



Data Sustainability on a Budget

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What is a Workload?



- **A workload is a physical or virtual server or desktop machine, an application, or a set of data that provides productivity to a workforce**
 - **Machines** – Desktop workstations, application servers, domain controllers, file and print servers, web servers, server clusters, etc.
 - **Applications** – Messaging, database, finance, customer support, sales, management, etc.
 - **Data** – Any data that users need to be productive



Server



Workstation



Application



Data

Workload Management Challenges



- **Complex**
 - Workload management tasks are labor intensive and may require many different tools to complete
- **Expensive**
 - Workload hardware and software technologies and the expertise and labor required to manage them can become very expensive
- **Inflexible**
 - Workloads are often bound directly to hardware or virtualization platforms and moving workloads between systems can be very difficult



Workload Optimization



- **Workload Management CAN be Optimized**
 - **Portability** – Quickly and efficiently move/migrate workloads between dissimilar physical/virtual platforms
 - **Backup/Recovery** – Backup workloads in real time across any distance with minimal data loss and on-demand recovery
 - **Availability** – Protect workloads with real-time replication and failover to standby servers
 - **Flexibility** – Manage and maintain workloads centrally providing fast workload deployment for desktops/servers
- **Lower workload management costs by making tasks and projects simpler and faster**

Double-Take Software, Inc



Leading Provider of Software Solutions for Workload Portability, Backup, Availability and Flexibility

- Founded in 1991
- Headquartered in Southborough, MA
- Worldwide Reach - North America, South America, Europe, Middle East, Africa, and Asia
- Focused on workload optimization
 - Over 150,000 licenses sold
- Comprehensive Professional Services Offerings
- Microsoft Certifications



Advanced Infrastructure Solutions
ISV/Software Solutions



Workload Portability Challenges



- **Downtime**

- Moving workloads between sites or between pieces of hardware can cause long outages
- Workload migrations can be labor intensive and prone to failure causing even more downtime

- **Expensive**

- Site migrations can be both slow and expensive, spanning many months of intense effort

- **Complex**

- Hardware incompatibilities slow down migrations and require expensive tools
- P2V conversions require specialized tools and typically require hours of downtime
- Very few tools exist to assist with converting a workload back from virtual to physical

Workload Portability



- **Portability** – Quickly and efficiently move/migrate workloads between dissimilar physical/virtual platforms.
 - **Workload Migration**
 - Migrate workloads in real-time while users are online and complete migration with only minutes of downtime
 - Migrate workloads between dissimilar hardware systems and between dissimilar virtualization platforms
 - **Cross-Site Migration**
 - Migrate workloads in real-time across any IP network, over any distance for efficient site migrations or data center consolidations
 - Take advantage of available bandwidth with three levels of data compression and scheduled bandwidth limiting capabilities

Workload Portability



- **Portability** – Quickly and efficiently move/migrate workloads between dissimilar physical/virtual platforms.
 - **Physical ↔ Virtual**
 - Migrate workloads between any combination of physical and virtual servers: P2P, P2V, V2V, and V2P
 - Automatically provision virtual machines on virtual hosts for P2V conversion or V2V migration
 - “Physicalize” virtual servers with V2P conversions
 - **Save Time, Save Money**
 - Migrate data during normal business hours and perform fast migrations within minutes instead of hours
 - Eliminate costly downtime of business critical servers during migration or conversion
 - Consolidate and virtualize quickly and efficiently



Workload Backup Challenges



- **Shrinking Backup Windows**
 - Backup windows tend to shrink while backups tend to grow larger and larger as data sets grow
- **Labor Intensive**
 - Tape Backups are labor intensive requiring trained staff at both central and remote offices to perform daily backup tasks
- **Costly and Inefficient**
 - Tape drives or libraries are costly to purchase maintain
 - Tape media is expensive and not used efficiently when backups use only a portion of the available tape

