

## Powerful solutions in a smaller package

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### Highlights

- Presents IBM DS8880F power in a lower-cost, fully optimized package
  - Offers an affordable upgrade pathway for mainframe storage modernization
  - Leverages transparent cloud tiering to help enable multicloud solutions
  - Supports a wide range of business-critical workloads
  - Simplifies deployment with a rack-mounted, all-flash storage solution
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### Deploy new IBM DS8882F data systems for highly efficient storage solutions in mainframe and business-critical environments

Today, mainframes are as important to business as ever before, if not more so.<sup>1</sup> 87 percent of all credit card transactions and nearly USD8 trillion in payments a year are processed on mainframes. These systems manage 29 billion ATM transactions each year, equivalent to nearly USD5 billion per day.<sup>2</sup>

But the popularity of mainframes for certain business use cases does not mean that this venerable data processing platform has remained unchanged. In fact, just the opposite is true—mainframe technologies and environments are evolving rapidly to meet ever-changing business and research requirements.<sup>3</sup> This evolution is driving the need for storage solutions that can keep pace and even help accelerate innovation.

The new IBM DS8882F system offers an ideal solution for these dynamic mainframe environments. It provides an affordable upgrade pathway for mainframe-oriented enterprises engaged in modernizing legacy systems. DS8882F offers simplified cloud integration for building mainframe-centered multicloud architectures. And it provides similar capabilities and advantages to those offered by its larger family members. For such a small package, DS8882F is a lot of leading-edge storage solution.

**Proven capabilities, and even more value**

DS8882F provides similar capabilities and availability as its DS8880F family members, but at a lower entry cost. As are all members of the DS8880F family, DS8882F is also a very powerful solution for enterprises with distributed compute environments running IBM i or IBM AIX and requiring three- or four-site data replication. The new all-flash storage system:

- Provides an easy and cost-efficient upgrade path for IBM DS6000, IBM DS8100, IBM DS8300, IBM DS8700, IBM DS8800 and IBM DS8870 systems
- Reduces data center footprint and power infrastructure requirements
- Can be integrated into existing 19-inch standard racks, as well as IBM Z model ZR1 or IBM LinuxONE model Rockhopper II systems

DS8880F is a flexible rack-mounted solution engineered to efficiently deliver all the power of an enterprise-class storage solution in an affordable, fully optimized package. Built with the IBM DS8000 enterprise software platform, the new IBM DS8882F all-flash data system delivers the same advanced enterprise capabilities as its larger DS8880F family members, including:

- Gen2 High-Performance Flash Enclosures that provide twice the performance<sup>4</sup> and up to 15.3 times more capacity<sup>5</sup> per enclosure for workload consolidation, compared to the previous generation
- Transparent cloud tiering (TCT) to improve business efficiency and flexibility while reducing capital and operating expenses with serverless direct data transfer from DS8880 family members to multicloud environments. Beyond automating data migration to and from the cloud, TCT can provide more than 50 percent savings in CPU utilization<sup>6</sup> when archiving large data sets, enabling users to refocus valuable mainframe resources toward a new generation of real-time analytics, artificial intelligence and mobile application workloads
- Powerful disaster-recovery solutions; unique 2-, 3- and 4-site replication; and industry-leading recovery point and time objective capabilities for organizations where continuous operation is business-critical

DS8882F comes as a 16U system ready to be deployed in existing mainframe racks or as a standalone solution. Raw capacity can range from 6.4 TB to 368.64 TB, depending on the flash drives deployed—and of course, TCT changes this equation dramatically. The system can accommodate from 64 GB to 256 GB of memory cache (DRAM). And it offers 8 to 16 Fibre Channel Protocol (FCP)/IBM FICON interface ports.

## **Part of a venerable family**

DS8882F is the newest member of a family of storage systems with an enviable history of accomplishments and support for both mainframe and distributed environments. For data sets and business use cases requiring the highest performance and availability, DS8880F is the

number-one family of storage systems supporting mainframe-based IT infrastructure.<sup>7</sup> The storage systems and their predecessors have been deployed to support business-critical environments for nearly two decades.<sup>8</sup> Just last year, DS8880F was named as a *Product of the Year* finalist by Storage Magazine.<sup>9</sup>

The IBM DS8880 family is designed to manage the full spectrum of storage workloads that exist in today's complex data infrastructure and do it while offering very high performance and system availability, with industry-leading data protection and disaster-recovery features.

The DS8880 family currently includes four members—the new DS8882F system, plus the IBM DS8884F, IBM DS8886F and IBM DS888F systems—that together provide a broad range of options for addressing business-critical application workloads. These proven, award-winning systems would not have maintained a leadership position in a rapidly evolving IT marketplace without considerable ongoing evolution and innovation. The true difference between DS8880 and other enterprise storage systems lies in this combination of maturity and innovation. For example, DS8880 leverages innovations such as new Gen2 High Performance Flash Enclosures for increased storage density and lower storage costs, TCT to enable agile integration with cloud resources, and a suite of features to enhance support for blockchain implementations—all while maintaining a close relationship with IBM Z. Today, DS8880 can be deployed in next-generation IT and business environments with as much confidence and trust as ever.

