



雲儲存的最佳解決方案

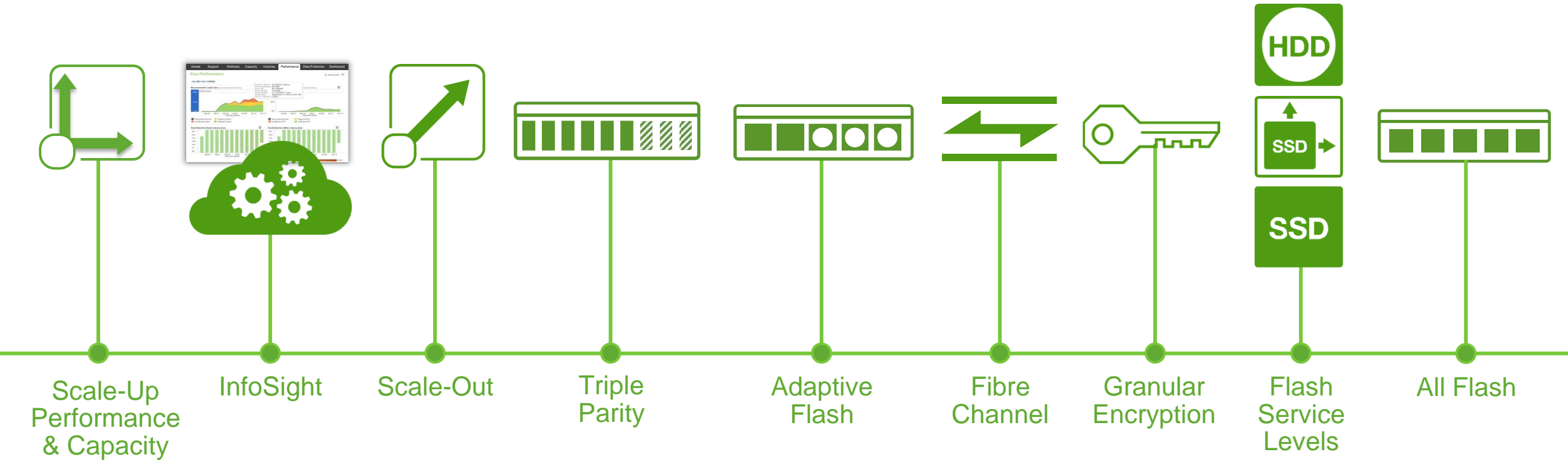
Nimble Storage

Hunter Wu

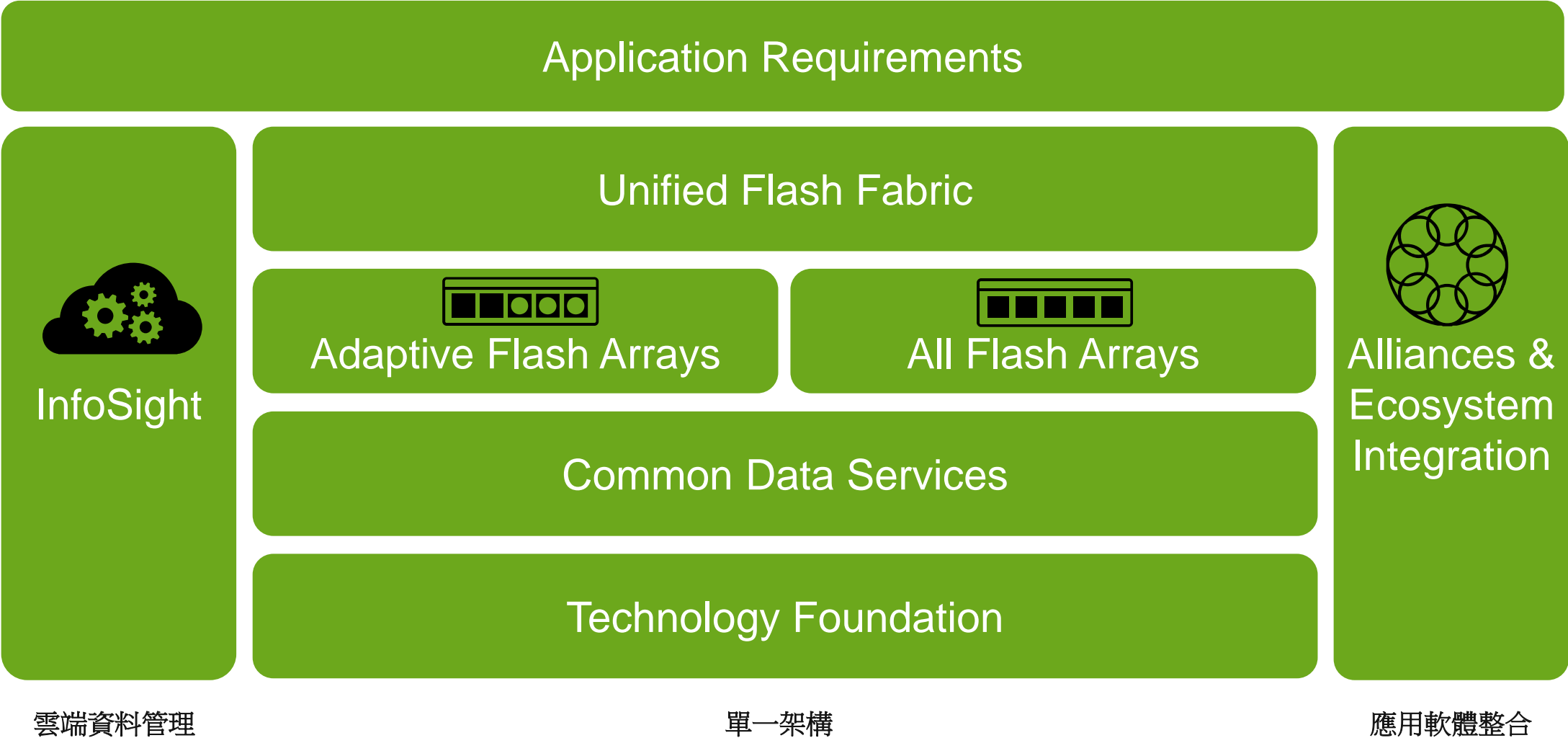
July-2016

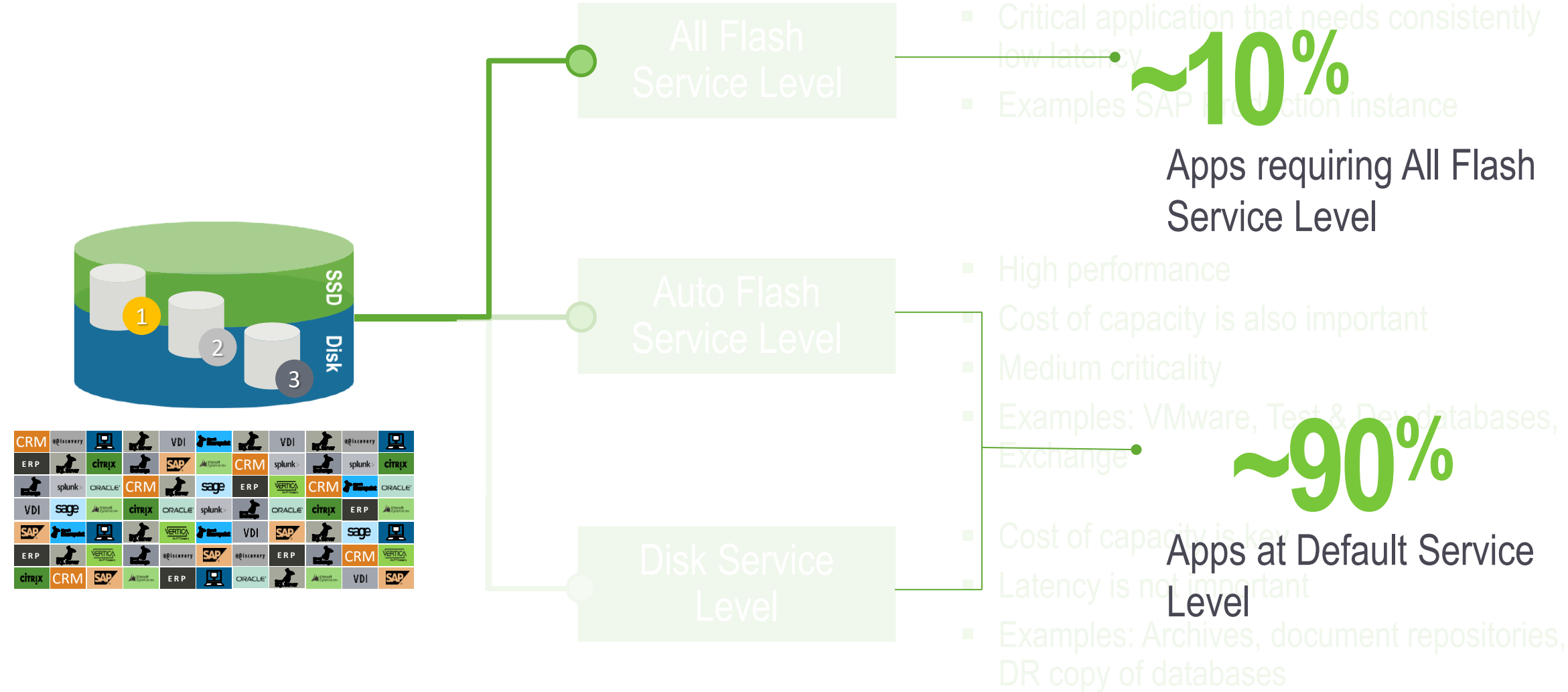
- 高彈性
- 高效能
- 全自動化管理
- 低成本

