



Flash Memory Summit

Leading the Future of Flash with NVMe and SCM

Modernize to a Faster Future Without Disruption

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Flash is essential for digital transformation,
but emerging applications demand more

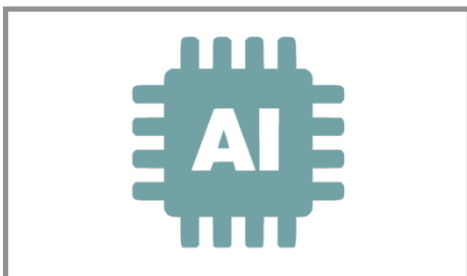


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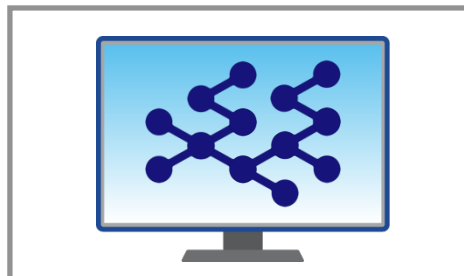
Real-Time Applications: The Next Phase of Digital Transformation

In-Memory Technologies Will Grow to ~\$13B by 2020*

Artificial Intelligence



Machine Learning



Real-Time Analytics



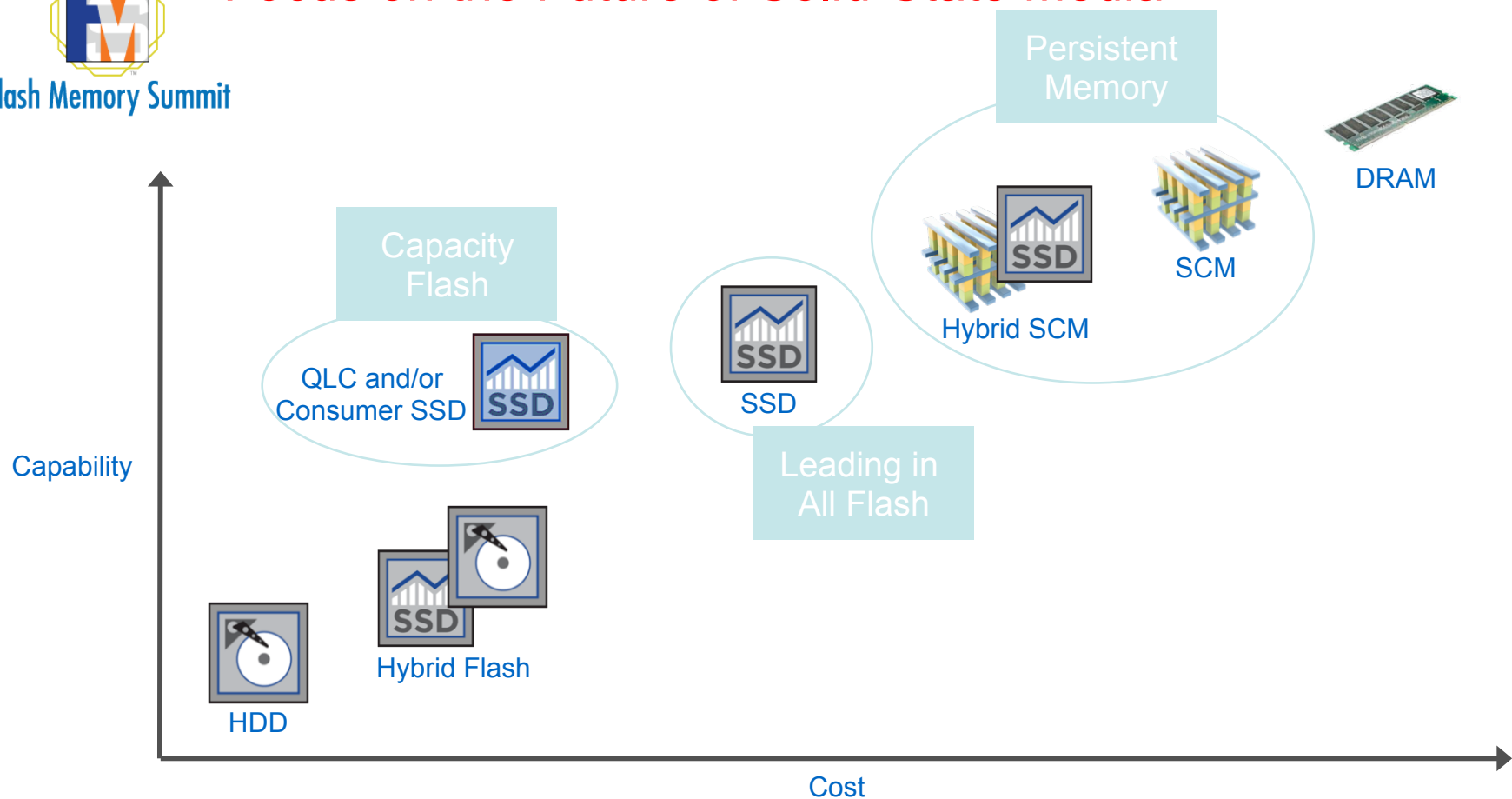
All demand lower latency and higher performance
from faster fabrics and faster media

