



# hp's storage virtualization strategy

**Speaker**  
Title

Date



## benefits of storage virtualization

- increased utilization of storage assets
- consolidated, standardized, and simpler management
- reduction / elimination of application downtime due to storage maintenance activities
- snapshots, mirroring, data migration, and data replication across heterogeneous devices

# the right virtualization solution for you

## server-based

- virtualize capacity across heterogeneous arrays, scaling to the arrays' capacity
- benefits single server/single cluster environments
- intelligence resides on the host

## network-based

- virtualize capacity from any array, for any host on the network
- benefits heterogeneous environments
- intelligence resides in the network
- **prerequisite of the storage utility**

## array-based

- virtualize capacity in a single array, scaling to the array's capacity
- benefits heterogeneous hosts/single array environments
- intelligence resides in the array controller

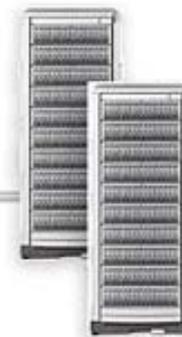
server-based



network-based



array-based



# virtualization and hp's storage strategy

## hp storage strategy

- an adaptive storage infrastructure that is controllable, resilient and extensible
- virtualization technology is a key building block of hp's ENSAextended architecture

## hp storage virtualization strategy

- focus on network-based virtualization
- products will be characterized by
  - simplified deployment
  - excellent RoIT
  - increasing scalability
  - SAN-wide, non-disruptive management
  - heterogeneous services

