



STORAGE DEVELOPER CONFERENCE

SNIA ■ SANTA CLARA, 2015

Innovator, Disruptor or Laggard, Where will your storage applications live? Next generation storage

**Bev Crair, Vice President and
General Manager, Storage Group
Intel**

The world is changing

Information Growth

From now until 2020, the size of the digital universe will about double every two years

Complexity

What we do with data is changing, traditional storage infrastructure does not solve tomorrow's problems

Security

Increase in avenues and attack surfaces

Cloud

Emergence of new IT solutions



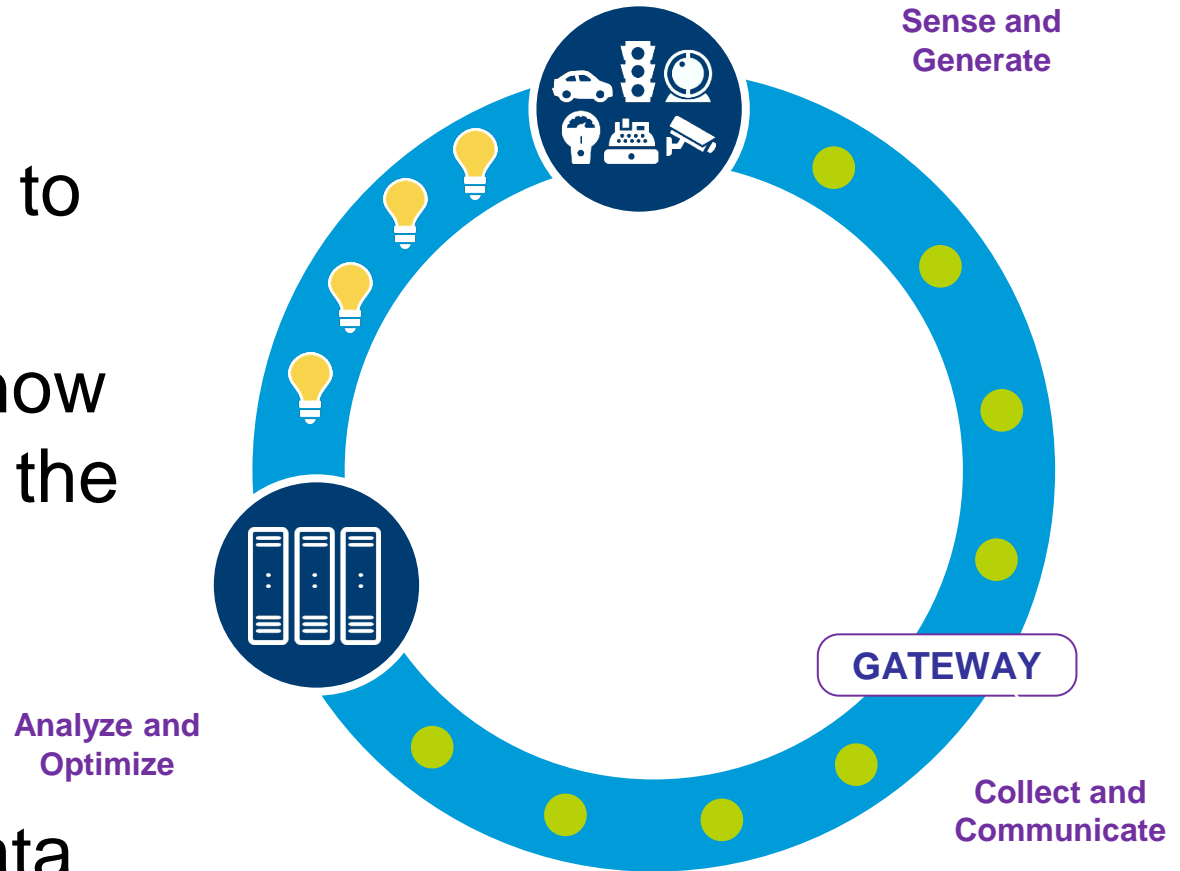
Information is exploding



Source: TechSpartan.co.uk - 2013 vs 2014 In an Internet minute

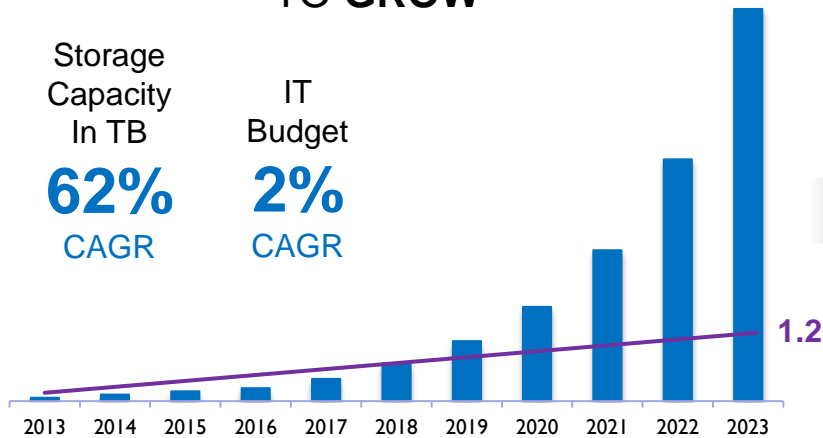
Data use pattern changes

- ❑ From collecting to analyzing data
- ❑ Valuable data now resides outside the organization
- ❑ Analyzing and optimizing unstructured data







