



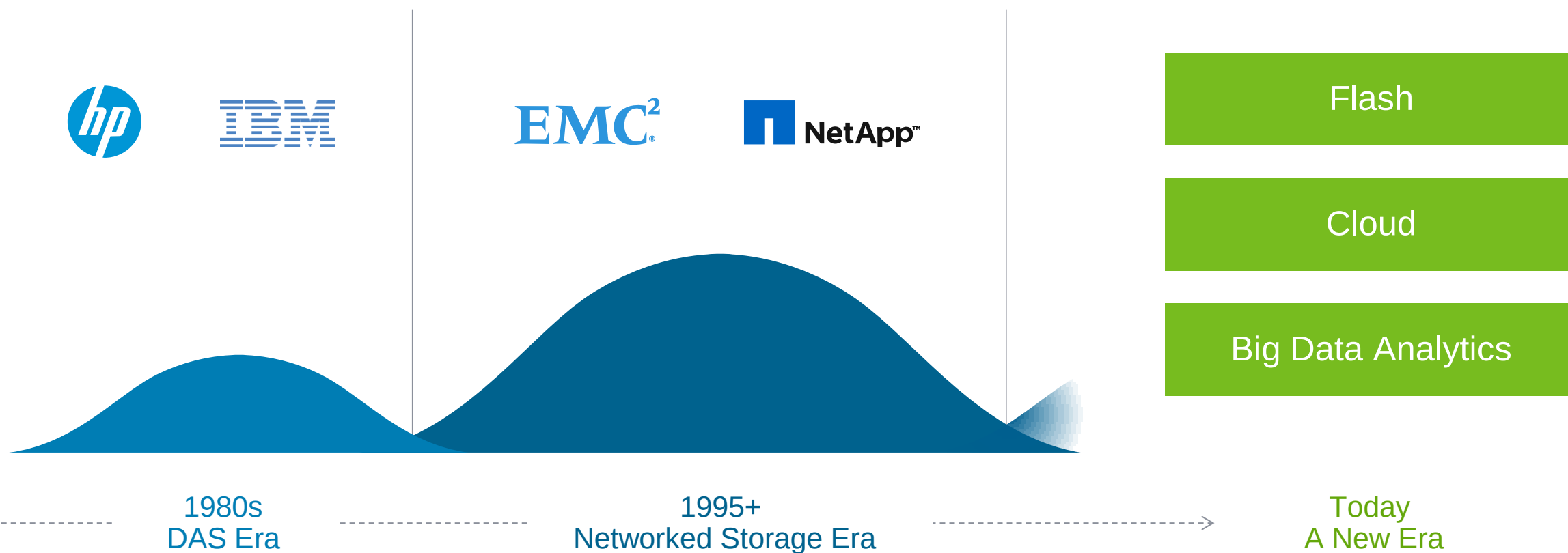
教育應用靈活解決方案

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2017

儲存趨勢

儲存世代的轉變





Headquartered in
San Jose, US

10,000+
Customers

>1200
Partners

Operations in
45+ countries

Key Alliances



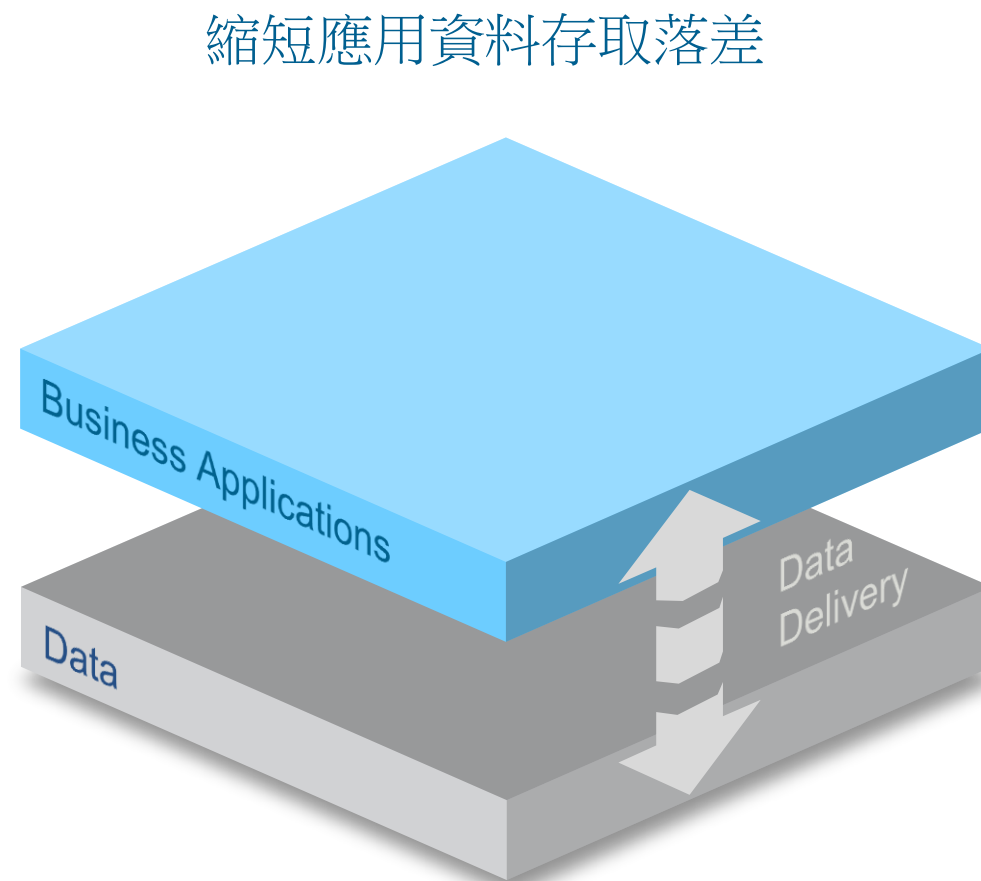
Gartner Visionary Leader for 2016

Numerous
Industry Accolades



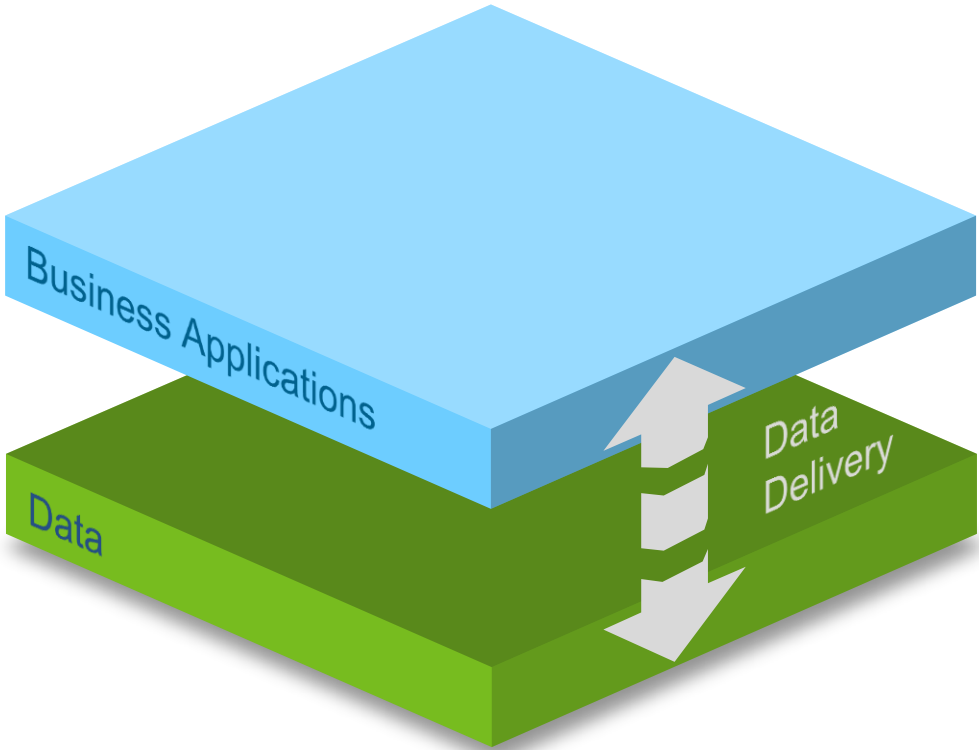
Leader in Gartner
Magic Quadrant

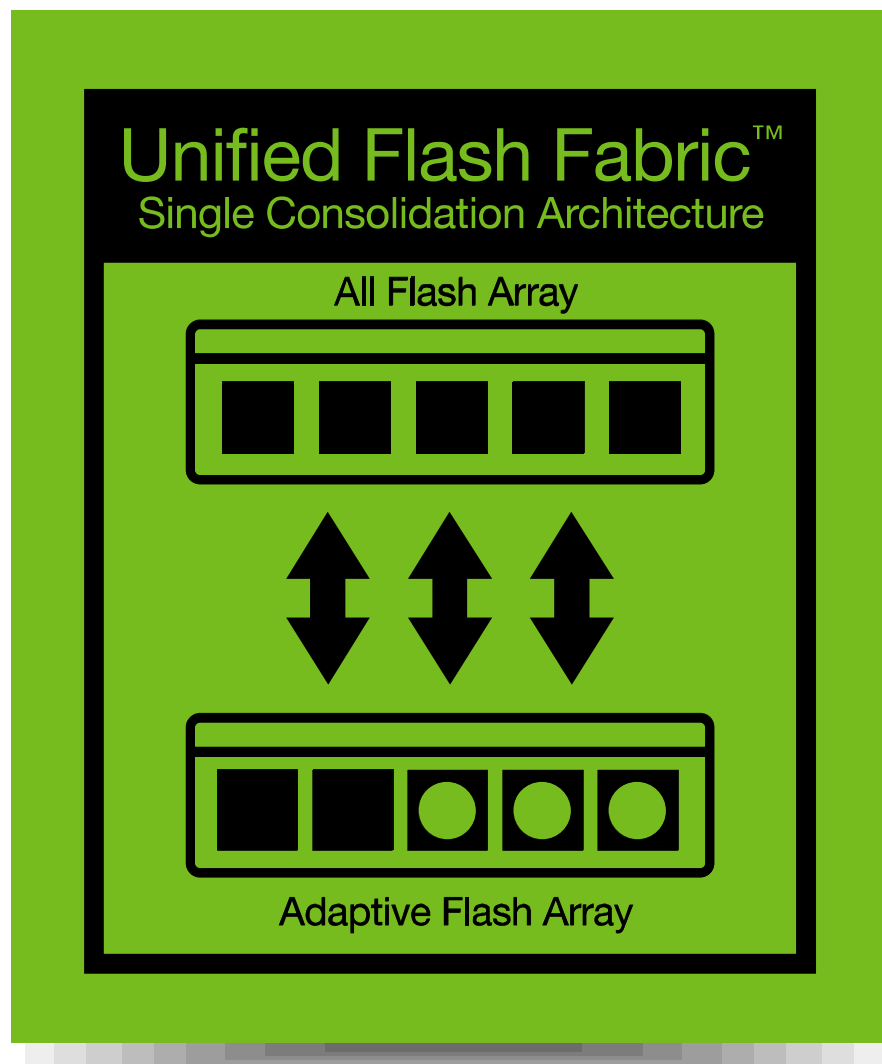






儲存效能=網路效能





All Flash: 100% Flash

極致效能
高I/O 超低延遲



Adaptive Flash: Up to 100% Flash

高I/O 超低延遲
最佳性能價格比
最佳空間效能比