Workload Backup Challenges



- **Data Deduplication**
 - Disk-to-Disk backups have large storage requirements and require data deduplication with varying effectiveness
- **Poor RPO**
 - Both tape and disk-to-disk backups are scheduled backup jobs and leave large gaps in data protection
- **Limited Recovery Points**
 - Both tape and disk-to-disk backup occur periodically and only provide periodic points from which data can be recovered, leaving protection gaps of hours



Workload Backup



- **Backup/Recovery** – Backup workloads in real time across any distance with minimal data loss and on-demand recovery
 - **Real-Time Backup and Recovery**
 - Backup workloads with real-time, byte-level data replication
 - Eliminate backup windows
 - Replicate workloads across any IP network, across any distance
 - Replicate only byte-level changes for efficient bandwidth use
 - **System-State Backup and Recovery**
 - Backup entire workloads with real-time system-state replication
 - Recover workload system-state to dissimilar hardware and between physical and virtual servers
 - Perform on-demand workload recovery by automatically provisioning virtual machines



Workload Backup



- **Backup/Recovery** – Backup workloads in real time across any distance with minimal data loss and on-demand recovery
 - **Point-in-Time Recovery**
 - Recover workloads from scheduled VSS snapshots
 - Recover workloads from ANY point in time (CDP)
 - **Granular Recovery**
 - Recover individual data objects
 - Individual files and folders
 - Individual databases and logs
 - Individual emails or mailboxes
 - Recover deleted or corrupted data quickly down to the exact point in time when the data was last in a good state



Workload Backup



- **Backup/Recovery** – Backup workloads in real time across any distance with minimal data loss and on-demand recovery
 - **Save Time, Save Money**
 - No scrambling to find and load the correct tape
 - End users don't need to re-enter any data
 - No data loss between backups
 - Lights-out operation – no need for hand-holding
 - Full system recovery on demand to like to dissimilar hardware.
 - Online backups – no application down-time



Workload Availability Challenges



- **Server Downtime**

- Hardware failures can lead to hours or days of downtime for business critical applications during recovery

- **Lost Data**

- Failures can result in hours or days of lost data that may never be recovered and results in lost revenue

- **Site Disaster**

- Most availability solutions do not protect against site-wide failure and rebuilding a site may take weeks



Workload Availability



- **Availability** – Protect workloads with real-time replication and failover to standby servers
 - **Minimal Downtime**
 - Workload failover allows availability within minutes, not hours
 - **Minimal Data Loss**
 - Real-time replication provides near-zero data loss
 - **Local or Remote Availability**
 - Workloads may be failed over in the same site or across sites
 - **Across Hardware and Virtualization**
 - Failover workloads between dissimilar hardware
 - Failover workloads between physical and virtual platforms



Workload Availability



- **Availability** – Protect workloads with real-time replication and failover to standby servers
 - **Application Failover**
 - Failover transactional databases or front-end applications
 - Validate and configure protection with enhanced protection
 - **System-State Failover**
 - Failover entire workloads including data and system-state
 - **Cluster Availability**
 - Failover entire clusters to standby clusters or standalone servers
 - **Geographically Dispersed Clustering**
 - Extend MSCS cluster nodes across sites with real-time replication



Workload Availability



- **Availability** – Protect workloads with real-time replication and failover to standby servers
 - **Save Time, Save Money**
 - Application and Hardware Agnostic
 - Reduced the need for costly application and OS versioning.
 - Cookie cutter protection regardless of application
 - Lower RPO and RTO
 - Reduction in human intervention
 - Automation in failing over – reducing staff interaction
 - Dynamic redirection for clients – eliminates DR scramble
 - No data loss between backups
 - Lights-out operation – no need for hand-holding



Workload Flexibility Challenges



- **Complex and Expensive**

- Provisioning new desktop and server workloads can be manually intensive and time consuming
- Managing updates and patches across hundreds of workloads can be overwhelming without expensive management software
- Fixing individual workload issues introduced by users consumes valuable IT resources and time