Data growth challenges

COST CHALLENGES CONTINUE TO GROW



IT PROS WILL SHOULDER A GREATER STORAGE BURDEN

2014
230 GB
PER IT PRO


28 MILLION
IT PROS
WORLDWIDE

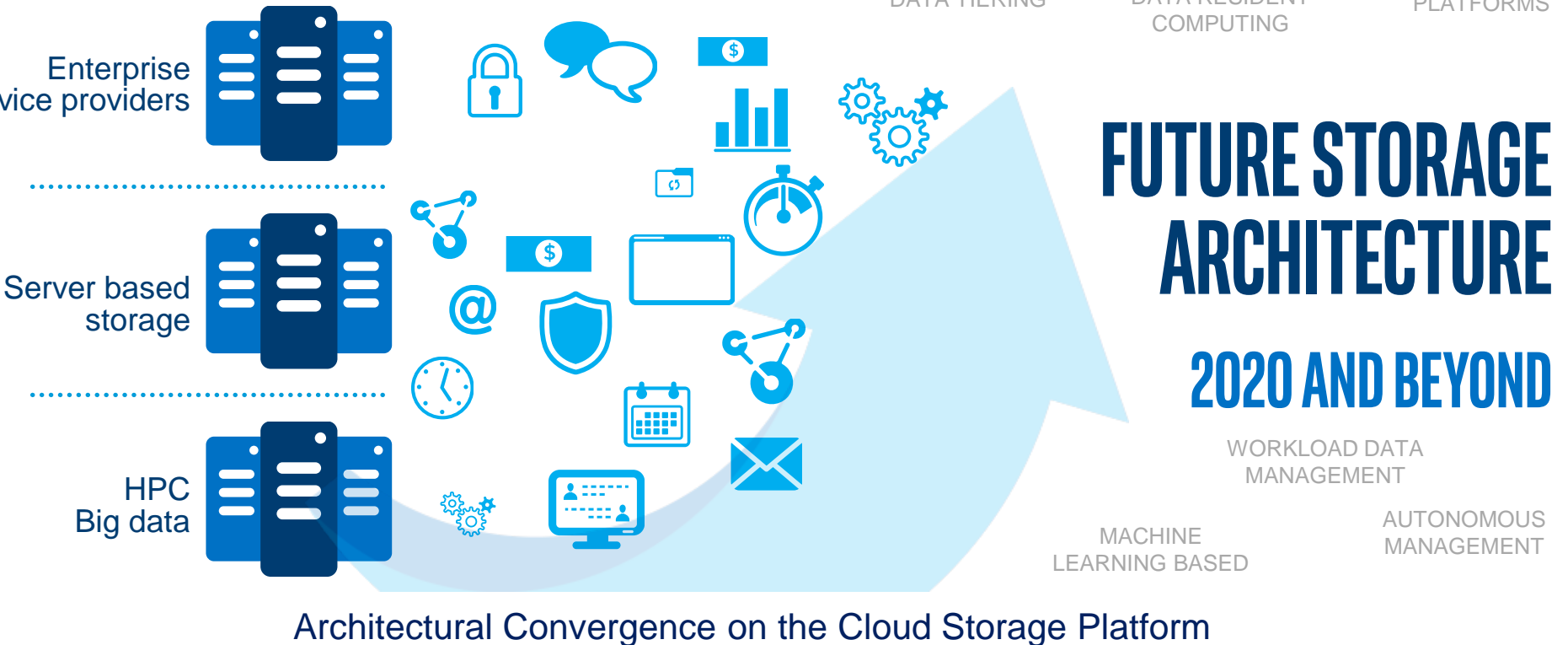
2020
1,231 GB
PER IT PRO


36 MILLION
IT PROS
WORLDWIDE

Data needs are growing at a rate unsustainable with today's infrastructure and available professionals

