

IBM Storage for hybrid cloud

Enterprise storage systems



Learn more



Operations made simple with IBM Storage Insights



Storage made simple with IBM Storage Virtualize

Entry
Enterprise
storage



Midrange
Enterprise
storage



High-end
Enterprise
storage



Storage
Virtualization



Storage
Software for
Public Cloud



Meet FlashSystem 5200



Simple to
configure and
operate

Simple to
acquire and
upgrade



Small footprint. *Huge* impact!

Deliver more work with fewer drives and lower cost

Reduce IT clutter with all your storage in as little as one skinny drawer

Always on HA features in a pizza box instead of refrigerator-sized systems



Operations made simple with IBM Storage Insights



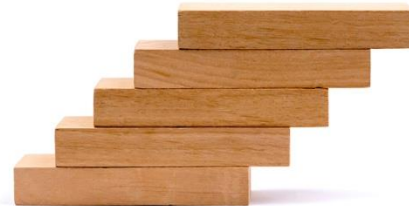
Storage made simple with IBM Storage Virtualize

Meet FlashSystem 7300



Simple to
configure and
operate

Simple to
acquire and
upgrade



These systems are simply...

Fast Up to 580k real-world IOPS and 50Gb/s

Efficient configurable data reduction

Resilient SafeGuarded Copy, 2 & 3-site replication, enhanced HA, HyperSwap

Flexible SCM, IBM FlashCore, Flash, HDD



Operations made simple with IBM Storage Insights



Storage made simple with IBM Storage Virtualize

Meet FlashSystem 9500



Simple to
configure and
operate

Simple to
acquire and
upgrade



These systems are simply...

Fast Up to 1.6M real-world IOPS and 100Gb/s

Efficient configurable data reduction

Resilient air-gap data copies, 2 & 3-site replication, enhanced HA, HyperSwap

Secure encryption, secure boot, multi-factor authentication



Operations made simple with IBM Storage Insights



Storage made simple with IBM Storage Virtualize

IBM FlashSystem makes it simple to... Choose your **capacity**

Choose your **performance**

Choose your **support**



1U 12 drives, 1PBe

Up to 300k real-world IOPS, 21GB/s

Expert Care
Basic or Advanced



2U 24 drives, 2.2PBe

Up to 580k real-world IOPS, 50GB/s

Expert Care Basic, Advanced or Premium



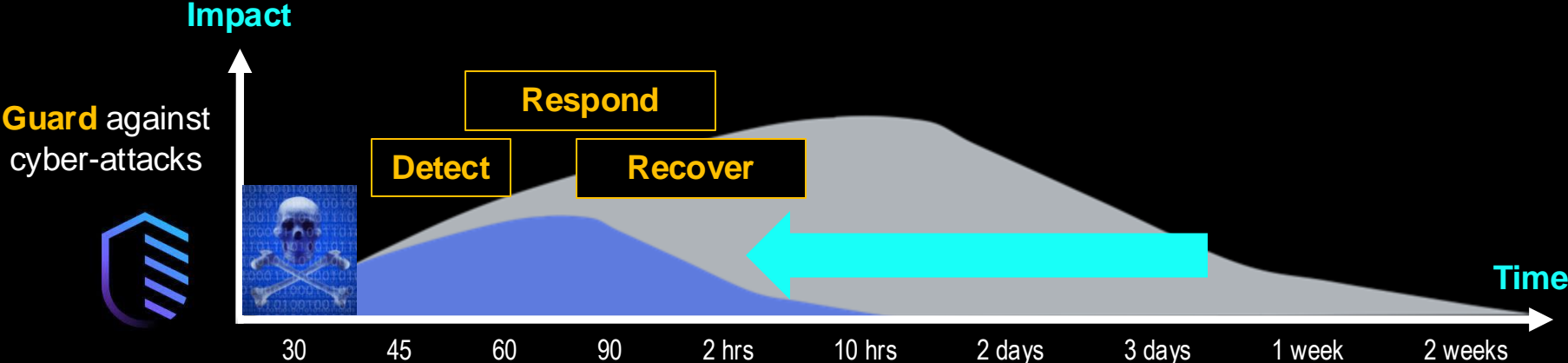
4U 48 drives, 4.5PBe

Up to 1.6M real-world IOPS, 100GB/s

Expert Care Advanced or Premium

Dealing with cyber-attacks

IBM can help you prepare



IBM
FlashSystem
Cyber Vault

Immutable Copies of Data	Proactive Monitoring
Rapid Recovery	Test and Validation of Data Copies