- **Poor Performance**

- Thin client technologies and virtual desktops don't provide users the "real" desktop experience they want

- **Not Secure**

- Desktop storage is both difficult to manage and to secure



Workload Flexibility



- **Flexibility** – Manage and maintain workloads centrally providing fast workload deployment for desktops/servers
 - **Efficient, Inexpensive Storage**
 - Utilize iSCSI technology to centralize and optimize disparate storage systems
 - **Boot from SAN**
 - Centralize desktop and server workload images by booting systems from SAN rather than directed attached storage
 - Centrally manage a single workload image that is used by dozens or hundreds of systems
 - Quickly repurpose systems by redirecting new workload boot images and rebooting
 - Centrally protect and secure data in a data center instead of spreading it across the whole IT infrastructure

Double-Take Workload Optimization



- Lower workload management costs by making tasks and projects simpler and faster

Double-TakeMove 

 LiveWire

 TimeData

 Double-Take

 GeoCluster

Double-TakeFlex 

 Double-Take Software

Workload Flexibility Applied



Double-TakeFlex

- **Boot-from-SAN**
 - Double-Take Flex delivers powerful, cost-effective, boot-from-SAN solution for desktops and servers
- **Leverage iSCSI Technology**
 - Double-Take Flex bootable images are centrally managed and secured on iSCSI storage
- **Centralize Management**
 - A single Double-Take Flex server can manage hundreds of desktops or servers
- **Leverage existing Infrastructure**
 - Double-Take Flex images are delivered across existing IP networks on existing desktop machines
 - Users retain the same desktop experience because the same desktop machine is processing the workload