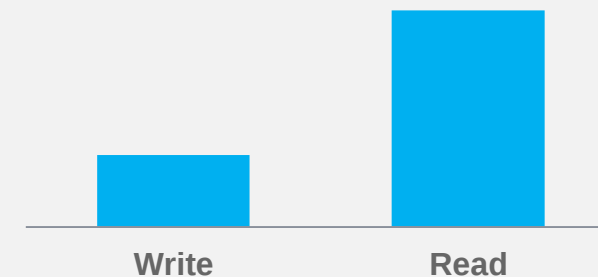
單一架構
單一管理



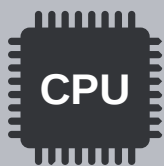
Spindle Bound Performance



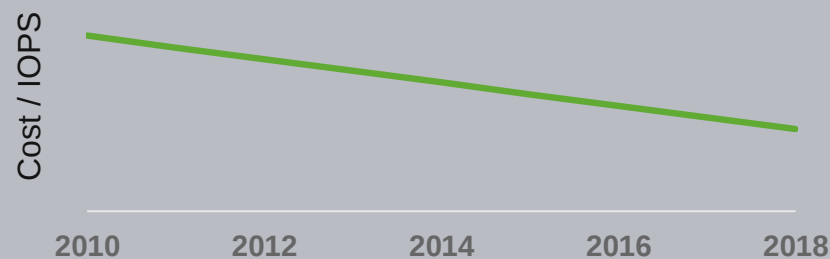
- 硬碟容量快速增加，但IOPS沒有變化
- 成本沒有減少



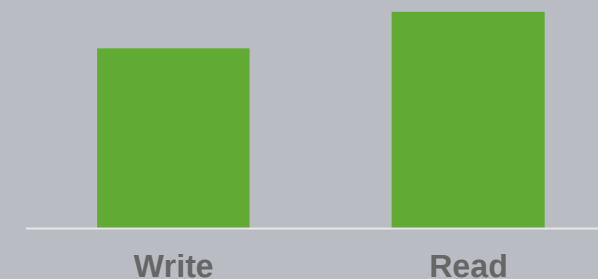
- SSDs 先天 寫/讀 不均衡



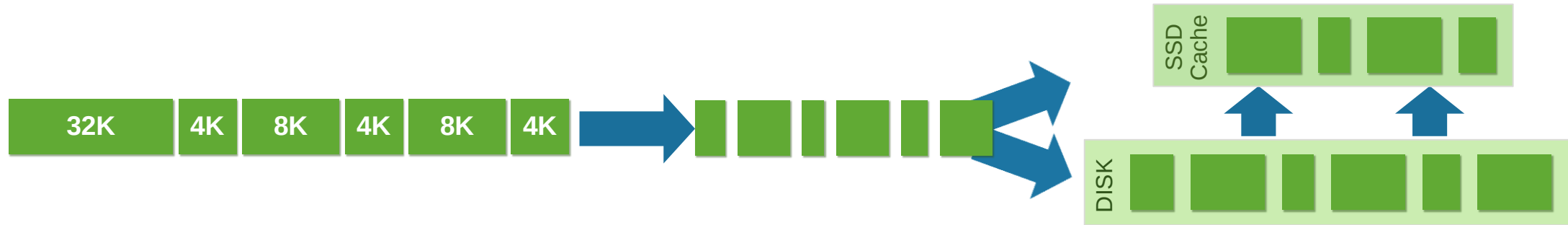
CPU Driven Performance



- 核心數不斷增長，效能持續成長
- 成本不斷降低



- CPU 驅動效能 寫/讀 平衡



UNIVERSAL COMPRESSION: 30-75% SAVINGS

- 可變區塊+高速線上即時壓縮
- 線上重複資料刪除
- 0 位元剔除

WRITE-OPTIMIZED LAYOUT: 100x FASTER WRITES

- 動態隨機轉循序寫入合併, 完全脫離硬碟轉速及顆數框架
- Flash寫入放大最小化, 壽命提升五倍以上
- NVRAM+CF+HA 永久資料保護
- 最少三顆硬碟故障保護