Blueprint Automation

These systems are simply... data resilient

Recover from
snapshots

Recover VMs or
Containers

Recover from
immutable storage
or cloud

Recover from tape

Create FlashCopy Mapping

Select a Preset

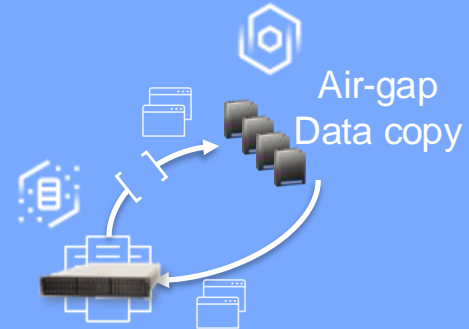
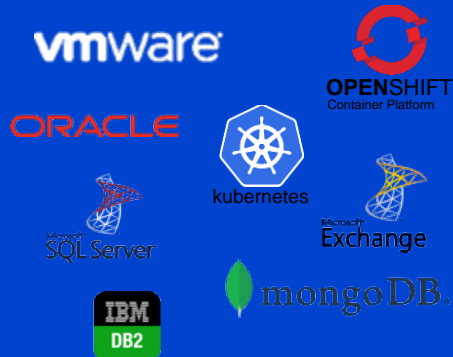
Snapshot Clone Backup

Background Copy Rate:
1 MB/s

Incremental
 Delete mapping after completion

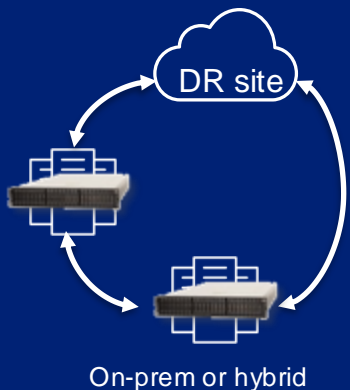
Cleaning Rate:
128 KB/s

Application-aware
Environment-integrated



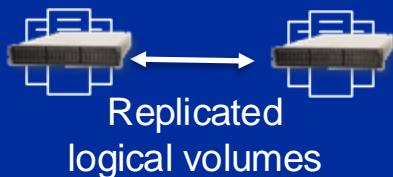
These systems are simply... operationally resilient

Traditional 2-site and 3-site replication configuration

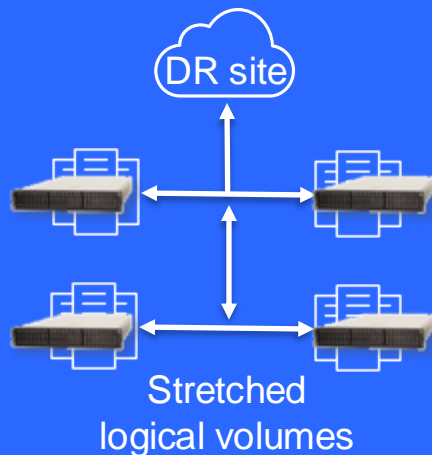


HyperSwap

Available 100% data
availability guarantee

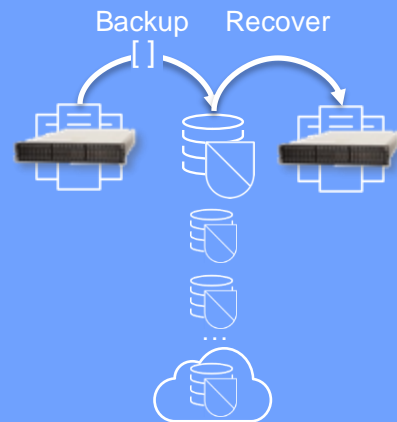


Enhanced High-availability



Safeguarded Copy

Air-gapped
immutable copy



These systems are simply... efficient

Data reduction pools

selectable data
reduction to optimize
your investments

Guaranteed

reduction up to 5:1

highest performance
2:1 with IBM
FlashCore

Hardware-accelerated compression

ideal for performance
sensitive applications
that can benefit from
data reduction