Workload Flexibility Applied

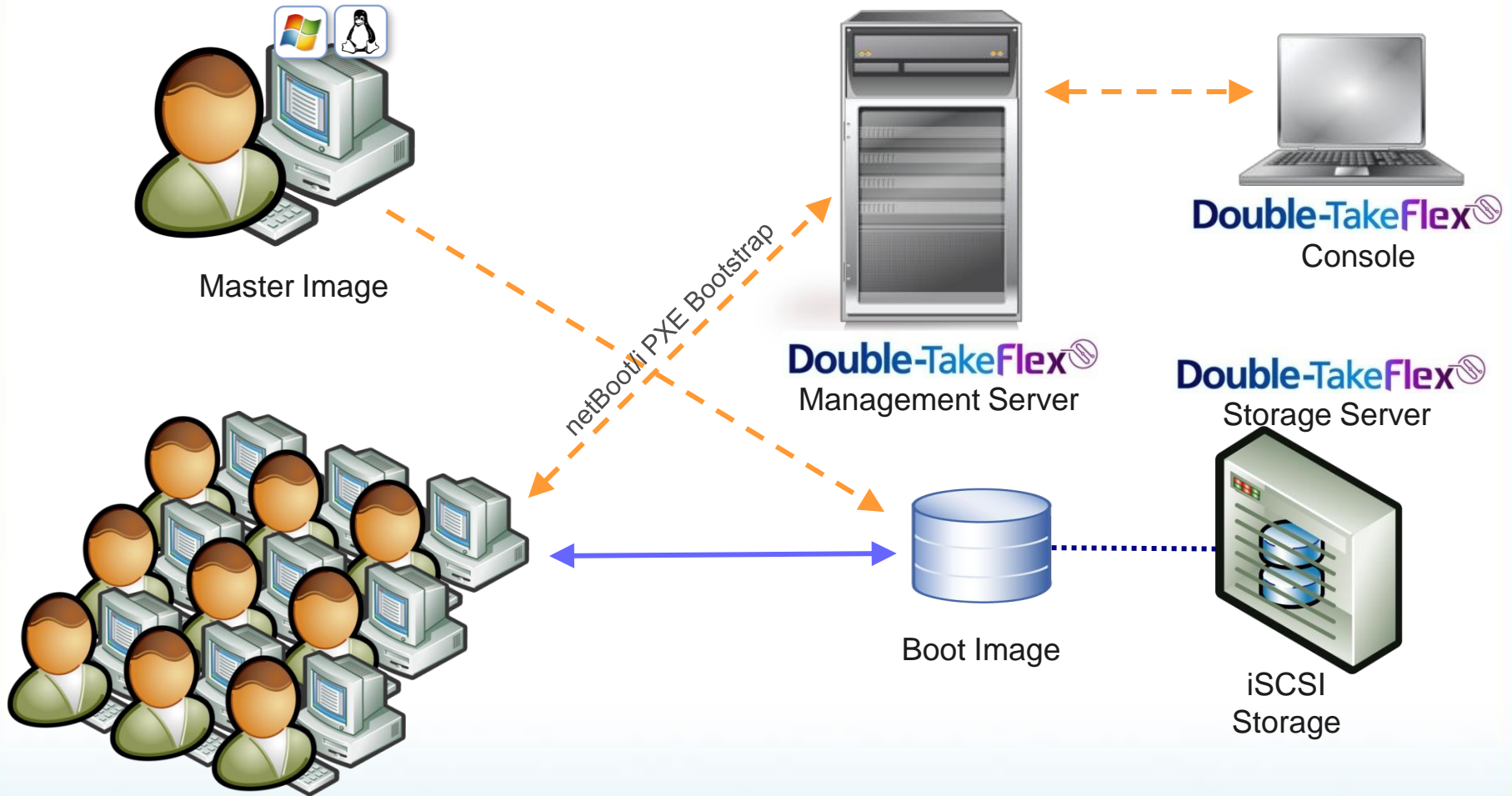


Double-TakeFlex

- **Use Existing Resources**
 - Double-Take Flex creates an iSCSI SAN from any Windows server
- **Get full SAN Functionality**
 - Create exclusive or shared iSCSI targets
 - Works with desktops and servers as well as physical and virtual workloads
 - Use Double-Take Flex iSCSI storage with Microsoft Failover Clustering for complete resiliency
- **Supports Virtualization**
 - Support for storing data in the VHD virtual disk format for Microsoft Hyper-V virtualization
- **Optimized Storage for Boot from SAN**
 - Shared persistent and non-persistent modes of storage for caching user changes to boot images



