CLOUD PARTNER PLAYBOOK

This interactive playbook is intended to help you maximize your opportunities as Cloud impacts today's marketplace and transforms your business.

This playbook is intended for Seagate partners only.

Why Cloud? Why Now?

Market Trends and Implications

The Role of Storage in Cloud Computing

Seagate's Cloud Focus

Opportunity Building

Resources

WHY CLOUD? WHY NOW?

- Why Cloud? Why Now?
- Market Trends and Implications
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- Resources

3 industry trends impacting your business—today and in the future

Storage is the foundation for Cloud. Position your business to meet this growing demand.

BYOD: How data is accessed.

"The rise of bring your own device (BYOD) is the single most radical shift in the economics of client computing for business since PCs invaded the workplace," Gartner August 28, 2012.

- 3/4 of all compute devices will be phones and tablets by 2015

How data is accessed, wherever, whenever, and whatever the device is changing where data is stored.

Cloud: Where data is stored

"Cloud-based applications will replace 14.49% of all enterprise IT spending in 2020," Deloitte Cloud Computing Forecast Change.

- By 2020 over 60% of the storage will be shipped to cloud applications

Where data is stored be it in public, private, or hybrid clouds is enabling organizations to focus less on managing data and more on how it is utilized.

Big Data: How data is utilized

"Collecting and analyzing broad categories of data is becoming equally — if not more — valuable than the product itself," Ken Oestreich, The Fountainhead Blog

- Digital information makes up 49% of an organization's total value. (Source: Symantec Survey commissioned by ReRez Research 2012)

How data is utilized by any organization of any size is the key to gaining a competitive edge.

What is your role in the shift to cloud?

As application workloads and storage capacity shift to cloud, traditional on-premise server and storage sales volume will continue to decline. Like the businesses you serve, your value-add must move away from simply managing IT infrastructure to enabling businesses with solutions that deliver greater access and utilization of data, and more time to focus on their core competency.

The opportunity is clear. Are you ready?

Seagate has the products, innovations and partners to help your business thrive. Read more to get started!

MARKET TRENDS AND IMPLICATIONS

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Cloud changes everything—on both sides of the sales conversation

Customers are moving workloads and applications to Cloud for all the right reasons:

- Cost savings – avoid infrastructure sprawl and related management requirements
- Greater agility and performance – scale quickly and leverage new resources on demand
- Security improvements – demand data integrity with aggressive service level agreements

Customers are finding Cloud addresses many of the IT challenges they're currently facing:

IT Challenge	Cloud Solution
Fixed or reduced budgets	Do more with available budgets while still supporting growth
Demand for new functionality	Agility enabled by rapid deployment
Support growth with stability	Elasticity that supports growth with resiliency
Over-provisioning of servers and storage	Multi-tenancy for safe co-existence
Data protection	Flexible business continuance (BC) and disaster recovery (DR)
Enhance customer service	Reduce time to market and enable new opportunities
Lack of mobility or flexibility	Enable anywhere access from different devices

These are real-world concerns you can share with customers...and they mean big business for you.

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Compelling trends to consider

The shift in computing models is causing the development of trends that can help customers achieve their needs:

Open source platforms deliver flexibility.	Consumerization of IT requires innovation.	Channel evolution toward Cloud services provides vendor selection options.
Large hosting facilities are leveraging open source platforms to provide ease of management, growth potential, and reduced acquisition costs.	Corporate IT infrastructures will need to support the 1 billion smartphones and 300 million tablets expected be sold yearly by 2015	New reseller models are emerging to provide Cloud services—whether hosted themselves or through partnerships.

Do your current solutions address these market trends?

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Implications for Seagate Partners

Market trends and shifts in customer computing models lead to real implications for our partners that want to address these new opportunities:

Competition is heating up.	Data is the new currency.	Customers are driving system design.
Regional system builders and ODMs are able to compete more directly with traditional OEM vendors.	By 2020, 60% of the world's storage capacity will be in a Cloud environment, enabling access by users and applications like never before.	Cloud service providers will be partnering with companies like Seagate to design the systems that run in their Cloud data centers.