Perhaps most importantly, DS8880F systems support the new IBM Z suite of data protection technologies collectively labeled “pervasive encryption.” Essentially, pervasive encryption means that IBM Z and integrated systems such as DS8882F now encrypt data at the host level and at rest.<sup>10</sup>

***The practice of pervasive encryption can also:***

- *Decouple encryption from classification*
- *Reduce risk with undiscovered or misclassified sensitive data*
- *Make it more difficult for attackers to identify sensitive data*
- *Help protect all of an organization's digital assets*
- *Significantly reduce the cost of compliance*

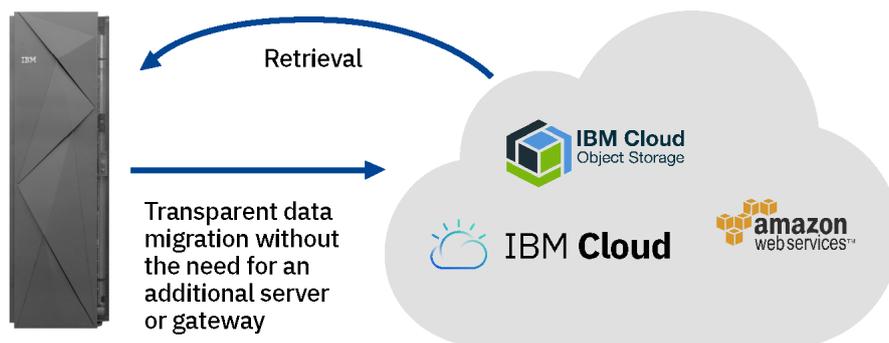
Not only is the DS8880F family the leader in the external storage market for mainframe environments, but family members such as the new DS8882F system offer an additional advantage—deep integration with IBM Z. Innovation and new engineering is planned and developed in conjunction with the IBM Z team and released in a coordinated manner. Storage systems from other vendors don't have the same integration capabilities, cross teaming, testing, or design access to IBM. This is why new DS8880 family features for IBM Z can reach customers

so quickly.

## Unlimited possibilities

The value of the transparent cloud tiering technology incorporated into the entire DS8880F line, including DS8882F, should not be underestimated. This powerful innovation:

- Does not require an additional server or gateway
- Provides great flexibility by supporting a wide variety of multicloud options
- Creates an additional storage tier without incurring capital expenses
- Enables massive storage capacity



*With transparent cloud tiering, data can be transferred between storage tiers without administrator intervention, to best match real-world storage demands.*

With TCT, the challenge of keeping up with explosive data growth becomes much more manageable. In fact, thanks to the scalability of cloud resources, enterprises can meet data-growth challenges without significant capital investments. This highlights a powerful advantage of cloud storage—cost. Economies of scale and commodity-like market competition have driven cloud storage costs below where most on-premises storage solutions can compete, even into the cost range of tape. Plus, with TCT there are almost no implementation expenses and very little management outlay.

## Integration with object storage

DS8882F with TCT offers powerful new solutions that take advantage of file and object storage as well. On average, unstructured data is moved 10 times within different storage tiers during its lifetime.<sup>11</sup> The ability to quickly move data where and when it is required is crucial to deriving

business value from growing data sets. TCT enables DS8882F users to determine where file system data should reside and create policies to automatically move the data. This capability allows for informed decisions concerning when and how enterprise data is moved and how to most effectively migrate the data to the appropriate storage tier, keeping costs lower and storage utilization optimal.

Object storage offers many advantages for less-active data sets. TCT integrates well with IBM Cloud Object Storage, which can provide the foundational object storage layer for on-premises private cloud implementations or be used to build an off-premises object store using public cloud resources.

IBM Cloud Object Storage offers a number of advantages. For example, it leverages geo-dispersed erasure coding (also known as Reed-Solomon forward error correction) to protect data with as much or more data durability and availability than traditional systems, rather than making copies. This method eliminates the high overhead associated with RAID-based storage and the complexity of managing mirrors, replication and disaster recovery required in a traditional data center. Also, IBM Cloud Object Storage offers an extensive choice of deployment models, including on-premises, hybrid cloud and off-premises (cloud) with very competitive price/performance, scalability, license portability, and on- and off-premises homogeneous tools and capabilities.

## Even greater security

Data security is especially mission-critical for storage systems such as DS8882F, engineered to be deployed in the most demanding environments on the planet. Along with TCT technology, DS8880 storage systems now offer *Safeguarded Copy*, a feature that prevents sensitive point-in-time copies of data from being modified or deleted due to user errors, malicious destruction or ransomware attacks. Safeguarded Copy offers many advantages:

- It provides up to 500 backup copies to restore data in case of logical corruption or destruction of primary data.
- The backup volume is a hidden, non-addressable volume that does not consume any of the regular DS8882F volume addresses.
- Copies can be maintained at either production or recovery sites.
- Backup copies cannot be deleted without the correct digital signature on each command.
- Storage targets are protected against malicious actions with additional security provided through unique user roles.