* Gartner, Inc., Market Guide for In-Memory Computing Technologies, 16 January 2017



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Focus on the Future of Solid-State Media



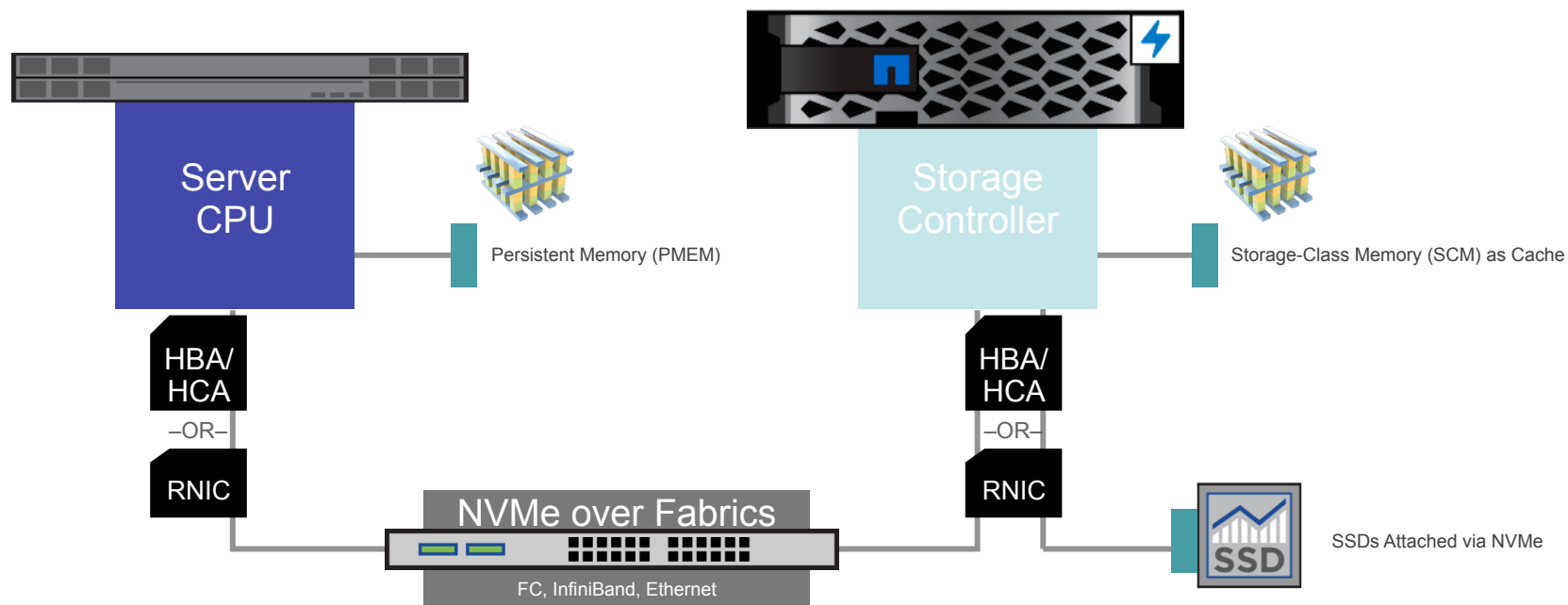
Vision: unreleased product plans are subject to change



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Comprehensive NVMe Vision: End-to-End and Nondisruptive

Driving Real Value Out of New Technologies Requires Significant Investment on Multiple Fronts from a Market Leader



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Deployment Options for Storage-Class Memory/Persistent Memory

