

# Information Storage Strategies and Solutions

Skills and expertise to help you increase your knowledge in the field of storage technologies



Education and Training  
Services

## Course Highlights

Training will be delivered by an experienced trainer with 25+ years of career experience imparting education and training services both locally and internationally and have served international enterprise technology vendors including IBM, Fujitsu, and ICL.

Our instructor holds various industry professional certifications in the space of enterprise servers and storage technologies, Information Security, Enterprise Architecture, ITIL, Cloud, Virtualization, Green IT, and a co-author of 10 IBM Redbooks.

The training course flow will be a mix of lectures & classroom discussions so that participants can have a detailed understanding of various components of Storage technologies discussing different sales scenarios.



The storage training course is vendor neutral and it makes the attendee completely familiar with lot of technologies surrounding storage and various complex issues and solutions thereof due to explosive growth of data.

Often people take training courses on storage products ranging from Storage switches to Arrays to Tape Devices to Storage Virtualization appliances. However, few of them really understand the gamut of storage technologies that made those products. As a result, there is an acute shortage of people in the storage market who has a holistic understanding of the storage capabilities and how they relate to each other.

## Prerequisites:

Participants attending this course should be familiar with basic Information Technology (IT) concepts and the role of general storage systems technology.

This two-day face-to-face instructor led class is designed to develop storage technology skills and strategies associated with managing the explosive growth of business data across the enterprise in today's networked economy.

In this course we will be discussing what is a block, file, object, SDS and flash storage technologies. This shall help students gain the clarity needed to make more informed and smarter decisions when it comes to building storage strategies and vendor management.

## Unit 1 – Information Storage – Demand and Evolution

- Types of Storage Technologies and Subsystems.
- Data Center Storage Evolution.
- Which storage technology to select? and
- Understand Information Storage.
- Our world – and how we interact with it – is changing.
- Describe System of Records, System of Engagement and Systems of Interactions.
- Exponential Data Growth – Some key facts and figures.
- The Evolution of Storage technologies and future.
- Meeting the demand for data storage – Cloud Storage Trends.
- What is driving the paradigm shift to Cloud Services?
- Cloud Storage Models, Cloud Storage Types and their applications.
- What are the negatives to storage cloud?
- Top Security Concerns for Cloud-Based Storage Services.
- 5 Questions you should ask your Cloud Services Provider
- Top 5 Cloud Storage Security Challenges.
- Storage demand in a Nut-Shell.
- Storage Comparison Matrix – Entry to Mid to Enterprise.
- Change in technological perception in the global community.
- Knowing the way forward from Data Storage Technology perspective.
- Unit 1 Assessment.

## Unit 2 – Building a Data Storage Strategy

- Understand Fault Tolerance and Fault Resilience.
- Some basic steps in developing a storage strategy.
- Understanding the role of TOGAF? An Open Group Standards.
- The four essential pillars of TOGAF Architecture Framework and Architecture Development Method.
- Storage Strategy Defined.
- Need for Storage Strategy.
- Responsibility for the Strategy
- Strategy Contents.
- Developing the Strategy
- Building the Storage Strategy.
- Five components of a data protection strategy.
- Storage Strategy – Components that you cannot ignore.
- Unit 2 Assessment.

## Unit 3 - Storage & Data Management Methodologies

- Understanding Data Management.
- Understanding Data Lifecycle Management.
- Why Storage Management.
- Storage Management Challenges.
- Storage Vs Data Classification.
- Information Lifecycle Management.
- ILM – Three Storage Strategies.
- Data Classification.
- Differentiating ILM and DLM management systems.
- Hierarchical Storage Management.
- Understanding Data De-Duplication.
- Importance of Virtual Tape Library.
- Unit 3 Assessment.



Opportunities are made,  
not found

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The unprecedented rise of data is something that meant that IT storage industry specialists have needed to take into consideration as a primary challenge when preparing for building data storage strategy.

TLC have designed and developed a series of five storage workshops with a vision to fill the global storage resource gap. Visit the following link to view our education and training services schedule.

[www.tlcpak.com/schedule.html](http://www.tlcpak.com/schedule.html)



## Workshop Objective

This storage workshop aims to demystify storage technologies and provide substantial insight into the key trends based on storage technology capabilities of today Block, File, Object Storage and Software Defined Storage including Flash storage. This shall help students gain the clarity needed to make more informed and smarter decisions when it comes to building storage strategies and vendor management.

## Unit 4 - Performance – Impact and Measurement

- Pressures on senior management.
- Challenges and Needs – Where we stand today?
- Storage management challenges.
- The storage dilemma – Apart from Flash Storage
- Storage types and subsystems.
- Which storage technology is best?
- Understanding I/O Performance.
- Business requirements – Reduce cost, minimize risk & improve services.
- Concepts behind storage efficiency technologies.
- Consideration prior investing in new storage solution.
- IO Performance needs monitoring at every level.
- Storage – Planning for Performance.
- Storage Planning and Rotating Media Selection.
- Understanding Wear Leveling in SSD Technologies.
- Understand Over Provisioning and Thin Provisioning.
- Storage Performance Troubleshooting Methodology.
- Understanding your workload and Basic Metrics.
- About Storage Performance Council and Storage Performance Testing.
- Types of Storage Performance Testing and Published Benchmark.
- Typical Mistakes during storage performance testing.
- Unit 4 Assessment.