The market is pointing toward suppliers like Seagate

By understanding how to optimize Cloud configurations and how infrastructure designs are evolving, Seagate partners can take advantage of these and other trends to identify immediate opportunities for long-term growth. Storage is a critical part of a long-term Cloud computing model success, and Seagate has the industry's widest breadth of storage products, solutions, and services for Cloud data centers, businesses, and consumers.

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THE ROLE OF STORAGE IN CLOUD COMPUTING

New models defined

At the core of all Cloud solutions is the integration of the three underlying IT functional pillars:

- Compute systems/servers
- Networking
- Storage

The movement to Cloud computing offers compelling benefits and opportunities for customers and partners, but it also comes with evolving infrastructure models:

Subscription-based service provided by Cloud services providers (CSP). Data and resources are shared by subscribers.

Internally-hosted Cloud environments that offer greater security, but require in-house resource management and planning.

Combination of Cloud models, leveraging private Cloud for sensitive data or mission-critical applications, and using public Cloud for workloads requiring greater scale.

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Cloud customers may be leveraging one or several service delivery models:

SaaS Software as a Service	PaaS Platform as a Service	IaaS Infrastructure as a Service
Private or corporate end-user focused solution providing hosting, delivery, and management of applications. (Messaging/calendar; CRM/SFA apps)	Application-development focused, providing the servers, storage and development tools needed to create applications. (Application engines and development)	Most basic version of Cloud, providing all compute, storage and networking required to run applications, store data and manage user access. (Hosting and grid providers)

These are the market solutions customers are seeing from your competitors.
How are you differentiating your business? Do it with Cloud storage solutions.

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The criticality of storage in Cloud

As workloads shift to Cloud, investment in on-premise server resources will decrease over the next three years[1]. That shines a bright spotlight on the importance of storage in Cloud.

Cloud storage will account for:

- > 39% of total enterprise drive capacity shipped by 2013
- > 60% of total storage capacity shipped by 2020 (more than doubling current volumes)

The implications for storage suppliers and their reseller partners are compelling:

Application workloads drive new storage requirements.	Cloud workloads demand more from storage devices.	Cloud value chain disrupts traditional IT channel.
Applications designed for Cloud differ than those designed for a traditional server-client architecture. Storage devices and systems must evolve to address a new focus on the software stack.	Storage devices are working harder to manage increases in read/write transactions. Cloud environments may also be more harsh than traditional data centers: remote locations may not benefit from stable environmental conditions or regular service.	As more businesses and consumers migrate to public, private, and hybrid Clouds, resellers are forced to adjust their business models to survive. At the same time, the opportunity for builders in the channel shifts from selling hardware and software to business end users to selling solutions to CSPs.

[1] AlphaWise, Morgan Stanley Research 2011

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Considerations for Cloud storage

As a Seagate partner, you are familiar with traditional enterprise storage and the applications they support.

Availability	• Device reliability and endurance or duty cycle without loss of performance or capacity • Annualized failure rate (AFR) or mean time between failures (MTBF) • Speed of drive rebuild or proactive copy • Predictive analysis for early fault detection and isolation
Energy savings	• Low power modes for intelligent power management (IPM) measured on a protected capacity per watt for idle or inactive data • IOPS, bandwidth or response time per watt of energy to do work
Environmental	• Tolerance for deployment at different altitudes, temperature and humidity conditions where Cloud and managed service providers have high-density data centers
Functionality	• Self-Encrypting Drives (SEDs) for security, compliance and rapid decommissioning with secure erase • Support for different block sizes, including standard 512 bytes, 520 bytes for ANSI T10 DIF, and 4K pages to support ultra-large capacities
Interfaces	• Dual-port 6Gb/s and 12Gb/s SAS, SATA and Fibre Channel (FC)
Packaging	• 3.5-inch large form factor (LFF) • 2.5-inch small form factor (SFF) • HDD and SSD to support high density 1U, 2U, along with dense 4U 48 and 4U 60 drive configurations • (To counter the effects of many rotating HDDs in a dense environment, robust packaging or enclosures should be used to dampen vibration and potential performance impacts.)
Performance	• IOPS rate of activity of work being done (such as reads and writes of a given size for accessing files, doing transactions, database or other operations) • Latency or response time (the speed at which work gets done or amount of time spent waiting) • Bandwidth or throughput (amount of data moved in a given amount of time). If many smaller IOPS exist, bandwidth can be lower. A smaller number of larger IOPS results in a larger bandwidth.
Retirement	• Compliance with governmental regulations including RoHS • Secure erase and destruction of digital data
Security	• SEDs to off-load storage systems and compute servers • Protection against accidental loss when removed for maintenance or replacement. • Fast, secure digital shredding or erasure of devices for disposal

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Storage tiers apply to Cloud storage

Considering the changing application workload models we've illustrated, data center managers are leveraging custom-built storage resources that apply to specific Cloud storage scenarios.

