



High Availability Datacenter Using SolidFire

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SOLIDFIRE



All-Flash Storage for the
Next Generation Data Center

Bringing Flash to the Data Center

	Disk	Flash
Read Characteristics	<ul style="list-style-type: none">• Awful Random Reads• Good Sequential Reads	<ul style="list-style-type: none">• Awesome Random Reads• Good Sequential Reads
Random Reads (IOPs)	<ul style="list-style-type: none">• 150	<ul style="list-style-type: none">• 10,000 +
Latency (us)	<ul style="list-style-type: none">• 5,000 – 20,000	<ul style="list-style-type: none">• 200 – 500
Active / Standby Power (w)	<ul style="list-style-type: none">• 15 / 10	<ul style="list-style-type: none">• 5 – 0.05

Why Is
Flash Alone
Not
Enough?

Struggled with: Cost – Reliability – Density

Raw Flash Performance

Scarce resource only
for select workloads



Flash Performance + Guaranteed
(QoS) Control

Enabling technology of the Next
Generation Data Center

A Massive Transformation in IT Delivery

(from a Siloed to Shared Infrastructure)

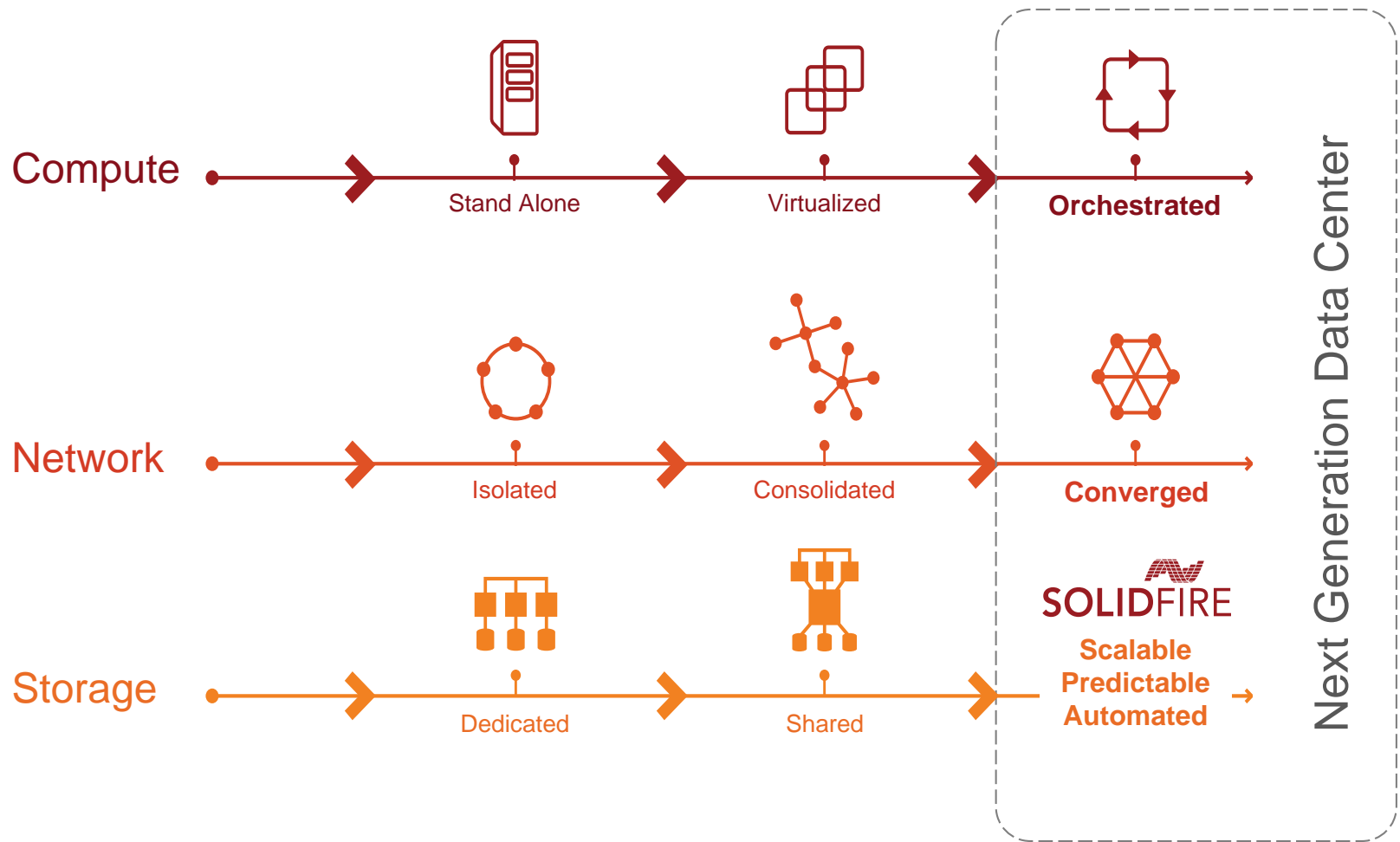
Isolated Workloads → Mixed Workloads

Manual Provisioning → Automated

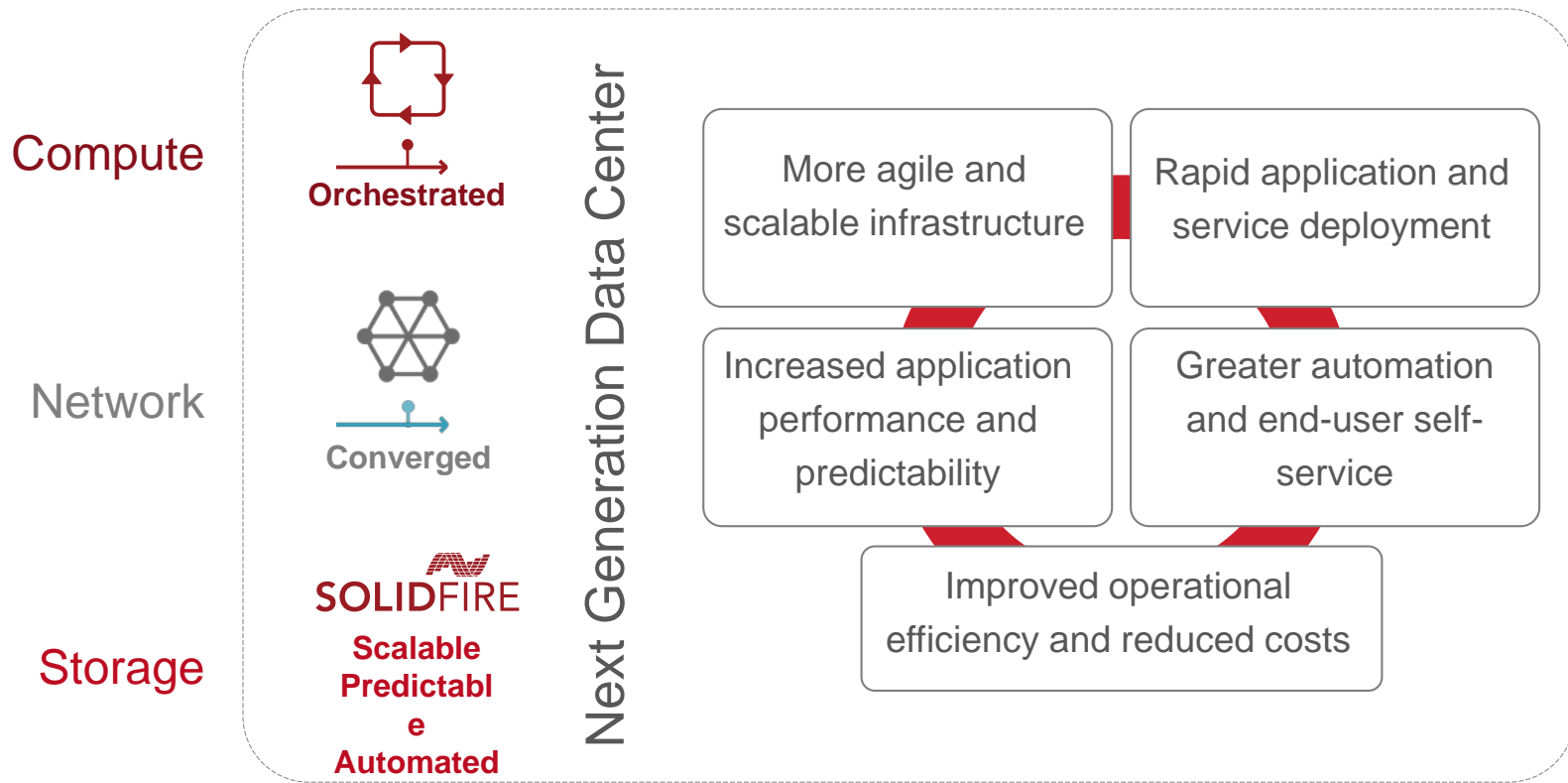
Project Based → Self Service

Rigid Infrastructure → Agile Resources