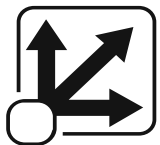




建構超彈性雲存儲環境







Efficient Scalability



Simplicity



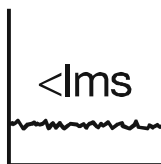
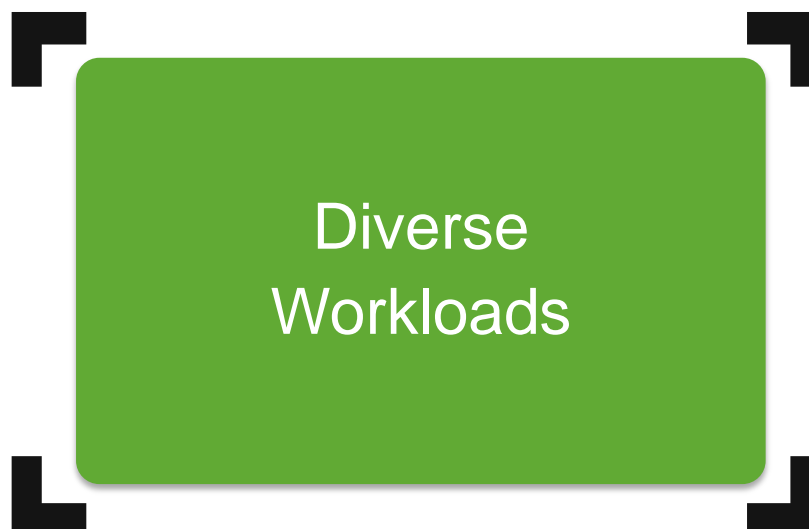
Data Protection