In one scenario, if cost was the most important factor in deployment, high-capacity, low-performance storage could meet financial goals. Unfortunately, some applications would result in performance bottlenecks. Conversely, ultra-fast NAND flash SSDs would result in an exceptionally responsive system, but the cost to support large-scale amounts of data, using just SSDs, would simply be prohibitive.

The best solution is to use different tiers of storage devices targeted to meet specific requirements. ROI and cost savings would be measured by the infrastructure's ability to meet requisite service levels, as well as performance, availability, capacity and energy efficiency measurements.

	Cloud Compute		Cloud Storage	
	Tier 0	Tier 1	Tier 2	Tier 3
Customer Cloud Use	System resources Log, journal, paging, meta data, or index files	Applications Email, database, video, virtualization, virtual desktop, web server	Bulk Storage File server, data ware-housing, mining, analytics, backup, disaster recovery	Archive Archive Backup Store copies for long term data retention
Data Demands	• Highest performance • Highest availability • Lowest latency • Lowest data footprint	• High performance • High availability • Low latency • Low data footprint	• Good performance • High data footprint • Low power • Low cost per TB	• Highest data footprint • Lowest power • Lowest cost per TB
Storage Metrics to Consider	• Cost per IOPS • Activity per watt	• Cost per IOPS • Activity per watt	• Cost per TB • Cost per Watt	• Cost per TB • Cost per Watt
Solution	• High Performance Solid State Drives (SSD)	• High Performance 15,000 RPM and 10,000 RPM Hard Disk Drives (HDD)	• High Capacity & Low Power 7,200 RPM Hard Disk Drives (HDD)	• (Currently supported by tape drive industry)

More resources:

Tiered Storage: Enabling and Advancing Cloud Capabilities

Cloud Compute and Cloud Storage Architectures

Choosing Enterprise Drives for Cloud Applications

SEAGATE'S CLOUD FOCUS

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Cloud is a strategic imperative

Cloud computing isn't just a new computing model; it fundamentally changes the way most organizations go to market—and that includes companies like Seagate and our partner ecosystem.

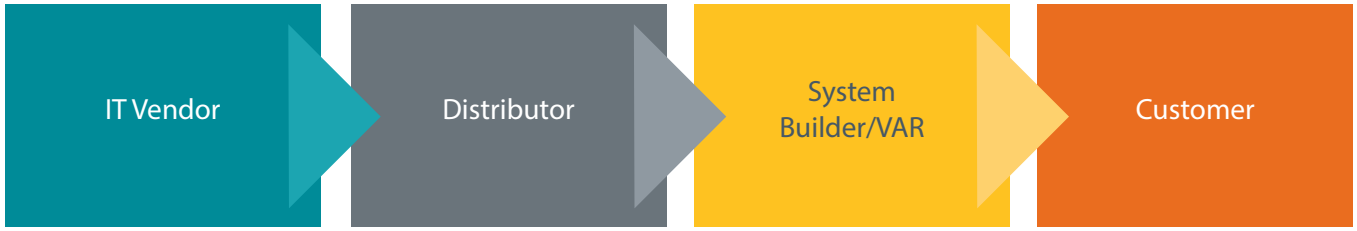
Consider these channel metrics:

- 1/3 of all solution providers plan to change their business models in the next three years.
- Solution providers are going directly to Cloud service providers at the expense of distributors
- Distributors' business models are adjusting to be "Cloud brokers," offering solutions from many vendors, as well as providing sales, marketing and business development assistance to resellers.

Cloud brings strategic changes in the IT distribution model

Today's hardware-centric channel is well defined with each member of the channel adding value to hardware and software components from the vendor.