## Intelligent support

Researching best practices, planning for explosive data growth, troubleshooting complex storage infrastructure and implementing the most effective solutions can be challenging, to say the least. To address these challenges and reduce both manual labor and mistakes, DS8880F solutions come with IBM Storage Insights, an enterprise-proven, artificial intelligence (AI)-enhanced, cloud-based system insights platform from IBM that helps customers better understand trends in storage capacity and performance and expedite resolution when support is required. Storage Insights monitors the health, capacity and performance for all IBM block storage and external storage under management on a single pane of glass, helping IBM customers understand and plan storage capacity and performance. The program provides proactive best practices and uses AI-based analytics to help identify potential issues before they become problems. When support is needed, Storage Insights helps speed resolution by simplifying opening tickets; automating log uploads to IBM; and providing configuration, capacity and performance information to IBM technicians. Storage Insights can help IBM customers enjoy faster resolution of issues, an enhanced user experience, higher systems availability, and the confidence of services delivered from one of the world's leading cloud providers.

## Smaller system, same big heart

Mainframes are moving from systems that simply support transaction revenue processing to platforms of business revenue generation and innovation.<sup>12</sup> Storage must provide the high performance, high availability and multicloud capabilities needed to support and even accelerate this transformation. DS8882F offers the power and functionality of its larger DS8880F family members in a lower-cost, rack-mounted solution.

Yes, DS8882F comes in a smaller package, but it offers the same big heart that has powered the market-leading DS8880 family for years.

<sup>1</sup> Mike Siemasz, "New BMC Survey: Digital Business Impacts Mainframe, Is Here to Stay," *Compuware*, November 2016.  
<https://compuware.com/new-bmc-survey/>

<sup>2</sup> "IBM Mainframe Ushers in New Era of Data Protection," *IBM Corp.*, July 17, 2017.  
<https://www-03.ibm.com/press/us/en/pressrelease/52805.wss>

<sup>3</sup> "The Business Value of the Connected Mainframe for Digital Transformation," *IDC*, December 2016.  
<http://ftpmirror.your.org/pub/misc/ftp.software.ibm.com/common/ssi/ecm/zs/en/zsl03428usen/systems-hardware-z-systems-zs-analyst-paper-or-report-zsl03428usen-20180424.pdf>

<sup>4</sup> Two times more performance per enclosure compared with the previous generation of High-Performance Flash Enclosures.

<sup>5</sup> 15.3 times more capacity per enclosure considering the previous generation of High-Performance Flash Enclosures with 30 800 GB flash cards (24 TB) and the new generation of flash enclosures with 48 7.68 TB flash cards (368.6 TB).

<sup>6</sup> Results are based on preliminary internal IBM data measurements on an IBM EC12 system when migrating data sets exceeding 6,000 3390 tracks in size. Results will vary by customer based on particular workloads, configurations, software levels and the quantity and size of data sets being migrated.

<sup>7</sup> Calculations based on data from IDC WW Quarterly Enterprise Storage Systems Tracker file, March 2017.

<sup>8</sup> “Power You Can Count On – Some History,” *IBM Systems Magazine*, April 2010.

[http://ibmsystemsmag.com/power/infrastructure/storage/system\\_storage\\_ds8700/some-history/](http://ibmsystemsmag.com/power/infrastructure/storage/system_storage_ds8700/some-history/)

<sup>9</sup> Garry Kranz, “Enterprise storage arrays: 2017 Products of the Year finalists,” *TechTarget*, January 15, 2018.

<http://searchstorage.techtarget.com/news/450432622/Enterprise-storage-arrays-2017-Products-of-the-Year-finalists>

<sup>10</sup> Michael Jordan, “Pervasive Encryption in the Digital Enterprise,” *IBM Corp.*, May 18, 2017.

<https://docplayer.net/53325333-Pervasive-encryption.html>

<sup>11</sup> “Get Control Over Your Data,” *File Pilot Software*. Accessed August 1, 2016.

<http://filepilotsoftware.com/index.php/users-data-mobility-use-cases/>

<sup>12</sup> “The Business Value of the Connected Mainframe for Digital Transformation,” *IDC*, December 2016.

<https://www.ca.com/us/collateral/industry-analyst-report/the-business-value-of-the-connected-mainframe-for-digital-transf.html>

## Why IBM?

IBM delivers enterprise-class storage solutions enabling data management and protection in data environments, whether on-premises, in the cloud, or in a hybrid cloud environment, and no matter how complex their access requirements. With decades of enterprise-level storage experience and powerful data management tools, IBM helps IT operations efficiently use their storage resources, and helps enable interoperability with a wide range of storage technologies. IBM solutions give business managers the ability to keep operational costs under control and within budget.

## For more information

To learn more about IBM DS8882F data solutions with transparent cloud tiering, please contact your IBM representative or IBM Business Partner, or visit: [ibm.com/us-en/marketplace/ds8000f](https://ibm.com/us-en/marketplace/ds8000f)

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