DYNAMIC CACHING: 50x FASTER READS

- 智慧型快取演算計術非階層式架構
- 100% Metadata 快取加速
- 100% SSD 快取空間可用, 無 RAID 空間及效能耗損

- ✓ 非階層式架構
- ✓ 資料區塊關聯讀取演算技術
- ✓ 資料庫, 虛擬化環境存取大幅加速



Adaptive Flash

動態配置SLA

All Flash



All flash performance,
all the time

Auto Flash



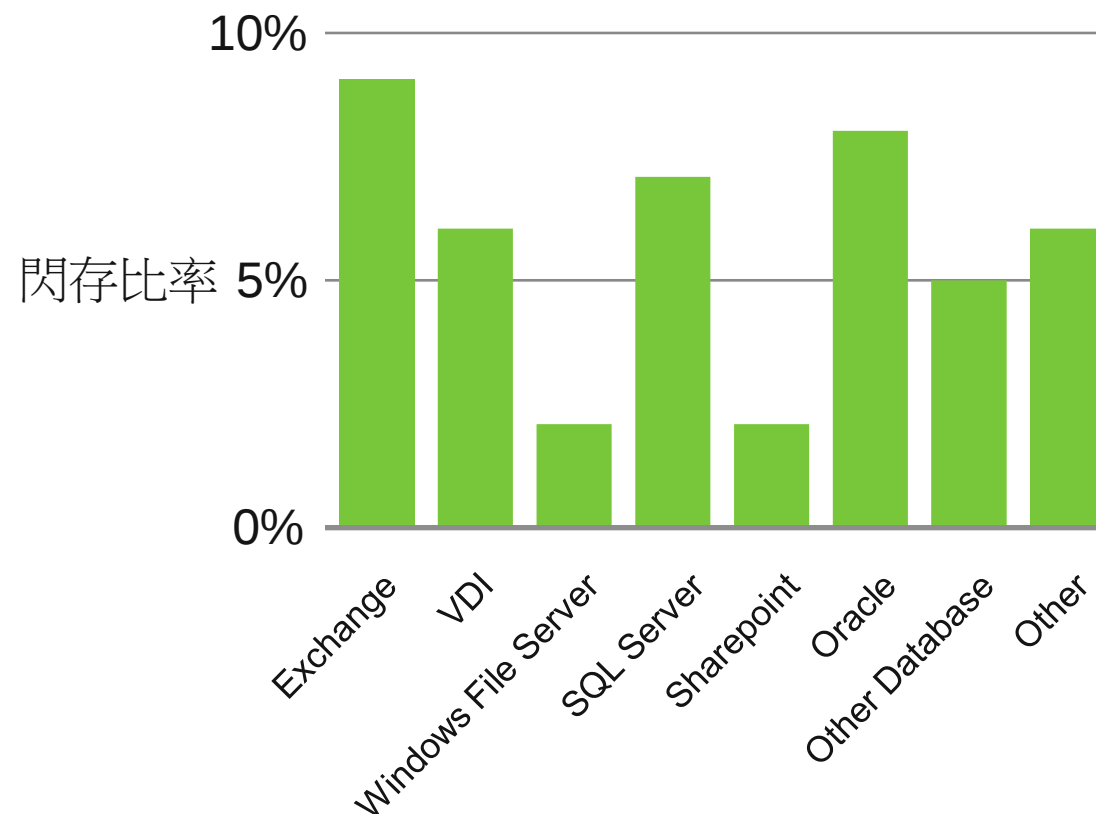
All Flash performance,
> 95% of the time

Minimal Flash



Lowest cost of capacity

自動閃存加速 – 全閃存的性能
僅用占容量 5-10%的閃存*



*資料来源: Nimble實際客戶運作分析統計

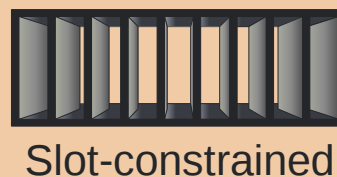
混合系列: 硬碟層效能

全閃系列: 大幅延長
SSD 層壽命

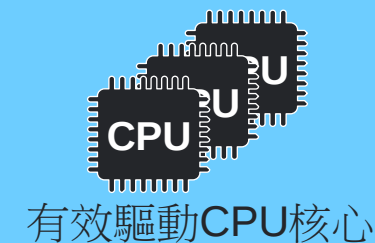
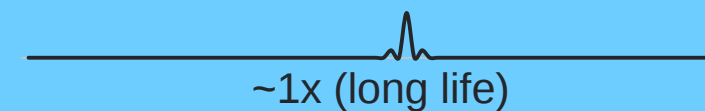
機架空間: 大幅節省