Traditional Hardware Centric Channel Model



The Cloud centric channel is similar in that Cloud service providers are at the core of Cloud offerings. The Cloud-centric channel also includes resellers and aggregators that add value to the Cloud model in terms of services and integration with existing infrastructures.

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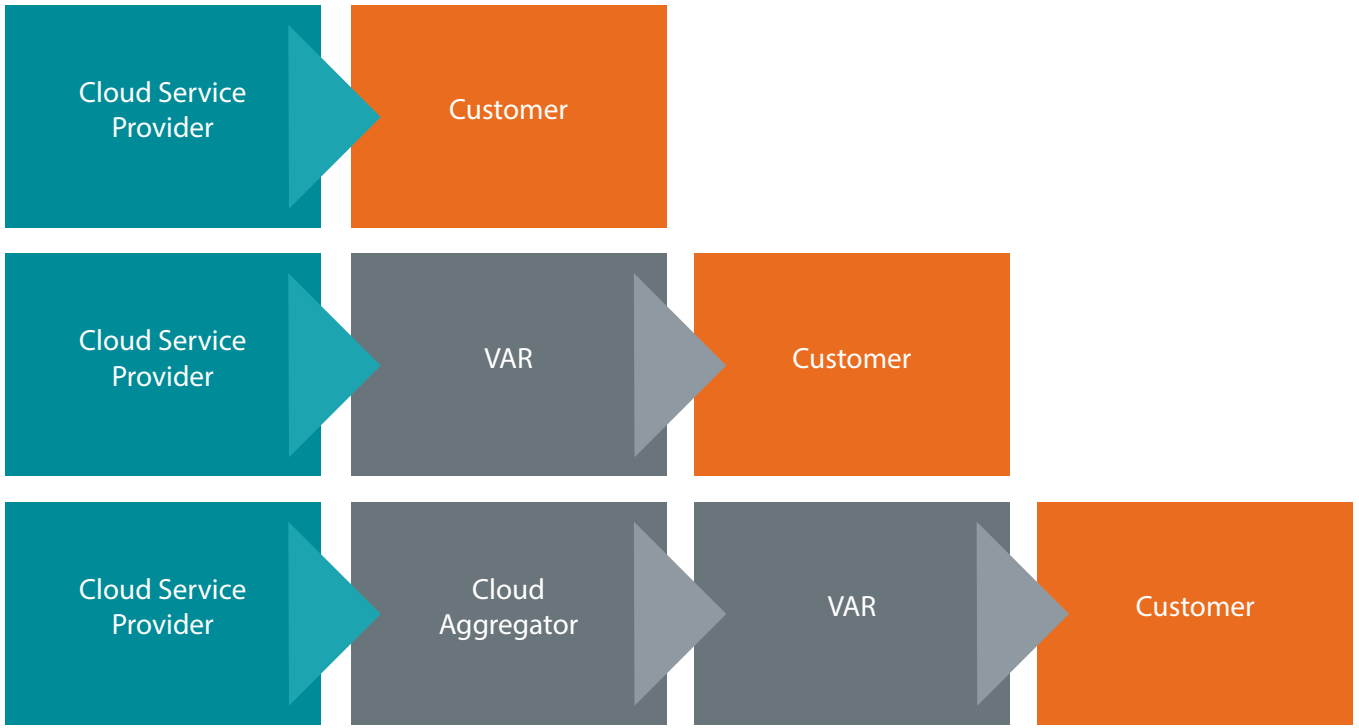
New Cloud Centric Models

Cloud service providers can find early success by developing their offerings on systems and technologies that are purpose-built for the unique application and workflow requirements of Cloud computing.



It's not too late to carve out your role in this dynamic Cloud centric distribution model.

