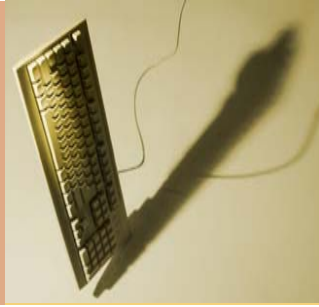


# Storage: Demands & Trends



# Agenda

1. About TekPlus

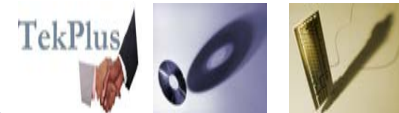
2. Pain Points

3. What End Users are asking for?

4. Need for Long Term Planning

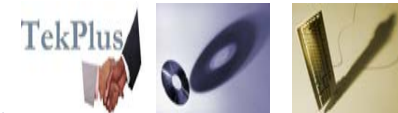
5. Current Trends & Future Direction

6. Competitive Differentiation Elements



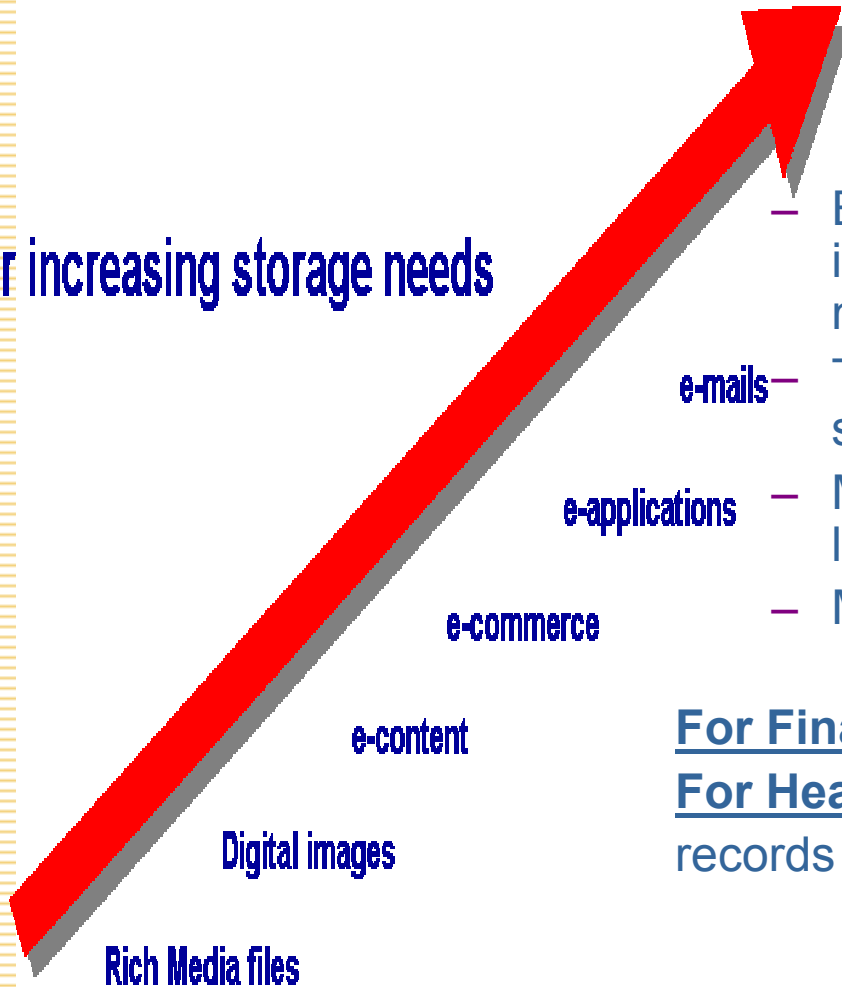
# About TekPlus

- Started in 2000 to provide strategic direction and go to market guidance to vendors in IT, Telecoms and Networking.
- Direction and planning guidance to Corporate End-Users
- Focus on developing value stacks, eco-systems, new solutions roll-outs, channel strategies and messaging
- Especially focused on new developing markets and verticals - Enterprise Infrastructure, Management Software, Security, SME, IP Telephony, Home Networking, Central and Eastern Europe and the Healthcare-IT Vertical
- London Office and associates in India and USA



