



Time to Take Another Look at Tape?

Dr. Geoff Barrall
CTO & VP Engineering
Overland Storage

Introduction



Everybody's assumption was that **Tape's days were numbered** and tape vendors had better abandon tape systems strategies and **move into disk fast...**

Introduction

Everybody's assumption was that **Tape's days were numbered** and tape vendors had better abandon tape systems strategies and **move into disk fast...**

...We Were Wrong.





Tape Remains the Best Choice

- Best Performance
- Lowest Cost
- Lowest TCO
- Highest Capacity

VS

Removable or Deduplicating Disk



What's the latest in Tape?



Tape is Alive and Better Than Ever

"If tape capacities keep pace with hard disk capacities and the growth of our data sets, **tape will be around for a long, long time.**"

- Matt Prigge

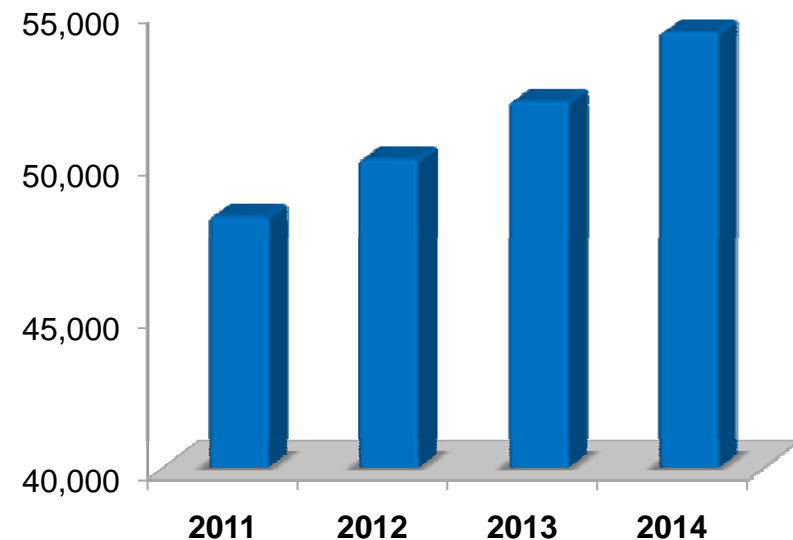
InfoWorld

"The annual survey indicates a trend of **increased use of tape for long-term storage.**"

- 2009 Network Admin Study

**FLEISHMAN
HILLARD**

**Growth In Midrange Tape Library Shipments
2011-2014**



Source: IDC 2010



Tape is Alive and Better Than Ever

"The reality is that tape is very much alive. When I ask about tape utilization in seminars, an **overwhelming majority** of attendees indicate they are **still using tape**."

I've also seen several studies recently indicate **tapeless environments account for less than 15 percent** of the data centers. Tape is back, it really never left, and I believe it may be the time for it to thrive."

- George Crump

**Network
Computing**

1. LTO roadmap takes industry to 32TB capacity and >1TB/hr transfer rates
2. Investments in tape technology continue from HP and IBM
3. More than 32 million tape cartridges shipped in 2009



Common Misconceptions



Tape is too slow for my backup window...

“If you buy a new, fast **LTO-5 drive** and get so many megabits per second, you will need to ask if you will **overload a SAN** and if the adapter on the server can cope.”

- **John Derrett**

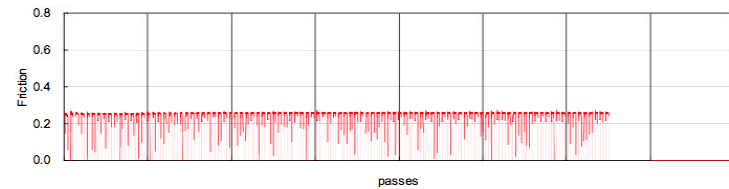
Storage Product Manager of IBM Australia New Zealand's Systems and Technology Group

Tape Performance
Keeps Pace with Disk

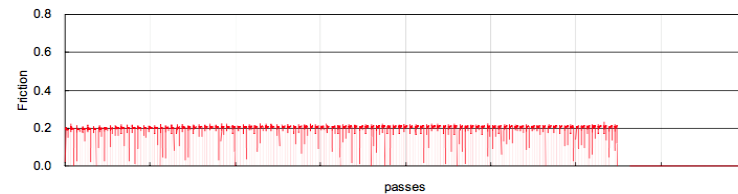


Tape is unreliable...