Security



High Availability



Deterministic
Latency



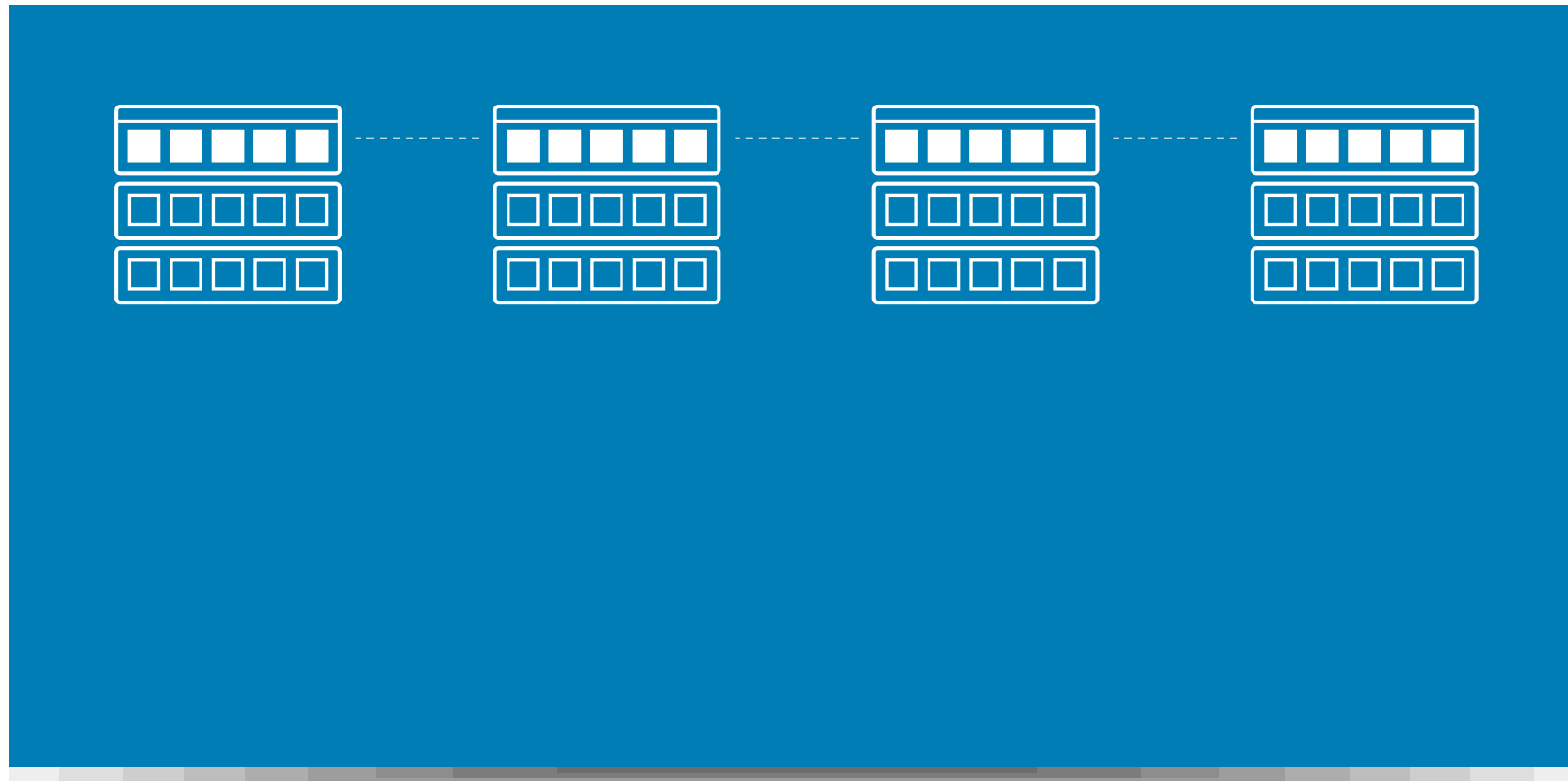
Cost Effective
Performance & Capacity

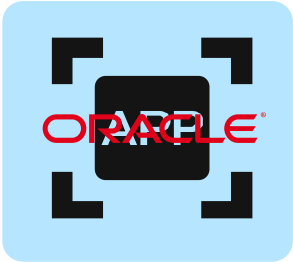


Lowest Cost
of Capacity

超高彈性擴充 效能超過1.2M IOPS

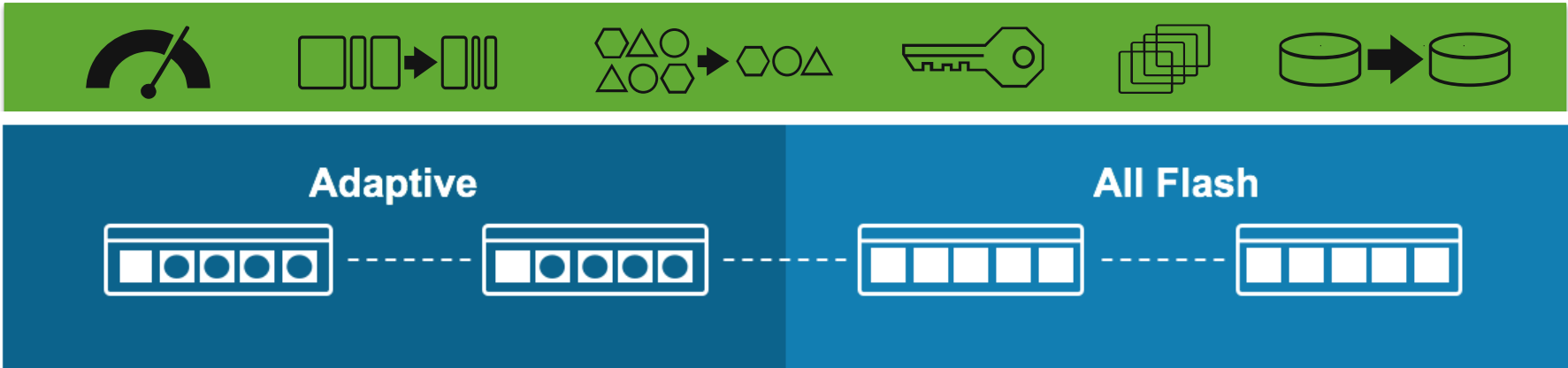
Scale Out to 100+ Nodes Within Minutes, No Disruptive
Scale In to Optimize Capacity Within Minutes, No Disruptive





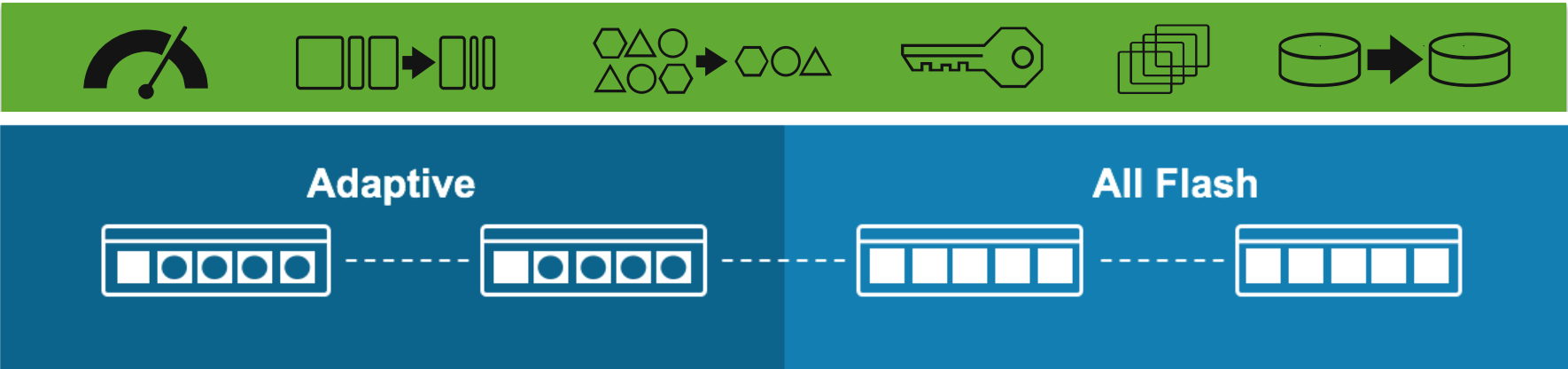
APPLICATION REQUIREMENTS

Yes/No	Storage Services
<input checked="" type="checkbox"/>	Guaranteed Latency (<1ms)
<input checked="" type="checkbox"/>	Compression
<input type="checkbox"/>	Deduplication
<input checked="" type="checkbox"/>	Encryption
<input checked="" type="checkbox"/>	Local backup (@ 5 mins / 14 days)
<input checked="" type="checkbox"/>	Data Protection (Hourly / 30 days)