Data reduction pool flexibility

select what's best for your pool of data

1. Thin provisioning and SCSI Unmap
2. Hardware-accelerated compression
3. Software compression and deduplication

FlashSystem 5200 is simply... flexible



	IBM FlashCore	NVMe Flash	Storage Class Memory	SAS Flash
Drive sizes	From 4.8 – 38.4TB	From 1.92 – 30TB	1.6TB	From 1.92 – 30.72TB
Protocol	NVMe	NVMe	NVMe	Serial Attach SCSI

FlashSystem 5200

FlashSystem 5200

FlashSystem 5200

FlashSystem 5200

Host Connection Protocol	Number of cards per controller	Ports per card	Max ports per dual-controller system
32Gb Fibre Channel with NVMe-oF	2	2	8
16Gb Fibre Channel with NVMe-oF	2	4	16
10/25Gb Ethernet (iSCSI and NVMe)	2	2	8
10Gb Ethernet (iSCSI)	1	4	8

FlashSystem 7300 is simply... flexible



	IBM FlashCore	NVMe Flash	Storage Class Memory	SAS Flash
Drive sizes	From 4.8 – 38.4TB	From 1.92 – 30TB	1.6TB	From 1.92 – 30.72TB
Protocol	NVMe	NVMe	NVMe	Serial Attach SCSI

Host Connection Protocol	Number of cards per controller	Ports per card	Max ports per dual-controller system
32Gb Fibre Channel with NVMe-oF Long Wave and Short Wave	3	4	24
10/25Gb Ethernet (iSCSI and NVMe)	3	2	12
100Gb Ethernet (iSCSI and NVMe)	3	2	12

FlashSystem 9500 is simply... flexible



	IBM FlashCore	NVMe Flash	Storage Class Memory	SAS Flash
Drive sizes	From 4.8 – 38.4TB	From 1.92 – 30TB	1.6TB	From 1.92 – 30.72TB
Protocol	NVMe	NVMe	NVMe	Serial Attach SCSI

Host Connection Protocol	Number of cards per controller	Ports per card	Max ports per dual-controller system
32Gb Fibre Channel with NVMe-oF Long Wave and Short Wave	6	4	48
10/25Gb Ethernet (iSCSI and NVMe)	6	2	24
100Gb Ethernet (iSCSI and NVMe)	3	2	12

IBM FlashCore Modules

Unique IBM flash technology

Hardware compression with no performance impact

Hardware encryption with no performance impact



90%

In 2021, IBM clients chose FlashCore Modules for 90% of their FlashSystem flash capacity

Zero

Number of FlashCore Modules that have ever worn out

Smart data placement

Position the most active data in SLC flash for highest performance

With drives up to 38.4TB, QLC flash provides the highest density available reducing rack space and lowering cost

These systems are simply... interoperable

Data Mobility

Migrate
Tier
Snapshot
Replicate



Monitoring

delivered securely
from the IBM Cloud
or on-premises

health, capacity,
and performance

Encryption

Data Reduction



FlashSystem
5200, 7300, 9500

500+ systems including...

Hewlett Packard
Enterprise

PURESTORAGE

NetApp

HITACHI

DELL EMC

HUAWEI

IBM

These systems are simple... to configure for best practices

Analytics offer **insights into best practice configuration**

Best practice checks

High-availability safety checking

Risk analysis

The screenshot shows the IBM Configuration Reporting Advisor interface. The top navigation bar includes 'Dashboards', 'Insights', 'Resources', 'Groups', 'Reports', and 'Configuration'. The main content area is titled 'Advisor' and provides instructions to keep infrastructure healthy. It displays summary statistics: 180 Unacknowledged Recommendations, 1 Warning, 179 Informational, and 778 Acknowledged. A table lists various recommendations for different devices, with the 'Enable Configuration Reporting for automated system analysis' recommendation highlighted. A detailed view of this recommendation is shown on the right, including the device name 'FlashSystem-AF8-9150-5' and explanatory text about the importance of enabling Configuration Reporting for system analysis.

