# Multi-Disk and GPT on MBR for OpenXT

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#### **GPT on MBR - Motivation**

- MBR uses 32-bit addressing
- 2.2TB max limit
- Supports only 4 primary partitions (layout in 512-byte sector)
- GPT is the future

### **GPT on MBR - Design/Implemenation**

- Use grub2 and a BPP
- Modify installer to include gdisk/sgdisk

0 KiB sector 0 Partition table and stage1 bootloader sector 34 17 KiB **GPT** partition 1 **BIOS** Boot The BBP need not start at sector 34. Partition this is just one possibility. The BBP only needs to be large enough to store stage 1.5 (several KiB), but pushing the end out to a megabyte boundary is a common choice for GRUB stage 1.5 alignment reasons. lives here sector 2048 1024 KiB **GPT** partition 2 First real partition GRUB stage2 lives in the filesystem here

https://www.anchor.com.au/blog/2012/10/the-difference-between-booting-mbr-and-gpt-with-grub/

#### **GPT on MBR - Benefits**

- Effectively removes drive size limit
- Removes dependency on LVM
- OpenXT wants UEFI, GPT is a must
- Support both BIOS (until Intel stops shipping) and UEFI with unified partitioning scheme
- Multiple OpenXT installs per disk



#### **Multi-Disk - Motivation**

- Unrealistic that workstations have only single disk nowadays
- Not everyone has access to multi TB drives
- Isolation is always desired

### Multi-Disk - Design/Implementation

- Toolstack, installer, UI
- At install time, format/partition secondary disks
- At first boot, auto-assign labels to each disk, toolstack mounts the secondary disks
- Label→disk mapping tracked by toolstack
- On VM creation, choose an existing disk label, vhds created live on that disk

#### **Multi-Disk - Benefits**

- Provides better VHD isolation
- Secondary drives could be SED drives, or normal drives with full-disk encryption
- Lays foundation for disk hot-swapping
- Lays foundation for read-only dom0

## End

**Thanks for listening!**