# Issue – Storage Growth

Ever increasing storage needs

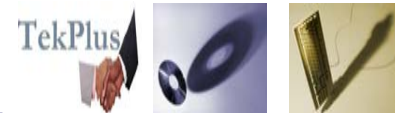


## Management of ever increasing storage demands

- Exploding data loads and ever-increasing information needs of mission critical data
- The Manpower required to manage storage is high
- Management of storage per GB is at least three fold higher than purchasing
- Management of future capacity needs

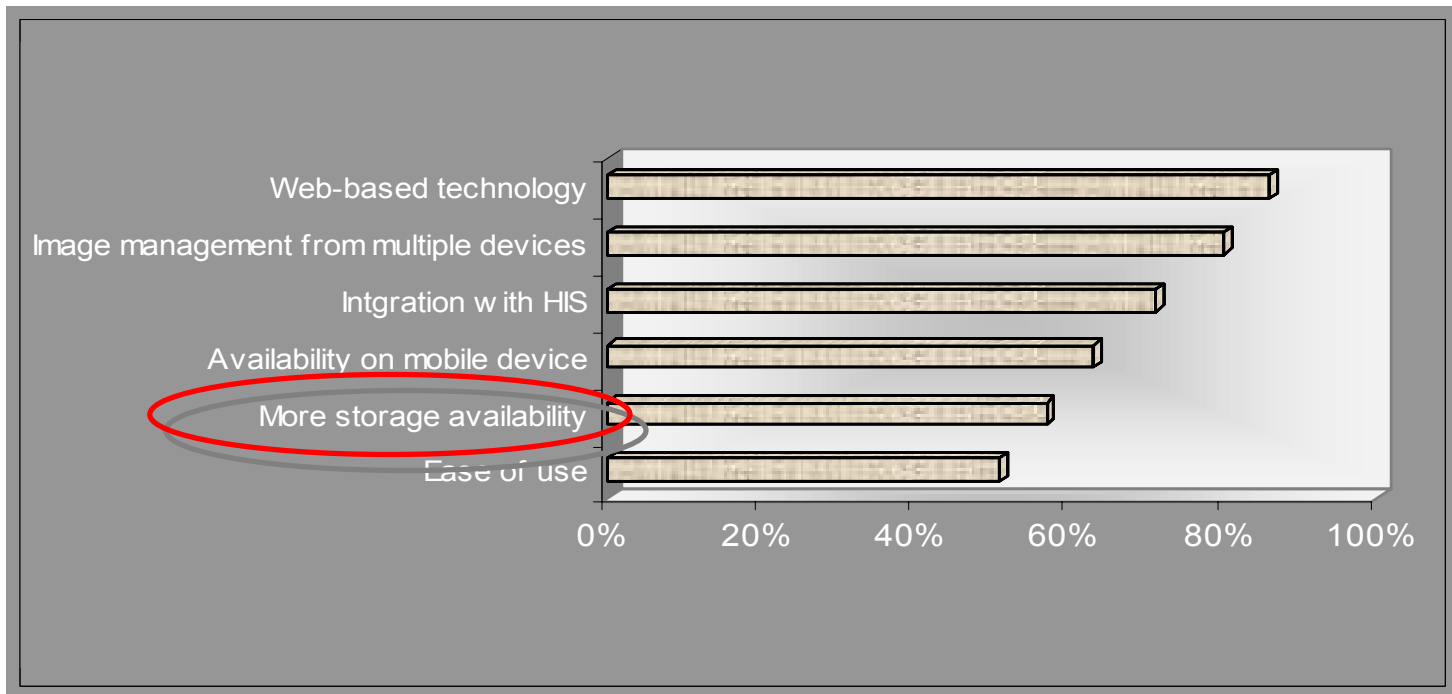
**For Finance:** Growth in Transactions

**For Healthcare:** Growth of patient data records and digital images

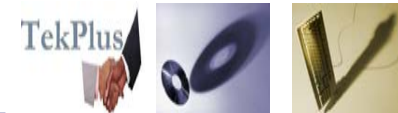


# Latest End User survey in Healthcare

According to our recent Healthcare End user survey – 57 percent of the interviewees gave importance to more storage options and storage availability while discussing their PACS expectations



Source: TekPlus Healthcare End user survey (September 2004)



# Issues - Infrastructure Complexity & Legislations

## Infrastructure Complexity:

Today most organisations have heterogeneous environments...

Enterprises have heavily invested in IT infrastructure, some of which was not strategic and didn't leverage ROI.

Also present are various types of data

## Creating Challenges around:

- Scalability, Reliability, Security
- Disaster recovery, Business continuity
- Host, Windows/UNIX clients, Linux??
- Legacy applications

## Legislations:

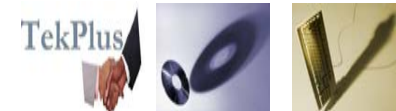
Regulatory compliance heavily impacts management of information life cycle

HIPAA , Data Protection, Sarbanes-Oxley, Basel II, SEC for backup and restore, Freedom of Information Act in UK, DOMEA

## Creating Challenges around:

- Managing the data over its lifetime
- Regulation compliance is an ongoing story....it is often politically charged and never ending !!!