效能擴展: 真正 IOPS
scalout

Traditional Layout



CASL





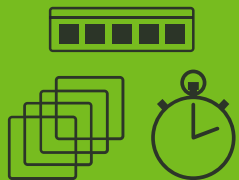
Non-Stop Availability

實測每月停機低於8 秒



Triple+
Parity RAID

單一群組超過3顆硬碟/SSD故障保護
Spare空間化快速重建功能



Integrated
Data Protection

VM, DB, Exchange 備份備援自動化
一秒快速資料復原



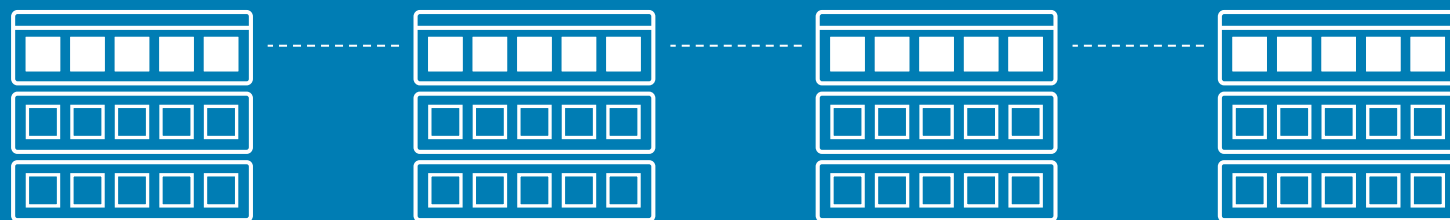
SmartSecure
Encryption

無成本負擔效能損耗加密技術

效能線性擴充

超高彈性擴充 效能超過1.2M IOPS

Scale-out 擴容量擴頻器不需停機需昇機
線上快速容量擴充不需停機需昇機

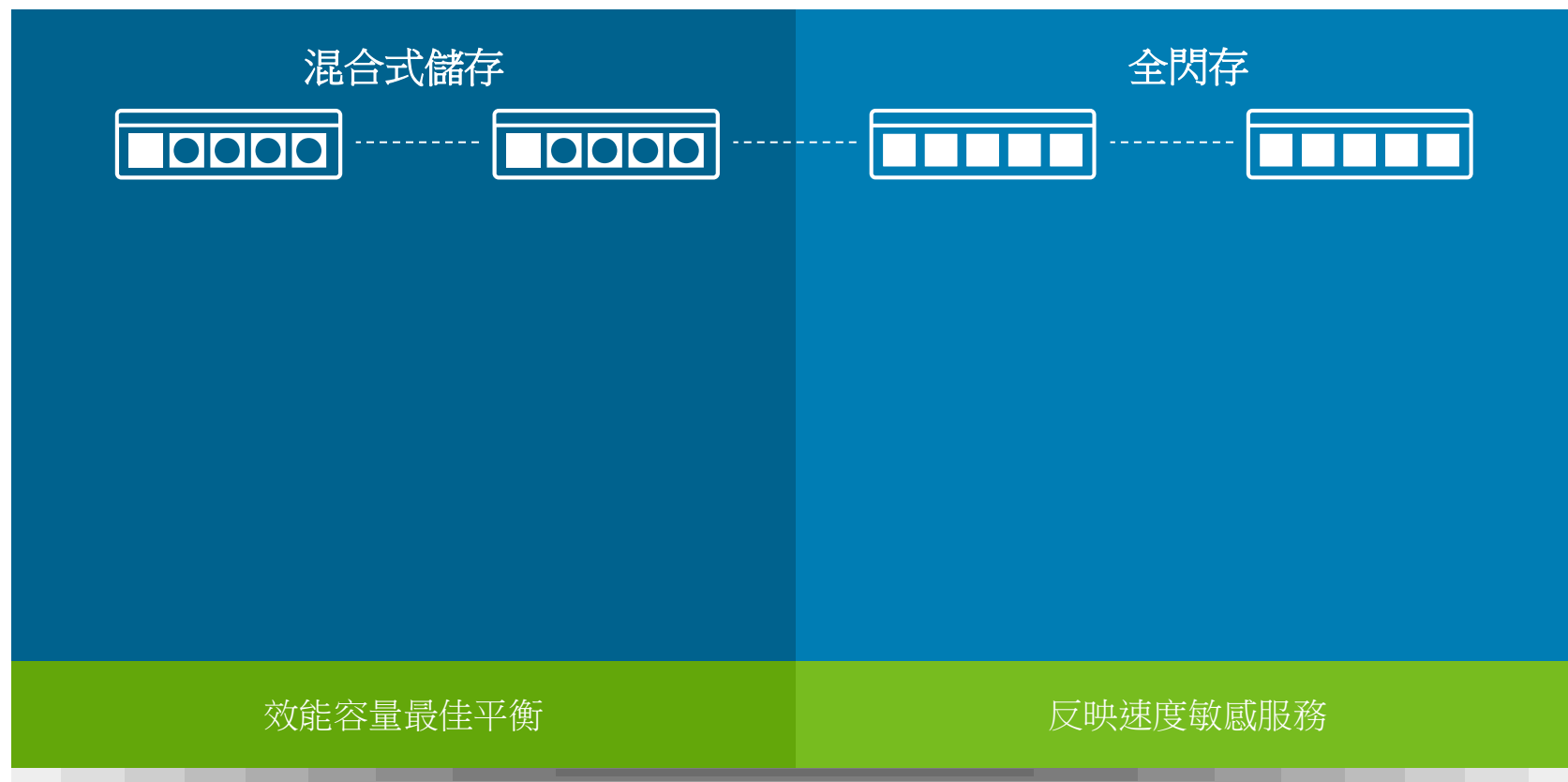


無需專屬網路 佈署精簡



簡化資料分層管理

Mix-and-Match All Flash and Adaptive-Flash in a Scale-out Cluster



ORACLE®

SAP®

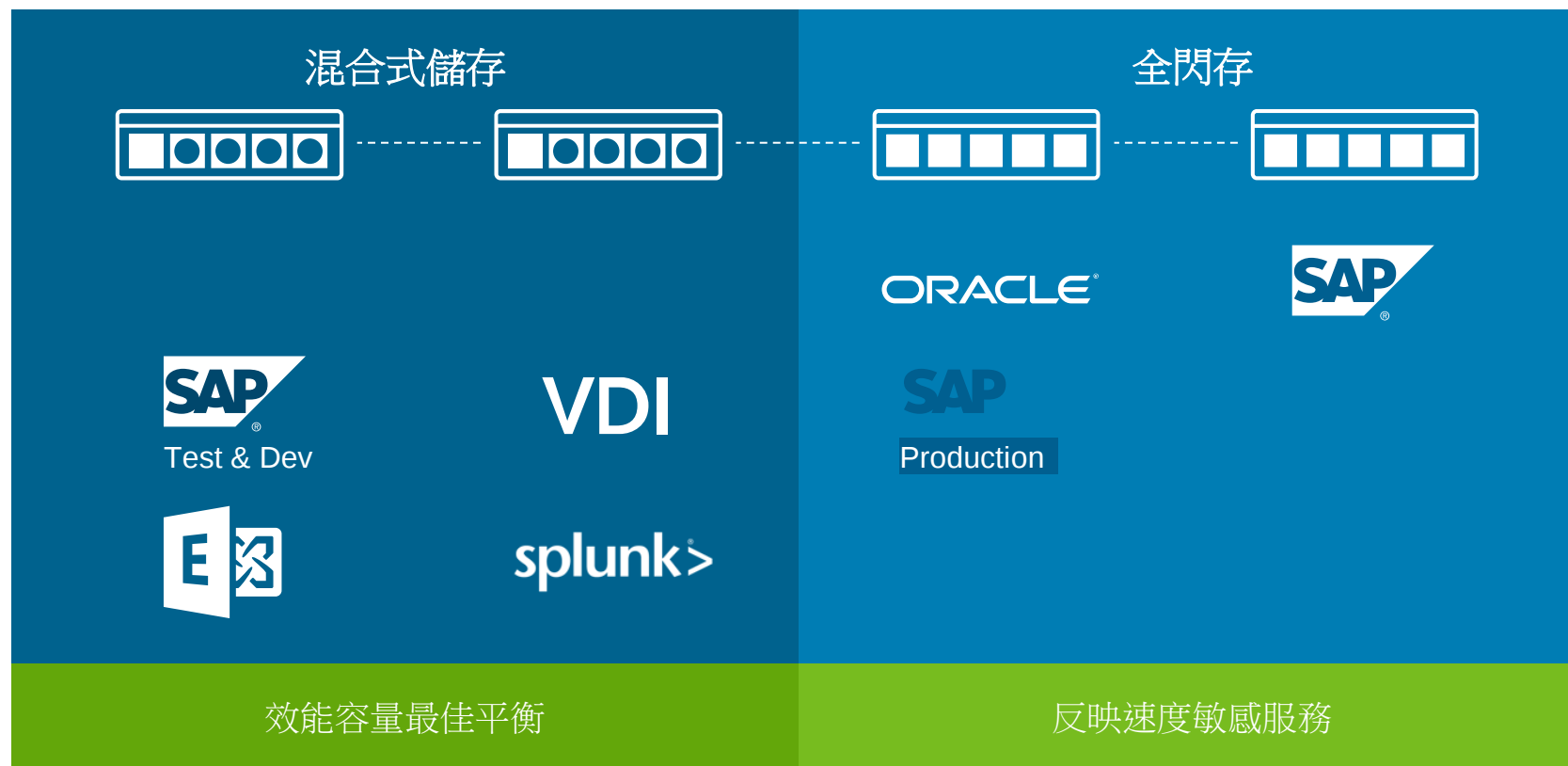
SAP®
Test & Dev

VDI



splunk>

Transparent Application Migration Across Adaptive and All-flash Arrays



ORACLE®

SAP®

SAP®
Test & Dev

VDI

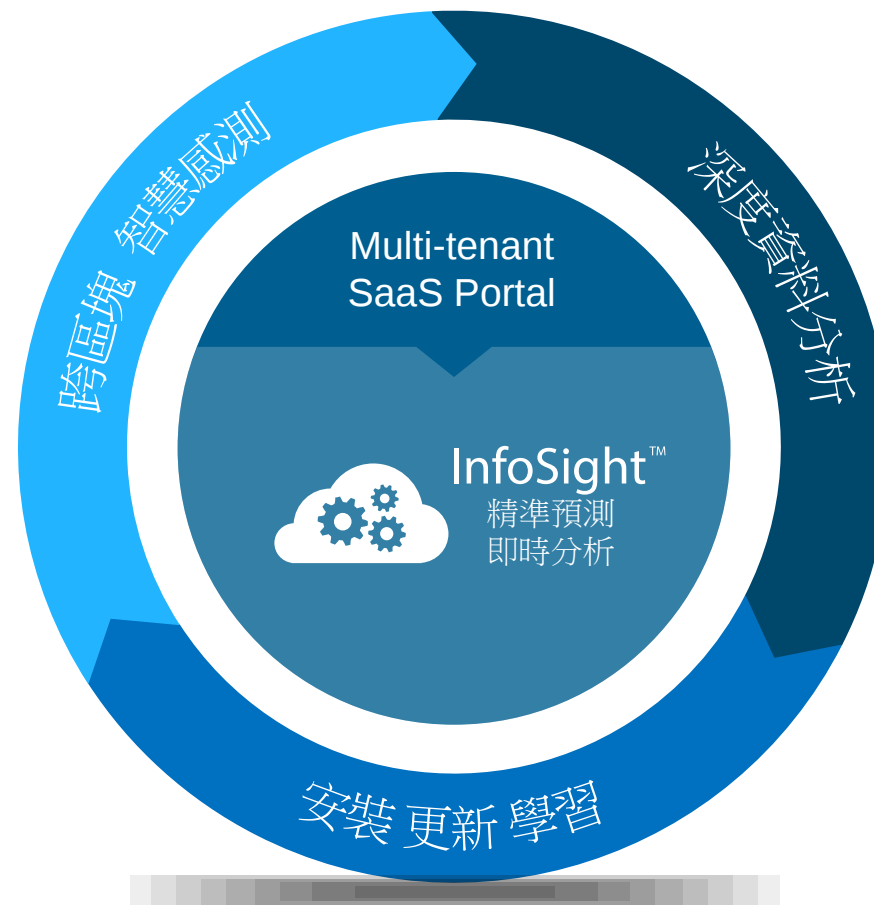
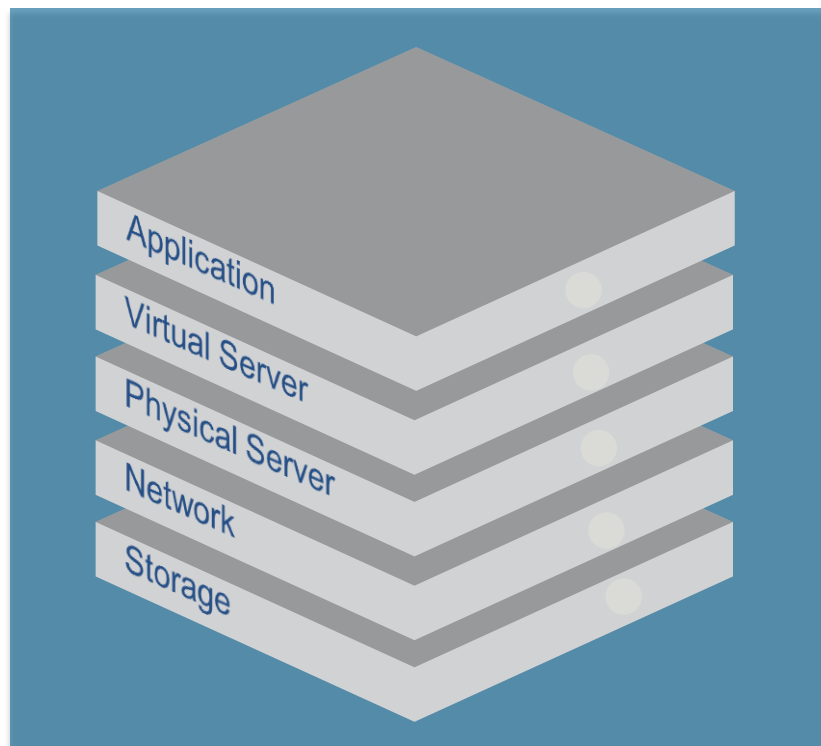