## ENSAextended architecture

### active intelligent management

application integration

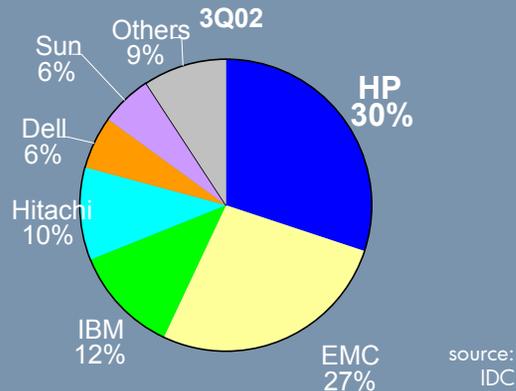
data services

virtualization

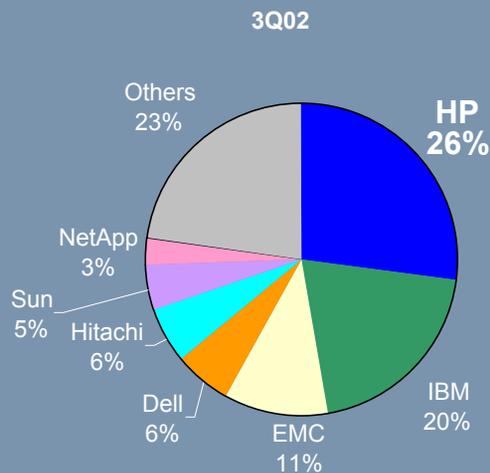
networked storage

# hp storage leadership

## WW SAN Market Share (Revenue)



## WW Storage Market Share (Revenue)

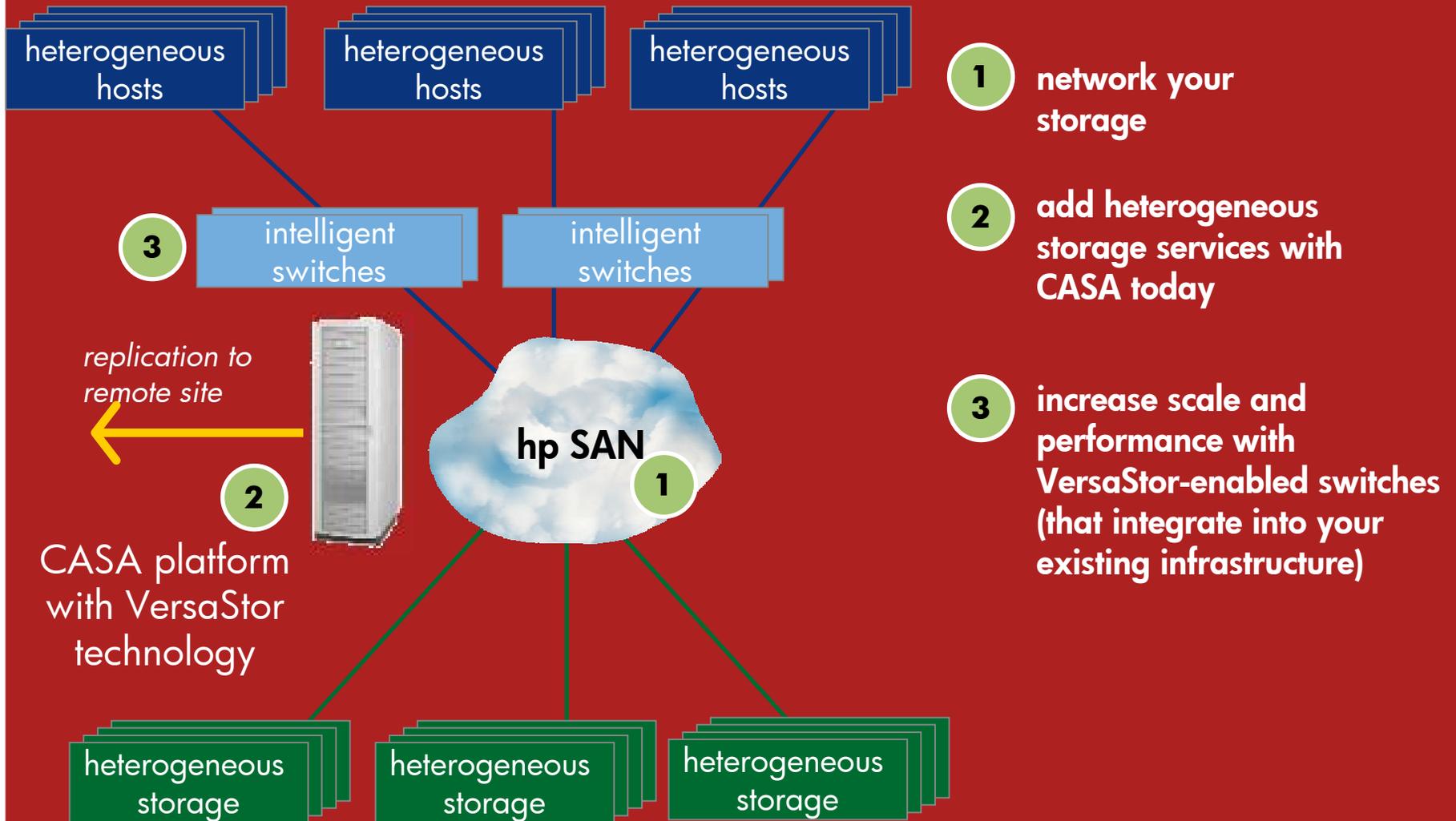


Source: IDC 3Q 2002 Disk Storage Tracker

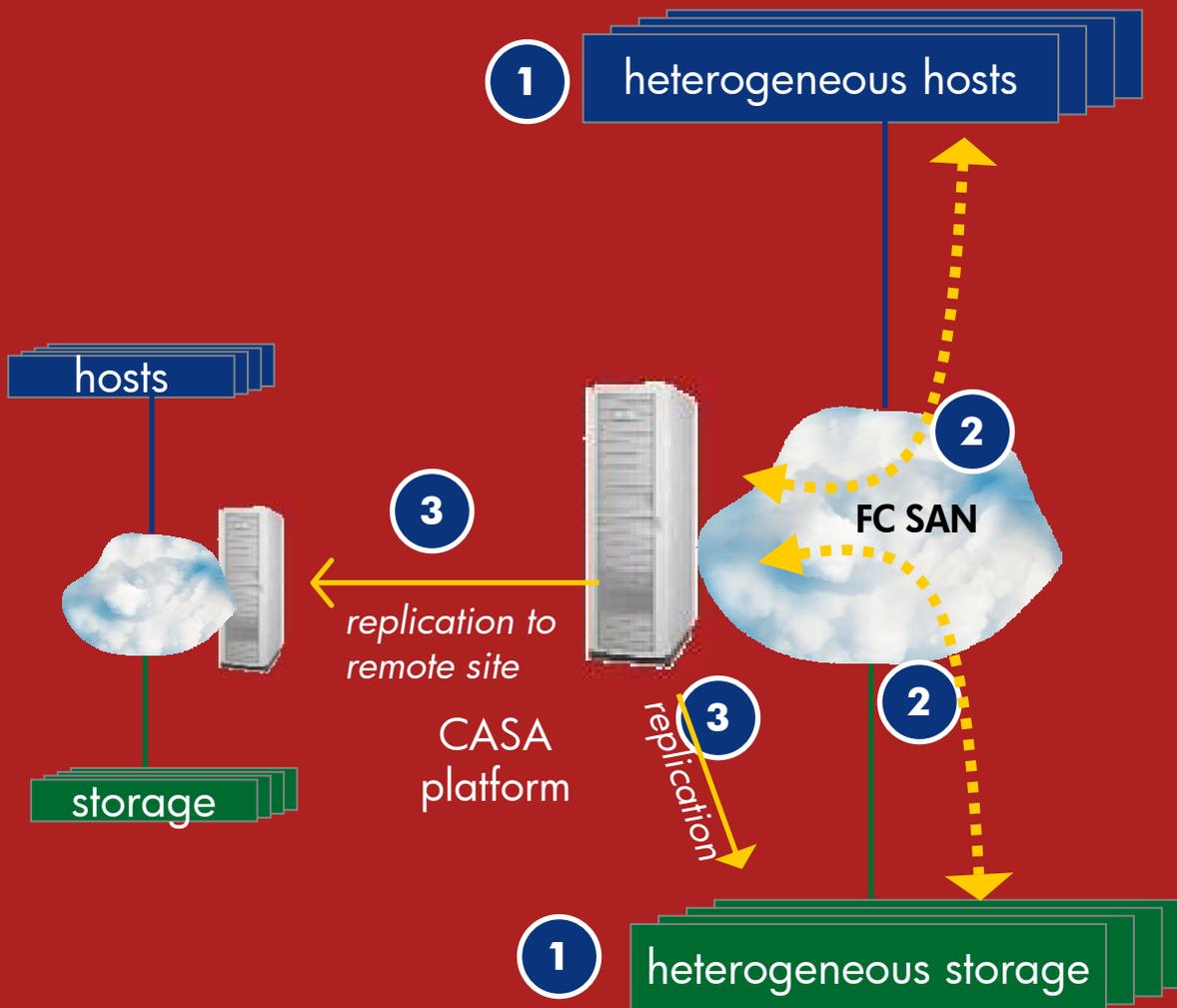
## hp is #1 in storage virtualization

- thought leadership
  - storage utility vision and ENSA*extended* strategy
  - over 100 virtualization patents
  - industry leading work with partners
- execution
  - broadest portfolio of products with virtualization technology
    - greater than 8000 storage virtual replicator licenses
    - over 11 PBs of hp StorageWorks EVA and VA
    - over 500 network-based virtualization appliances shipped
    - beta VersaStor code complete
  - hp has the services and partners to deliver

# architecture blueprint for virtualization



## 2 add storage services with CASA today



- 1 heterogeneous support: CASA supports over 90% of the storage in the market and the major distributed OSs
- 2 IO path: all IOs are routed through CASA and all LUNs are presented to hosts via CASA
- 3 replication path: IOs routed through CASA, can be replicated locally or across distances