- Complexity involved with regulation compliance
- To maintain privacy in this 'web-based' era
- Grading of data
- Meeting Regulation compliance means more spending

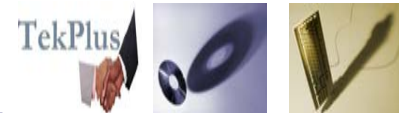
Today's Infrastructure needs high availability (24/7), scalability and robust infrastructure



# Other Operational Issues

- Effective backup
- Archiving
- Disaster recovery management
- Downtime management
- Easy and fast retrieval/recovery
- Automation of replication process (copying or instantaneous mirroring)
- Scalability
- Constant access to the data
- Real-Time needs of customer data, Business and market information
- Customer Services – CRM
- Security and Privacy
- Electronic commerce
- Flexible allocation of resources
- Mergers & Acquisitions and Consolidations
- Human Resources
- Legacy Replacement
- Cost of Operations
- Mobility

All Leading to Storage Resource management, Storage Planning, business Continuity, Security and Storage Services



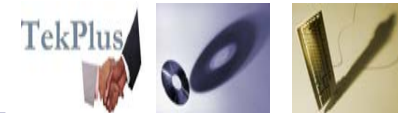
# What End Users are asking for?

- Backup and Archiving
- Storage interoperability regardless of platform
- Better configuration, monitoring and management
- Distribution of excess load through out the network
- Reduced downtime
- Prediction of their future storage needs from current usage patterns
- Alignment with business operations
- Service levels
- Cost management
- Automation of storage management tasks
- Management of heterogeneous environment from a single interface
- Storage resource management and associated storage services, for example capacity planning, data migration, performance planning, etc.
- Improved TCO – with high availability, high volume processing and reduced overall cost per transaction