splunk>

無需專屬網路佈署

Nimble InfoSight 人工智慧服務

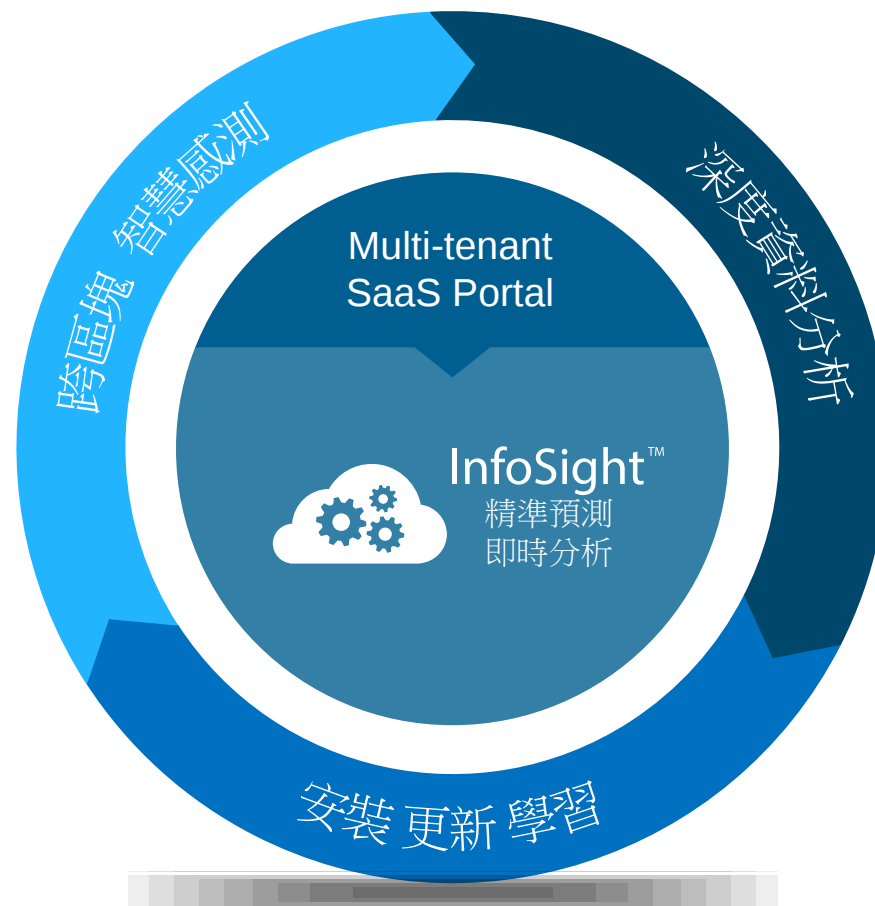
Every week InfoSight Analyzes more than a Trillion Data Points