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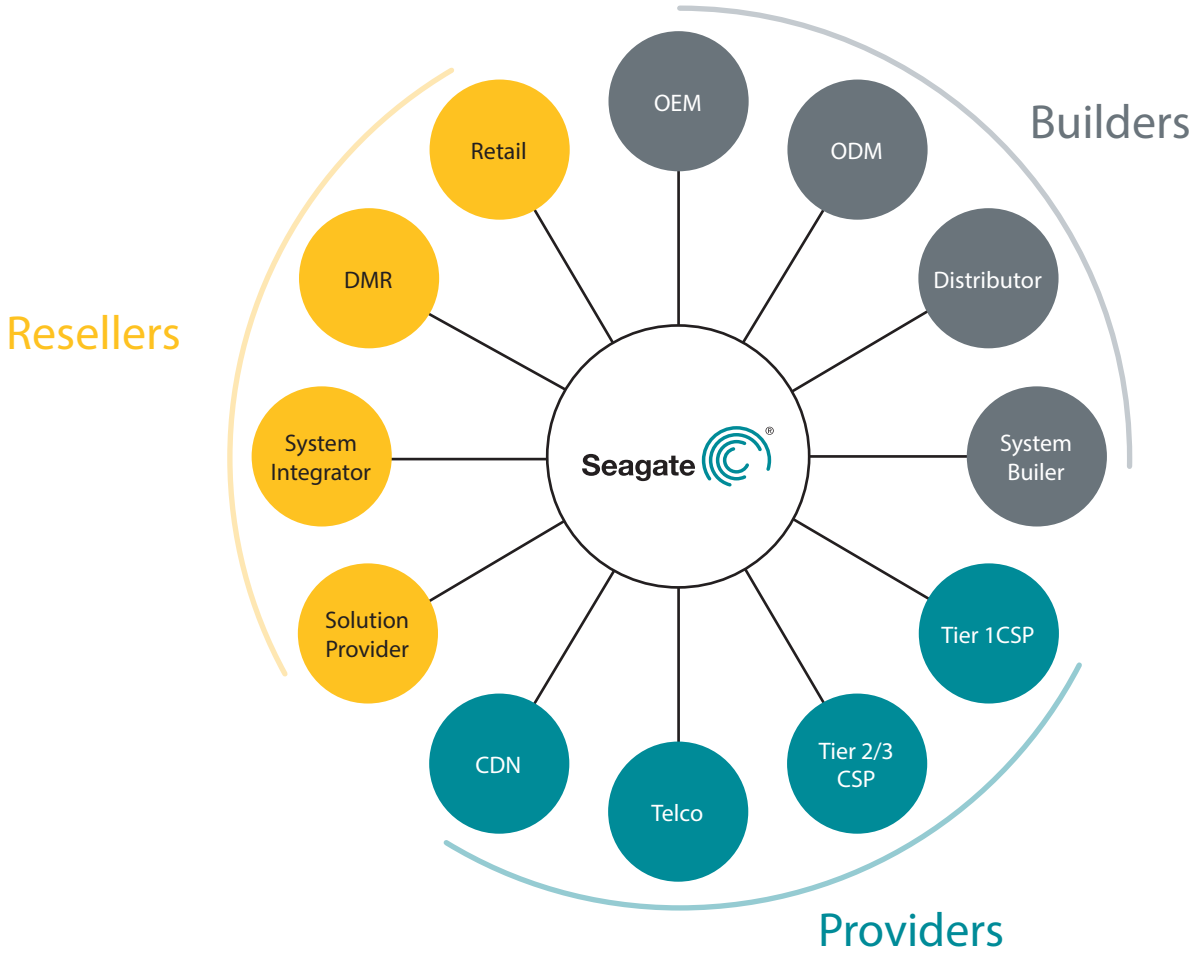
The Seagate Cloud Partner ecosystem

Managed service providers and Cloud data centers manage their infrastructure differently than traditional computing managers. Their management, security and availability requirements are different, and their expectations for speed, performance and recoverability are different as well.

Seagate is going to market with an extended network of partners that together serve the Cloud market for today and the foreseeable future:



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Category	Builders	Providers	Resellers
Partner Definition	System Builders (OEMs, ODMs, Distributors)	Cloud Service Providers	Resellers, Solution Providers, Integrators, DMRs
Partner Value	**Differentiation** Designing, integrating, marketing and selling Cloud optimized solutions to new enterprise customers (CSPs).	**Customization** Choosing the right storage or mix of storage for their application.	**Transformation** Transitioning their business model from hardware & software to services.
Considerations	• How are you taking advantage of the growth of Cloud? • How are you supporting CSPs through solution customization and support flexibility?	• Did you know that your choice in storage device has a direct effect on your data center's profitability? • How can your storage choice drive application reliability and speed access?	• How is Cloud impacting your business model? • Are you developing Cloud-complementary solutions to help drive additional services revenue?