## Major demands from SMEs

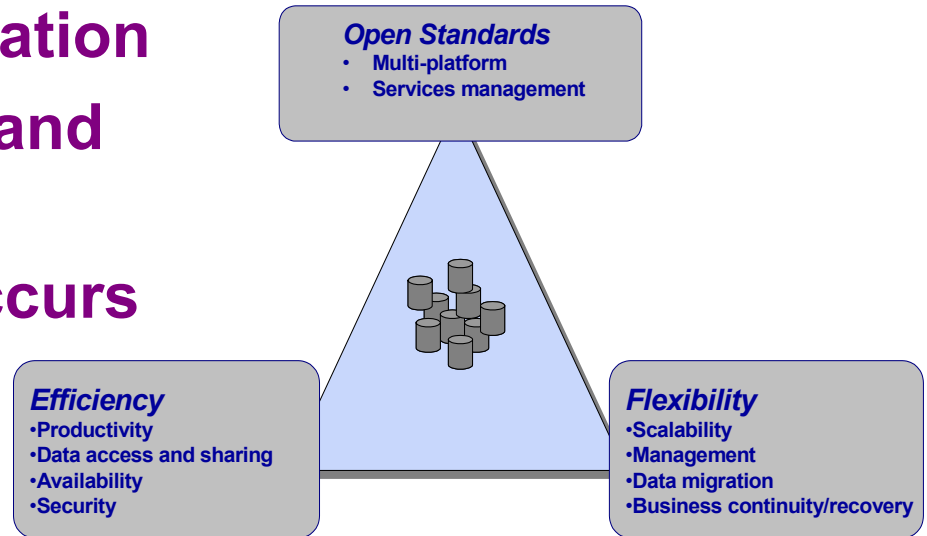
- Cost affordability
- Better use of idle capacity
- Interoperability
- Single console management
- Network storage
- Customer support services
- Scalability
- Security
- Ease of use in terms of installation and operation

**Intelligent solutions that can address their major issues; Cost, interoperability, ease of use, shortage of technical knowledge and manpower**

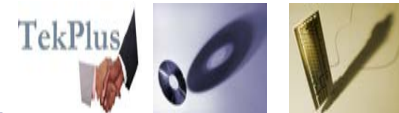


# In Essence

- Infrastructure simplification
- Investment protection and cost affordability
- Migration as growth occurs
- Manageability using existing resources



**All Leading to the Need for Strategic Longer Term Planning around Infrastructure and Services requiring Open Standards, Flexibility and Efficiency**

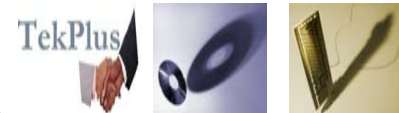


# Trends and Directions

- Falling Costs and Increasing Disk Capacity
- Multi-vendor, multi-tier storage environment
- Network Storage
- iSCSI
- Serial ATA
- Storage consolidation
- Business Continuity
- Storage Management
- Mobility
- Modularity

## Lets Concentrate On a few!

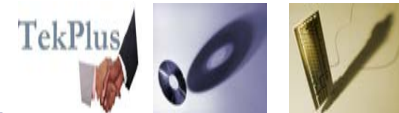
- Mainframe type technologies - **Virtualisation & Partitioning**
- **Standardisation** of Infrastructure (**Open!!**)
- **Information Life Cycle Management**
- Conversion of server, storage and Networking in the future – **Collapsing the Infrastructure** –Make it simple!!
- **On-Demand** Storage



# Virtualisation

Virtualisation is a concept rather than a physical thing of masking complexities through a layer of logical abstraction to make different components look same.

- Storage virtualisation connects servers and storage – it consolidates and abstracts capacity at the block level and presents to application servers as a single dynamic pool.
- It allows capacity to be shared, partitioned, expanded and reallocated as and when required.



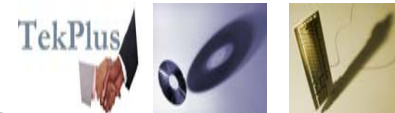
# Value Proposition & Issues

**Value Proposition:** Storage virtualisation ROI can be visible in around 18 months on average. For enterprises that have consolidated storage/servers, it claims to save up to 40 percent of IT spend.