防止潛在問題及停機產生

根本原因快速分析

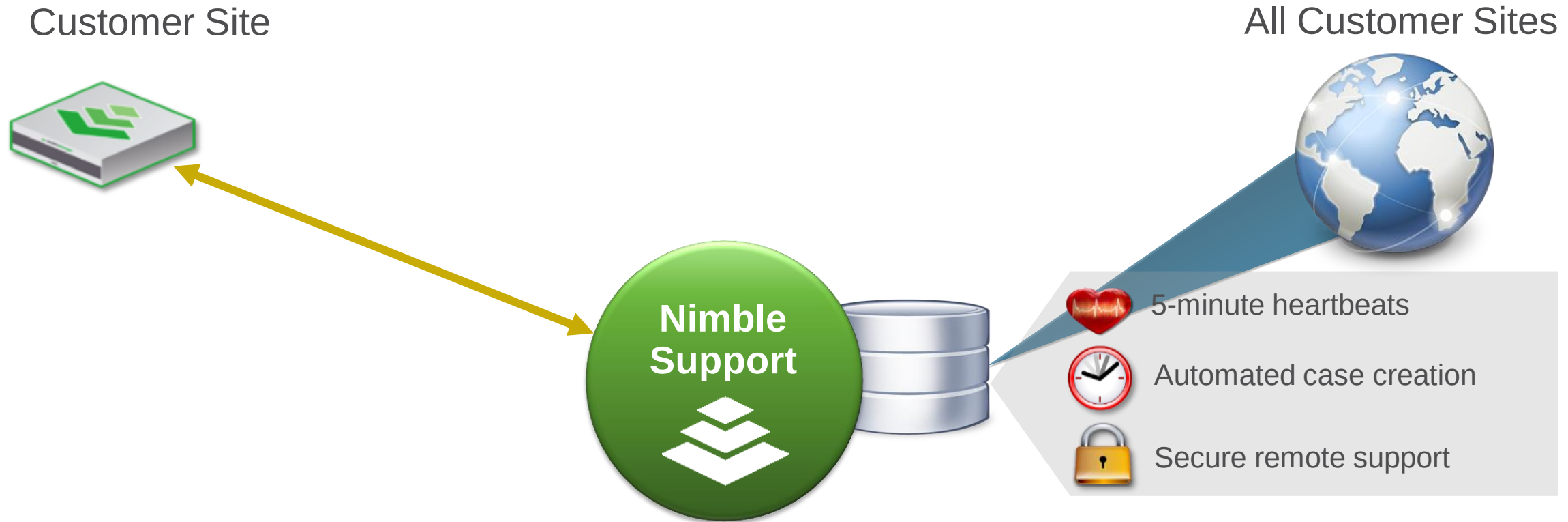
未來需求評估及計劃建議

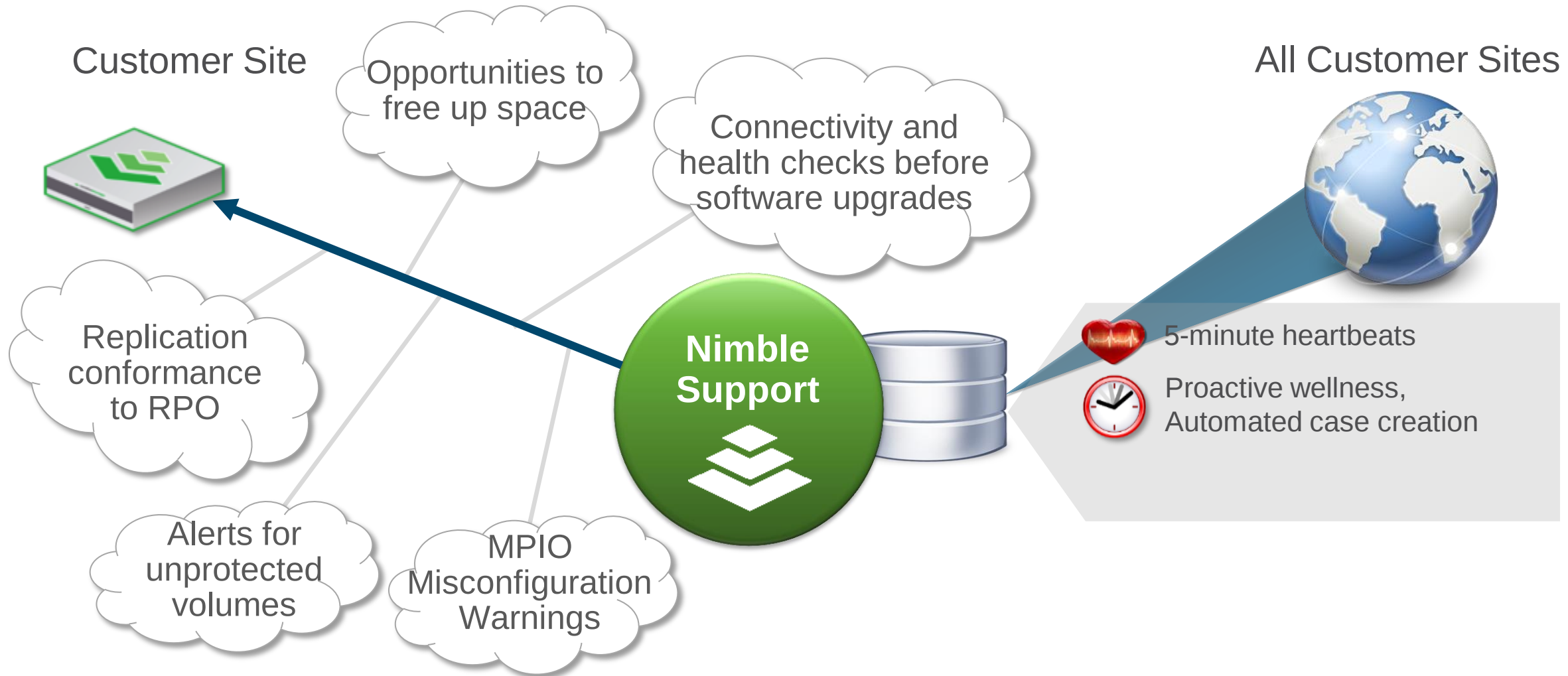


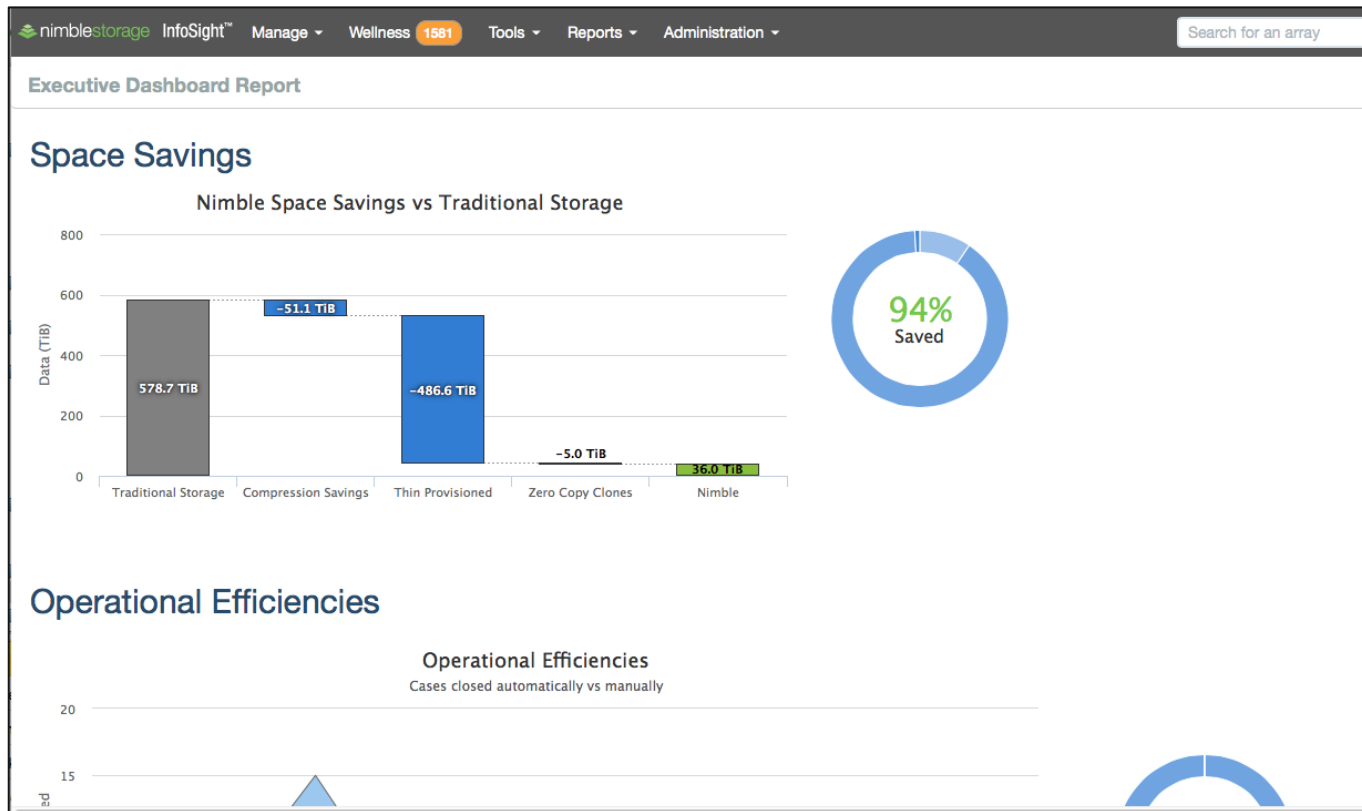
9/10 Issues detected before you do

>99.9997% Measured uptime

<1 minute Hold time to speak to level 3 engineer

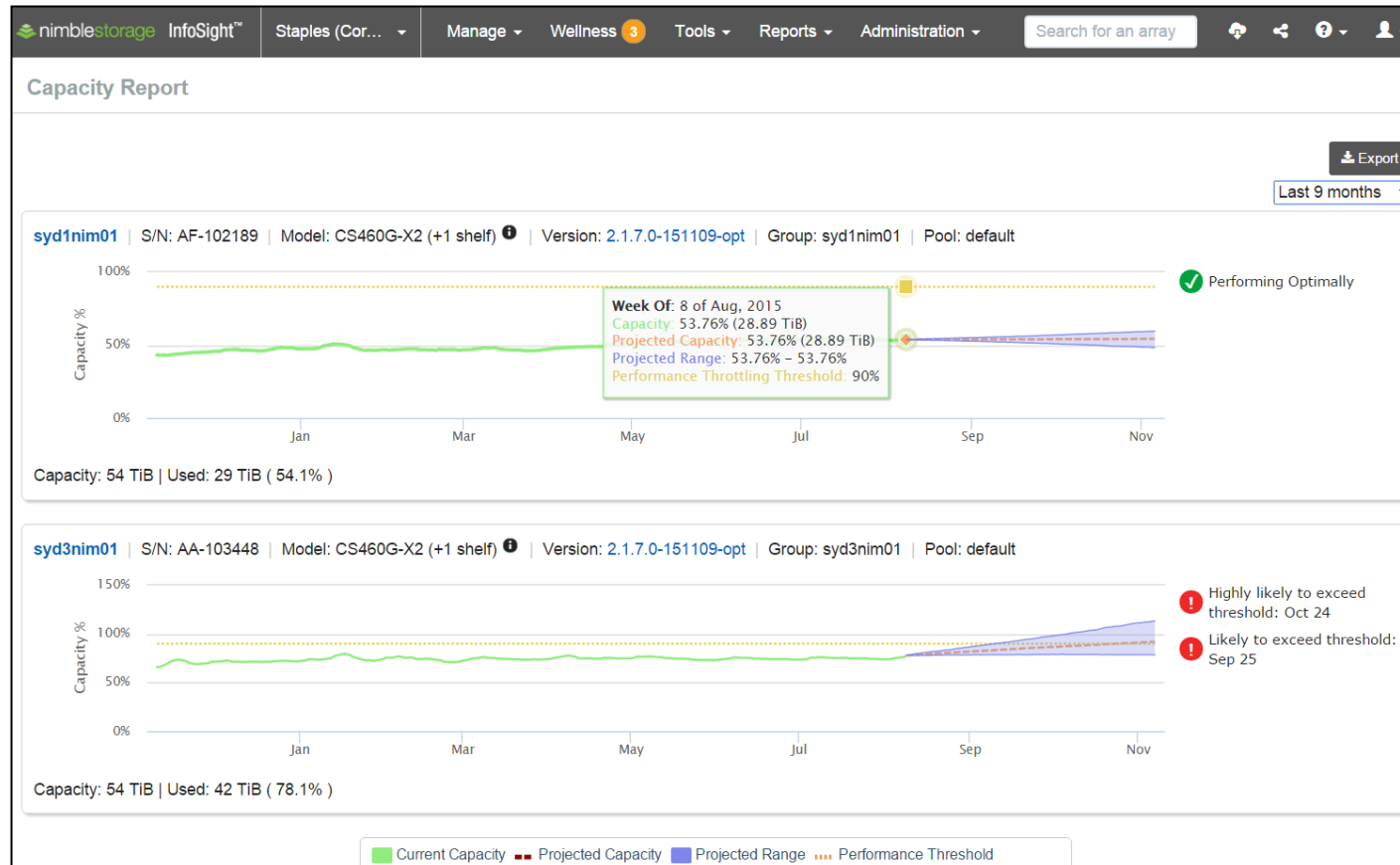






- **Executive dashboards give you peace-of-mind** that everything is running perfectly
- **Correlated visualization provides a use-case view** of what's happening across the “applications-to-storage” stack
- **Manage your global storage environment from anywhere**

Complete visibility through the cloud to all information you need to maintain a resilient environment and ensure smooth operations

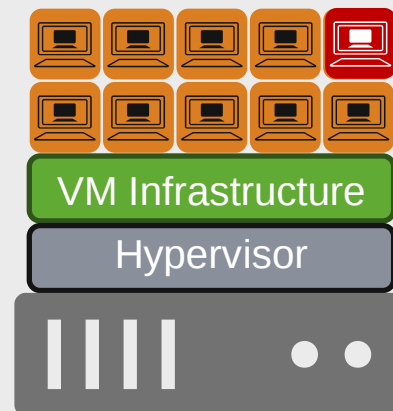


Key Insights

- What is our current growth rate?
- When will we likely need more storage capacity?
- How much headroom do we have for new applications or workloads?
- How do we report back to the business?



