Uncompromised business agility with Oracle, NetApp and VMware

HroUG Conference, Rovinj

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Using NetApp Simplicity to Deliver Value

Increase Business Agility

Accelerate Oracle deployments
Reduce time for Oracle upgrades or changes

Reduce Infrastructure Cost

Require less storage
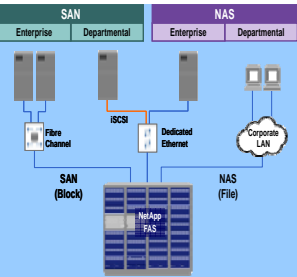**Lower** administration costs

Minimize Risk

Reduce downtime
Recover quickly from user errors

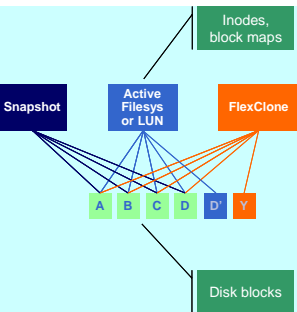# NetApp Technology Foundation for highest business agility

Unified Storage Architecture

Supports all protocols

Simplifies infrastructure and administration
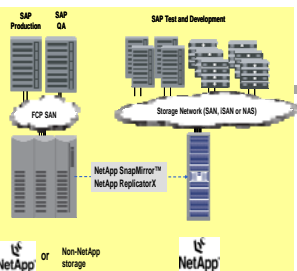

SnapShot and FlexClone Technology

Speeds up system copy operations

Saves up to 90% of disk space

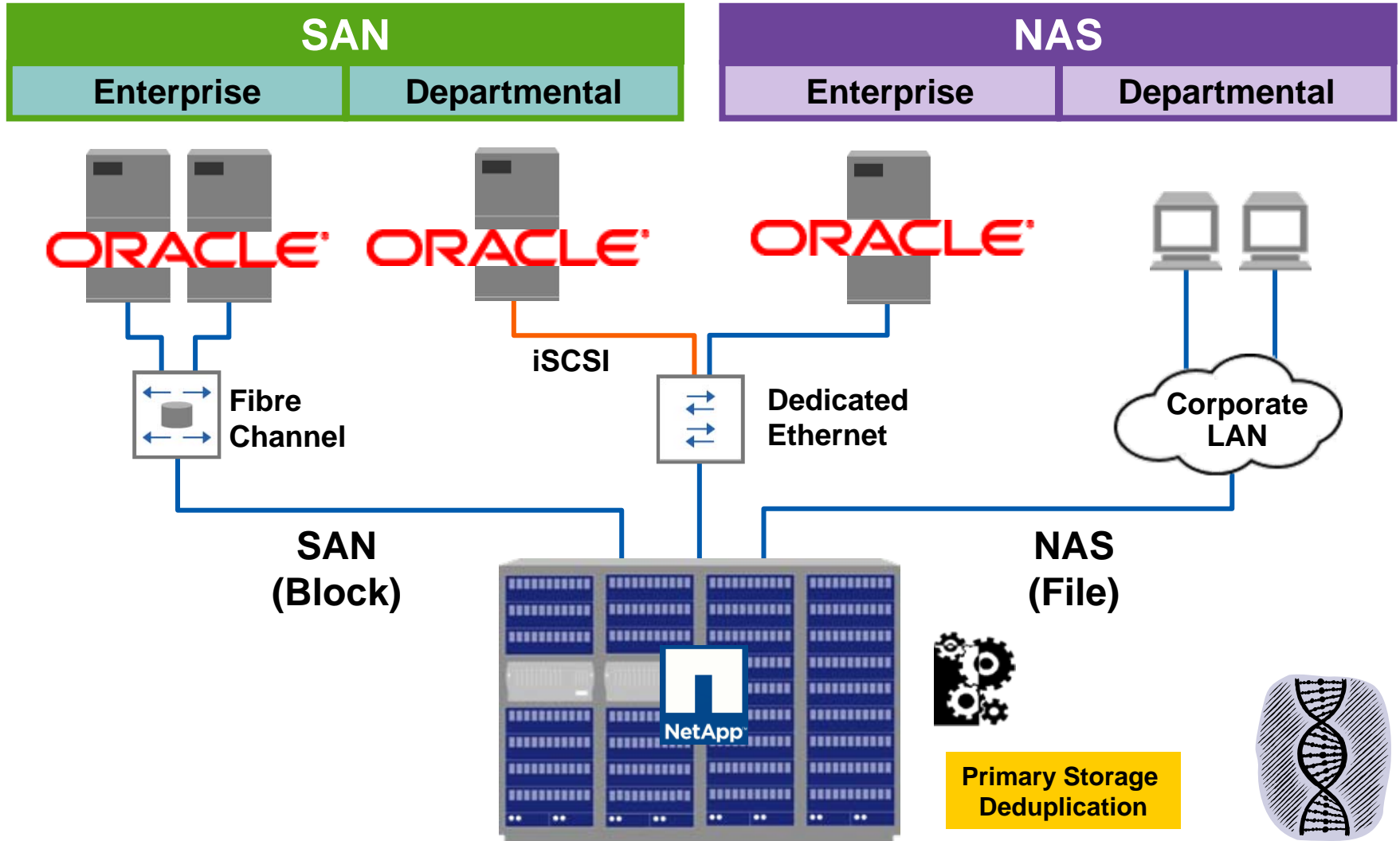## Virtualization, Mirroring and Replication Technology

Saves Cost

Adds High Availability functionality

NetApp Unified Storage

SAN		NAS	
Enterprise	**Departmental**	**Enterprise**	**Departmental**

ORACLE®   ORACLE®   ORACLE®

iSCSI

Fibre Channel

Dedicated Ethernet

Corporate LAN

SAN (Block)

NAS (File)

