Part 2: NVDIMMs with a Twist

Moderator: Jeff Chang

But First, The Basics…

NVDIMM

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NVDIMM

Non-Volatile Dual Inline Memory Module

[Hardware] A dual inline memory module that operates as standard RAM while also having persistence across power cycles.

- SNIA Dictionary

There Are Different Types of NVDIMMs

NVDIMM-N

NVDIMM-F

NVDIMM-P

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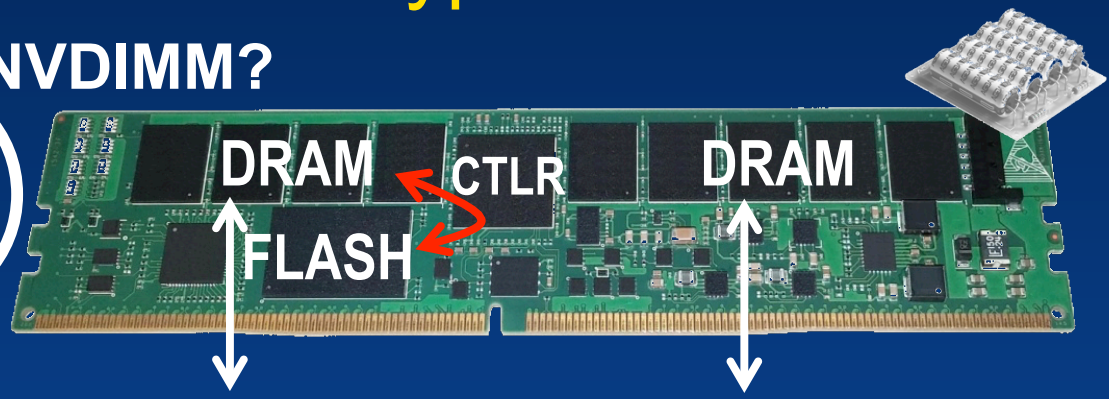
NVDIMM-N

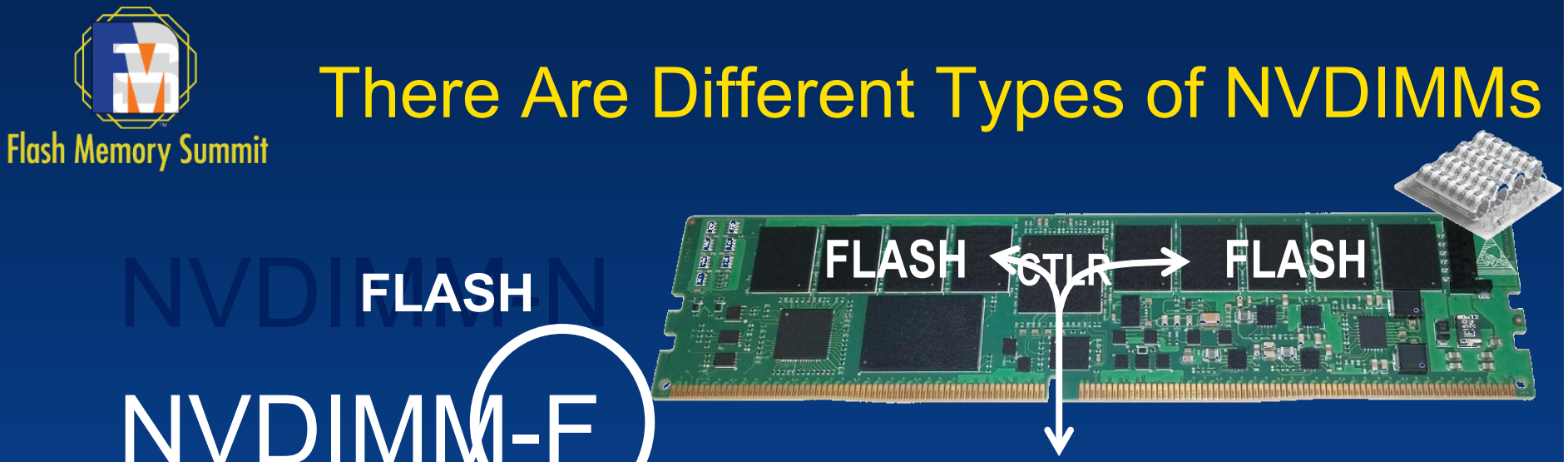
NVDIMM-F

NVDIMM-P

NVDIMM?