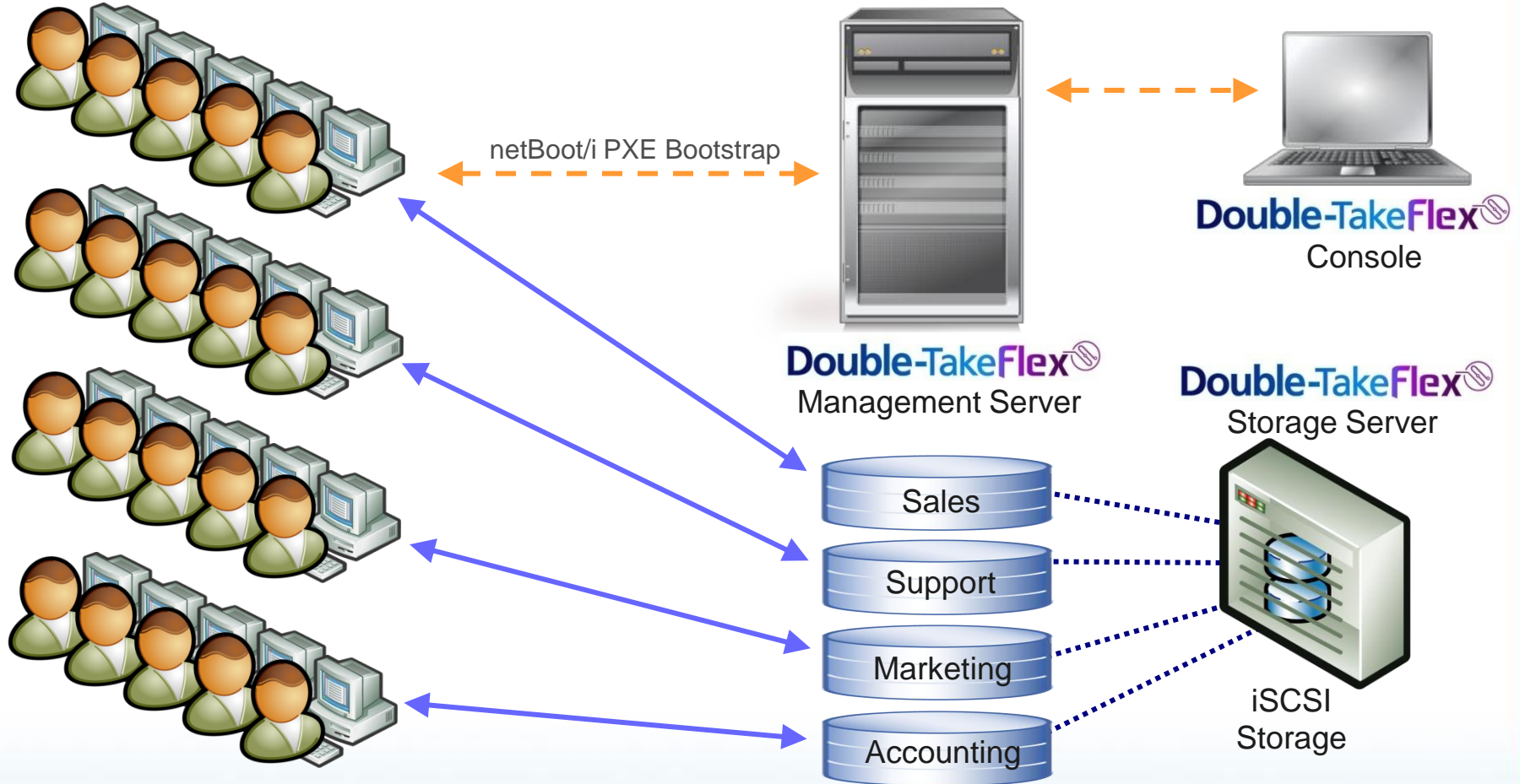
How Double-Take Flex Works



At Double-Take Flex, you can create a master image from a source, and then use that image to create multiple copies of the image to be used in a client environment.