- Improves volume management with better capacity utilisation factors.
- Greater flexibility and capacity management - improves use of resources and customisation of infrastructure with changing business needs.
- Integration with overall SRM including arrays, network devices and attached servers.
- Rapid data migration services across existing as well as future storage systems.
- Enable scaling of thousand of drives to automatically segment capacity & optimise performance
- Provide single pool and point of control for administration, planning and security.
- Lower TCO. Reduce management overhead, IT administration and management costs.
- Lower down time and higher data availability.

## **Issues:**

- Two opinions for virtualisation technology – one group believes that virtualisation technology sits between SANs and servers whereas the second believes it belongs inside the arrays.
- Costs and returns difficult to measure due to the ‘newness’ of the features, only time will tell!!
- Market in its initial phase -vendors are flooding the market with new ideas, the technology is still emerging, the standards need solidifying - we expect a lot more to happen before it matures!

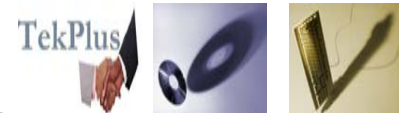


# Standardisation

The use of open standards enables integration and interoperability among the infrastructure – irrespective of its manufacturer.

SMI-S – Storage Management Initiative – Specification provides the mechanism of classifying, monitoring, controlling and interfacing the physical and logical resources of SAN.

There is a shift from monolithic/proprietary solutions to open industry standards solution. These solutions will enable massive scalability and price commoditisation over time providing significant benefits to the end users.



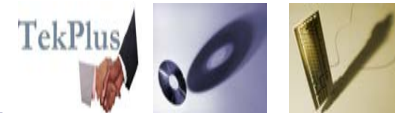
# Value Proposition & Issues

## Value Proposition:

- No lock-in
- Cheaper Costs
- Interoperability
- Competition based on Industry standards
- Vendors differentiate by adding value to their extensions
- Better manageability
- Less number of specialist knowledge staff required

## Issues:

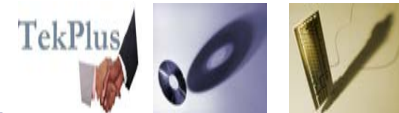
- Proprietary Extensions to SMI-S??
- Standards for Virtualisation?
- Development of ILM based on?
- Impact on new technologies?



# ILM

ILM is a holistic approach of dynamic data management over its lifecycle from cradle-to-grave, from creation to deletion. It enables aligning of storage resources to the data according to its value. The concept revolves around provision of optimum storage delivery to data at the lowest unit cost at every point in its lifecycle.

ILM maintains optimum balance between meeting real user needs and minimising TCO. It enhances the value of enterprise data by simplifying access and reuse.



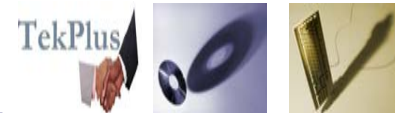
# Value Proposition & Issues

## Value Proposition:

- Lower storage costs
- Lower risk of human error
- Better protection and recovery of data
- High personnel and organisational efficiency
- Optimisation of storage tiers
- Speeds up data management operations -backup, restore, upgrades and replication

## Issues:

- ILM looks at storage as a service and not as a physical solution
- Enterprise wide strategy – best for large enterprises but difficult to justify for small enterprises
- As it matures, ILM will be critical in complying with regulatory requirements
- Storage Resource Management and Content Management provide its foundation in an enterprise



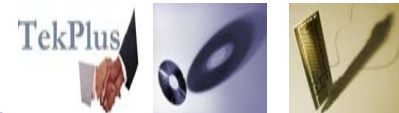
# Infrastructure Simplification

Infrastructure simplification is a concept of re-architecting the enterprise infrastructure in this case for storage resources and management practices –

- 1) To reduce the complexity involved in management of existing and future storage infrastructure, and
- 2) To leverage under-utilised storage assets.

Infrastructure simplification will consists of a number of solutions utilised together such as virtualisation, management software, consolidation, etc.