Primary Storage Deduplication

NetApp FAS System Family

- **Modular**
- **Scalable**
- **Unified**

High-end Data Center

FAS6080

FAS6040

Mid-range Data Center

FAS3170

FAS3140

Distributed Enterprise

1,176TB
1,176 HDDs

FAS2050

840TB
840 HDDs

FAS2020

840TB
840 HDDs

420TB
420 HDDs

99TB
104 HDDs

65TB
68 HDDs

▸ **Same Platform for**
  - ▸ *High-end primary storage*
  - ▸ *Low-end primary storage*
  - ▸ *Secondary storage*

▸ **Same Features**

▸ **Same Management Tools**

Data ONTAP 7G

NetApp

Virtualized Storage:

Volumes not tied to physical Storage
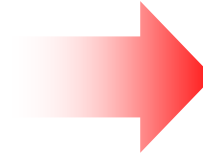
Manage Data, Not Disks

Clones

Disks   **Disks**   **Disks**

Pooled Physical Storage
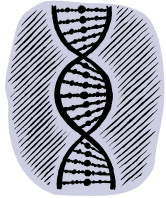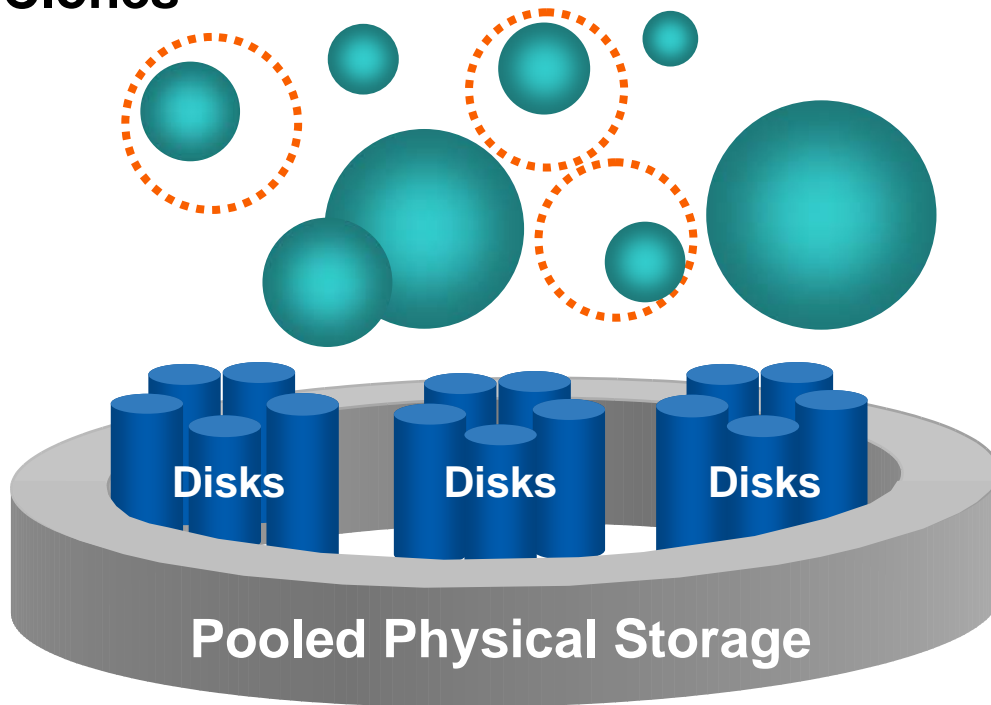
- Better performance

- Improved utilization

- Simplify provisioning and data management

- Additional saving with integrated thin provisioning

Save Money With The FlexVol Technology

Industry

App 1	App 2	App 3

needs more

20-30% Used

App 1	App 2	App 3

Virtualized App View

Disk View
(60-80% used)
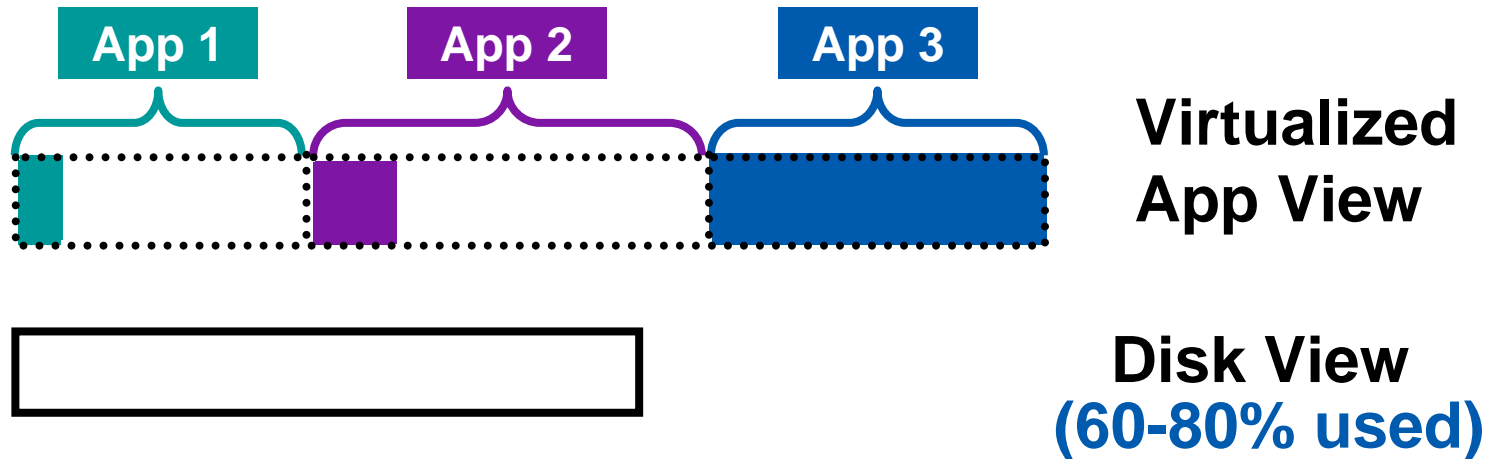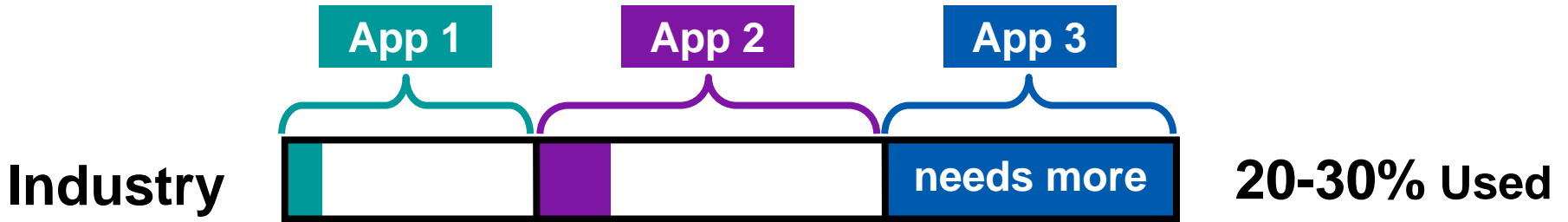
One shared expansion pool – no wasted space
Thin Provisioning = Improved Disk Utilization

