

## Storage Technology Predictions through 2020



# Predictions – Near and Mid Term



Near Term (2 years)	
TAPE Roadmaps	LTO 7 availability, Enterprise cartridges > 10 TB
HDD Roadmaps	Density plateaus until HAMR shown to be reliable and SMR (shingled magnetic recording) accepted by storage clients. 10 TB drives max
NAND Roadmaps	> 50 layer 3D products
OPTICAL Roadmaps	2 surfaced disks (200 GB disk) Land and groove recording (300 GB disk) ???
Mid Term (5 years)	
TAPE Roadmaps	LTO 8 availability, Enterprise cartridges > 20 TB
HDD Roadmaps	Density issues with HDD based on ability to scale HAMR and limits on disk number in HDD. Annual density increases in the 10%/yr range.
NAND Roadmaps	> 80 layer 3D products with 4 bit per cell but with slower \$/GB annual reductions
OPTICAL Roadmaps	Land and groove recording (300 GB disk) ✓✓✓ 1.67 X uplift with channel (500 GB disk) ???