## CASA delivers today

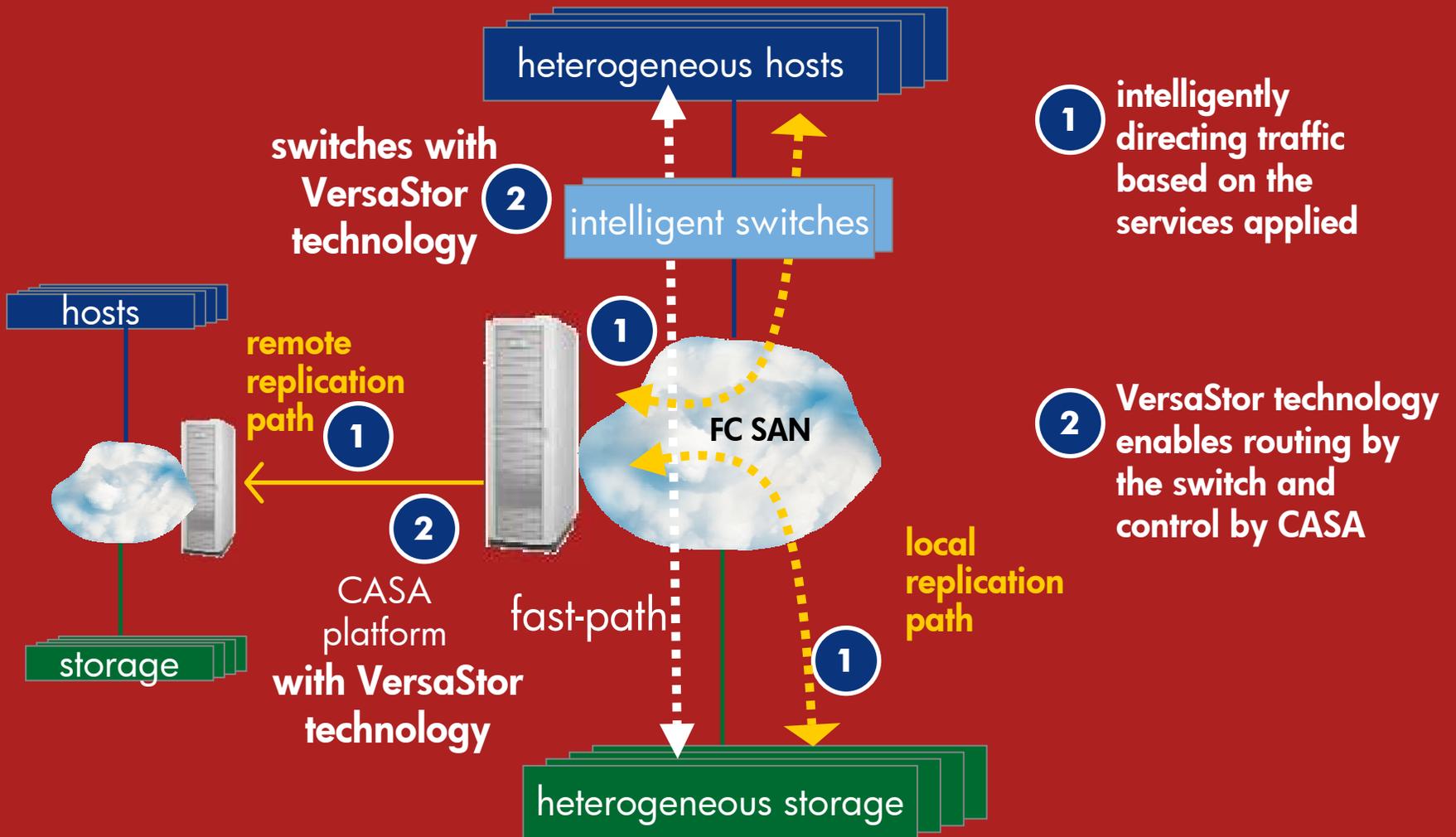
- cost effective data replication - remote and local, synchronous and asynchronous
- increased storage utilization and control of heterogeneous storage capacity
- protection against viruses and user errors with space efficient snapshots
- increased productivity by enabling more online recovery of data

- fully redundant dual-node active-active replication appliance
- replication over FC or IP
- optional point-in-time snapshot copy capability
- 600MB sec and 80,000 IOPS
- can manage up to 4096 LUNs
- site to site automated fail over, no single point of failure



3

# increasing scale and performance CASA and switches with VersaStor technology

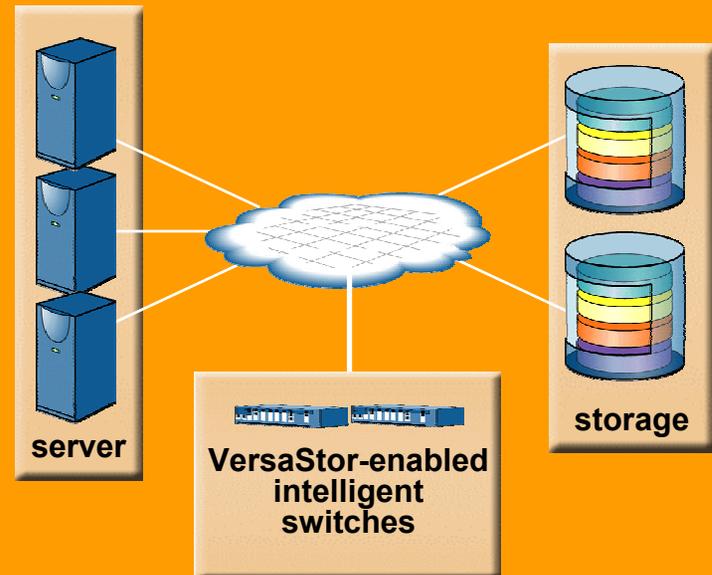


# intelligent switches accelerate hp's virtualization timeline

- high performance platform for VersaStor technology
- enable enterprise scalability
- multi-protocol