Before:



After:



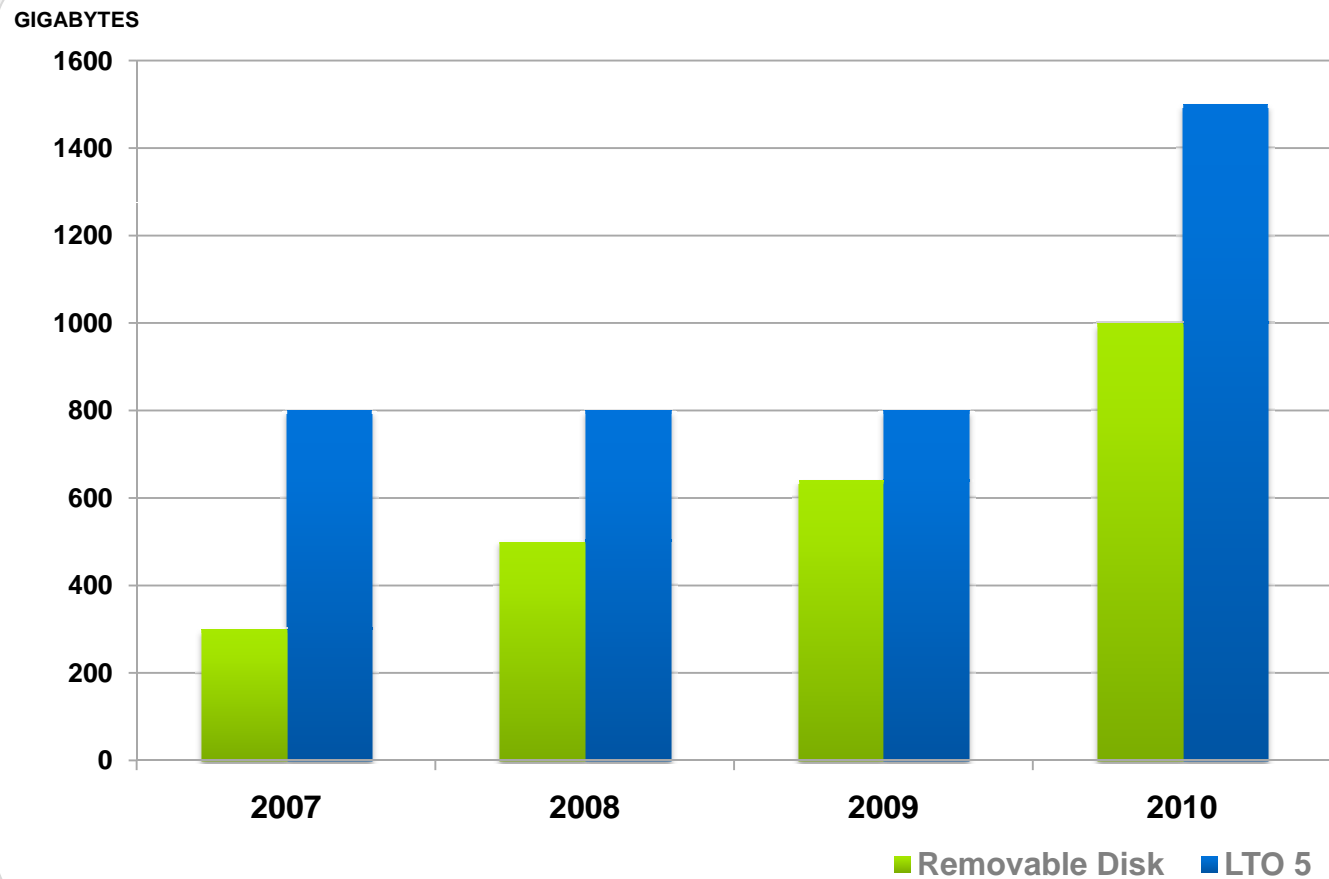
Actually More Reliable ...



