



GTS Systems Services

IBM Smart Business Storage Cloud

Reduce costs and improve performance with a scalable storage virtualization solution

SoNAS

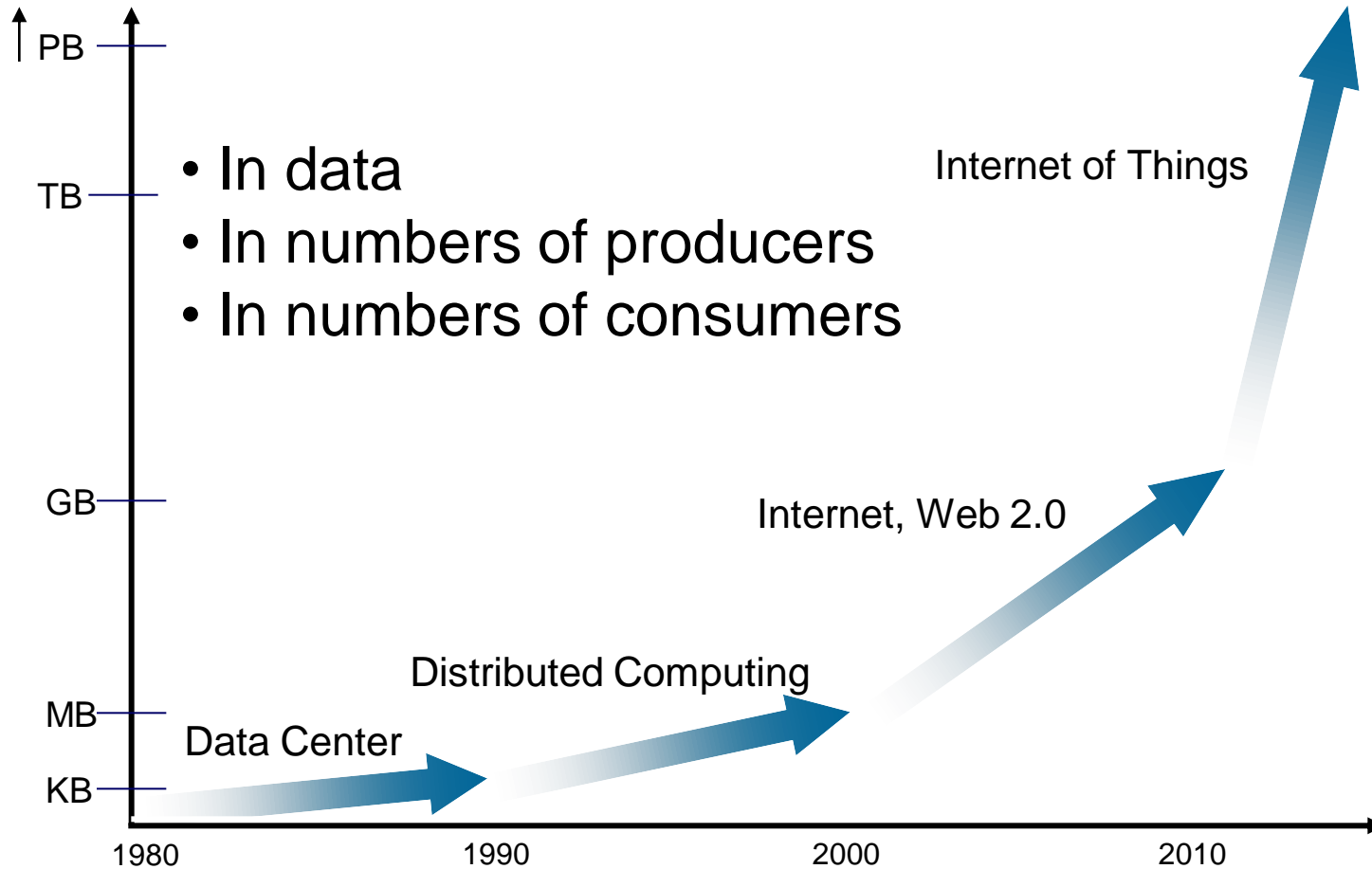
Gerardo Kató
Cloud Computing Solutions

New IBM Cloud deployment choices aligned to workloads:

	Analytics	Collaboration	Development and Test	Desktop and Devices	Infrastructure Compute	Infrastructure Storage	Business Services
<p>Smart Business on the IBM Cloud Standardized services on the IBM Cloud</p> <p>Smart Business Cloud NAS and cloud storage, cloud services, behind your firewall, products, services. Built and/or managed by IBM</p> <p>Smart Business Systems Pre-integrated, workload optimized systems</p>		 NEW - IBM LotusLive iNotes IBM Lotus Live	 IBM Smart Business Dev & Test on the IBM Cloud (Beta)	 IBM Smart Business Desktop on the IBM Cloud IBM Smart Business End User Support-IBM Service Assist	 IBM Compute on Demand	 IBM Information Protection Services	 IBM BPM Blueworks (Design tools) IBM Smart Business Expense Reporting on the IBM Cloud
	 IBM Smart Analytics Cloud	 Lotus Foundation	 IBM Smart Business Test Cloud	 IBM Smart Business Desktop Cloud	 IBM Smart Business Storage Cloud Using SONAS		
	 IBM Smart Analytics System		 IBM CloudBurst			 IBM Information Archive	 IBM Smart Business for SMB (backed by the IBM cloud)

Existing
 New Announce!

Today's IT Infrastructure Must Cope with Scale



High interest in IT Cloud Computing



Application Clouds

- What is offered to the cloud user is an **application**
- **Compute & Storage are invisible within cloud**



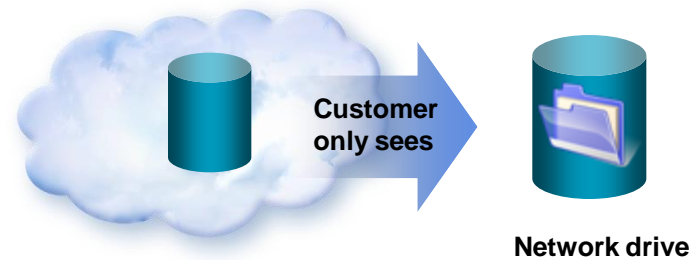
Compute Clouds

- What is offered to the cloud user is a **managed server (real or virtual)**
- **Storage is invisible within cloud**



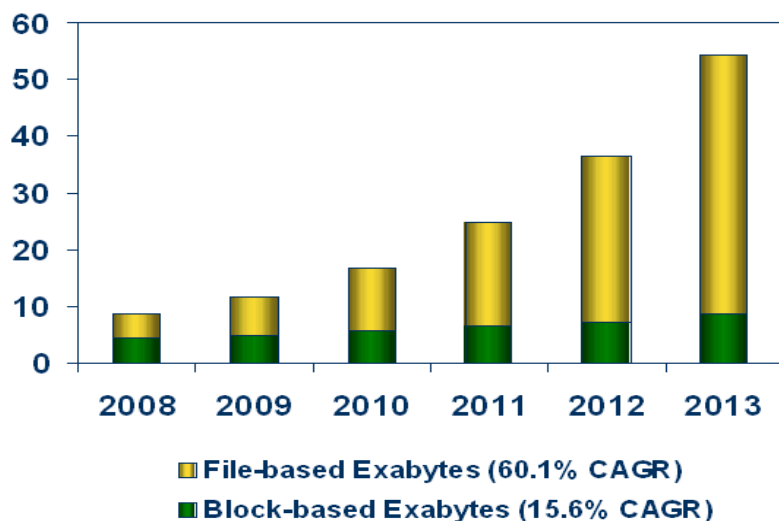
Network Storage Clouds

- What is offered to the cloud user is typically a **network drive**
- **Storage is invisible within cloud**



Globally, storage requirement is *80% file-based unstructured data*, and growing

Worldwide Storage Capacity Shipped by Segment, 2008–2013



- **Explosion of data, transactions, and digitally-aware devices** strains IT infrastructure and operations. Storage capacity is doubling every 18 months.
- Majority of this data is **unstructured file-based**, such as user files, medical images, web and rich media content, growing at 63%
- Block storage, while still well suited for existing OLTP/database workloads, is not where majority of strategic analytics-based applications and strategic storage initiatives are being deployed