Evolution of the Data Center



The Next Generation Data Center



SolidFire: Purpose built for the Next Generation Data Center



>Consolidate Tier 1 and Tier 2 Applications
Manage Capacity and Performance Independently

>Enable Complete Storage Automation
Native REST-based API, deep OpenStack integration

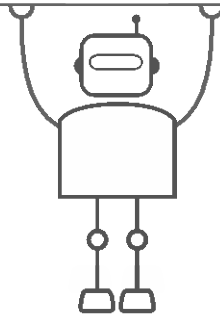
>Scale-Out Investment Protection
100% Compatibility Guarantee, mix / match any nodes

Guaranteed Storage Performance

Powering the most demanding data centers in the world



Service Providers



Large Enterprise

Enterprise Outcomes



SOLIDFIRE

Consolidation
Automation
Scale

Guaranteed Storage Performance

- Rapidly respond to business and application demands
- Improve Productivity
- Reduce Complexity and Cost



Endicia Case Study

Mitul Patel

IT Manager and Chief
Infrastructure Architect

Our Mission

To deliver value by creating breakthrough shipping technologies and services that help global businesses, small and big, reach their customers, and thrive.

Innovation-Driven Market Leader

The Back Story

- Technology firm **founded in 1987** by Stanford engineers
- **Strategic** technology investment for Newell Rubbermaid in 2007
- Over **200 partners**, 200 employees
- **14 years** as USPS[®]-approved PC postage software partner