Increase Performance With The FlexVol Technology
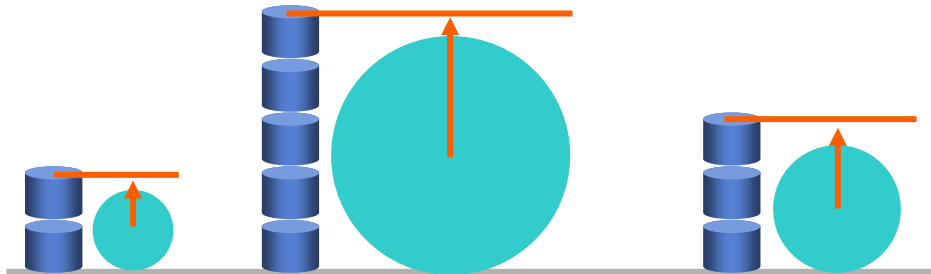
Regular Volume

- **Volume performance limited**
- **"Hot" volumes isolated**
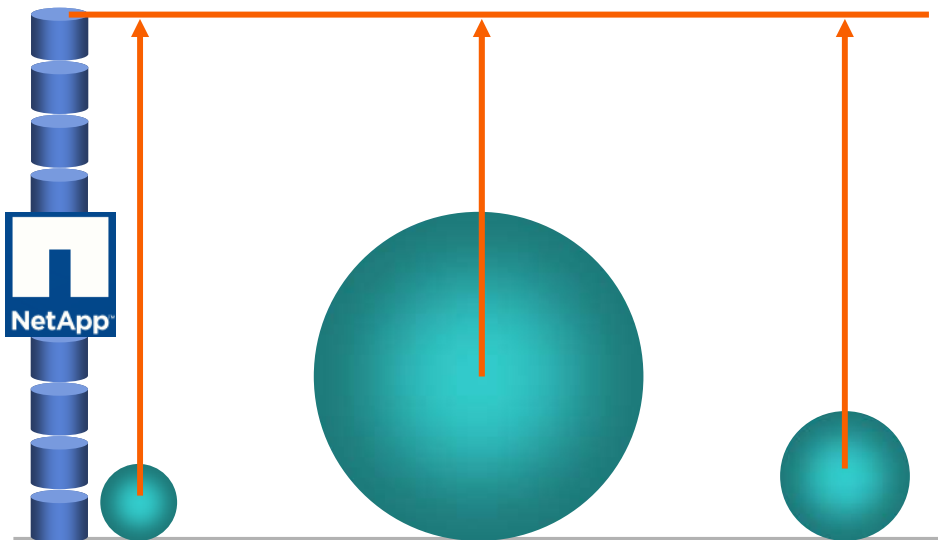
FlexVol

- **Shares spindle performance**
- **Typically >2x improvement**
  (10 disk vol. vs. shared 40 disk aggregate)