Source: IDC, *State of File-Based Storage Use in Organizations: Results from IDC's 2009 Trends in File-Based Storage Survey*; Dec 2009; Doc # 221138

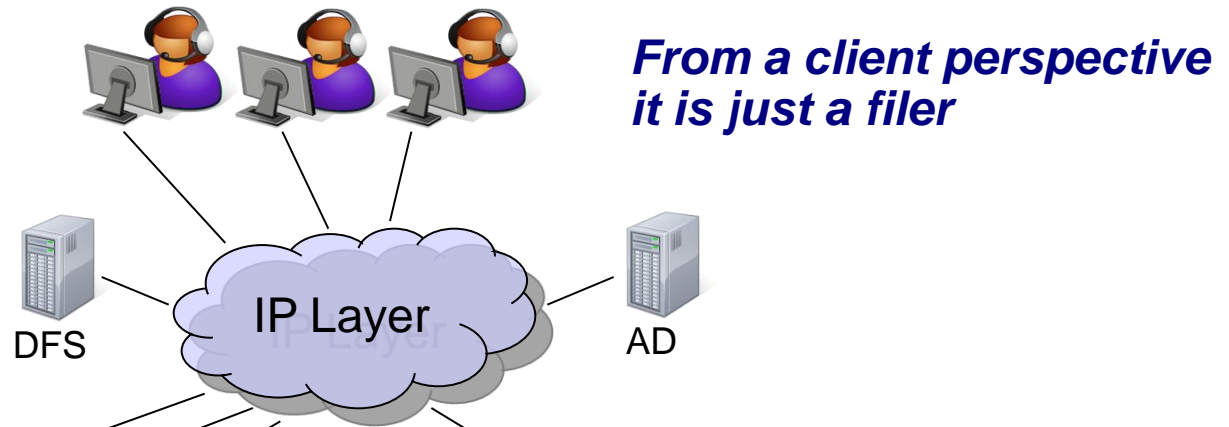
IBM Scale Out NAS / Cloud Storage: What workloads?

Many environments needing easy-to-manage high performance, scalable storage

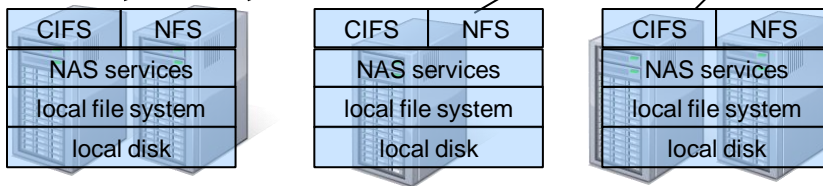
Collaboration Data & General File Storage	General purpose file storage environments where clients are challenged with the manageability of current NAS systems
Digital Media	High performance, simplified management for widely varying use cases in digital media environments.
Web Content Store	Hyper-scalable storage for large Web 2.0 stores and for other vendors looking to build their own Cloud/SaaS applications
High Performance Analytics	Business applications such as financial services interested in cloud deployments with single namespace
Energy & Geo-Sciences	Energy exploration and geo-sciences require huge addressable namespaces and very high performance.
CAE	Auto / Aero / Electronics design processes experiencing rapid file-centric storage growth as simulation expands.



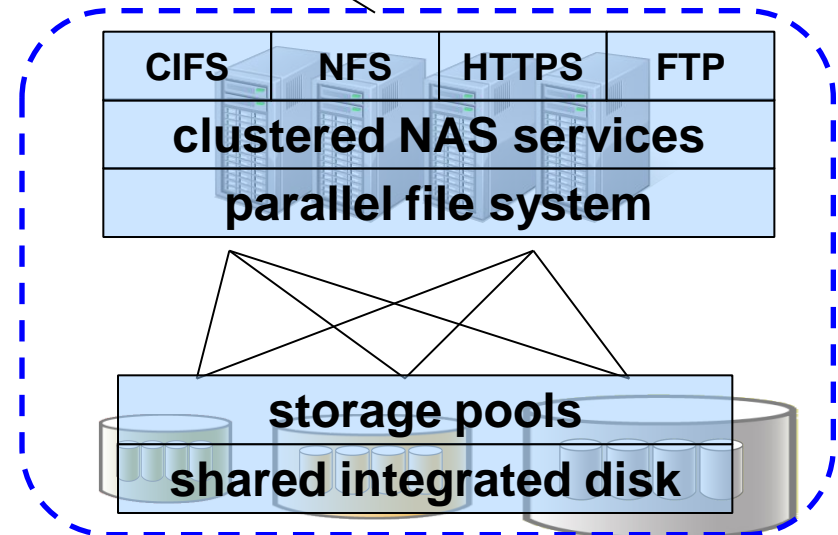
IBM's approach to Scale Out NAS / Cloud Storage