Seagate Cloud Builder Alliance

Seagate Cloud Builder Alliance partners specialize in Cloud server and storage design and integration, that have a vision, strategy, and solutions for Cloud.

The Seagate Partner Program Cloud Builder Alliance enables select partners to expand their Cloud business through leveraging Seagate's market and technology insight and engaging in collaborative:

- Solution Development / Reference Designs
- PR & Marketing Initiatives / Campaigns
- Strategic Direction / Business Planning

Increasingly, Cloud service providers look to customized solutions to equip their data centers and deliver the level of service their end user customers' demand. From Facebook's Open Compute Platform, to Netflix's Open Compute CDN solution, Cloud service providers seek builders who can deliver custom open architecture solutions that meet their capacity, performance, power, and workload requirements. Seagate works with our Cloud Builder Alliance Partners to deliver the latest innovations in Cloud server and storage solutions.

At the same time, reseller partners look to expand their Cloud business by offering their own Cloud services and/or designing, installing, and supporting private and hybrid Cloud solutions for small, medium, and large enterprise customers. Seagate's Cloud Builder Alliance partners are a valuable resource for resellers that want to offer solutions customized to their end user customer's needs.

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Solving customer Cloud storage challenges

Seagate is the leader in enterprise storage, delivering the right products for the right Cloud applications:

Products	Innovation	Partners
Choosing the right storage device or mix of storage devices per Cloud application is critical to maximizing the efficiency of the Cloud data center, while also delivering to Service Level Agreements.	Seagate is focused on innovations that enable Cloud service providers to experience an overall lower total cost of ownership (TCO) through the solutions they deploy.	The storage device is only one piece of the solution. Seagate is building an ecosystem of builders, providers, and resellers working together to deliver a more cost effective, secure, and scalable Cloud.

Seagate Cloud-ready products

Seagate has the industry's widest breadth of enterprise storage devices for Cloud data centers. From mission critical solid state drives and hard disk drives for Cloud compute to high-capacity enterprise drives for Cloud storage, Seagate can help you choose the right storage device for your Cloud application.

Products	Innovation	Partners

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Cloud Compute Drives

Ideal for Cloud data center customers with servers and storage systems requiring the highest level of performance in compute intensive applications including content delivery networks, finance/banking, e-commerce,and HD video distribution.

Enterprise Performance Solid State Drives

Ideal for log, journal, paging, metadata and index files.

- Highest performance
- Highest availability
- Lowest latency
- Capacities up to 800GB

Learn more about Pulsar Drives

Enteprise Performance, 2.5-inch 15K-RPM HDD

Ideal for email, database, video, virtualization, virtual desktop and web server applications.

- High performance
- High availability
- Low latency
- Capacities up to 300 GB

Learn more about Savvio 15K Drives

Enterprise Performance, 2.5-inch 10K HDD

Ideal for email, database, video, virtualization, virtual desktop and web server applications.

- High performance
- High availability
- Low latency
- Capacities up to 900 GB

Learn more about Savvio 10K Drives

Cloud Storage Drives

Ideal for Cloud data center customers with servers and storage systems that require the lowest power with the highest capacities for general-purpose servers and bulk storage applications like email, backup and disaster recovery.

Enterprise Capacity, 2.5-inch 7200-RPM HDD

File server, data warehousing, mining, analytics, backup, disaster recovery.

- Good performance
- Low power
- Low cost/GB
- Capacities up to 1TB

Learn more about Constellation Drives

Enterprise Capacity, 3.5-inch 7200 RPM HDD

File server, data warehousing, mining, analytics, backup, disaster recovery.

- Highest Capacity Enterprise HDD
- High data integrity with 6Gb/s SAS and SATA interfaces
- Capacities up to 4TB for 152TB/sq ft.

Learn more about Constellation ES Drives

Enterprise Value, Lowest Power 3.5-inch 7200 RPM HDD

File storage, backup, disaster recovery, and archive

- Lowest cost/GB
- Lowest power consumption
- Capacities up to 3TB

Learn more about Constellation CS Drives

Seagate continues to develop innovative enterprise Cloud solutions. Visit our Cloud portal online to learn about our newest products.