Keep your infrastructure healthy with these recommendations.

Unacknowledged Recommendations: 180 | 1 Warning | 179 Informational | 778 Acknowledged

Device Name	Event	Recom
FlashSystem-AF7-9110-1	Node canisters in a control enclosure do not have Fibre Ch...	Consider c
FlashSystem-AF7-9110-1	Volume protection feature available	Consider c
FlashSystem-AF7-9110-Class-3	This product warranty will expire in 24 days.	
FlashSystem-AF7-9110-Class-2	This product warranty will expire in 24 days.	
FlashSystem-AF7-9110-Class-3	Node canisters in a control enclosure do not have Fibre Ch...	Consider c
FlashSystem-AF8-9150-4	Node canisters in a control enclosure do not have Fibre Ch...	Consider c
FlashSystem-AF8-9150-5	Enable Configuration Reporting for automated system anal...	IBM stron
FlashSystem-AF7-9110-Class-2	Defined hosts show as offline status.	Investigat
FlashSystem-AF7-9110-Class-3	Defined hosts show as offline status.	Investigat

Enable Configuration Reporting for automated system analysis
Dec 4, 2019, 12:29:46

Device: FlashSystem-AF8-9150-5

IBM systems automatically check your configuration for known issues and best practice violations to provide proactive assistance and avoid issues in your environments. This validation is currently unable to run on this system, because you have the Configuration Reporting feature disabled, and the checking relies on this enhanced inventory data for the majority of the validations. Note - The Configuration Reporting feature is also known as Enhanced Inventory

IBM strongly recommends that Configuration Reporting is enabled for all systems using callhome and Storage Insights. The Configuration Reporting system is designed not to send any sensitive data (e.g. IP addresses, account details) back to IBM at any time, if you are still concerned about sensitive data, there is a "censor" mode which removes all object names from the data as well. Configuration Reporting can be enabled using the GUI in Settings -> Notifications panel or in Settings -> Support

These systems are simple... to monitor

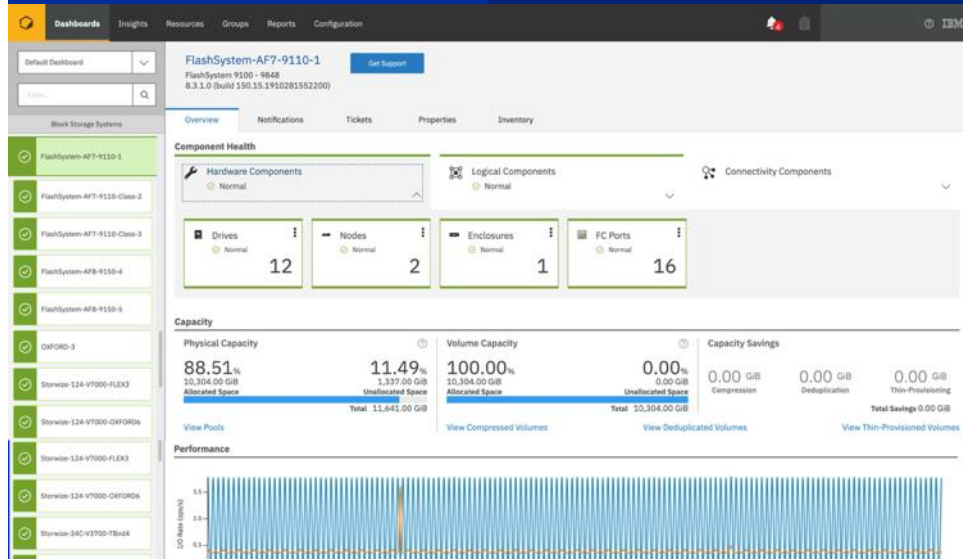
Consistent
operational view of
all your storage