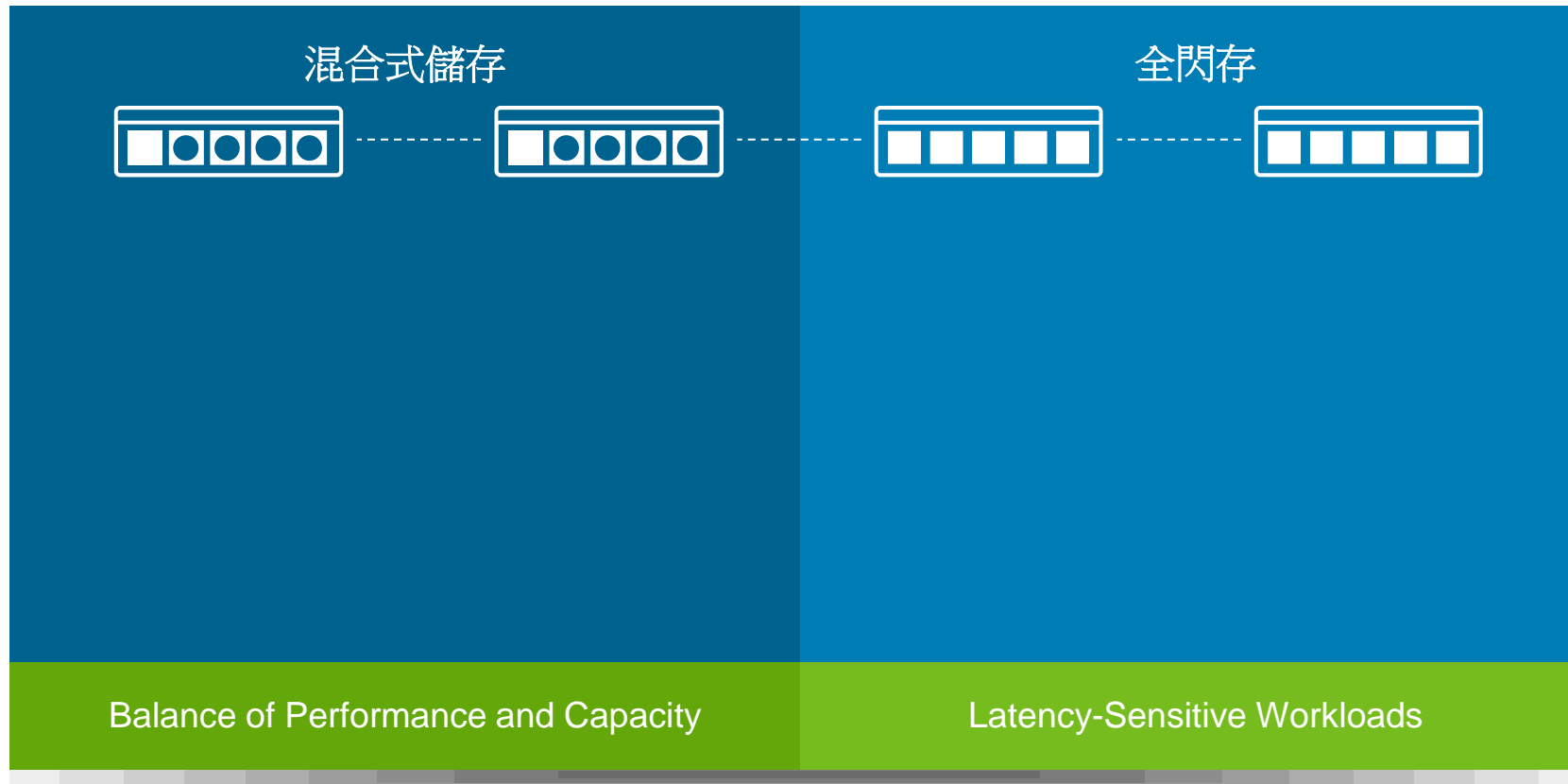


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Mix-and-Match All Flash and Adaptive-Flash in a Scale-out Cluster