NetApp Snapshot™ Technology

Blocks in LUN or File

Blocks on the Disk
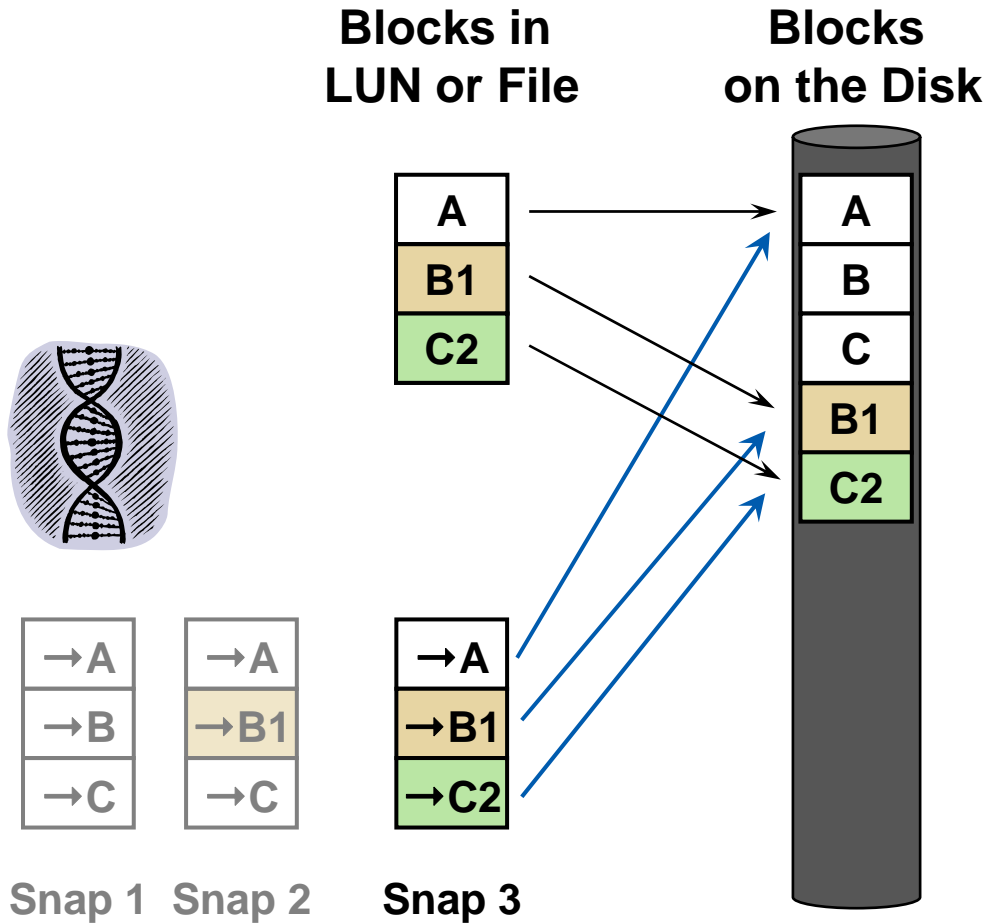
- Take snapshot 1
- Continue writing data
- Take snapshot 2
- Continue writing data
- Take snapshot 3
- Simplicity of model
  - Best disk utilization
  - Fastest performance
  - Many snapshots

Snap 1 Snap 2 **Snap 3**

NetApp Manageability Software Family

NetApp® Manageability Software Family
An Integrated Data Management Approach

Application Suite
- SnapManager® for Exchange
- SnapManager for SharePoint® Server
- SnapManager for SAP®

Database Suite

ORACLE'
- SnapManager for SQL Server™
- SnapManager for Oracle®

Server Suite
- SnapManager for Virtual Infrastructure
- Virtual File Manager™
- SnapDrive® for Windows®/UNIX®/Linux®

Storage Suite
- Protection Manager
- Provisioning Manager
- Operations Manager
- File Storage Resource Manager
- CommandCentral™ Storage

Open Interfaces

Service Layer

- Bus. Applications Uptime:
  - **Enhanced data management for Oracle and Exchange**
- File Consolidation:
  - **Virtualized management of distributed files, simplifies migration & protection.**
- Backup and DR:
  - **Automating data protection in D2D environment**
- Storage Infrastructure:
  - **Extending manageability to high-end heterogeneous environments**

Increasing business value with higher productivity and flexibility

Snap Manager for Oracle

Database Suite

SnapManager for SQL Server™   SnapManager for Oracle®
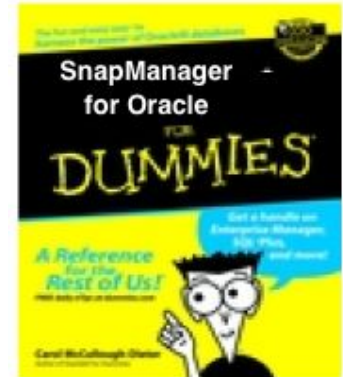
ORACLE®

- *SnapManager for Oracle* provides Integrated Data Management for Oracle databases:

  - Application consistent snapshots

  - Recovery of data in case of errors or disaster

  - Clone for Test and Development

Heterogeneous Environment with NetApp V-Series

Servers

ORACLE®

Data Center
Storage Fabric

Backup
Servers

NetApp

Other Vendor's Storage

**V-Series
& Data ONTAP®**

NetApp Storage

**FAS Series
& Data ONTAP®**

Tape
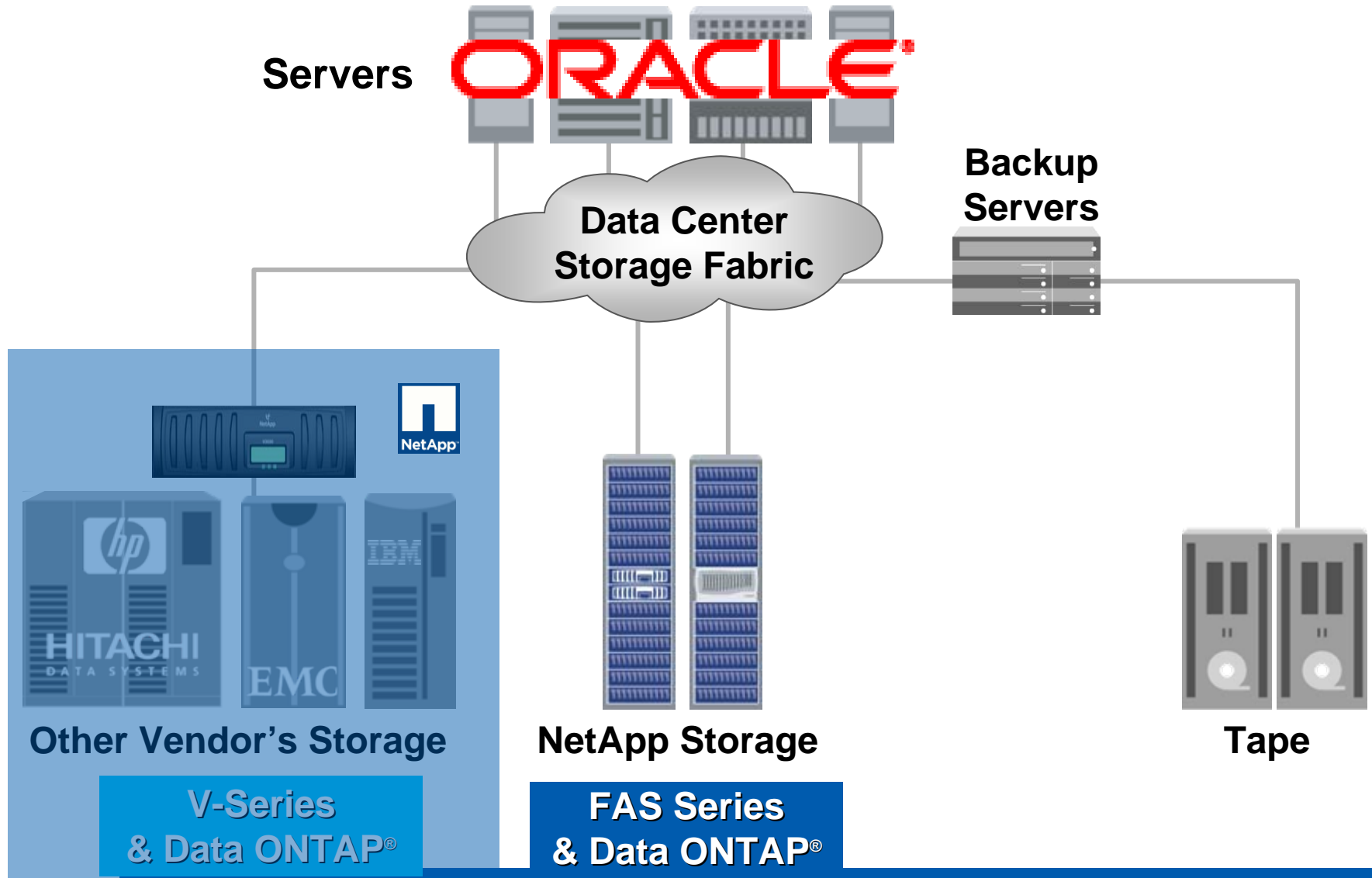
Heterogeneous Environment with NetApp SnapMirror for Open Systems