Delivered securely
from the
**IBM Cloud or
on-premises**

Health

Capacity

Performance



These systems are simple... to support

Support
process
automation

to enable faster
resolution of issues

Delivered securely
from the
IBM Cloud

Watch the demo
ibm.biz/insightssupport

The screenshot displays the IBM support interface. The top navigation bar includes 'Dashboards', 'Insights', 'Resources', 'Groups', 'Reports', and 'Configuration'. The main content area shows a dashboard for 'FlashSystem-AF7-9110-1' with a 'Get Support' button highlighted in a yellow box. Below the dashboard, there are four items listed under 'Block Storage Systems': 'FlashSystem-AF7-9110-1', 'FlashSystem-AF7-9110-Class-2', 'FlashSystem-AF7-9110-Class-3', and 'FlashSystem-AF8-9150-4'. Two pop-up windows are visible: 'Create Ticket for FlashSystem-AF7-9110-1' and 'Update Ticket for FlashSystem-AF7-9110-1'. The 'Create Ticket' window shows options to 'Create Ticket' (Report a problem to IBM) and 'Update Ticket' (Add log package to existing ticket). The 'Update Ticket' window shows a 'Collecting information for ticket' screen with a log package icon and the following information: Storage system: FlashSystem-AF7-91..., Type: FlashSystem 9100 ..., Serial number: 00000204216003CA, and Version: 8.3.1.0 (build 150.15...).

These systems are simple... to secure


Consistent
system-wide software
encryption

FIPS 140-2
hardware encryption
with IBM FlashCore

**USB or
Key Server**
encryption
management

 **IBM Security**

gemalto
security to be free



IBM FlashSystem 9210 mcr-fab1-cluster-09 Security

Remote Authentication

Encryption

Secure Communications

Encryption


State:

Encryption Keys: ✓ Accessible

▶ 4 Key Servers ✓✓✓

▶ 4 USB Flash Drives Detected Configured

▶ Certificate

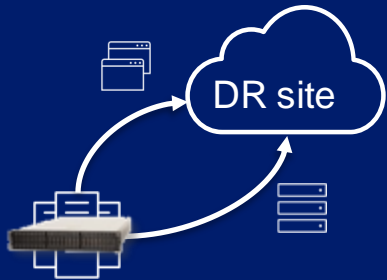


These systems are simple...

to connect to the cloud

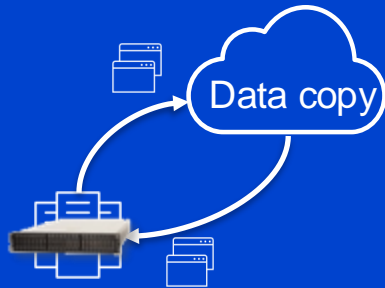
Business Continuity

leveraging rented
Public cloud resources



DevOps Analytics

temporary data copy
from on-premises
to cloud



Data Resiliency

continuing to deliver
outcomes despite
cyber incidents



Workload Migration

permanent data
migration to cloud



These systems are simple...

to tier

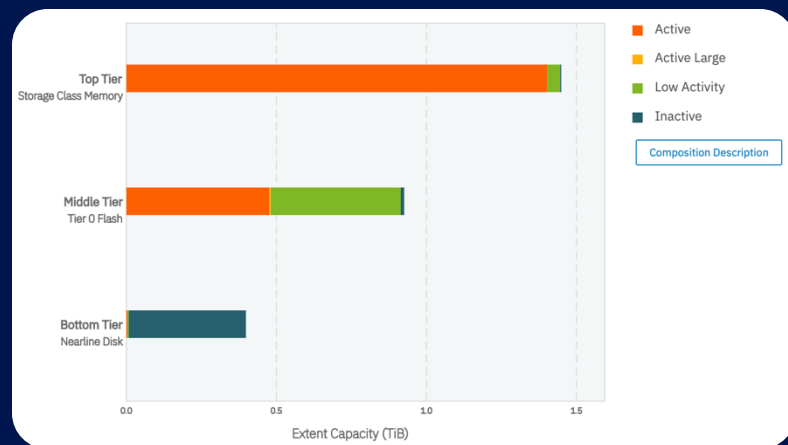
Set it and forget it

Improve performance

AI identifies the hottest blocks of data and transparently moves them to the fastest performing storage