- "Flash-Backed DRAM"
- Memory mapped DRAM. Flash is not system mapped.
- Access Methods: byte- or block-oriented access to DRAM
- Capacity = DRAM DIMM (1's -10's GB)
- Latency = DRAM (10's of nanoseconds)
- Energy source for backup
- HW & SW interface standards defined by JEDEC



There Are Different Types of NVDIMMs

NVDIMM-N

FLASH

NVDIMM-F

NVDIMM-P

- "SSD in the Memory Channel"
- Memory mapped Flash. DRAM is not system mapped.
- Access Method: block-oriented access to NAND
- Capacity = NAND (100's GB-1's TB)
- Latency = NAND (10's of microseconds)
- JEDEC SPD defined for this type, but no protocol std (yet?)

Flash Memory Summit

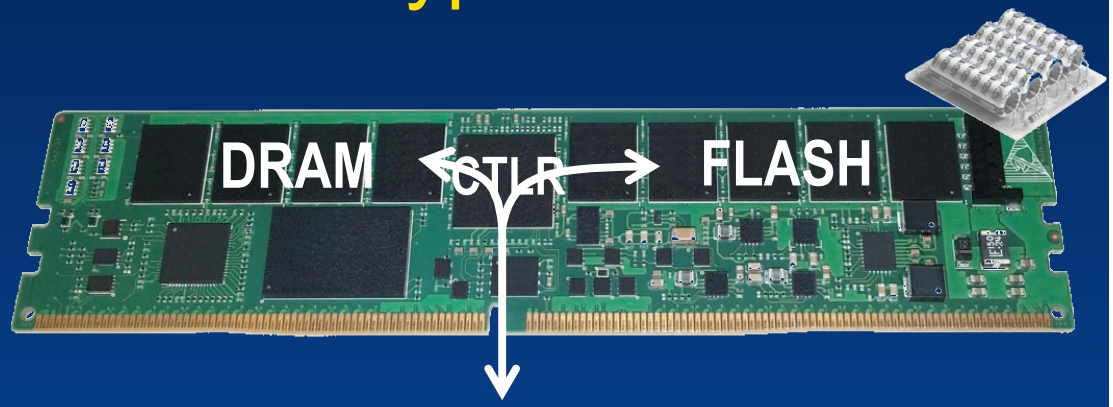
There Are Different Types of NVDIMMs

NVDIMM-N

NVDIMM-F

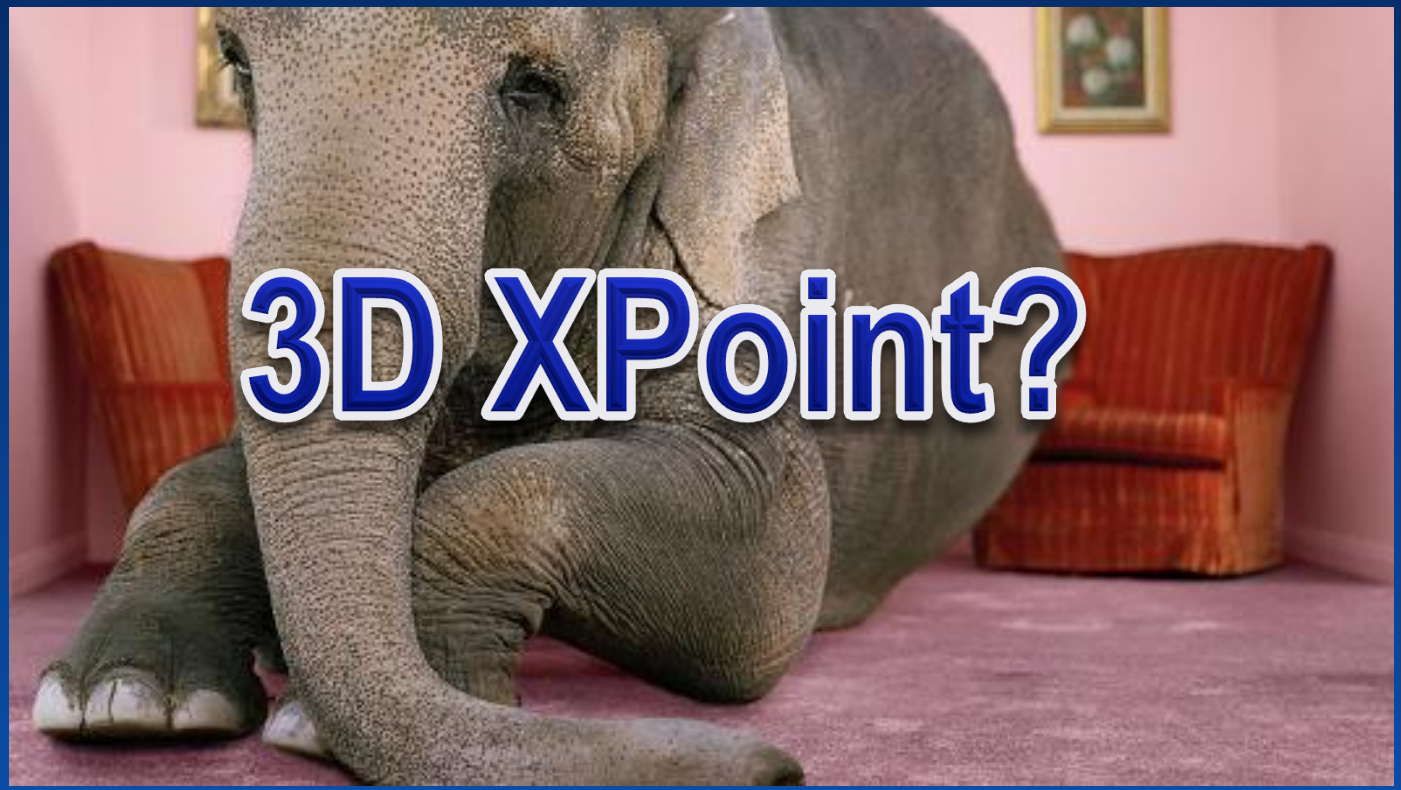
PERSISTENCE?

NVDIMM-P

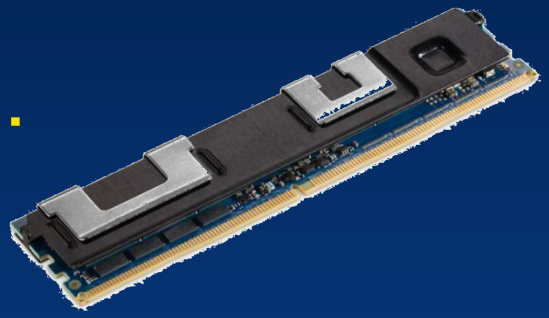


- "Combination of -N and -F"
- Memory mapped Flash AND memory mapped DRAM
- Access methods: byte- and/or block-oriented access
- Capacity = NVM (100's GB-1's TB)
- Latency = NVM (100's of nanoseconds)
- Definition still under discussion within JEDEC