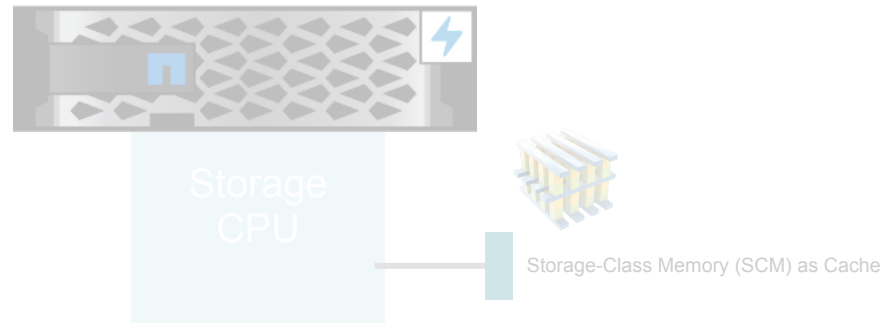
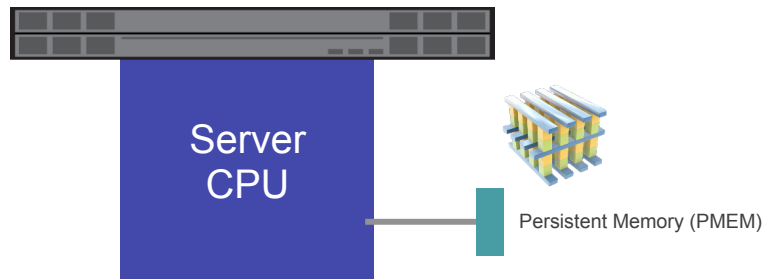


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Deployment Options for Storage-Class Memory/Persistent Memory



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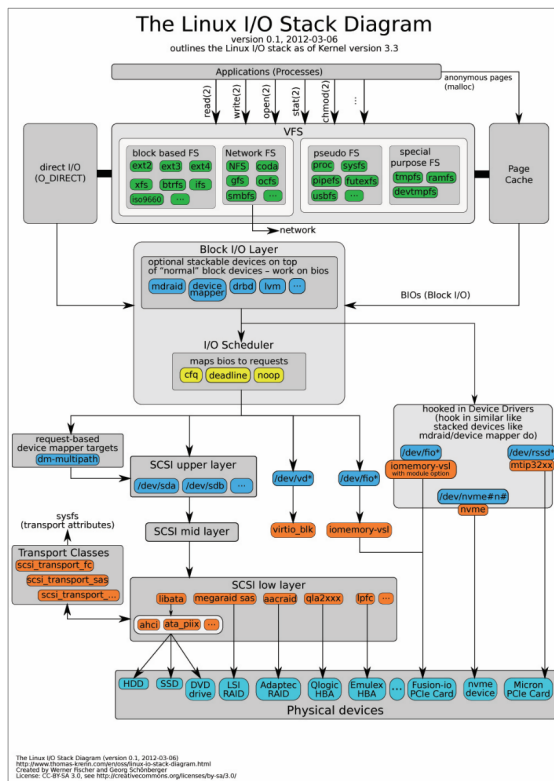
NetApp Memory Accelerated Data

Enterprise-Grade Data Management for
Ultra-low-Latency Persistent Memory

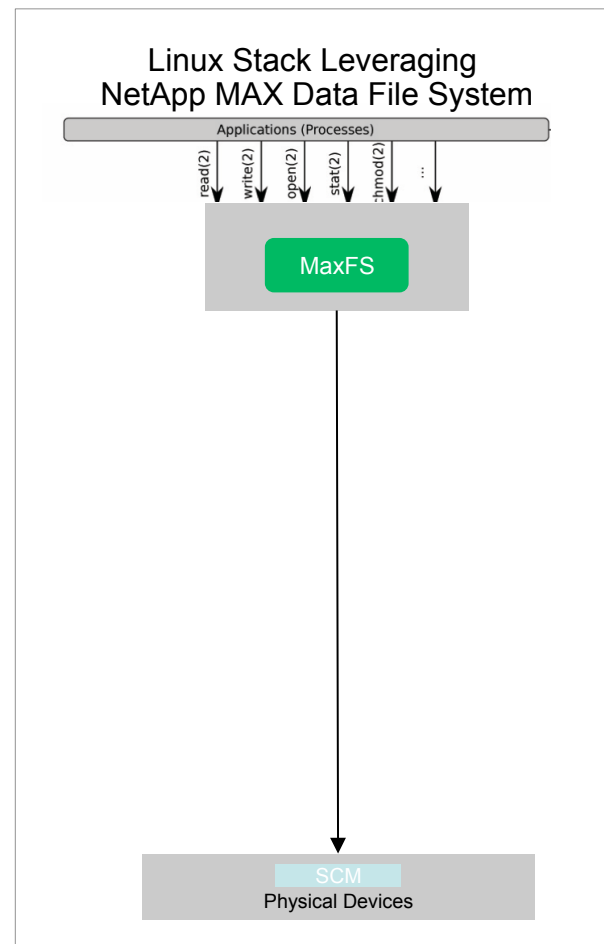


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Time for a new approach...