Improve economics

AI identifies the coolest blocks of data and transparently moves them to the most economical storage



These systems are simple... to protect



Software- driven



Offload to tape and the cloud

Search and access copies

Instantly access

Snapshots

Application-aware

Environment-integrated



ORACLE



vmware



System- assist



Orchestrate system snapshots

Search and access copies

Directly access in-place

**These systems
are simple...**

to integrate

**When storage is
driven by VMware
or Kubernetes
administrators**

vmware®

VASA

vVol

SRM



kubernetes



OPENSIFT
Container Platform



These systems are simple... to orchestrate

**Avoid risk and
uncertainty**

everyone doing things
their own way

**Consistently
automate
tasks**

developers accomplish
goals without needing
infrastructure expertise

Ansible playbook integration



ANSIBLE



RED HAT®
ANSIBLE®
Automation

These systems are simple... to acquire

Base subscription

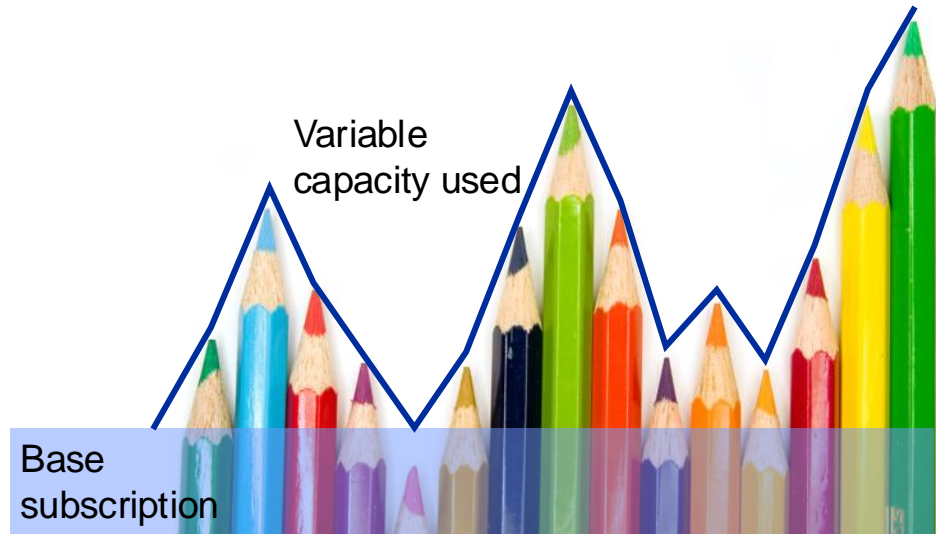
+

Variable utilized capacity

Metered by
IBM Storage Insights

See the [case study](#)

Pay only for the capacity you consume, as opposed to purchasing bulk capacity in advance and hoping you use it efficiently



These systems are simple...