## intelligent switches

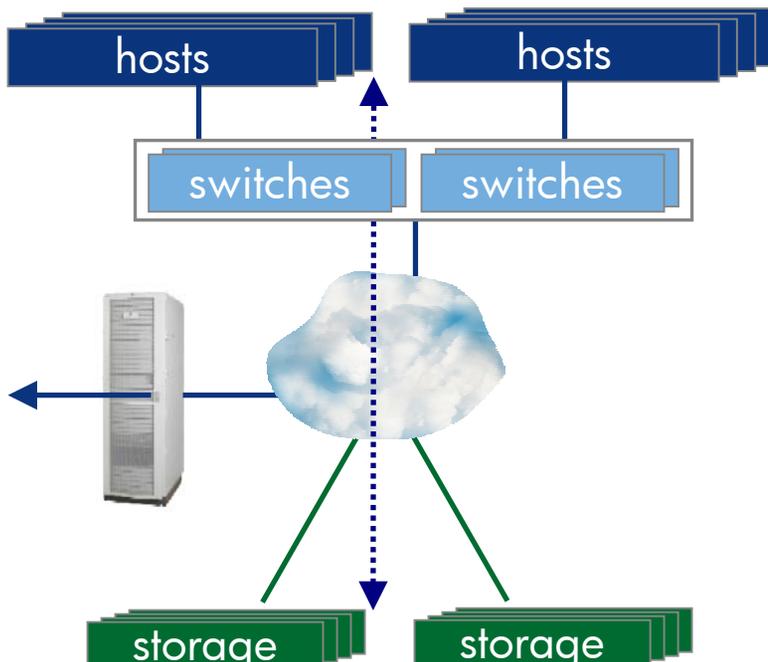
- network-based platform to host storage applications and technologies
- non-intrusive integration into existing storage infrastructure
- OS, array and HBA agnostic



# improved scale and performance

## CASA with VersaStor technology

- enhanced performance and scalability
  - fast path directly to the storage arrays for non-replicated IOs is created
  - leverages VersaStor technology on both the appliance and the switch
- investment protection
  - upgrade from standalone CASA
  - intelligent switch fits right in to existing SAN infrastructures



# hp virtualization strategy: management

## hp OpenView storage area manager

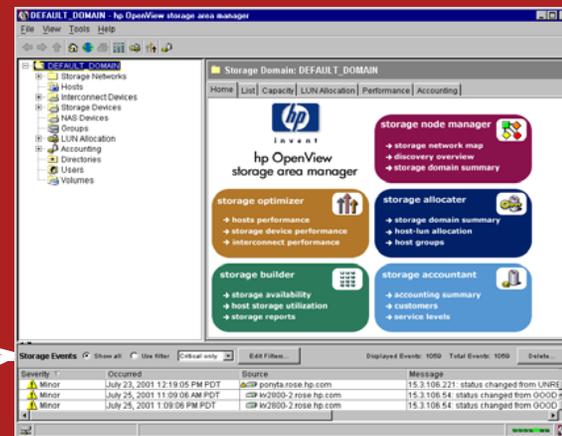
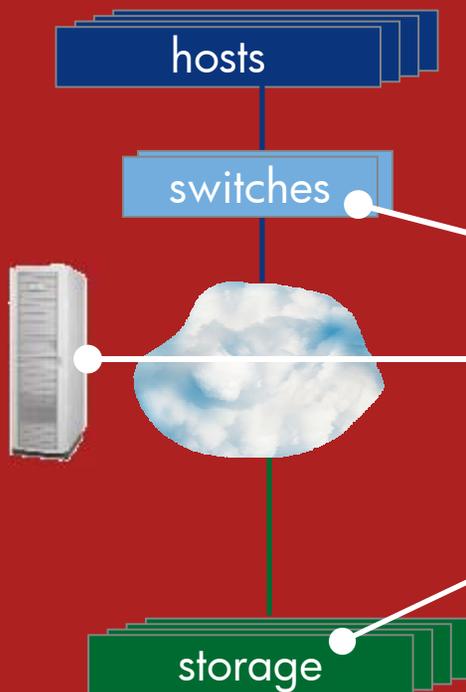
device management