Unreleased product plans are subject to change



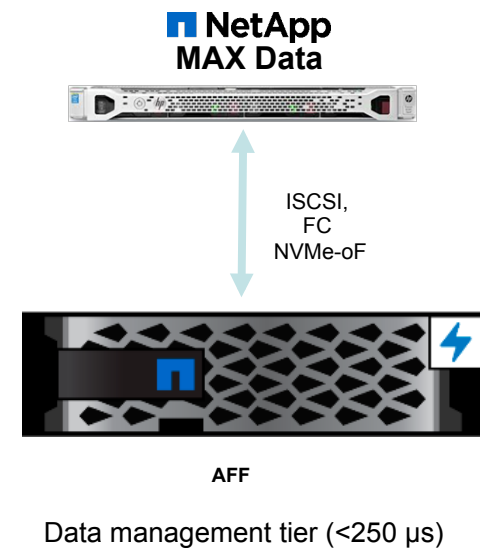


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NetApp Memory Accelerated Data

Enterprise-Grade Data Management for Ultralow-Latency Persistent Memory

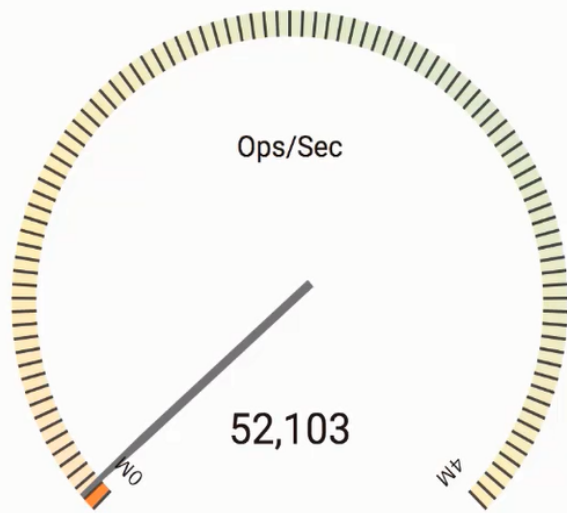
- Drastically accelerate traditional and in-memory and NoSQL databases
 - Ultra Low Latency ($< 10\mu\text{s}$)
- Built for emerging applications
 - A.I., Machine Learning, High-Frequency Transaction Processing
- Integrated data management and automated tiering to AFF
 - Fast Application Data Recovery



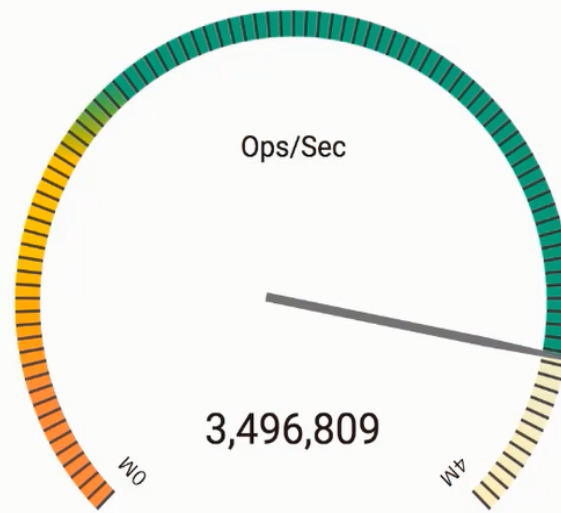
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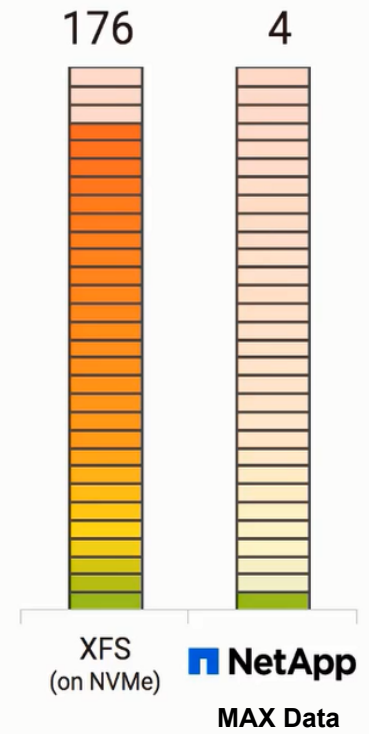
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XFS (on NVMe)



MAX Data
NetApp



XFS (on NVMe) **NetApp**
MAX Data

Random 4KB write / Multi threaded FIO benchmark

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NetApp innovation will accelerate customer adoption of flash, NVMe, and SCM data management solutions