to upgrade

Storage upgrade program

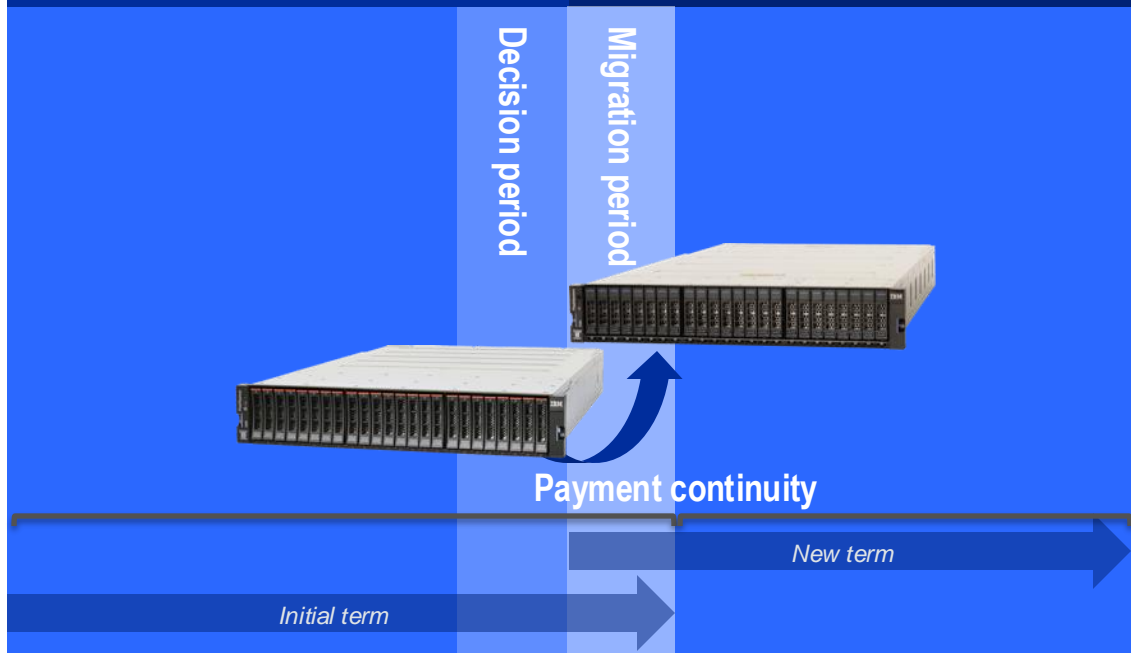
Refresh your controller and storage

Same or lower price TB/month

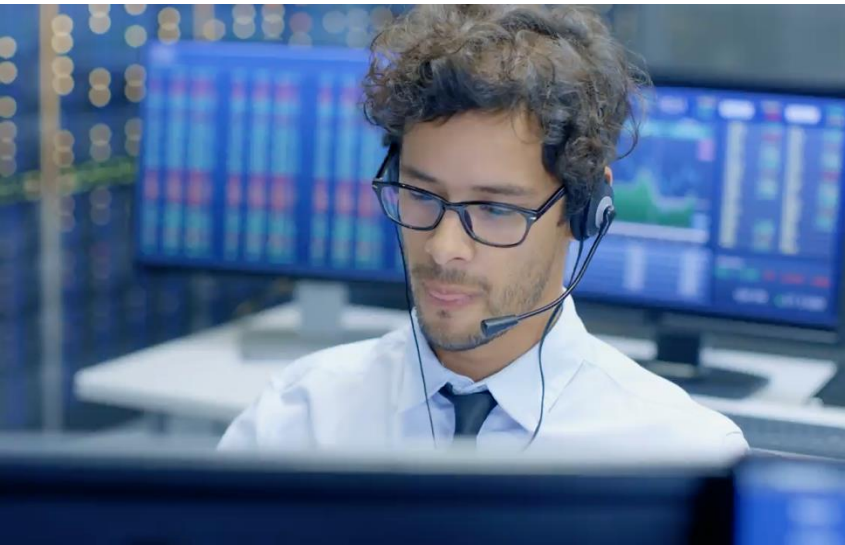
Up-size or down-size your
system to meet your needs

No lock-in

Toward the end of your
current system, you decide
whether to refresh, keep
your old system, or walk
away



FlashSystem has simply... great support



IBM Storage Expert Care and Storage Insights

	Basic	Advanced	Premium
Access to fixes, updates, and new releases of IBM Storage Virtualize	Yes	Yes	Yes
Installation, usage, and configuration support line	Yes	Yes	Yes
Predictive alerting	Yes	Yes	Yes
Automated ticket management	Yes	Yes	Yes
View of live infrastructure shared between client and IBM for collaborative problem resolution	Yes	Yes	Yes
Proactive issue resolution		Yes	Yes
Storage Insights Pro entitlement			Yes
Hardware service	9x5 Next business day	24x7 Same day	24x7 Same day
Remote code upgrades 2x / year			Yes
Dedicated Technical Account Manager			Yes
30-minute Severity 1 & 2 response			Yes

How many years
would you like support?

What level do you prefer?

IBM