performance management

capacity management

usage metering and billing

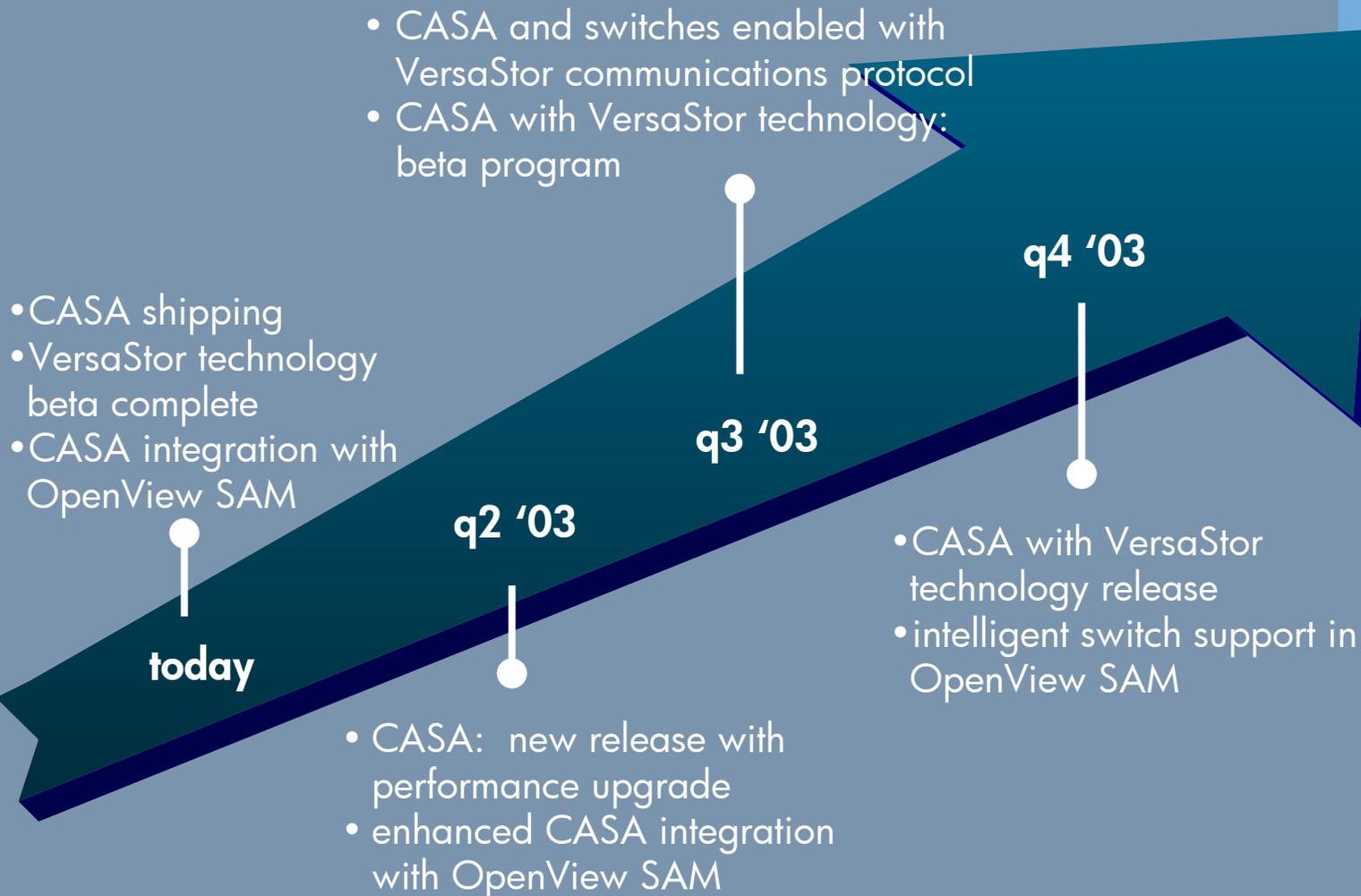
automated storage provisioning

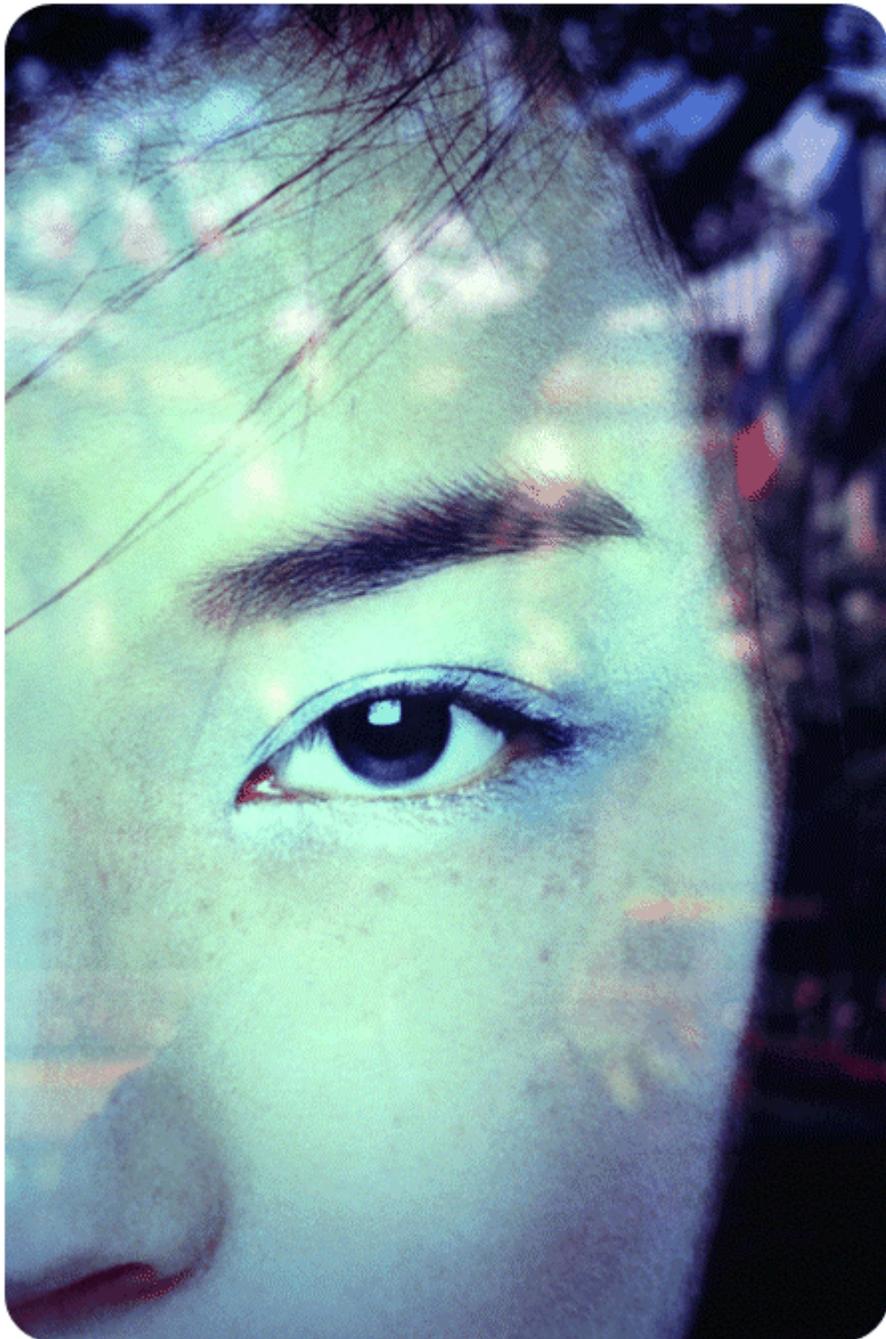


OpenView SAM provides a single management view to all elements within the heterogeneous virtualized enterprise

# network-based virtualization milestones

futures





# futures

- automated, non-disruptive management model
  - previously resource-intensive procedures are automated as the environment is dynamically managed via attributes
  - changes to the storage environment are fully transparent to host applications
- enhanced distributed processing model
  - with additional VersaStor technology, more processing can be distributed and occur where it is most effective
- enterprise scale