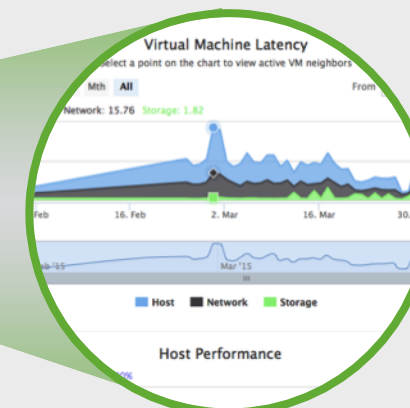
UI 一鍵設定



VM對映儲存

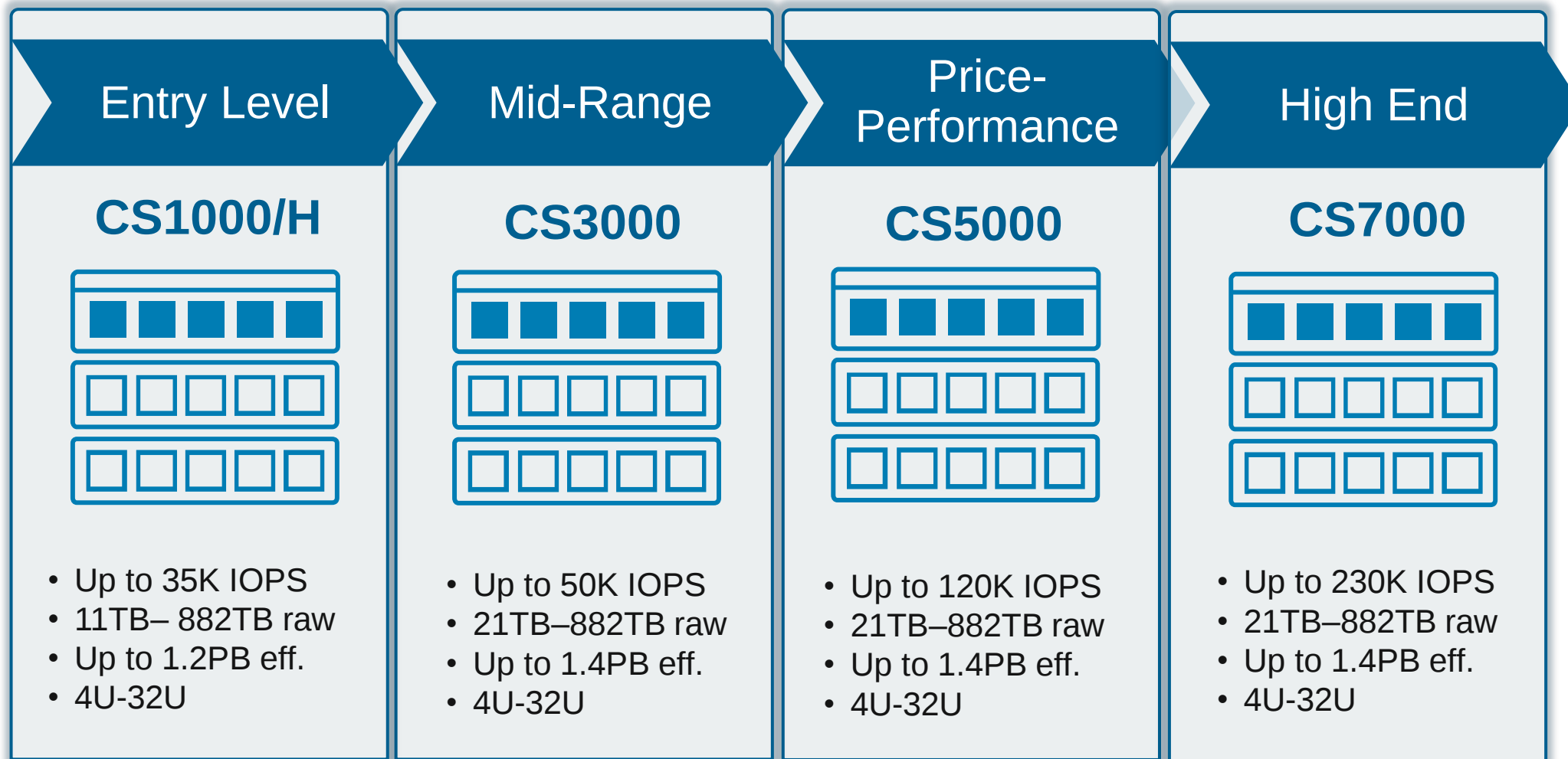


SQL Performance Policy
RPO = 15m,
Retain 1 week
Replicate every HR
QoS Limit = 5,000 IOPS
Encryption Enabled



VMWare 虛擬機: CPU, I/O, 記憶體 狀態一體監控

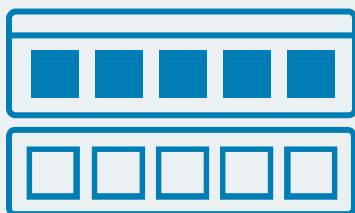
Nimble 產品系列



IOPS at 70% read / 30% write. Effective capacity assumes 2:1 data reduction.

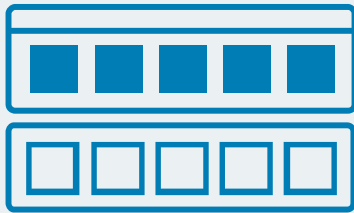
Entry Level

AF1000



- Up to 35K IOPS
- 6TB–46TB raw
- Up to 165TB eff.
- 4U

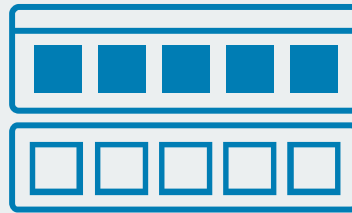
AF3000



- Up to 50K IOPS
- 6TB–92TB raw
- Up to 335TB eff.
- 4U-8U

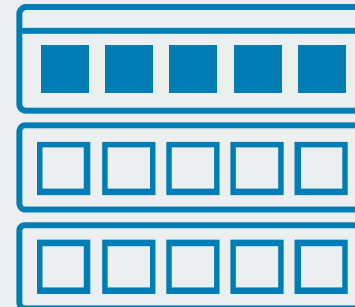
Price/Performance

AF5000



- Up to 120K IOPS
- 11TB–184TB raw
- Up to 680TB eff.
- 4U-8U

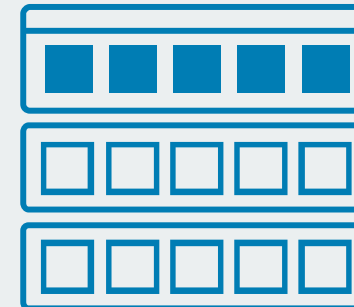
AF7000



- Up to 230K IOPS
- 11TB–323TB raw
- Up to 1.2PB eff.
- 4U-12U

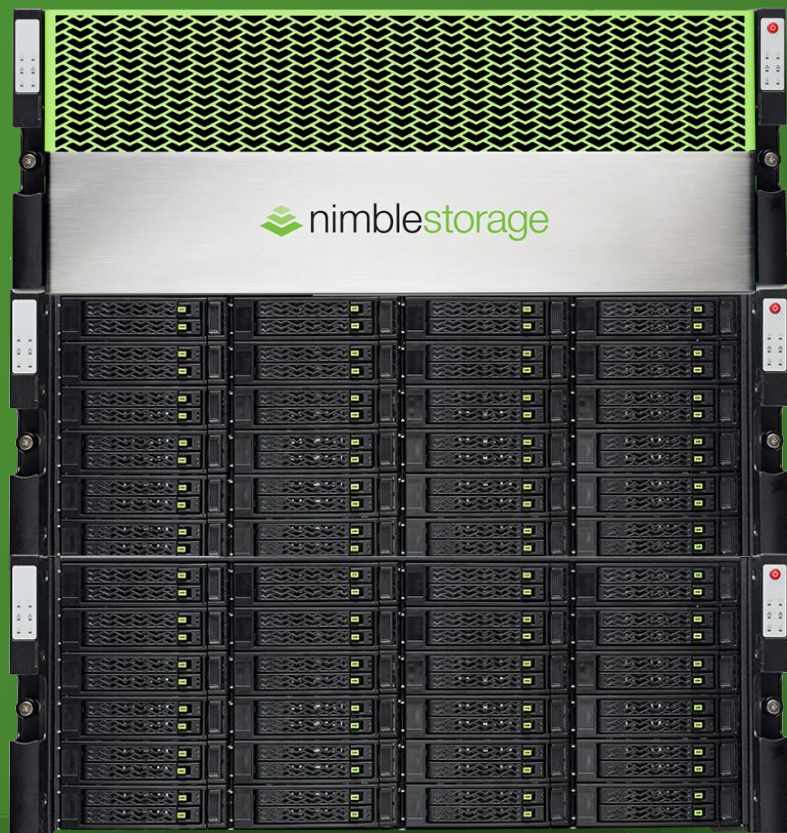
High End

AF9000



- Up to 300K IOPS
- 23TB–553TB raw
- Up to 2PB eff.
- 4U-12U

IOPS at 70% read / 30% write. Effective capacity assumes 5:1 data reduction.