Source: IDC – The Digital Universe of Opportunities: Rich Data and the Increasing Value of the Internet of Things - April 2014

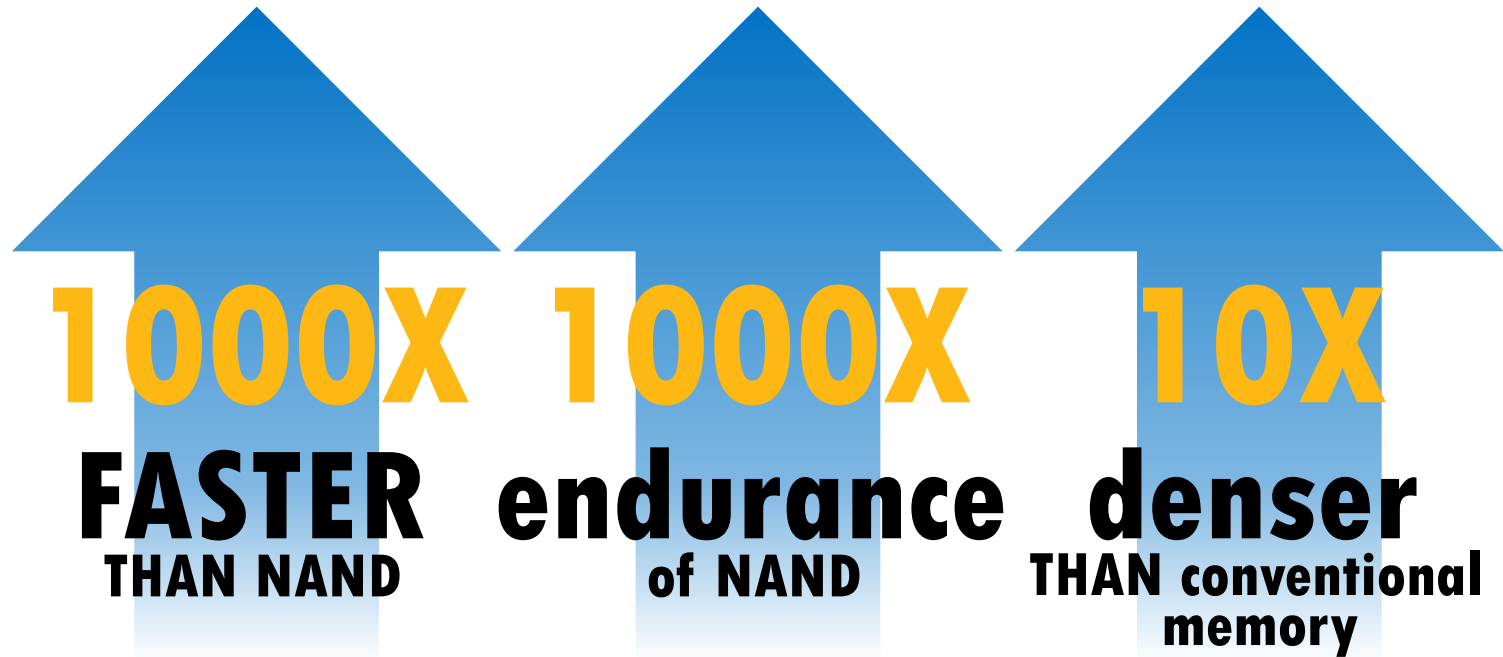
Transforming storage architectures

What's your workload Today?



Next generation NVM: Intel and Micron

new class of storage and memory **3D Xpoint®**



Why is NG NVM fundamentally different?