- Customers have printed >\$12B in cumulative postage

The First Company to...

- Prototype PC Postage for the USPS (1991)
- Integrate parcel insurance, international customs forms, APO/FPO forms
- Offer electronic refunds
- Provide electronic delivery & signature confirmation
- Support USPS regional rate & critical mail solutions

Sources: US Postal Service™ data, 2005-2014; Endicia financial data, 2005-2014.



Key Endicia Shipping Markets

Like Our Customers, Our Software is Not “One Size Fits All”



Passion Purveyor

Profile

- 1-20 packages/day
- SOHO, SMB

Shipping Needs

- Basic USPS shipping
- Simplification of shipping complexities

Service Needs

- Quick to get started
- Access to best USPS rates

Benefits Sought

- Ease of use
- Time savings
- Cost reduction



Online Professional Seller

- 20-250+ packages/day
- ~2-20 employees
- USPS shippers

- Pick & pack
- Batch print

- Easy file & database access
- Ecommerce platform integration

- Systems integration
- Cost reduction
- Efficiency



Professional Warehouse Shipper

- 250-500+ packages/day
- Use free private carrier software

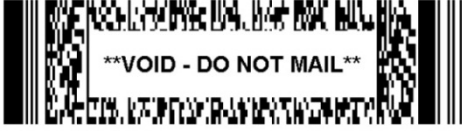




- Multi-feature
- Rate comparisons

- Coexist with UPS, FedEx
- WMS integration

- High speed, high volume
- Cost reduction
- Choice

At the Core:

Software for All-in-one Shipping Labels

P	US POSTAGE AND FEES PAID * SAMPLE * Mailed from ZIP 94306 Regional Rate Box A, Priority Mail Commercial Base Price
	 **VOID - DO NOT MAIL** TEST SAMPLE 071V00722664
PRIORITY MAIL 2-DAY™	
Endicia 385 Sherman Ave Palo Alto, CA 94306-1864	C033 0023
	
SHIP TO: NEWELL RUBBERMAID 3 GLENLAKE PKWY NE ATLANTA GA 30328-3447	
USPS TRACKING #	
	
9405 5102 0083 0930 2103 49	
	

← Prepaid labels
Hidden postage amounts

← All USPS mail classes

← Customizable labels

← Verified addresses

← Electronic delivery &
signature confirmation

Supporting All USPS Products



P	US POSTAGE AND FEES PAID * SAMPLE * Mailed from ZIP 94306 Regional Rate Box A, Priority Mail Commercial Base Price
	TEST SAMPLE 071V00722664
PRIORITY MAIL 2-DAY™	
Endicia 385 Sherman Ave Palo Alto, CA 94306-1864	C033 0023
SHIP TO: NEWELL RUBBERMAID 3 GLENLAKE PKWY NE ATLANTA GA 30328-3447	
USPS TRACKING #	
9405 5102 0088 2874 6101 50	

F	\$3.14 US POSTAGE * SAMPLE * Mailed from ZIP 94306 12 oz First-Class Package Rate Commercial Base Price
	endicia.com 071V00591199
USPS FIRST-CLASS PKG	
DYMO Endicia 385 Sherman Ave Palo Alto, CA 94306-1864	0000
SHIP TO: USPS Headquarters 475 L'Enfant Plz SW Ste 4000Nb Washington, DC 20260-4000	
USPS CERTIFIED MAIL	
9407 1102 0082 8100 7046 06	

P	US POSTAGE AND FEES PAID * SAMPLE * Mailed from ZIP 94306 1 lb Priority Mail Rate Zone 8 Commercial Base Price
	endicia.com 071V00591199
USPS PRIORITY MAIL®	
DYMO Endicia 385 Sherman Ave Palo Alto, CA 94306-1864	
OPEN AND DISTRIBUTE AT: SCF WASHINGTON MD 207	
MAIL CLASS ENCLOSED: STANDARD MAIL LETTERS	
USPS SCAN ON ARRIVAL	
9412 3102 0088 1100 7035 49	

USPS TRACKING #	\$4.25 US POSTAGE * SAMPLE * Mailed from ZIP 94301 Critical Mail Flats Rate Commercial Plus Pricing
	endicia.com 071V00591199
9405 5102 0079 3100 8111 21	
ELECTRONIC RATE APPROVED # 200793	
CRITICAL MAIL™ FLAT	
	0000
DYMO Endicia 385 Sherman Ave Palo Alto, CA 94306-1864	
US Postal Service 42 Church St Volvantown, CT 06384-9998	

E	\$9.32 US POSTAGE * SAMPLE * Mailed from ZIP 94306 2 lbs Parcel Select Rate Zone 8 Commercial Base Price
	endicia.com 071V00591199
USPS PARCEL SELECT	
DYMO Endicia 385 Sherman Ave Palo Alto, CA 94306-1864	0000
SHIP TO: USPS Headquarters 475 L'Enfant Plz SW Ste 4000Nb Washington, DC 20260-4000	
USPS TRACKING #	
9461 2102 0088 3100 7208 15	

E	US POSTAGE AND FEES PAID * SAMPLE * Mailed from ZIP 94306 15 lbs Media Mail Rate Commercial Base Price
	endicia.com 071V00591199
USPS MEDIA MAIL	
DYMO Endicia 385 Sherman Ave Palo Alto, CA 94306-1864	0003
SHIP TO: USPS Headquarters 475 L'Enfant Plz SW Ste 4000Nb Washington, DC 20260-4000	
USPS TRACKING #	
9449 0102 0079 3101 5567 16	