Servers

ORACLE®

Backup Servers

Data Center Storage Fabric

OSSM

Other Vendor's Storage

NetApp Storage

Tape

FAS Series & Data ONTAP®
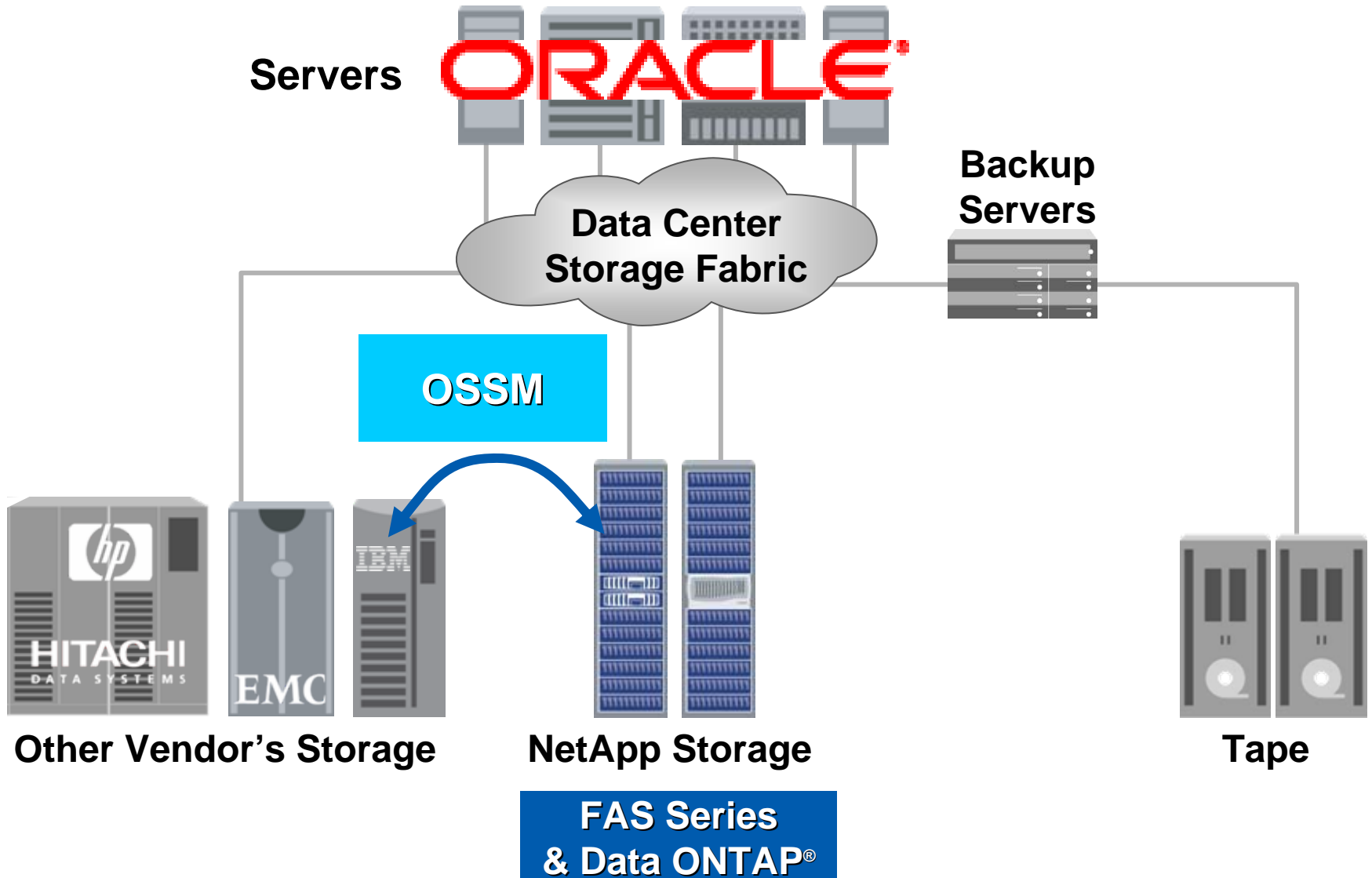
IT Reality

Go further, faster

Typical ERP Landscape – single system view

Production System

QA System

Training System

Test System

Development System

SAP Primary Storage System

ERP

4–5 copies of production and development data are the norm

SAP Secondary Storage System

Mirrored Copy

ERP

Full QA Copy

Full Training Copy

Full Test Copy

DEV Full DEV Data Set Copies
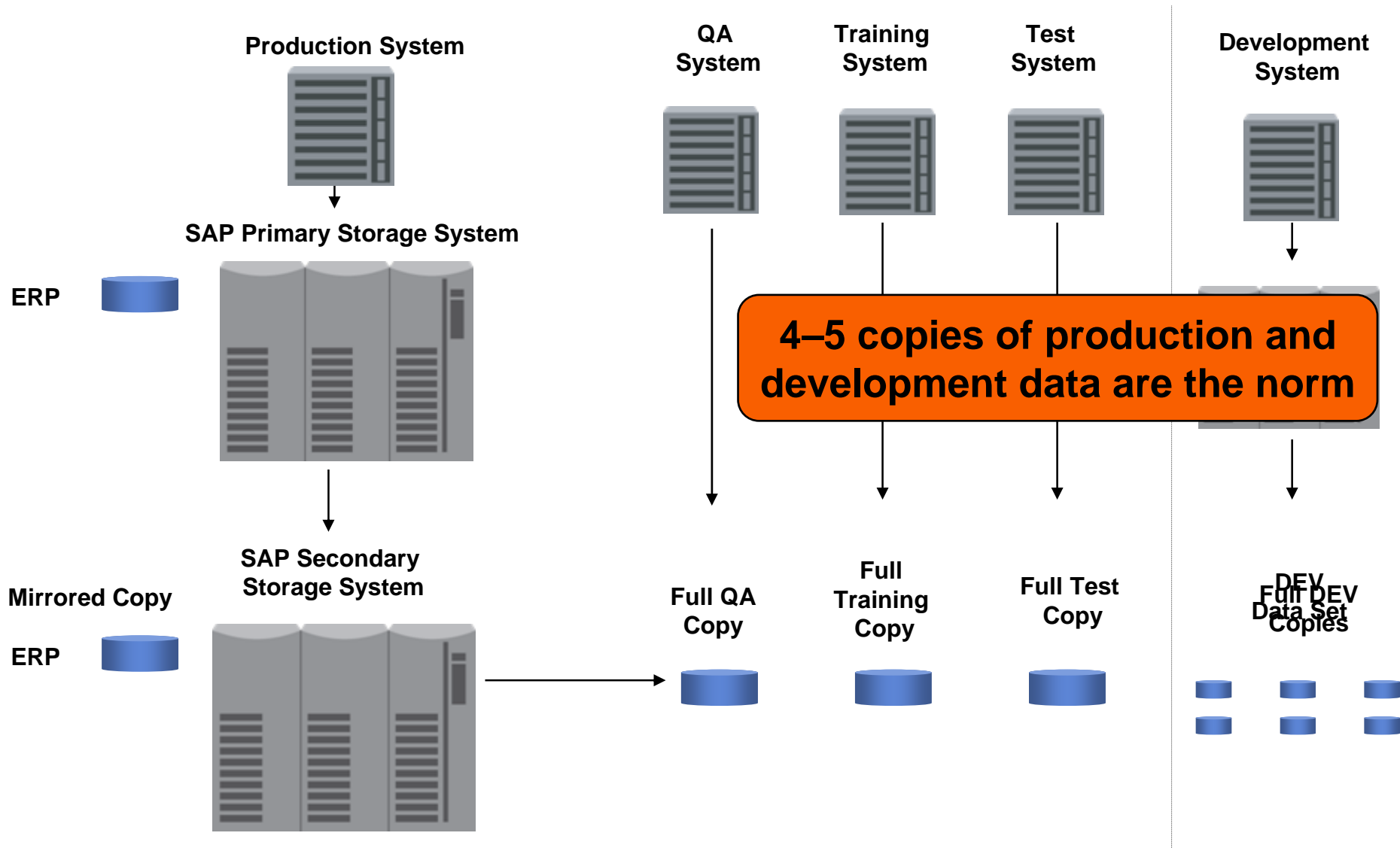
Typical ERP Landscape – multi system view

Production System

QA System

Training System

Test System

Development System

SAP Primary Storage System

ERP

BI

CRM

SCM

BI, CRM, SCM, and additional ERP systems dramatically increase the number of copies required