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Seagate Cloud Data Center Drive Comparison

	Tier 0 & 1 CLOUD COMPUTE			Tier 2 CLOUD STORAGE		
	Enterprise Performance SSD	Enterprise Performance 15K	Enterprise Performance 10K	Enterprise Capacity 2.5	Enterprise Capacity 3.5	Enterprise Value 3.5
	Pulsar.2	Savvio 15K	Savvio 10K	Constellation	Constellation ES	Constellation CS
CONFIGURATION						
Capacity	800GB, 400GB, 200GB, 100GB	300GB, 146GB	900GB, 600GB, 450GB, 300GB	1TB, 500GB, 250GB	4TB, 3TB, 2TB, 1TB, 500GB	3TB, 2TB, 1TB
Spindle Speed (RPM)	N/A	15000	10000	7200	7200	7200
Form Factor	2.5"	2.5"	2.5"	2.5"	3.5"	3.5"
FEATURES						
Cache, Multisegmented (MB)	---	---	---	64	up to 128	64
Interface Access Speed (Gb/s)	6Gb/s SAS & SATA	6Gb/s SAS	6Gb/s SAS	6Gb/s SAS & SATA	6Gb/s SAS & SATA	6Gb/s SATA
Instant Secure Erase (ISE)	Yes	Yes	Yes	Yes	Yes	Yes
Self Encrypting Drives (SED)	AES-256	AES-128	AES-256	AES-128	AES-256	N/A
SED FIPS-2 Certification	Yes	Yes	Yes	Yes	Yes	N/A
PowerChoice™	N/A	Yes	N/A	Yes	Yes	Yes
RAID Rebuild	N/A	N/A	Yes	Yes	Yes	Yes

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	Tier 0 & 1 CLOUD COMPUTE			Tier 2 CLOUD STORAGE		
	Enterprise Performance SSD	Enterprise Performance 15K	Enterprise Performance 10K	Enterprise Capacity 2.5	Enterprise Capacity 3.5	Enterprise Value 3.5
	Pulsar.2	Savvio 15K	Savvio 10K	Constellation	Constellation ES	Constellation CS
RELIABILITY & DATA INTEGRITY						
Mean Time Between Failures (Hours)	2.0 million	2.0 million	2.0 million	1.4 million	1.4 million	800K
Nonrecoverable Read Errors per Bits Read	1 sector per 10E16	1 sector per 10E16	1 sector per 10E16	1 sector per 10E15	1 sector per 10E15	1 sector per 10E14
Power-on Hours per Year	8760	8760	8760	8760	8760	8760
Bytes per Sector	N/A	512, 520, 528	512, 520, 528	512, 520, 528 (SAS) 512 (SATA)	512, 520, 528 (SAS) 512 (SATA)	512e (SATA)
Limited Warranty (Years)	5	5	5	5	5	3
PERFORMANCE						
Sustained Transfer Rate (MB/s)	up to 370	up to 202	up to 204	up to 115	up to 175	up to 180
Seek Time (Avg Read/ Write) ms	N/A	2.6/3.1 ms	3.4/4.2	8.5/9.5	8.5/9.5	8.5/9.5
Random Read IOPs	48,000 (SAS) 40,000 (SATA)	390	295	170	150	140
RV Tolerance	N/A	28 rad/sec2 to 1,800 Hz	28 rad/sec2 to 1,800 Hz	16 rad/sec2 to 1,800 Hz	12.5 rad/sec2 to 1,500 Hz	12.5 rad/sec2 to 1,500 Hz

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OPPORTUNITY BUILDING

Seagate will help partners discover, develop and deliver Cloud solutions through a broad portfolio of partner support resources.

Business Planning	Technology/product roadmap, research and strategy to focus on opportunities for growth in Cloud.
Product Training	Cloud sales training for builders, providers, and resellers that equips them with the tools to market and sell the right storage for the right Cloud application.
Technical Tools	Cloud technical guides for builders and providers that equip them to design solutions that maximize performance and minimize costs.
Sales and Marketing Tools	Exclusive content, digital assets and resources for builders and resellers to leverage in Cloud campaigns.

RESOURCES

Seagate Cloud Solutions Center

Seagate Partner Program Portal

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