E	US POSTAGE AND FEES PAID * SAMPLE * Mailed from ZIP 94306 Flat Rate Box, PM Express Commercial Base Price
	endicia.com 071V00722664
PRIORITY MAIL EXPRESS 1-DAY™	
ENDICIA 385 SHERMAN AVE PALO ALTO, CA 94306-1864	(650) 321-2640 C033 0007
NO SUNDAY OR HOLIDAY DELIVERY WAIVER OF SIGNATURE	
SHIP TO: NEWELL RUBBERMAID 3 GLENLAKE PKWY NE ATLANTA GA 30328-3447	
USPS TRACKING #	
9470 1102 0088 3891 1476 49	
POSTAL USE ONLY	
Date In: Mo. Day Year Time In: <input type="checkbox"/> AM <input type="checkbox"/> PM	
Day of Delivery: <input type="checkbox"/> Next <input type="checkbox"/> Second <input type="checkbox"/> 12 Noon <input type="checkbox"/> 3 PM	
Return Receipt <input type="checkbox"/> COD <input type="checkbox"/> Additional Insurance <input type="checkbox"/>	

E	US POSTAGE AND FEES PAID * SAMPLE * Mailed from ZIP 94306 1 lb PM Express Rate Zone 8 Commercial Base Price
	endicia.com 071V00722664
PRIORITY MAIL EXPRESS™	
FROM: (Required) ENDICIA 385 SHERMAN AVE PALO ALTO, CA 94306-1864	0023
HOLD FOR PICKUP	
HOLD FOR: (Contact Required) Name & Address of Recipient (if Purposes Only) USPS HEADQUARTERS POSTMASTER GENERAL CHIEF EXECUTIVE OFCR 475 LENFANT PLZ SW STE 4000NB WASHINGTON DC 20260-0010	
PICKUP LOCATION	
At Post Office: LENFANT PLAZA Street Address: 470 LENFANT PLZ SW STE 604 City: WASHINGTON State: DC ZIP + 4: 20004-9095	
ZIP - PRIORITY MAIL EXPRESS	
9405 5102 0079 3794 4579 19	
POSTAL USE ONLY	
Date In: Month Day Year Time In: <input type="checkbox"/> AM <input type="checkbox"/> PM	
Pickup Availability Date: / / <input type="checkbox"/> 10 AM <input type="checkbox"/> 12 Noon <input type="checkbox"/> 3 PM	
Return Receipt <input type="checkbox"/> COD <input type="checkbox"/> Additional Insurance <input type="checkbox"/>	



Marketplace Integrations

Introducing seamless and direct integrations with the Amazon Marketplace and eBay store

Customers can:

- Connect Amazon and/or eBay stores to their Endicia client
- Import and view order information
- Print shipping labels, including eBay GSP labels
- Automatically post-back tracking information to Amazon and/or eBay
- Combine up to three orders into one shipment
- Manually mark orders as shipped with no label print

Endicia's Business Needs

A solution that:

- Did not require shutting down the real-time environment when changes needed to be made.
- Scaled seamlessly without downtime.
- Had a high level of performance in regards to response time.
- Did not require a large amount of resources.
- Was extremely secure and provided monitoring.

Approach & Strategy

- Leverage existing vendor relationships for recommendations.
- Evaluate options:
 - Traditional Storage – spinning disk and hybrid storage.
 - Other key Flash vendors in the market.
- Leverage current technologies:
 - Virtualized Hyper-Visor, High Performance Database, cutting edge network setup.
- Deploy in corporate IT first, then integrate into the production environments.