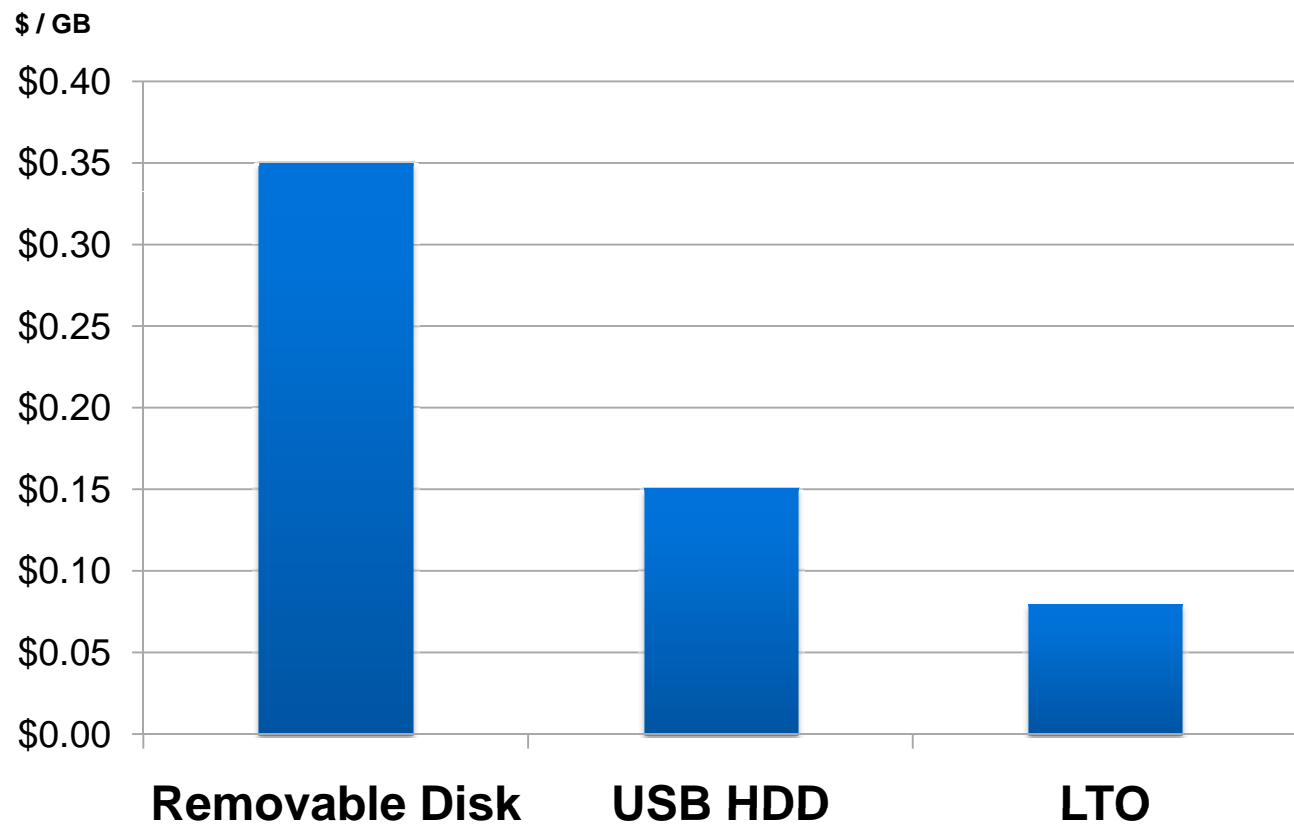
Tape vs Removable Disk



Capacity per Cartridge



Media Cost





Tape vs Deduplicating Disk



Deduplicating Disk is Expensive!