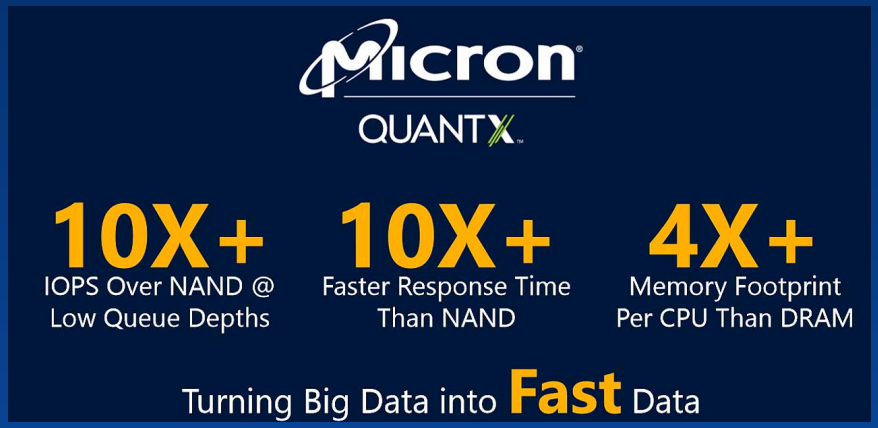
But What About…

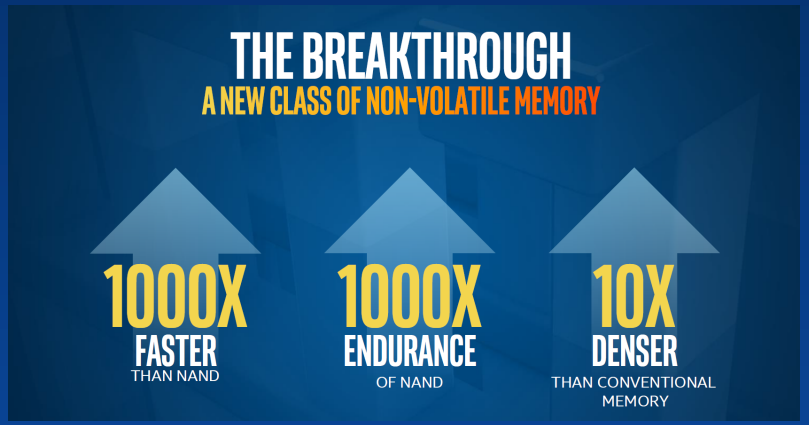


Here's What I Know…

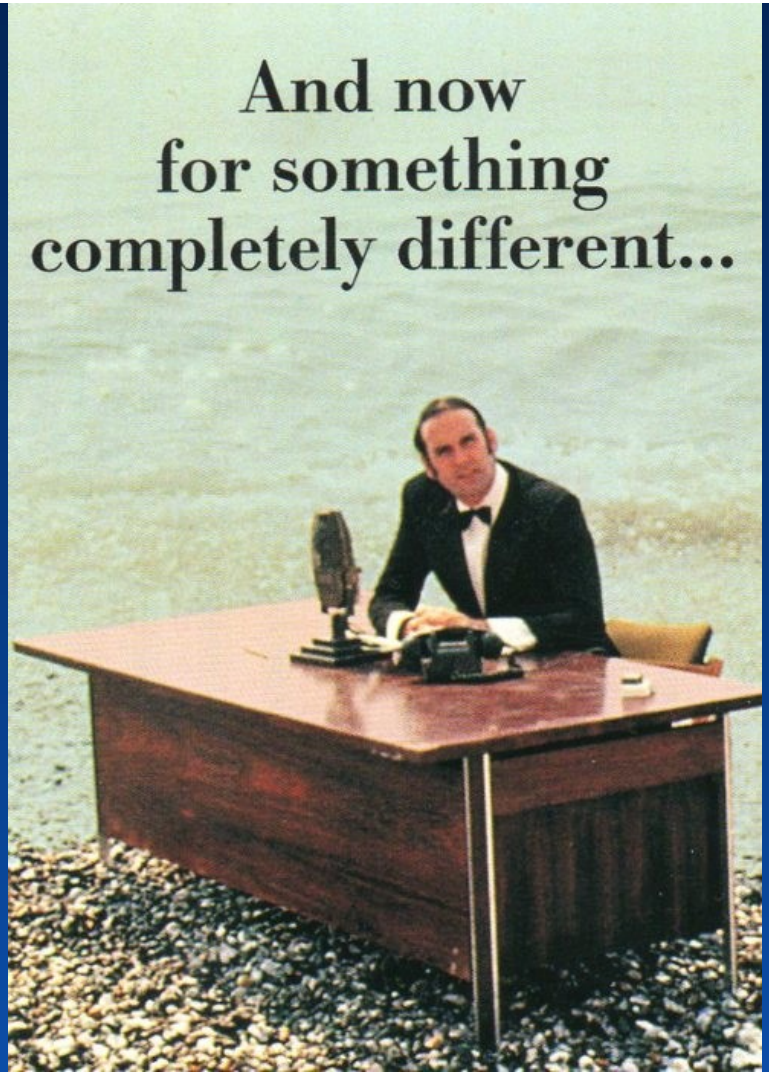


- Not much





3DX can be complementary to NVDIMMs (both -N and -P)


And now
for something
completely different...