ORACLE®

SAP®

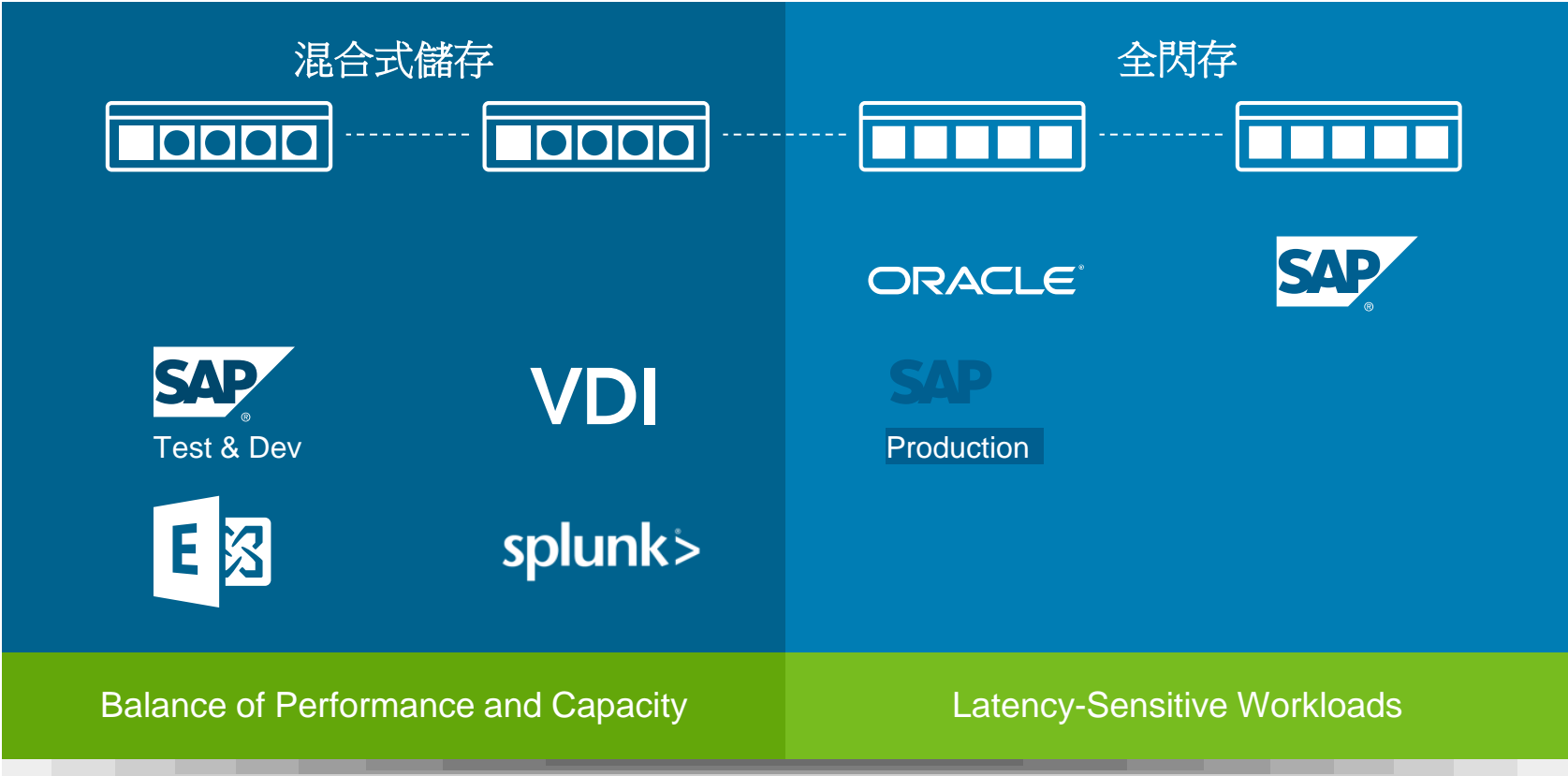
SAP®
Test & Dev

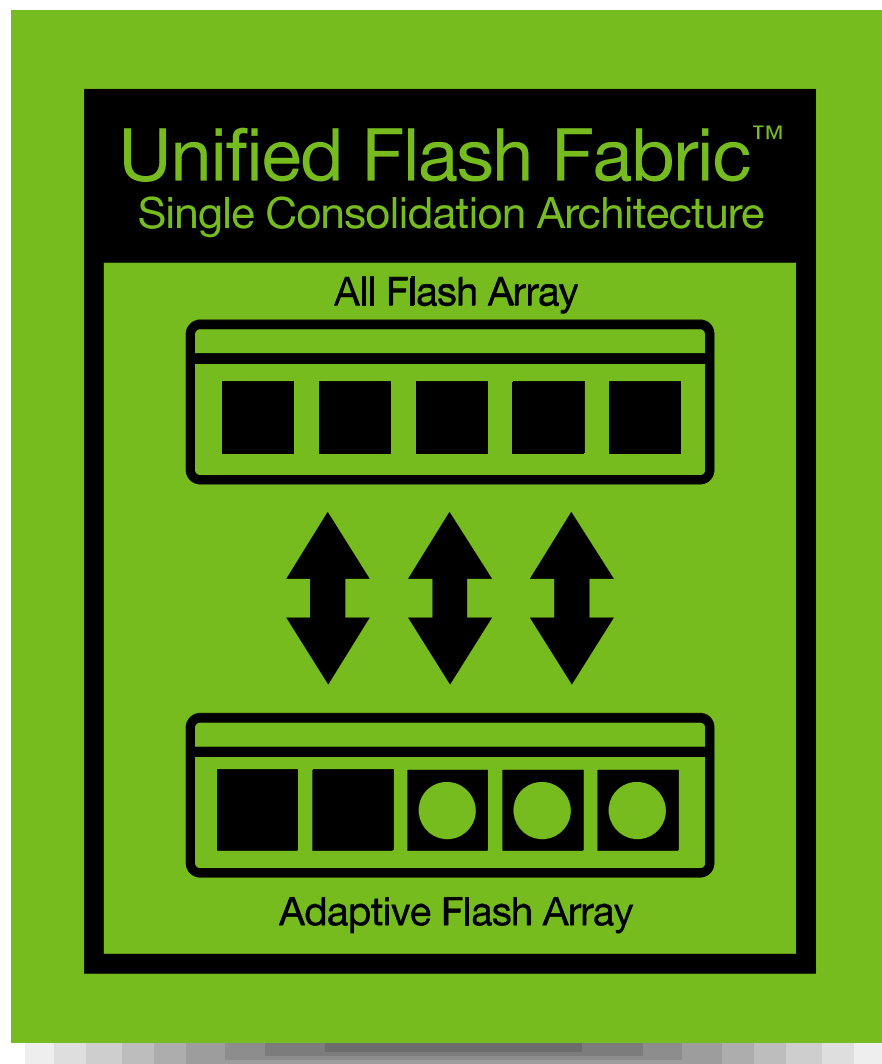
VDI



splunk>

Transparent Application Migration Across Adaptive and All-flash Arrays





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



全閃存

\$\$\$

Application consistent backups

- Protect more frequently
- Recover rapidly from online backups

WAN efficient
SmartReplicate



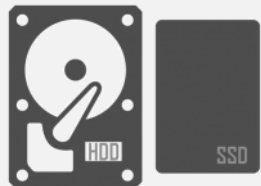
混合儲存



Backup, DR and archival

- DR down to 5 min RPO
- Retain backups for months cost-effectively
- Cost-optimized Test/Dev with cloning

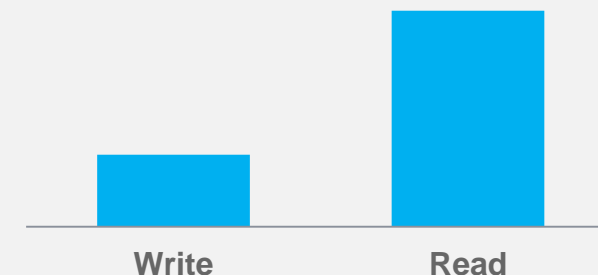
實現高速高容量低成本儲存



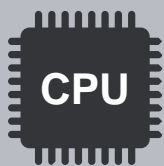
Spindle Bound Performance



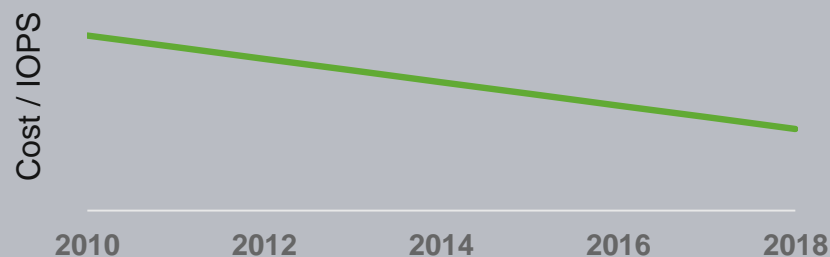
- Disk capacity grows, but not IOPS
- Cost / IOPS stays flat



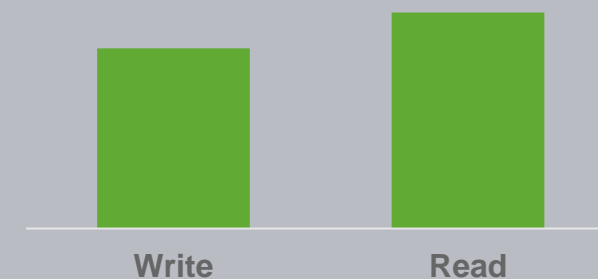
- SSDs are inherently much slower at writes vs. reads



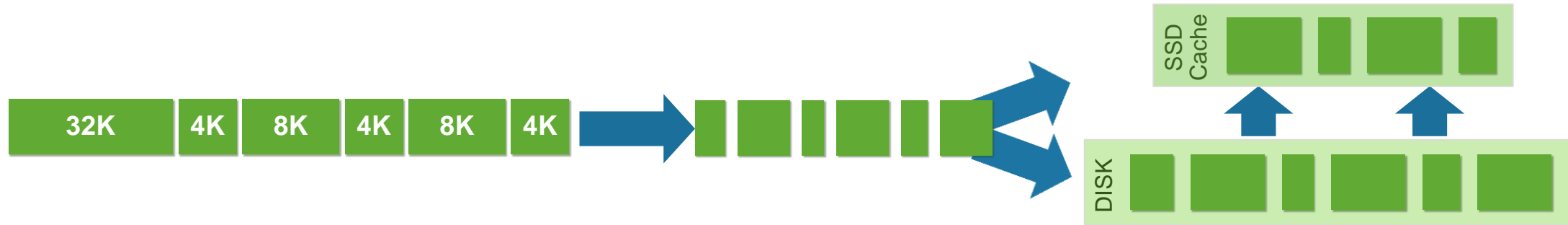
CPU Driven Performance



- Moore's law drives core density
- Cost / IOPS (core) keeps falling



- CPU Driven performance is very balanced



UNIVERSAL COMPRESSION: 30-75% SAVINGS

- Variable-size blocks enable fast inline compression
- Elimination of read-modify-write penalty allows compression of all applications