Storage Requirement Evaluation

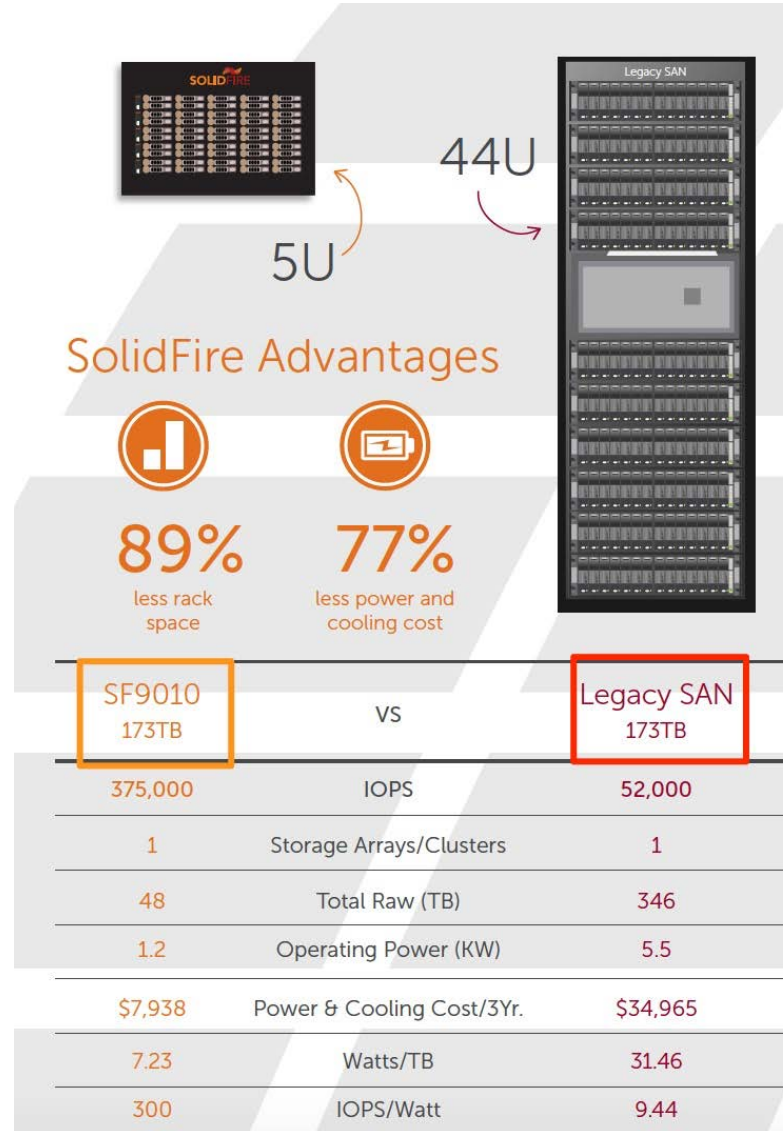
Endicia Requirements	Solidfire Features
Scale without customer impact and downtime related to SAN. High capacity/density to save on rack space and cost.	Scale Out capability without downtime. Adding or removing a node can be done live. Inline Deduplication and compression gives us more storage capacity per 1U node. Not dependent on controller resources
Guaranteed performance for customer transactions.	Guaranteed QOS capability on the SolidFire allowed us to feel secure in delivery performance even with noisy applications on the same SAN
Multiple layers of security for customer data with no loss in performance.	Encryption feature on the SAN allows us to add one more layer of security to our setup without losing performance
Hypervisor Integration.	Good Hypervisor Integration which allows daily tasks to be completed with ease
Reliability of the setup.	Helix Data Redundancy and Self Healing Capability
Monitoring and support	Solidfire has a separate VM for monitoring the SAN which works well. Good Rest API to integrate with other monitoring tools
Initial capital cost and cost of ownership for the long run.	Liked the all inclusive pricing. By using standard flash disks, Solidfire has been able to keep costs down and keep it affordable

SolidFire's Solution

SF9010

- 1U form factor – scale unit for Endicia.
- Large scale SaaS platforms
- Highest density platform
- 35 TB effective capacity
- 75,000 IOPS
- Mix and Match with other node capacity

How Does This Compare?



Lessons Learned

- Understand current and future business needs
- Size more capacity up-front.
- Identify where guaranteed performance will allow you to consolidate and maximize ROI.
- Standardize your environment. Less Management overhead and reduces cost



questions?