TekPlus believes over time the line between servers and storage systems will blur as they will be built on similar components, hence enabling virtualisation and partitioning across the entire enterprise infrastructure. TekPlus also believes that over time the IT infrastructure and the network infrastructure will collapse, (e.g. Blades) hence simplifying the overall infrastructure.



# Value Proposition & Issues

## Value Proposition:

- Lower storage TCO
- Improved service levels
- High availability
- Effective utilisation (by leveraging untapped assets) and integration of existing storage assets
- Improved management of existing assets
- Easier security and regulatory compliance
- Ability to respond to more storage demands

## Issues:

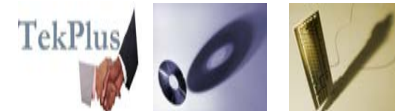
Consolidation will be the major force in the simplification - what will it be primarily based around?

- Horizontal or Vertical scaling ('scale up' and 'scale out')?
- Added to this will be the virtual pooling of which resources?
- Simplification will also be enabled due to the commonality of sub-system components – when?
- The infrastructure will leverage better and more intelligent management systems when will they also tie in business process parameters to uniquely provide better operational returns?



'Scale up': High end systems (mainframes), High performance computing, Universal data centre, Grids, etc

'Scale out': Distributed Computing, Blades, Modular systems, etc...

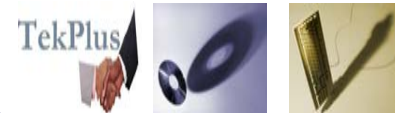


# On-Demand Storage

The evolution of the previous four – storage virtualisation, Open standards, Infrastructure simplification and information lifecycle management – leads to the provision of storage on demand.

A storage-on-demand approach offers storage systems and services that vary in capacity as and when the need arises.

IBM is providing its 'storage-on-demand' services for Siemens SIENET PACS solution. It helps to reduce healthcare providers worry about their ever-increasing PACS storage needs, as 'storage-on-demand services' prevents investment in a big storage solution and enables them to pay only for the amount of storage they use. The ASP model is proving to be more flexible and cost-effective for the Healthcare decision-makers in this pressured economic situation.



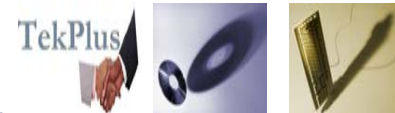
# Value Proposition & Issues

## Value Proposition:

- Cost effective strategy
- Flexibility and scalability to grow with the growing storage needs
- Maintains business continuity in case of sudden greater demand generation
- Get the most out of the existing physical (storage) assets
- Better response to future demands that can be forecasted but not precisely planned for
- Real-time storage availability
- No limit to storage capacity
- Greater productivity out of employees

## Issues:

- Storage becomes a utility service
- Price Variability
- Addresses key operational issues – limited storage capacity, escalating data volumes, shortage of skilled staff and poor storage management – who controls this?

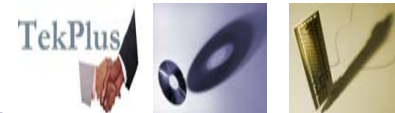


# Competitive Differentiation

## Claims of Changing the game?? Only if vendors focus on;

- ✓ A Singular Vision that doesn't change often
- ✓ A Secure Long Term Viable Partner
- ✓ Technology leadership – hardware and software
- ✓ Price performance and low cost entry points
- ✓ Complete range of seamless solutions (total enterprise infrastructure- Servers and Storage!)
- ✓ Vertical focus
- ✓ SME – especially mid-range focus
- ✓ Modularity and size configurations
- ✓ Financing
- ✓ Routes to market and Channel partner offerings
- ✓ Alliance Ecosystems (eg EMC/Dell, IBM/Cisco)
- ✓ Services – especially Consulting and Education services
- ✓ On-demand Services

**In essence – SOLUTION SELLING!**



# Contacts

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