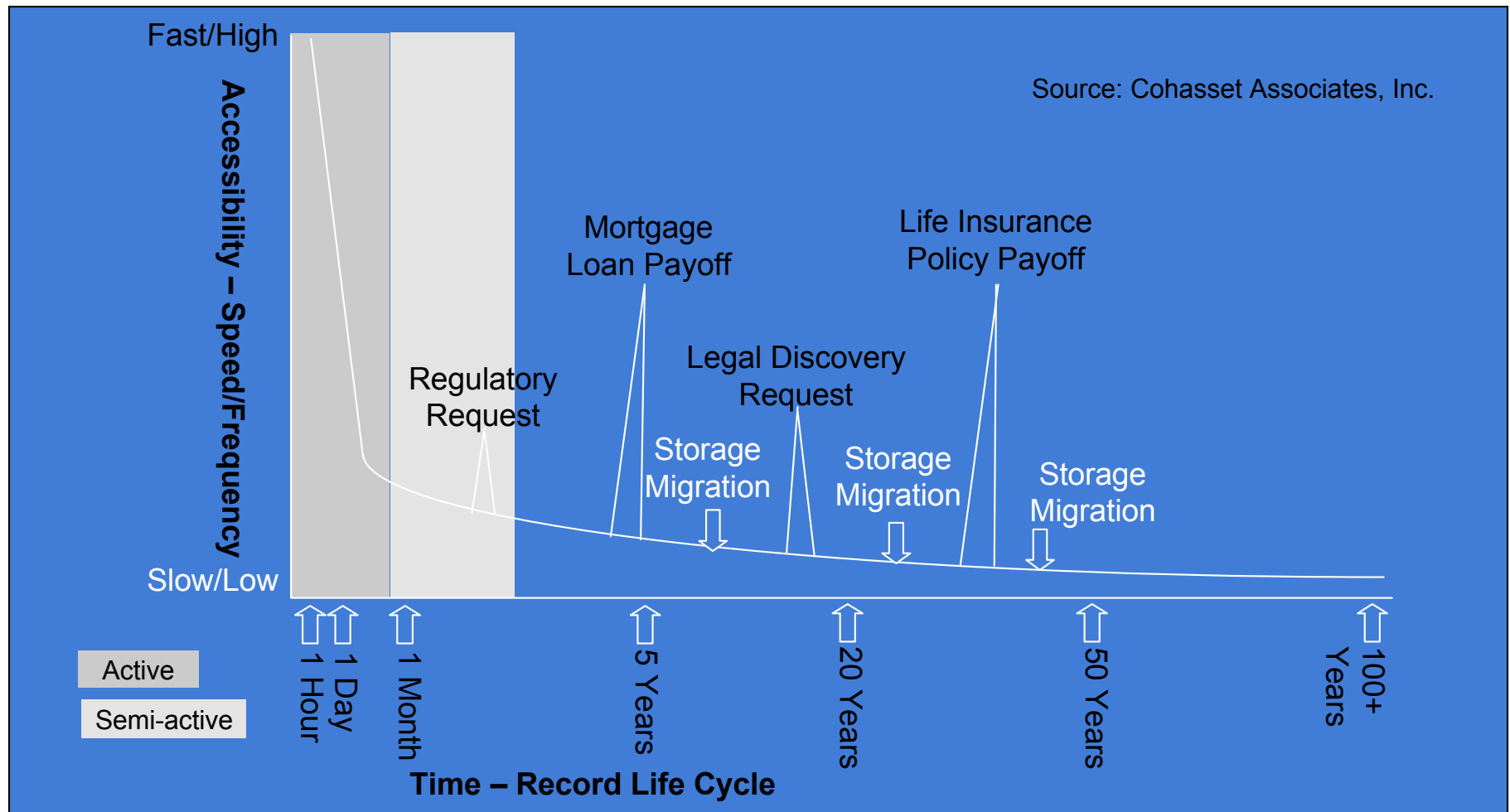
Please visit our Ultrium booth  
when the Exhibit hall opens at  
5:45pm

[www.ultrium.com](http://www.ultrium.com)

Thank You



# Data Access Requirements over Retention Period



# Mapping Storage to Life Cycle