Classic Filers



IBM Scale Out NAS



IBM Scale Out NAS technology dramatically changes the way you can manage your data

Centralized Management and Administration

Classic Filers



- “I loved my first filer. It was so easy to administrate. When we installed the 20th I started having problems managing them.”
- Many enterprises now have *hundreds*
- Each filer has to be individually administrated
- Operation costs grow linear with the amount of filer

IBM Scale Out NAS

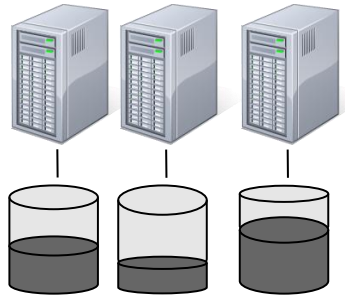


- IBM Scale Out NAS is a **super-scalable, scale out NAS cluster, centrally managed, centrally deployed**
- Integrated, automated tiered storage allows management of logical storage tiers instead of individual disks

IBM Scale Out NAS solution makes operation easy

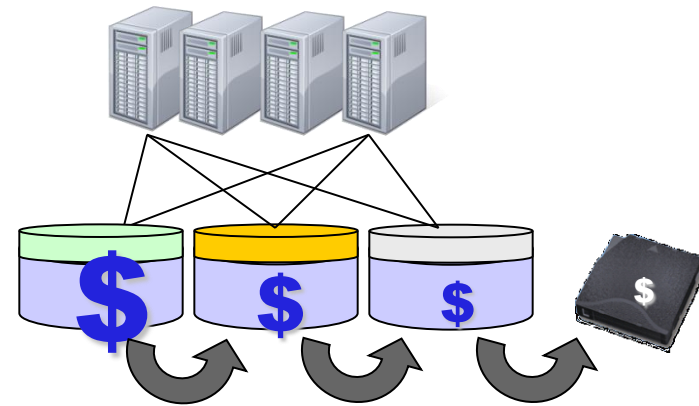
Storage Utilization, Automated Tiered Storage

Classic Filers



- Capacity managed individually
- **Average Utilization usually <50%**
- All files online, but 80% haven't been accessed during the last 6 months