Fundamental Memory Characteristics

Performance

(Short Delay)

Persistence

(Non Volatility)

Capacity

(Cost)

NG NVM

(Fast, Persistent, 10X DRAM Density)

DRAM
(Fast, Volatile,
Expensive)

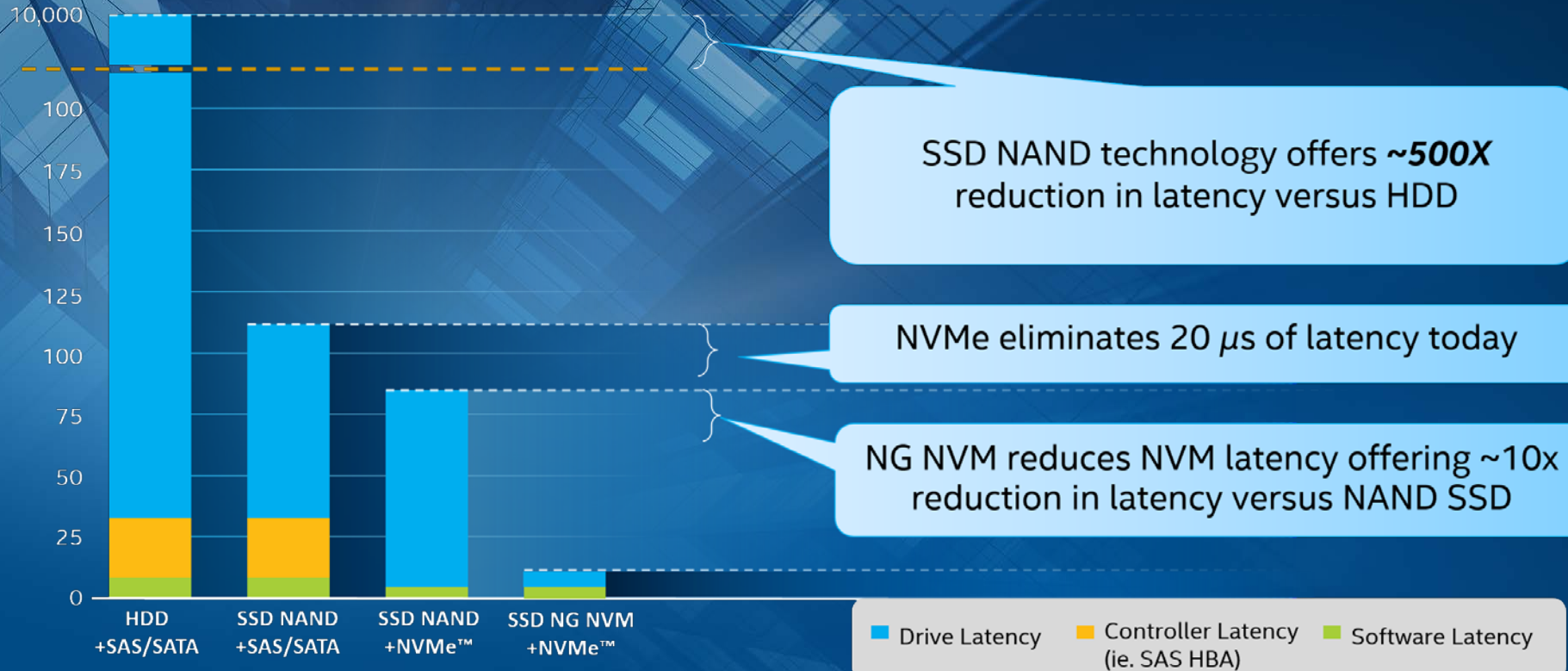
NAND
(Slow, Persistent, Cheap)

NG NVM is a Unique Balance of All Three Characteristics

Removing the storage bottleneck

NVMe is the next quantum leap

Latency (uS)



Source: Storage Technologies Group, Intel

Intel storage architecture innovations

Hardware



Processor



Memory



Solid State Drives



Networking



Quick Assist

Software



Intel Storage
Performance
Development Kit
(SPDK)



Intel® Storage
Acceleration Library
(ISA-L)