WRITE-OPTIMIZED LAYOUT: 100x FASTER WRITES

- Guaranteed coalescing of random writes to sequential stripes; eliminates dependency on spindle speed
- Coalesced writes to flash increase lifespan by 500%

DYNAMIC CACHING: 50x FASTER READS

- Cache populated intelligently on first write, instantly on cache miss
- Metadata in cache accelerates all accesses

- ✓ **2-5x** better performance / \$
- ✓ **2-5x** better capacity / \$
- ✓ **~ 4x** reduction in footprint, power and cooling

Nimble InfoSight 預測式全自動化管理

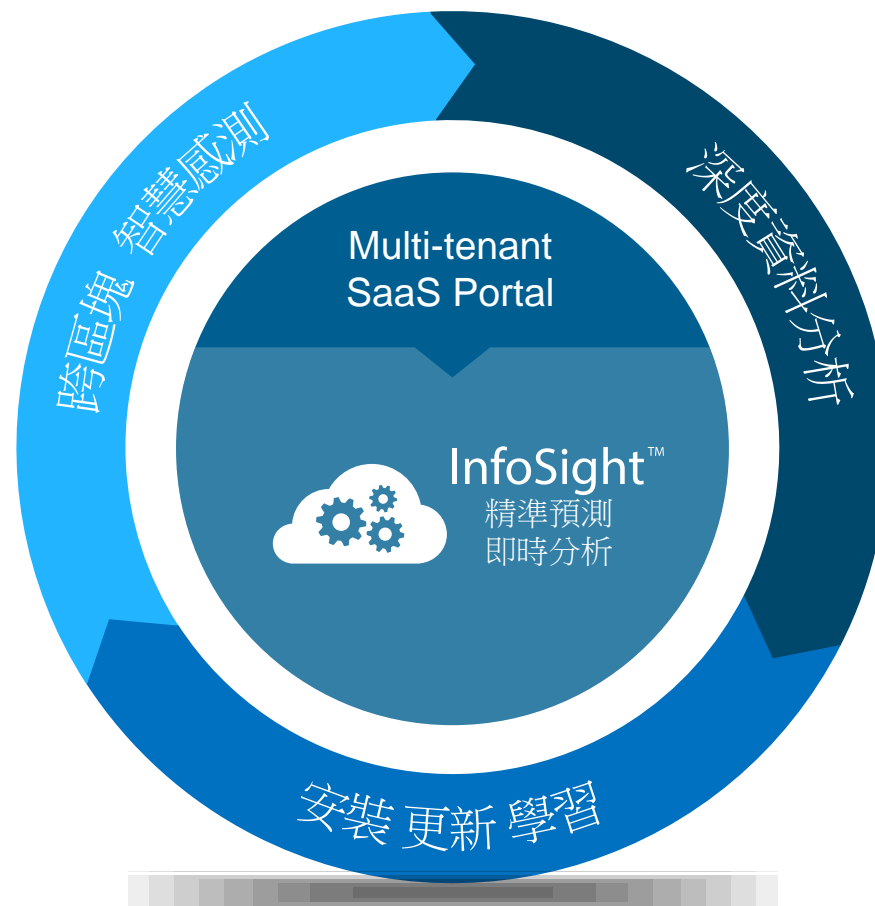
**InfoSight collects and analyzes more sensor data points every four hours,
than there are stars in our galaxy**