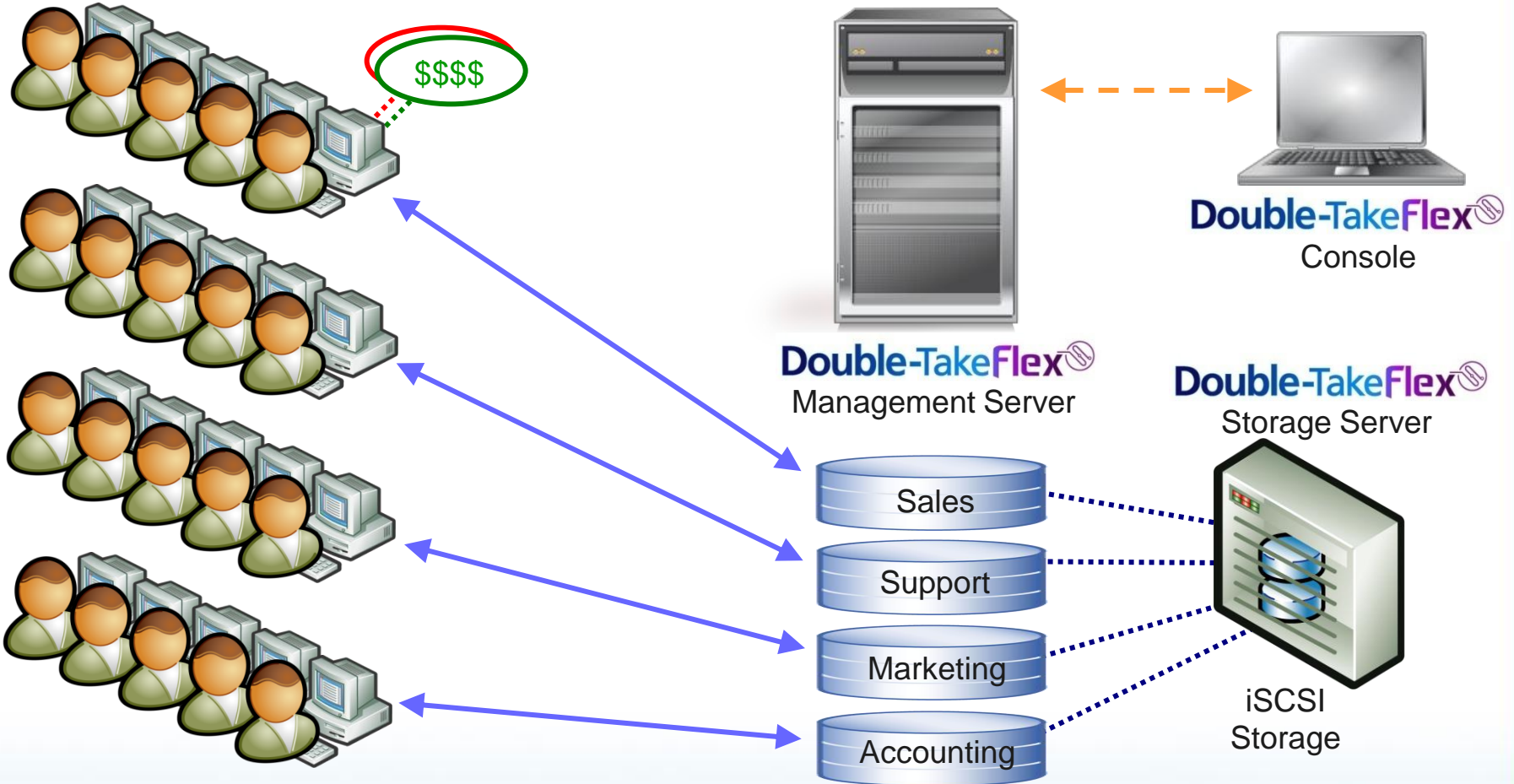


Multiple Images



Boot different departments from different images

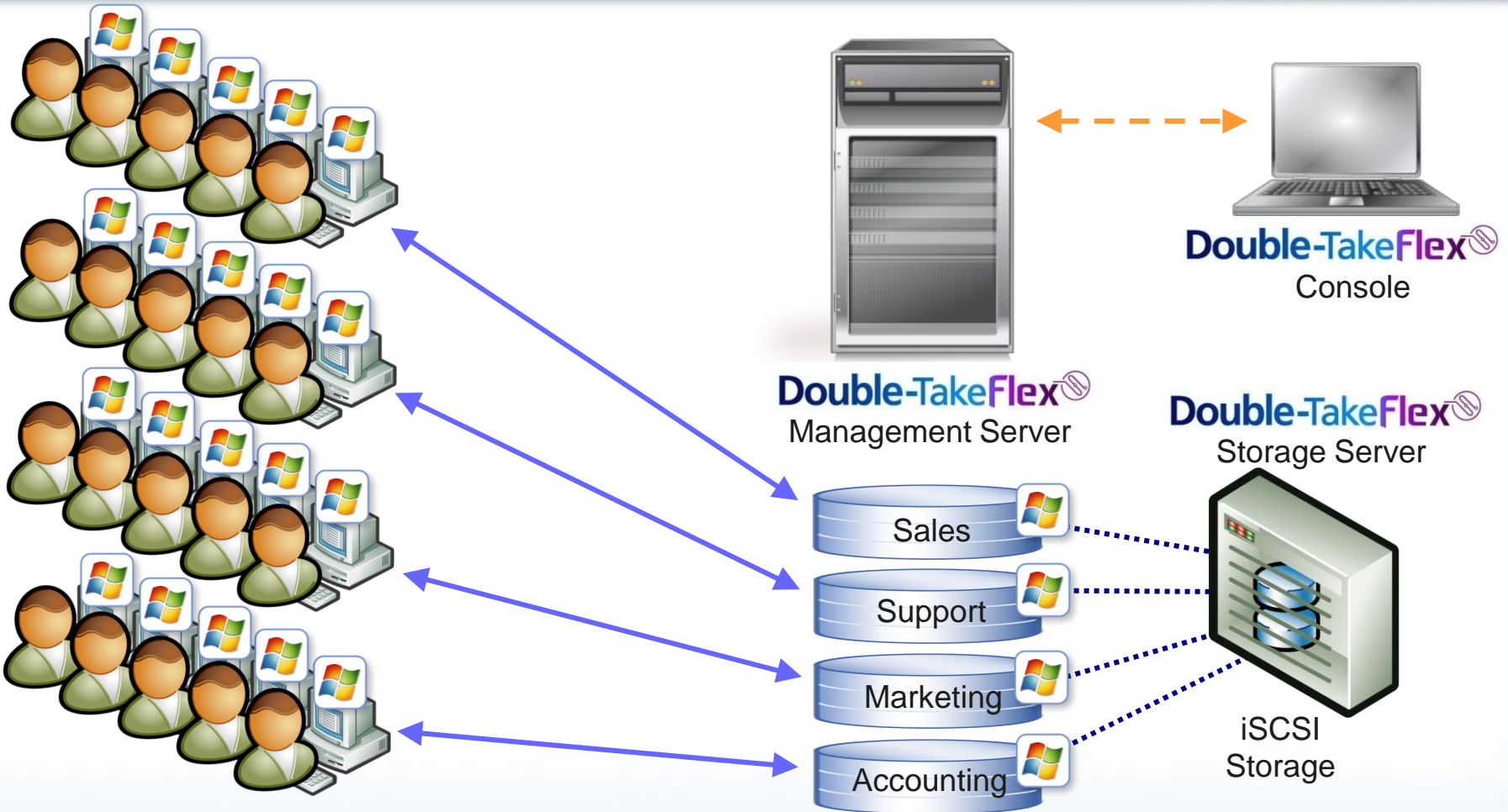
Resilient Images



Simply expect the client configuration to receive a fresh image



Easy to Manage



With traditional packages, patches and updates, image
regardless of the number of desktops



Workload Flexibility Benefits



- **Inexpensive**
 - Double-Take Flex does not require costly HBAs or fibre channel networks so it is ideal for desktops and blade servers
- **Full Performance**
 - Double-Take Flex gives the end user a full-performance experience with sound and video capabilities
- **Secure**
 - Information from desktops in a Double-Take Flex environment is stored on the SAN in a central, safe data-center location, significantly reducing the threat of on-site theft of data
- **Easy to Convert**
 - Double-Take Flex workstations can easily be converted back to a traditional desktop PC by re-enabling the hard drives for local boot



Compared to Thin Client and VDI



- **Processing Bottleneck**

- Thin Clients and Virtual Desktops host the workloads on a central server or servers where scalability suffers
- Double-Take Flex leaves the processing to the desktop machines so there is no processing bottleneck

- **Single Point of Failure**

- Thin Clients and Virtual Desktops are powered by host servers that may fail leaving their users without desktops
- Double-Take Flex only manages the boot process for desktops and then only individual desktop failure or disk failure would result in any outage





Q&A

For More Information

<http://www.doubletake.com>



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