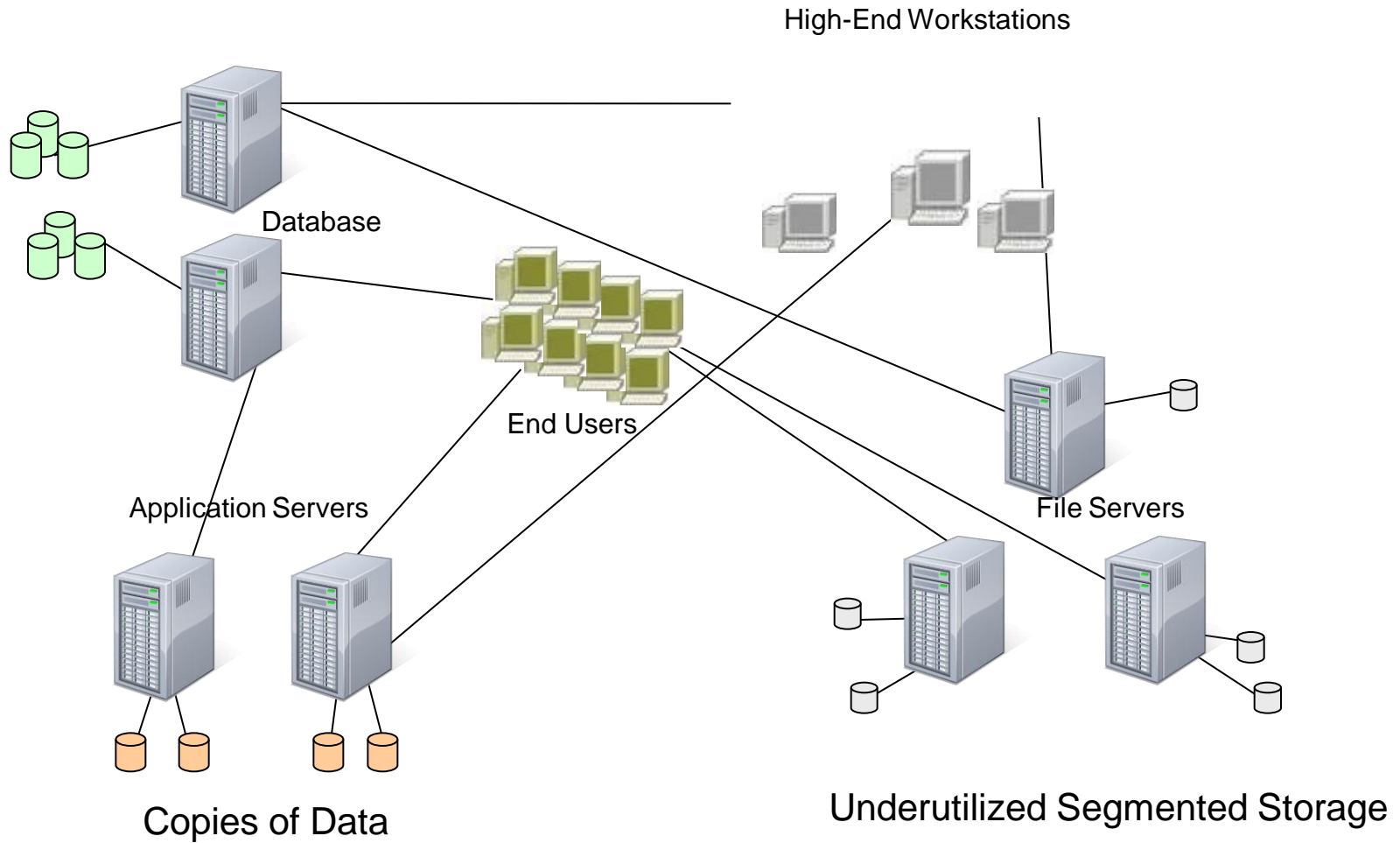
IBM Scale Out NAS



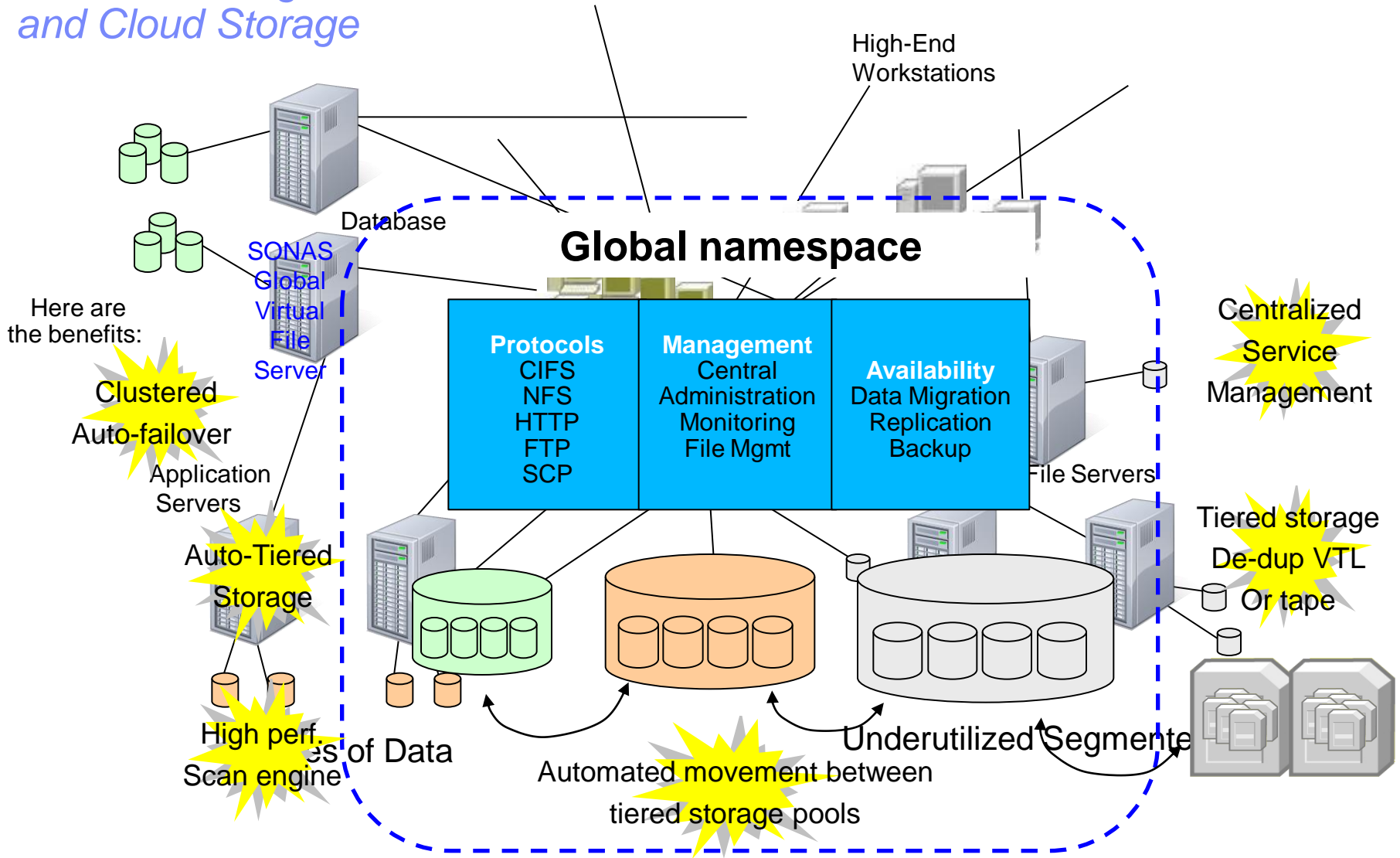
- Capacity managed centrally
- **Average utilization >80%**
- Automated tiered storage
- Policy driven file movement between tiers
 - Inactive files can be migrated to tape
- Migration as granular as a 'per file' basis