## Unit 5 - Exploring Block, File and Object Storage

### Technologies. Part 5-1 – Block Storage

- Understanding SAN.
- The role of SNIA – Standards & Compliances.
- Why SAN?
- Components and benefits of SAN.
- SAN – A high speed data transfer between hosts.
- Protocols supported by SAN – FC SAN and IP SAN.
- Understand igroup and LUN and Logical Unit Number specifics.
- Information you require to create a LUN.
- Understanding Block Level Storage & its applications.
- Major SAN players

### Part 5-2 – File Storage

- Understand file sharing environment.
- Understanding NAS.
- Describe File Based Storage and NAS Advantages.
- NAS Protocols – NFS and CIFS.
- Understanding HTTP – A NAS feature.
- Server and NAS connectivity.
- NAS communications and security.
- iSCSI – What is it?
- Basic iSCSI storage configuration.
- Understanding TCP/IP Offload Engine (TOE).
- NAS Implementation.
- Understand NAS I/O and NAS benefits.
- SAN NAS comparison chart.
- Understand Snapshot technology.

### Part 5-3 – Object Storage

- Difference between Unstructured and Structured data types.
- What is an Object and Metadata?
- What is Object Storage?
- Understand Object Storage Concepts.
- About Object Store Contents.
- Abstraction of Storage.
- Object Storage components.
- Key characteristics of Object Storage.
- Object Storage – Data Containers & Attributes.
- Components of Object Storage.
- Understanding REST.
- Features and Benefits of Object Storage.
- Nine reasons Object Level Storage adoption has increased.
- Object Storage – Usage scenario with respect to Applications.
- Global Use Cases.
- Object Storage as a Scalable Cloud Storage Service.
- Global Object Storage vendors and their positioning.
- Unit 5 Assessment.



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## Target Audience

- Sales Specialists who want to refresh and expand their storage knowledge in the area of Software Defined Storage and Object Storage technologies.
- Technology sales people who want change their professional from other discipline to storage sales specialist.
- People who want to start their career as a Technology consultants and System Integrators.
- End-users who want to expand their knowledge in Cloud and Storage technologies.
- Students of engineering universities who want to embark their career in the field of Information Technology as a storage pre/post sales specialists.

## Unit 6 - Flash Storage Fundamentals

- The main Dilemma.
- Client responses to Performance Gap.
- Flash Storage – Solution to the problem.
- Flash Storage uses Nonvolatile Memory.
- Flash Storage Overview.
- How does Flash Storage works?
- Flash Storage adoption and Use Cases.
- Understanding all about All-Flash Array.
- Understand Multi-Level Cell and Single-Level Cell Flashes.
- Differentiating Wear Leveling Vs. Mean Time Between Failure.
- Understand Hybrid Flash Array.
- The benefits and drawbacks of a Hybrid Flash Array.
- Top five reasons to select a Hybrid or All-Flash Array.
- Where do you best use Flash Storage today?
- Hybrid Flash and All-Flash Array market leaders.
- Predictions – All-Flash Array Vs. Hybrid Flash Array.
- Flash Array Competitive Landscape – An Example
- Unit 6 Assessment.

## Unit 7 - Software Defined Storage – The Foundation for Digital Transformation

- New challenges of Digital Transformation.
- The need for Software Defined Storage?
- SDS is more than storage virtualization.
- SDS in the Context of the Software Defined Data Center.
- Understanding the principals of Software Defined Storage.
- What is needed for Software Defined Storage?
- Basic Building Blocks of Software Defined Storage and Attributes.
- SDS as an integral component of the Software Defined Data Center.
- Key benefits of Software Defined Storage.
- Business Challenges solved by Software Defined Storage.
- Key characteristics of an Software Defined Storage.
- Types of Software-Defined Storage (SDS).
- Use Cases for Software-Defined Storage (SDS).
- Unit 7 Assessment.

## Unit 8 – Cloud Storage Strategy and Solutions

- Migration – Cloud migration from architecture through implementation.
- Cloud solution to common IT problems & challenges .
- What is Cloud Storage?
- Knowing the Risks attached to Cloud Storage.
- What is driving the paradigm shift to Cloud Services?
- Scalable On-demand Services Architecture.
- Cloud Storage Access Protocols.
- Review Attributes and Principles of Cloud Storage.
- Types of Cloud Storage Models.
- Cloud Storage Types and their applications.
- Understand API and Cloud storage API protocols.
- Obstacles to establish connectivity to Object Cloud Storage.
- Understanding the Role of Cloud Storage Gateways.
- Protocols supported by Cloud Storage Gateways.
- Five capabilities to look for in a cloud storage solution.
- What are the negatives to cloud computing?
- Data Protection in the Cloud
- Top Security Concerns for Cloud-Based Storage Services.
- Top 5 Cloud Storage Security Challenges.
- Considerations for using Data protection in the cloud.
- Cloud Seeding – It's a problem or a Solution?
- Pros to the use of Cloud Based Backup.
- Enterprise Cloud Storage Use Cases.
- Unit 8 Assessment.

## Detail Information

Course Code : TN187

Course Duration : Two-day Instructor-led Workshop

Course Location : TLC and Customer On-site.

Terms &

Conditions :100% payment in advance.

Course Deliverable: Comprehensive Student Guide and Course Certificate



A comprehensive student guide with detailed notes shall be provided to each student as a part of this course.

This course can also be conducted for customers at their premises in Karachi, Lahore and Islamabad.

www.tlcpak.com