Price List Excerpt From Key Vendor

BaseUnit, NFS, CIFS (ROHS),S-PLAT-565	\$ 109,300.00	\$ 102,742.00	6%
Base+1ES20 8TB,NFS,CIFS,S-PLAT580-1XES20	\$ 172,500.00	\$ 162,150.00	6%
Base+1ES8TB SPMP,NFS,CIFS,S-PLAT-ES20-8TB-3	\$ 154,800.00	\$ 145,512.00	6%
BaseUnit, NFS, CIFS (ROHS),S-PLAT-580	\$ 138,000.00	\$ 129,720.00	6%
Ctrl+2ES8T,16TB,NFS,CIFS,S-PLAT-690-2E16T	\$ 225,800.00	\$ 212,252.00	6%
Ctrl+3ES8T,24TB,NFS,CIFS,S-PLAT-690-3E24T	\$ 263,400.00	\$ 247,596.00	6%
Ctrl+4ES8T,32TB,NFS,CIFS,S-PLAT-690-4E32T	\$ 301,000.00	\$ 282,940.00	6%
Ctrl+5ES8T,40TB,NFS,CIFS,S-PLAT-690-5E40T	\$ 344,000.00	\$ 323,360.00	6%
Ctrl+6ES8T,48TB,NFS,CIFS,S-PLAT-690-6E48T	\$ 376,300.00	\$ 353,722.00	6%
Ctrl, NFS, CIFS (ROHS),S-PLAT-690-Ctrl	\$ 150,500.00	\$ 141,470.00	6%

More Than
\$7,800 per Terabyte



Quick Comparison

Deduplicating Disk

A high end de-duplicating system delivers up to **1.1TB/hour** of throughput performance. The price of a **16TB system is \$220,000**

A low end tape system with 24-slot Max capacity and LTO5 has a **performance of 1TB/hour**, a capacity of 36TB and a street **price of less than \$6,000**

Tape



Actual Comparison

Actual

Solution	Street Price (USD)	Capacity (TB)	Performance (GB/hr)
DDUP	\$220,000	16	1000
2U Tape	\$6,000	36	1000
5U Tape	\$10,000	45	2000
43U Tape	\$50,000	750	12000

Relative

Solution	Relative Price	Relative Capacity	Relative Performance
DDUP	100%	100%	100%
2U Tape	3%	225%	100%
5U Tape	5%	281%	200%
43U Tape	23%	4688%	1200%

Relative - Assuming 20x De-Duplication

Solution	Relative Cost	Relative Capacity	Relative Performance
DDUP690	100%	100%	100%
2U Tape	3%	23%	100%
5U Tape	5%	28%	200%
43U Tape	23%	469%	1200%



Other Benefits of Tape Systems

TCO for Tape

“The total cost of Serial Advanced Technology Attachment (SATA) disk solutions is **23 times more expensive than tape** solutions for archiving.”

- The Clipper Group

Tape Provides the
Lowest TCO



Energy Costs

“Over a five-year study period the **cost of energy** for disk is about **290 times more than tape.**”

- **The Clipper Group**
LTO Program Study

Tape Consumes Less
Power





Tape Beats Disk in Almost Every Category?

Advantage	Tape	Disk
Accelerating Backup	✓	
Accelerating Recovery		✓
Long Term Archival	✓	
Lowest Cost/GB	✓	
Sustained Shelf Life	✓	
Offsite Portability	✓	
Lowest Power Consumption	✓	
Lowest Floor Space Consumption	✓	





I appreciate your interest and the
opportunity to speak with you today

COMPUTERWORLD

SNIA

SNW

OCTOBER
11-14
2010

The Gaylord Texan, Dallas, Texas