***Goal: Implement tiered storage automatically
And buy just the capacity that you really need***

Storage environment ... Before:

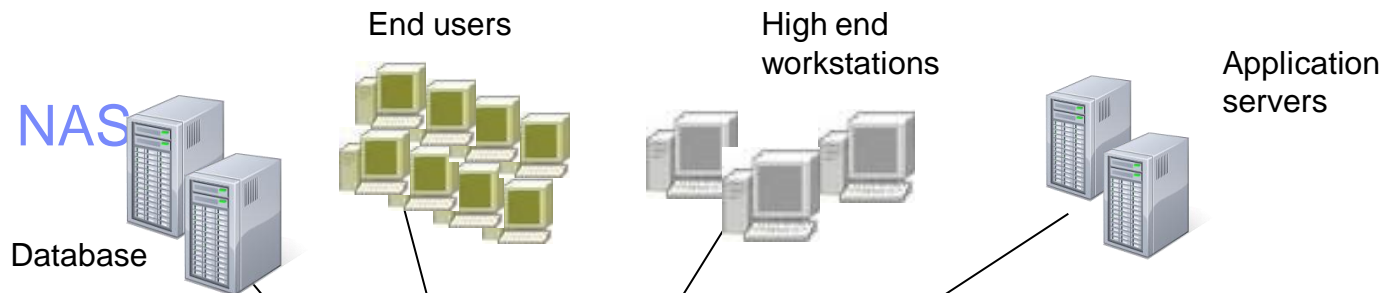


Transformation: Network Storage and Cloud Storage



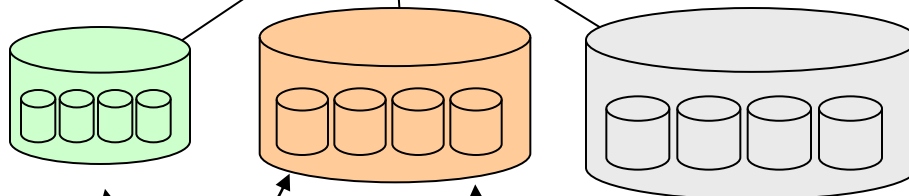
IBM Scale Out NAS ... After:

Global virtual file server



Global namespace

Protocols CIFS NFS HTTP FTP SCP	Management Central Administration Monitoring File Mgmt	Availability Data Migration Replication Backup
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Automated movement between tiered storage pools

Clustered Auto-Failover

Auto-Tiered Storage

High perf. Scan engine

Centralized Service Management

Tiered storage De-dup VTL Or tape



A Global Virtual File Server

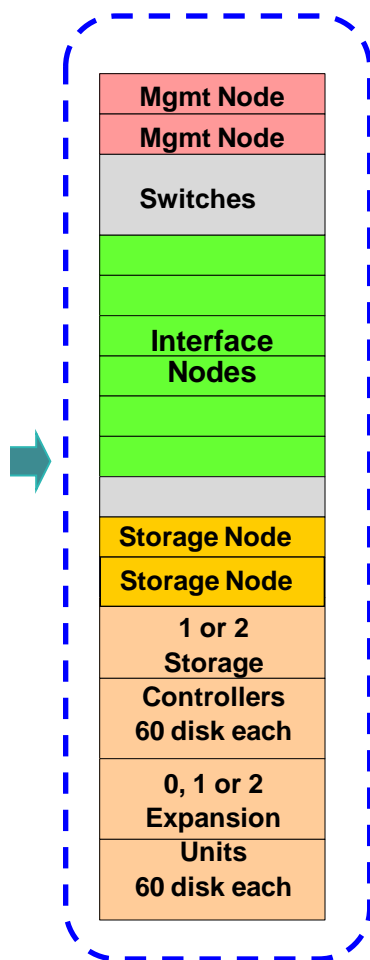
Why Smart Businesses like IBM Scale Out NAS storage



- **Unified, consolidated management of petabytes of storage**
 - Automated tiered storage, centrally managed and deployed
 - Scale out to 14.4 petabytes raw storage in single machine
- **Global access to data, from anywhere**
 - Single global namespace, across petabytes of data
- **Based on standard, open architectures**
 - Not proprietary
 - Avoids lock-ins
 - Leverage worldwide Open Source innovative technology
- **Provides and exceeds today's needed requirements for:**
 - Scale-out capacity, performance, global virtual file server
 - Extreme scalability with modular expansion
- **High ROI**
 - Significant cost savings due to auto-tune, auto-balance, automatic tiered storage
- **Position to exploit the next generation of storage technology**
 - Superb foundation for cloud storage

IBM Scale Out Network Attached Storage - Cloud Storage Appliance

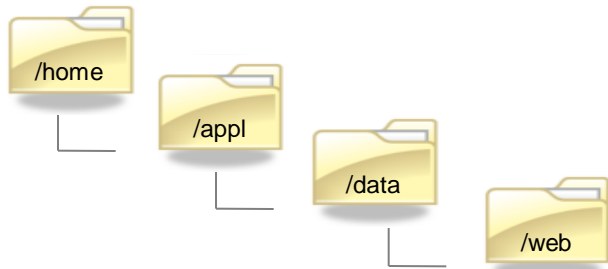
Fully Integrated Appliance



Scale Out Network Attached Storage (NAS) system with differentiated, world-proven IBM General Parallel File System core-technology

- Up to **14.4 PB** raw storage per SONAS
- Scale out to 30 interface nodes
- Scale out to 60 storage nodes
- Global file system namespace
- File system snapshots, quotas
- Scalable, Integrated **Automated Tiered Storage**
 - Information Life Cycle Management (ILM)
 - Hierarchical Storage Management support using external Tivoli Storage Manager server
- Integrated System Health Center for HW monitoring
- Windows Active Directory and LDAP support