超高密度

4Ux48 Chassis

- 4U Height – supports 48 SSDs w/ DFC
- 12Gbps SAS or up to 2 (4Ux48) expansion shelves

優異效能

Dual-X10 Controllers

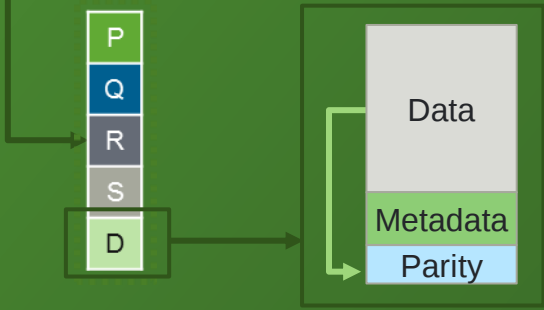
- Based on Intel Haswell / Broadwell CPUs
- Interconnect via NTB; NVDIMM-based NVRAM

靈活擴充

Nimble Dual Flash Carrier

- Provides built in expandability –
- Any SSD can be added/removed with zero disruption

1	2	3	4	5	6	7	8	9	10	11	12
D	D	D	D	D	D	D	D	P	Q	R	S
D	D	D	D	D	D	D	P	Q	R	S	D
D	D	D	D	D	D	P	Q	R	S	D	D
D	D	D	D	D	P	Q	R	S	D	D	D
D	D	D	D	P	Q	R	S	D	D	D	D
D	D	D	P	Q	R	S	D	D	D	D	D
D	D	P	Q	R	S	D	D	D	D	D	D
D	P	Q	R	S	D	D	D	D	D	D	D
P	Q	R	S	D	D	D	D	D	D	D	D
Q	R	S	D	D	D	D	D	D	D	D	D
R	S	D	D	D	D	D	D	D	D	D	D
S	D	D	D	D	D	D	D	D	D	D	D
D	D	D	D	D	D	D	D	D	D	D	P
D	D	D	D	D	D	D	D	D	D	P	Q
D	D	D	D	D	D	D	D	P	Q	R	

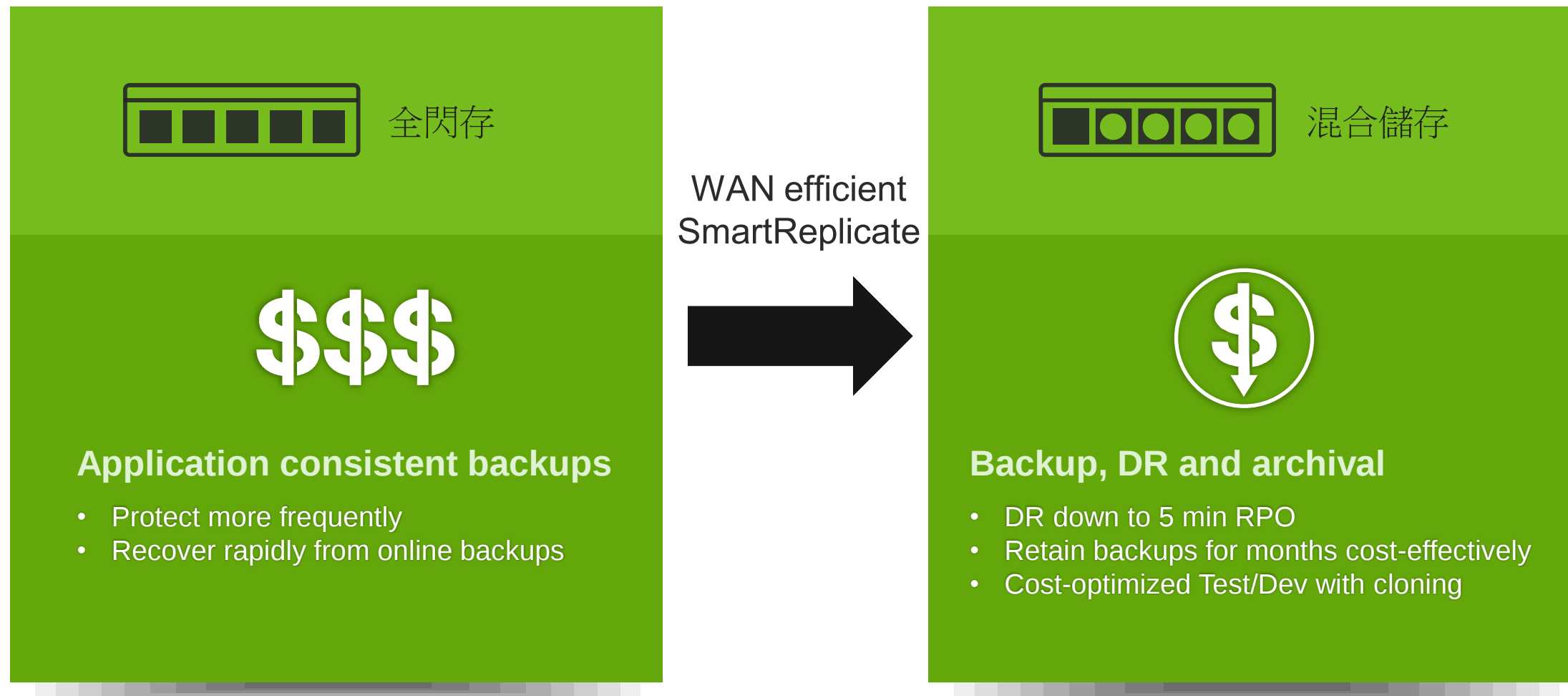


同一RAID群組允許3顆SSD故障

第四顆SSD故障保護不需額外損耗額外空間

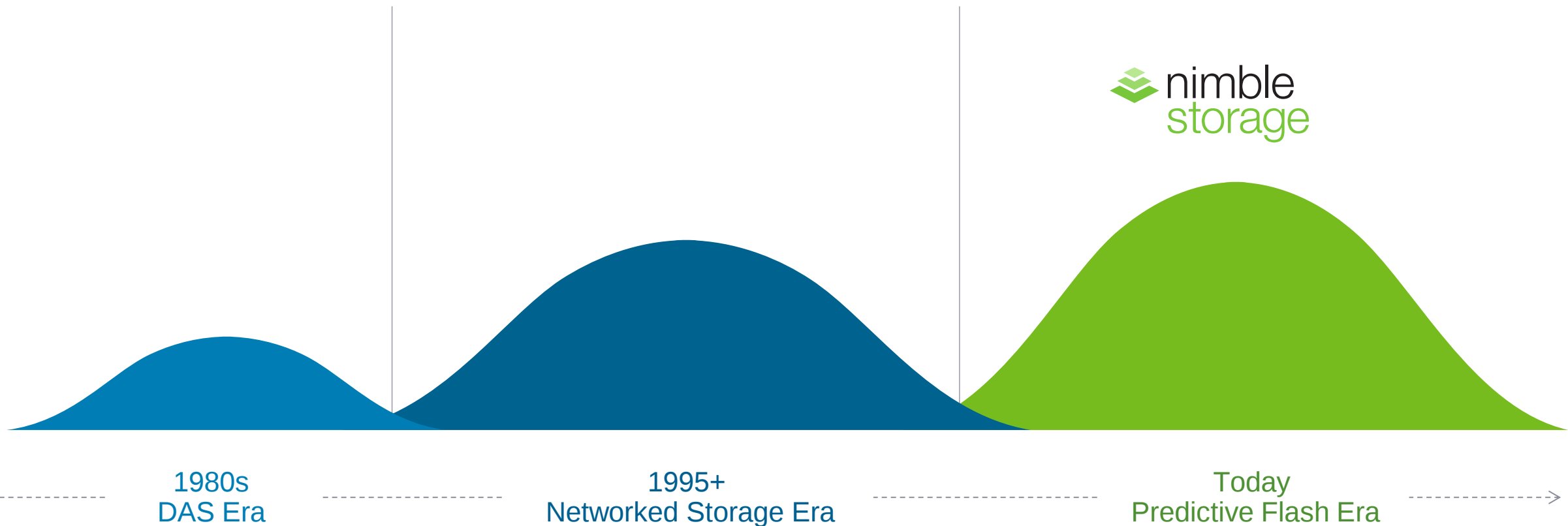
SSD內建資料修正功能(ECC)

快速RAID群組重建



Summary

Be the Market Leader in Storage by Delivering
Data Velocity with the Predictive Flash Platform



Thanks!