# begin building the adaptive infrastructure today

## ENSA *extended* architecture

### active intelligent management

application integration

data services

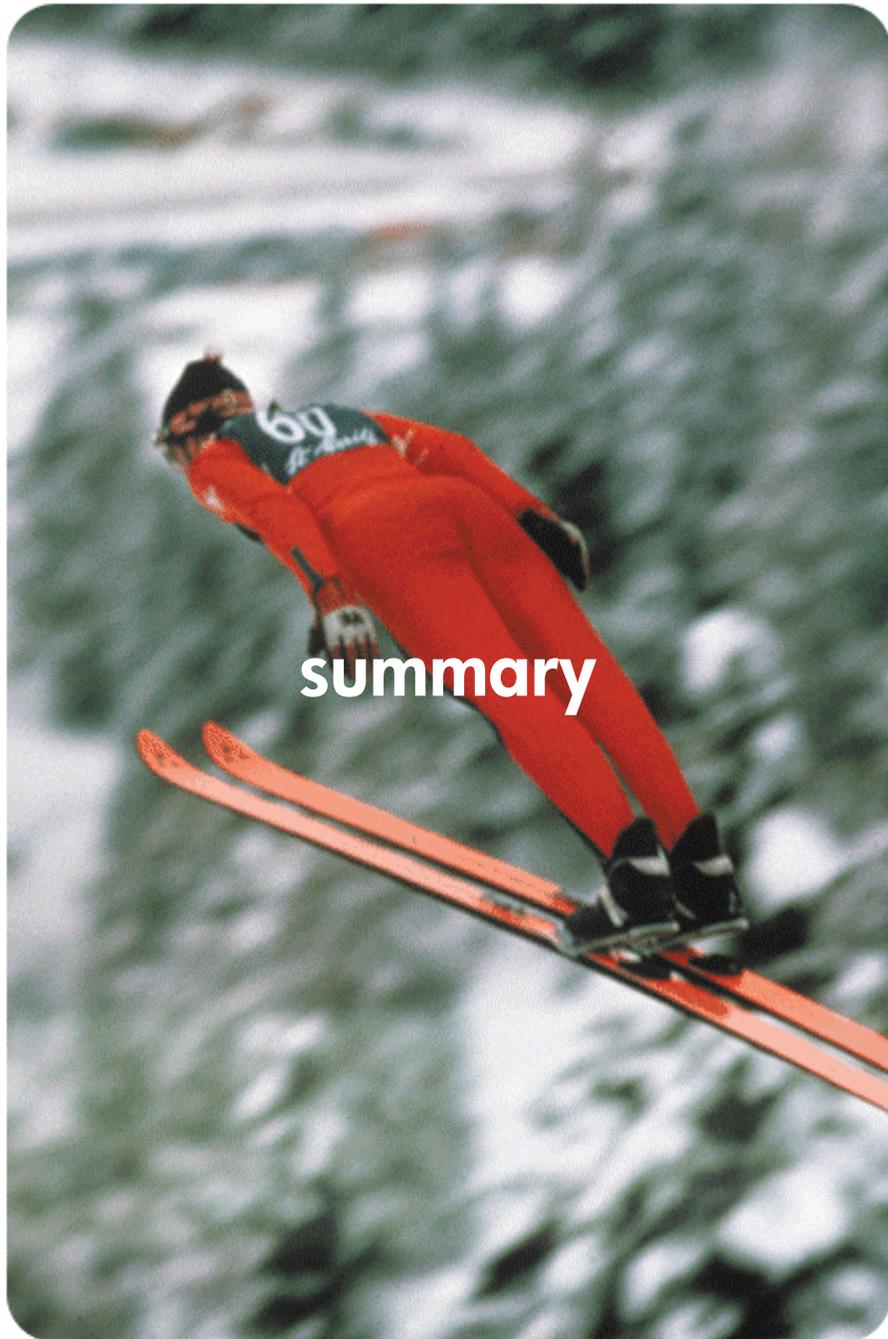
virtualization

networked storage

modular approach grows with you while protecting your investment

1. install an HP Storage Area Network (SAN) – use OpenView Storage Area Manager as the consolidated management console
2. add CASA today, providing storage services for heterogeneous environments
3. next, achieve enterprise scale by implementing VersaStor technology on both CASA and intelligent switches
4. in the future, easily integrate new storage networking technologies

**manage it all with hp OpenView SAM!**



## summary

- hp leads the industry in storage virtualization
- hp owns proven virtualization technology
- hp delivering solutions **today**
- hp is actively working with strategic partners
- hp delivers the best investment protection and RoIT

**for further information**

for more information, visit:

<http://www.hp.com/storage/virtualization>

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