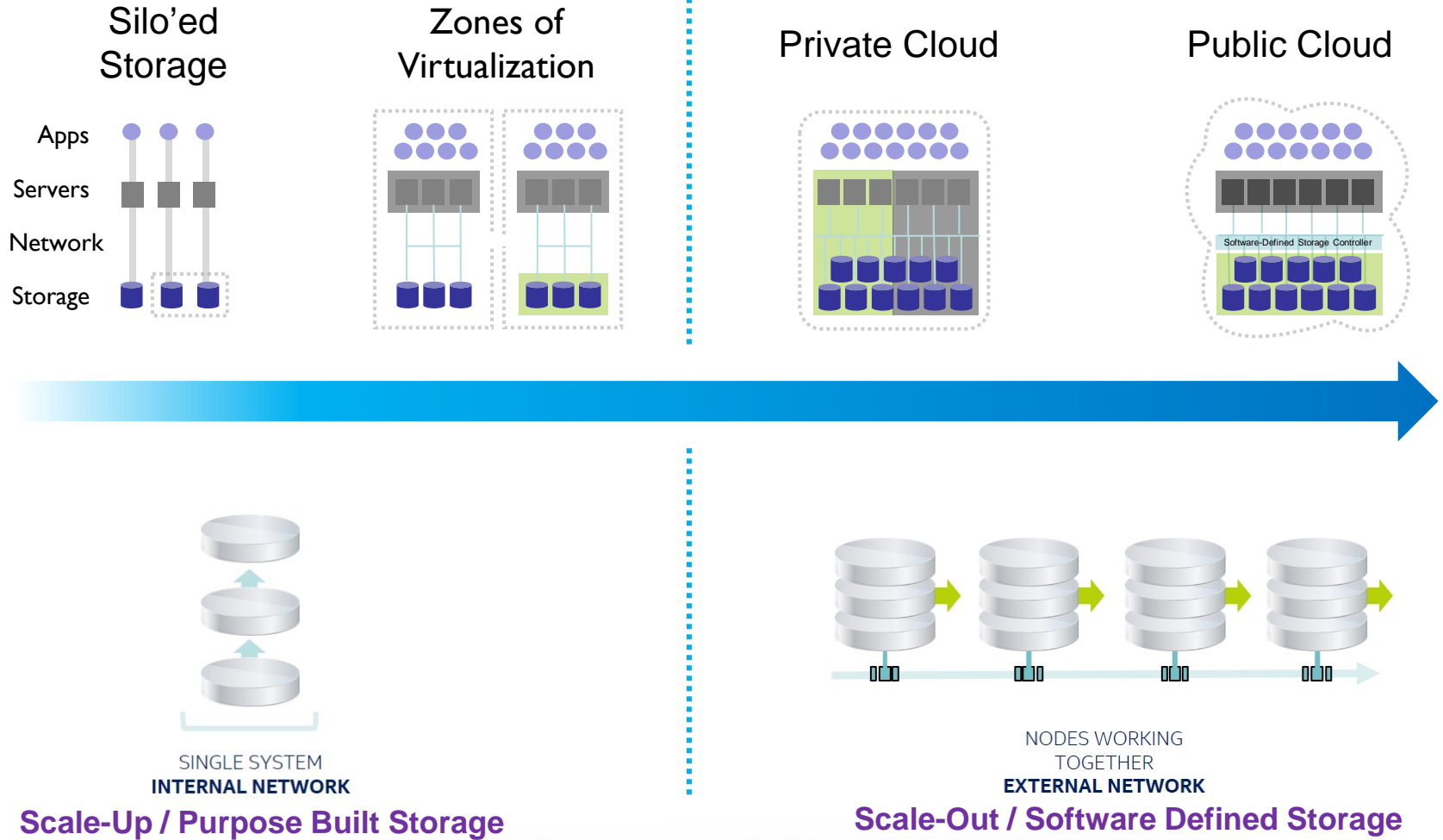
Solutions



CoprHd Storage Controller
Rack Scale Architecture
Reference Architectures

NEWS: Intel Storage Performance Development Kit
Open Source: NVMe User Mode Linux Driver available on
<https://01.org/storage-performance>

Where will your application live?



CALL to ACTION

- Accelerate development for NVMe and PCIe
- Embrace Open Source software to accelerate new technology development
- Leverage next generation NVM technology for converged infrastructure
- Intel and You:
A Bright Future Together!