防止潛在問題及停機產生

根本原因快速分析

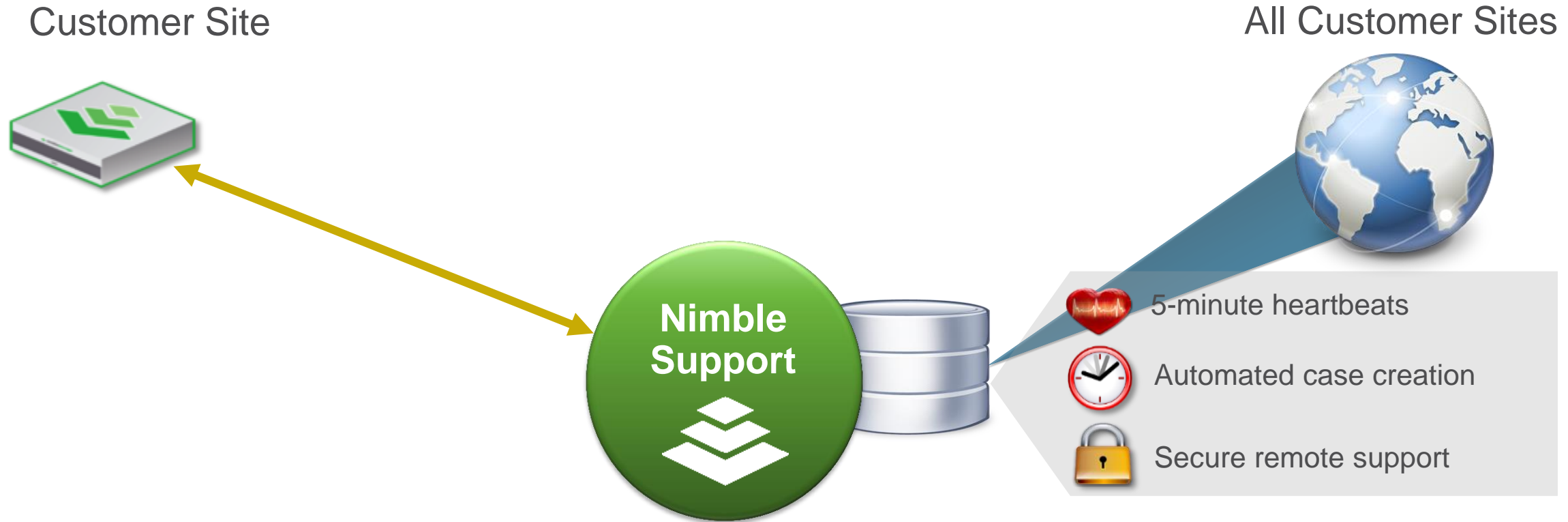
未來需求評估及計劃建議

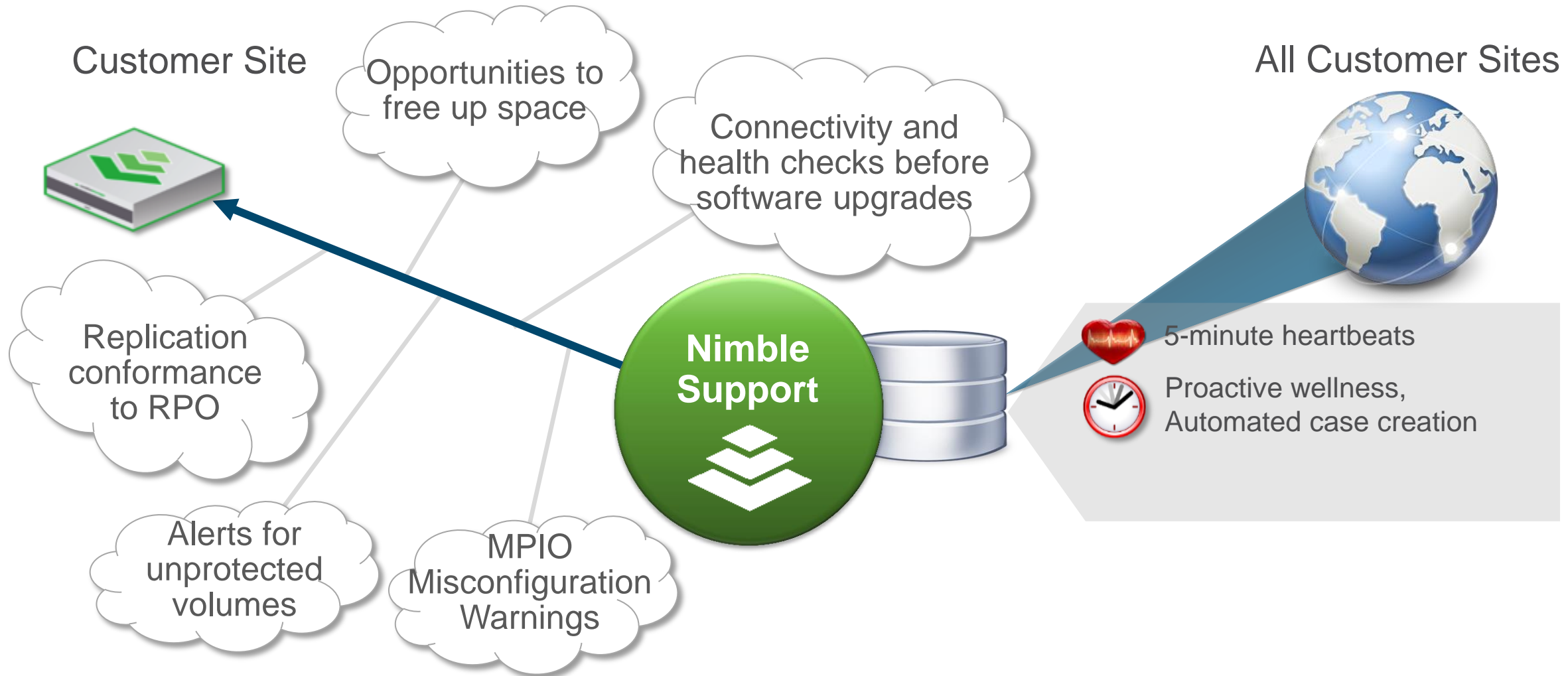


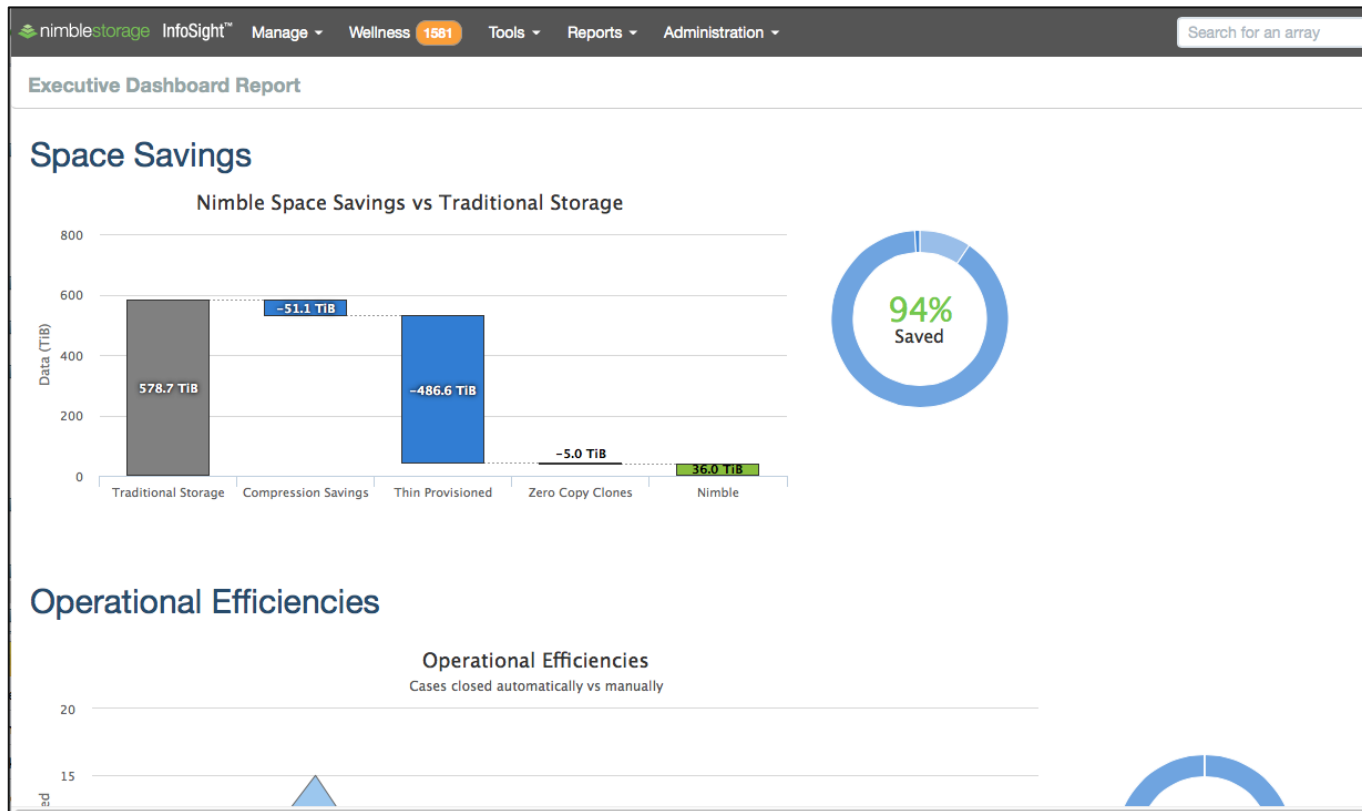
9/10 Issues detected before you do

>99.9997% Measured uptime

<1 minute Hold time to speak to level 3 engineer

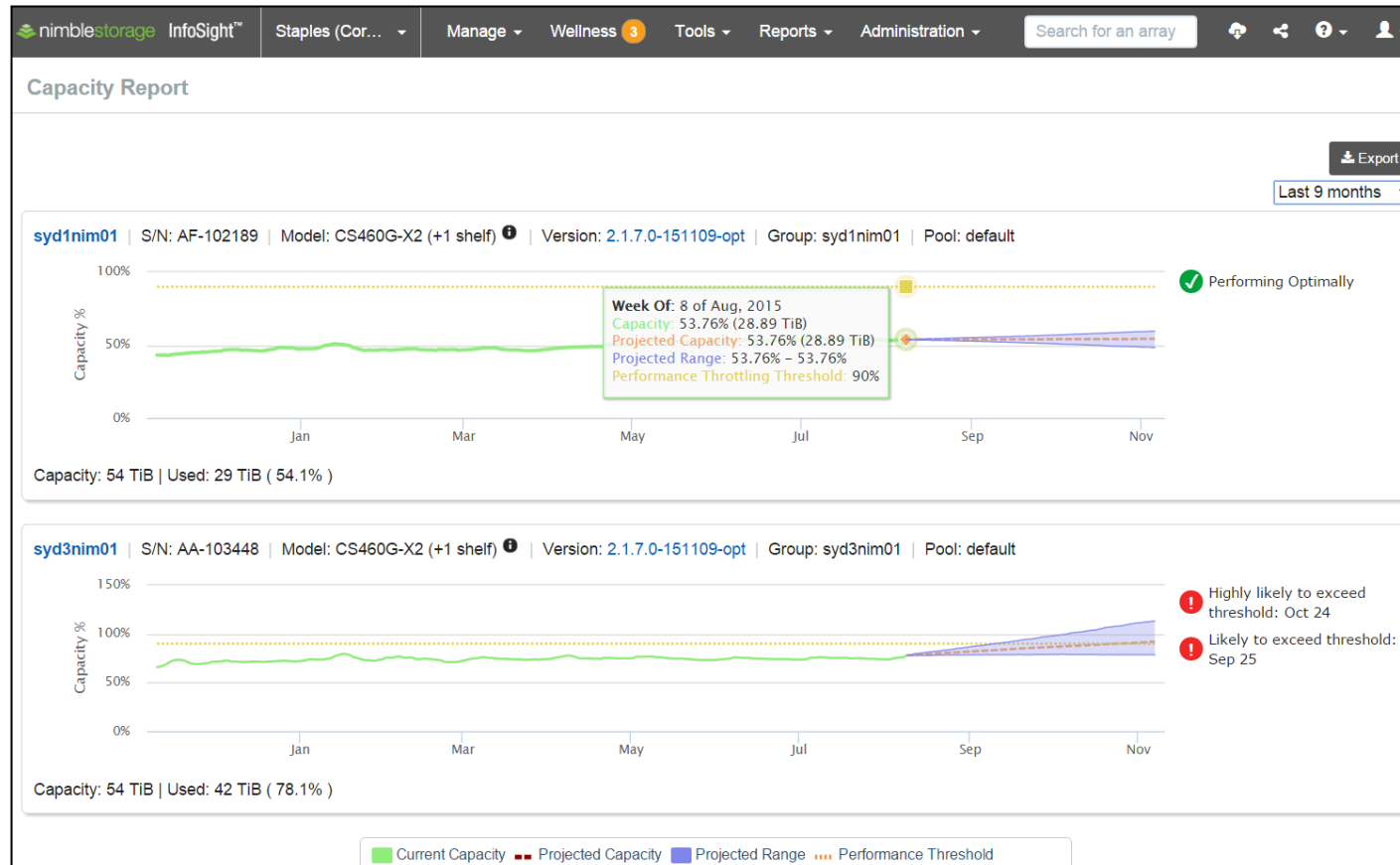






- **Executive dashboards give you peace-of-mind** that everything is running perfectly
- **Correlated visualization provides a use-case view** of what's happening across the “applications-to-storage” stack
- **Manage your global storage environment from anywhere**

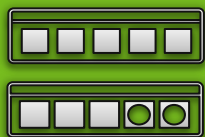
Complete visibility through the cloud to all information you need to maintain a resilient environment and ensure smooth operations



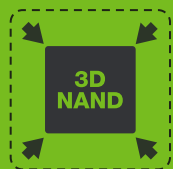
Key Insights

- 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?

無外加成本雲儲存功能



完美整合Hybrid及全閃存



高密度高可靠度設計可用空間達8.2PB



最有效率資料縮減技術



完整資料安全保護

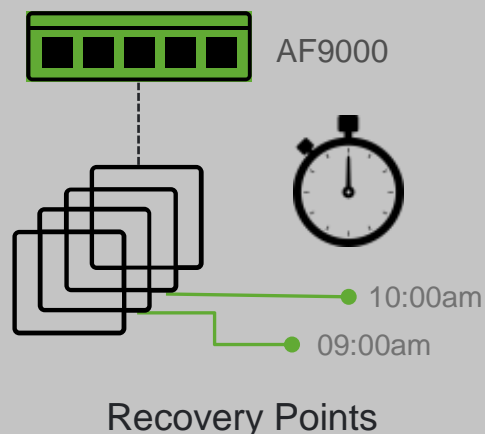