Mirrored Copy

SAP Secondary Storage System

ERP

BI

CRM

SCM

Full QA Copy

Full Training Copy

Full Test Copy

Full DEV Copies
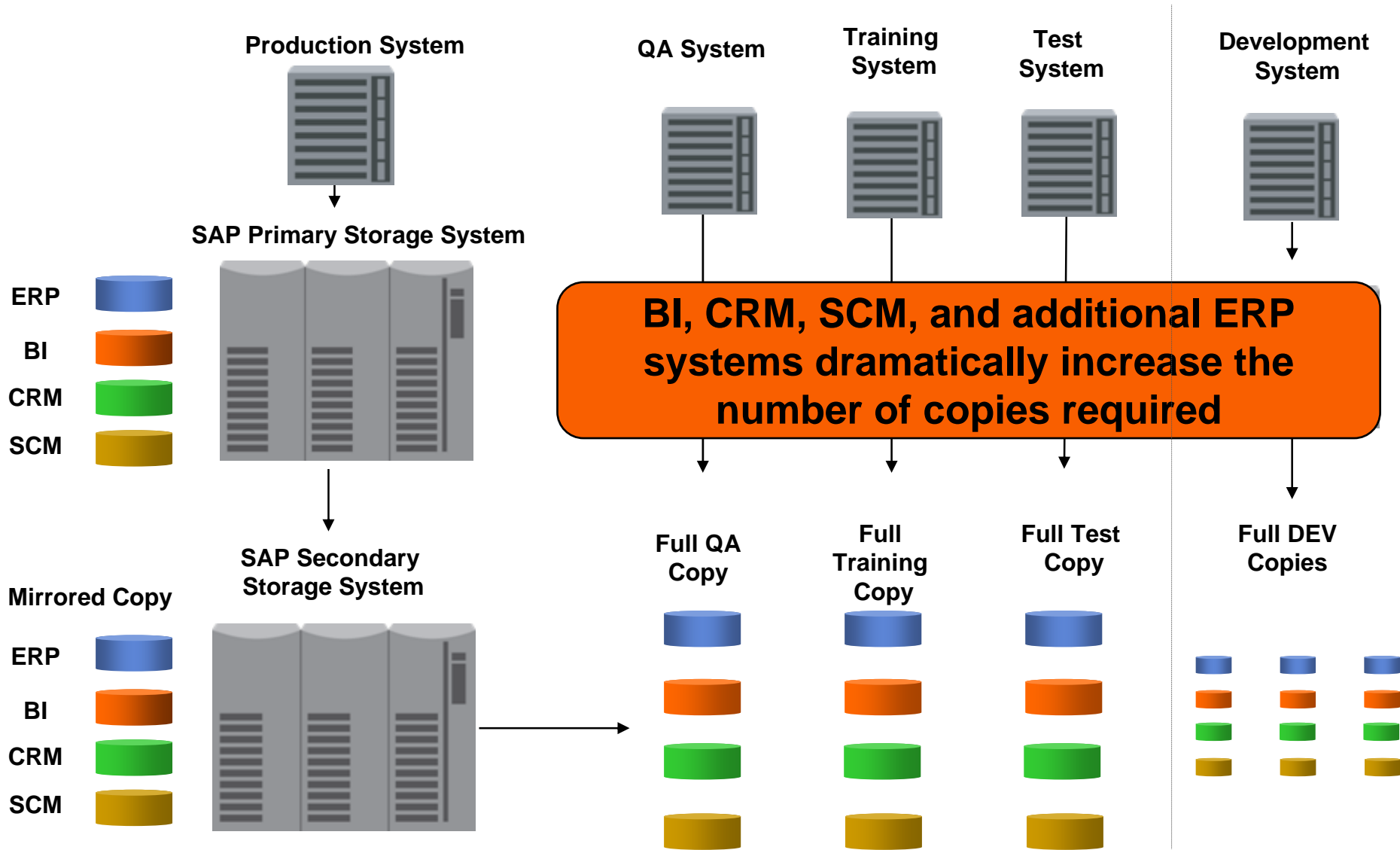
Impact of Multiple Business Components

NetApp in Oracle Test and Dev Environments
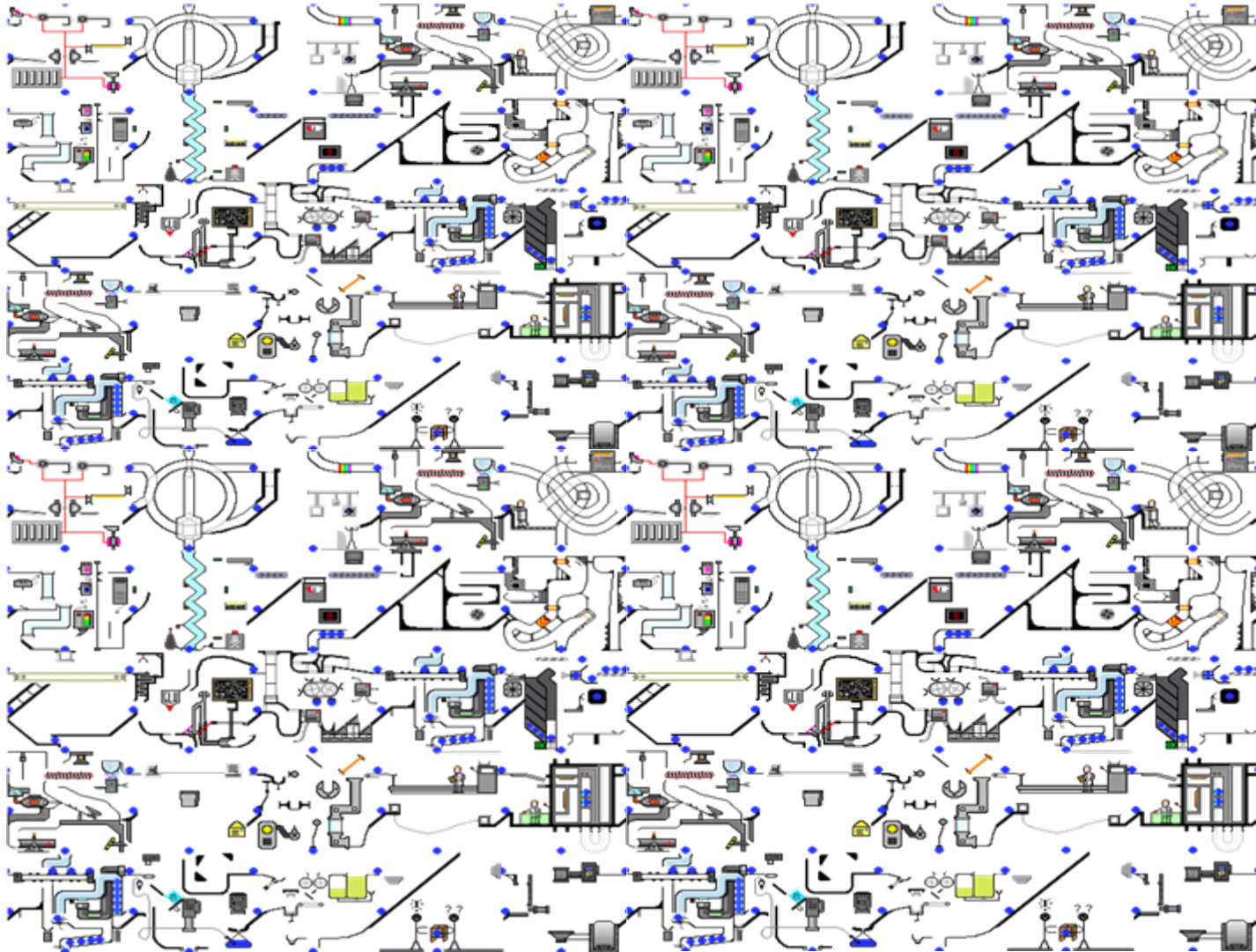
Go further, faster