Create and write files



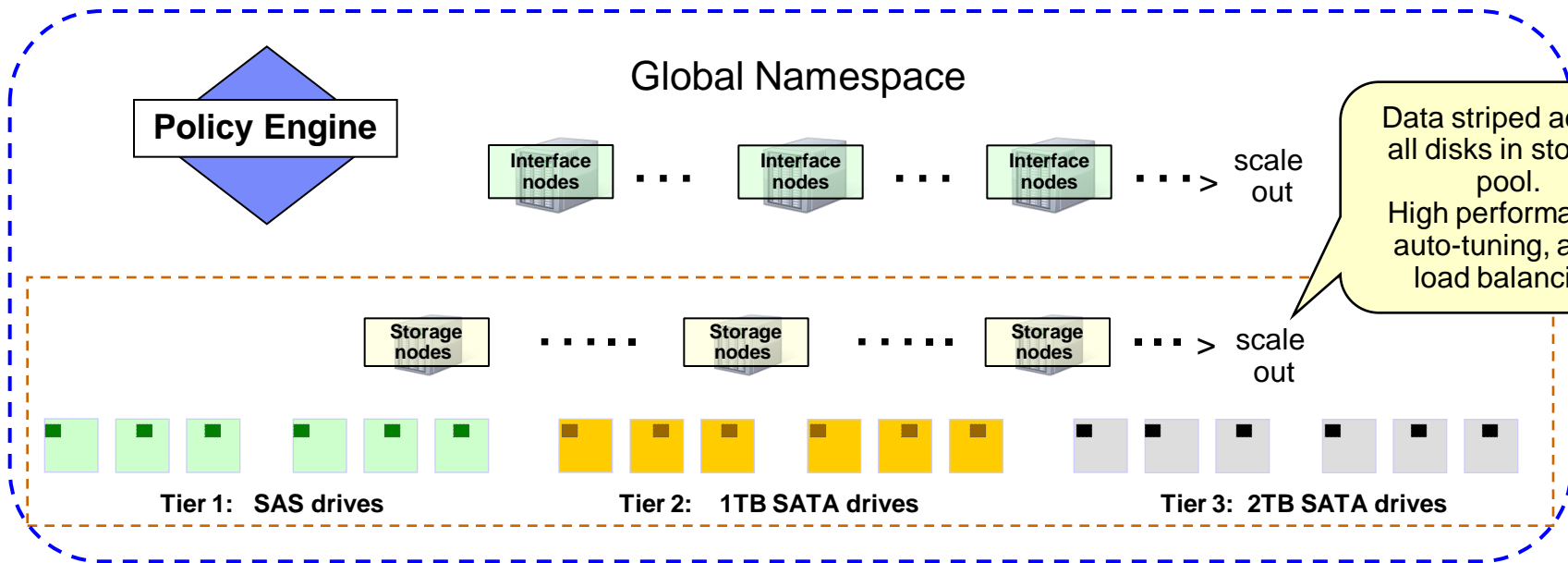
/home/appl/data/web/important_big_spreadsheet.xls
 /home/appl/data/web/big_architecture_drawing.ppt
 /home/appl/data/web/unstructured_big_video.mpg



Logical

Note: all three files, in same directory, but each allocated to *different* physical storage pool

IBM Scale Out NAS



Data striped across all disks in storage pool. High performance, auto-tuning, auto-load balancing

Physical

IBM Scale Out Network Attached Storage (SONAS)

The “C:” of the cloud



- **SONAS solves the major consolidation, management, scalability, and performance requirements for today’s Competitive Advantage applications**
- **SONAS changes the way that enterprises are able to manage unstructured data, Network Attached Storage, and Cloud Storage**
 - Single global namespace – like one big “C:” drive but everyone can share it.
 - **Service Management:** centrally managed, centrally deployed, auto-tiered storage, high performance
 - Scale out to 14.4 petabytes of storage in a single machine
 - Equal to 180 million 4-drawer filing cabinets full of text
 - Equivalent to every MRI done in the world this year
- **World class scalability and performance**



Compliance



Availability



Retention



Security

Thank You



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