50% TCO

最佳成本效益比

• 千份以上快照

SmartSnap:

- Instantaneous, zero-copy, backups
- Efficient (thin, compressed & deduplicated)
- Near instantaneous restores
- WAN optimized w/ data integrity checks
- **No license required**



• 瞬間資料複製

SmartCopies:

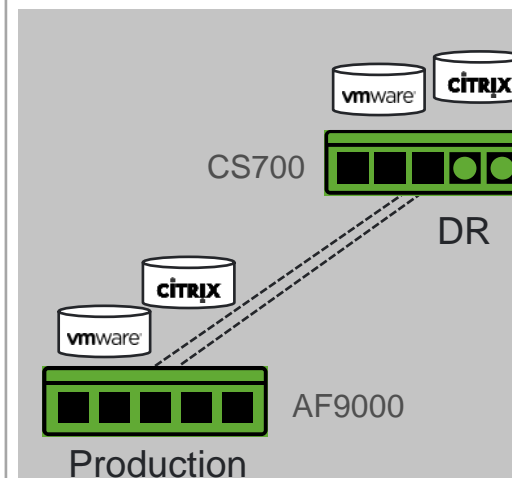
- Instantaneous
- Zero-data copy
- Efficient (thin, compressed & deduplicated)
- Used dev-test or backups
- **No license required**



• 無限制備援

SmartReplicate:

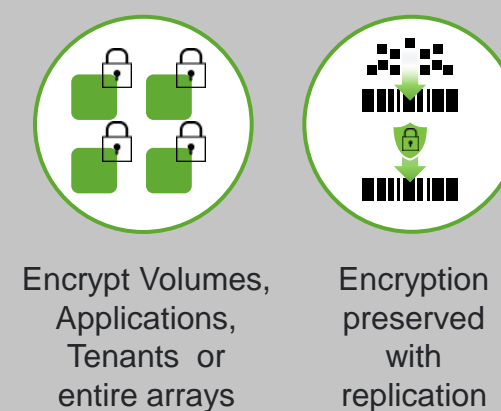
- Efficient (thin, block diffs+ data reduction)
- WAN optimized
- Secure (AES-256bit encryption)
- **No license required**



• 系統層級資料加密

SmartSecure:

- Flexible
- Secure WAN replication
- FIPS 140-2 certified
- **No license required**



Nimble Storage and OpenStack

- Founded in 2008 and
- Headquartered in San Jose, CA
- 1000+ employees, 6 offices
- OpenStack and community
 - OpenStack summit
 - OpenStack day
 - Silicon Valley OpenStack
- Customers focus on

• <https://www.openstack.org/storage>



Thanks!