NetApp Test & Dev

- Non-disruptive copy of production data on the NetApp Storage

- Leverage NetApp SnapShot and FlexClone technology to
  - Save significant amount of capacity
  - Save significant overall cost per GB
  - Significantly improve Time-to-Market

- Easy to understand and simple to use solution

- Perfect solution for partners, outsourcers and end-users

- 100% "unique" NetApp solution working also with non NetApp primary storage

Development System Landscape Traditional Approach

Original

1 TB

Dev1

1 TB

Dev2

1 TB

Dev3

1 TB

Restore from tape or disk mirroring
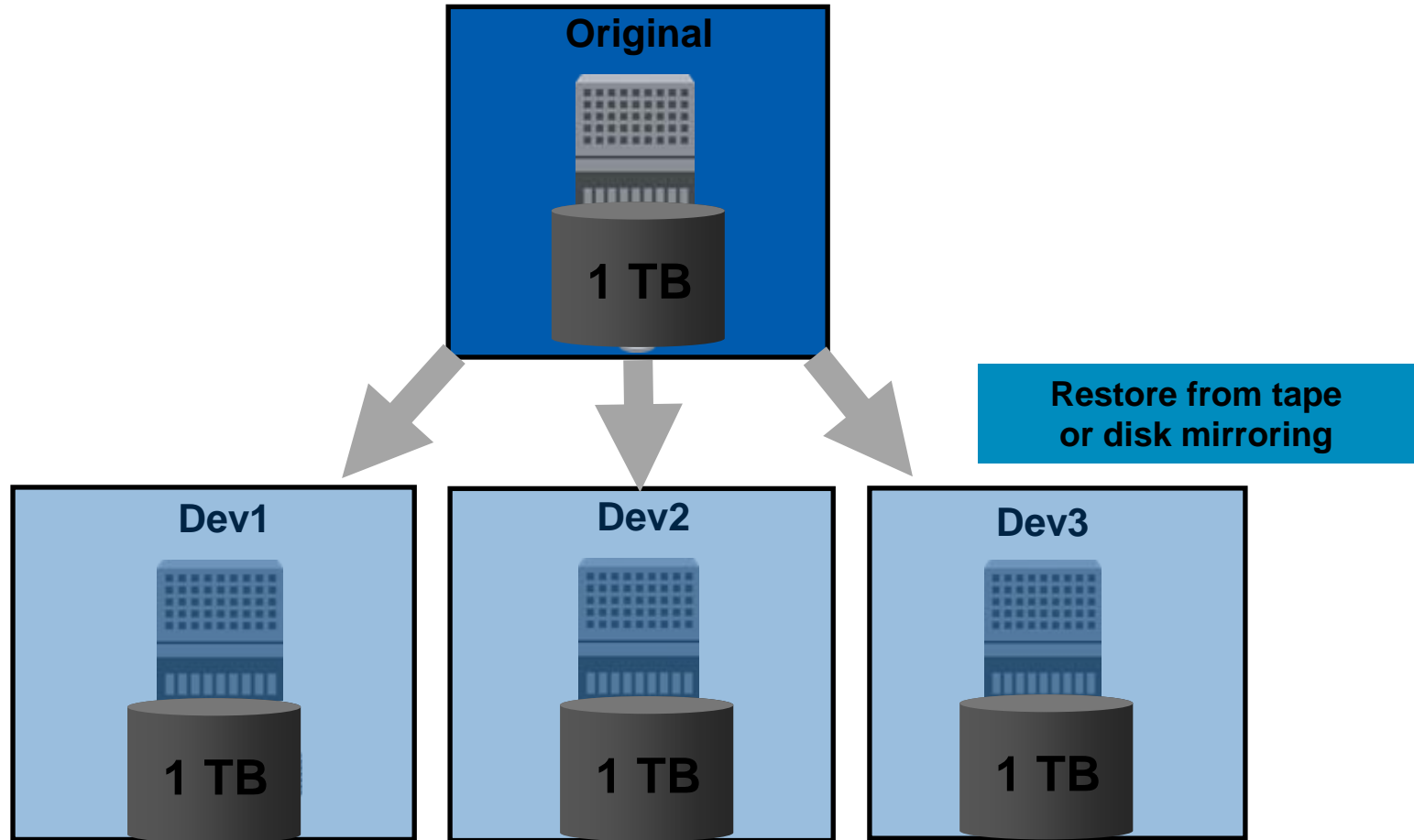
⇒ **3TB of storage needed for Development Systems**

Space Savings with NetApp Test and Development

Original

Dev1

Dev2

Dev3

1 TB

100

100 GB

Non NetApp

1 TB

1 TB

1 TB

**Space savings !!!
(90%)**

100GB

100GB

100GB
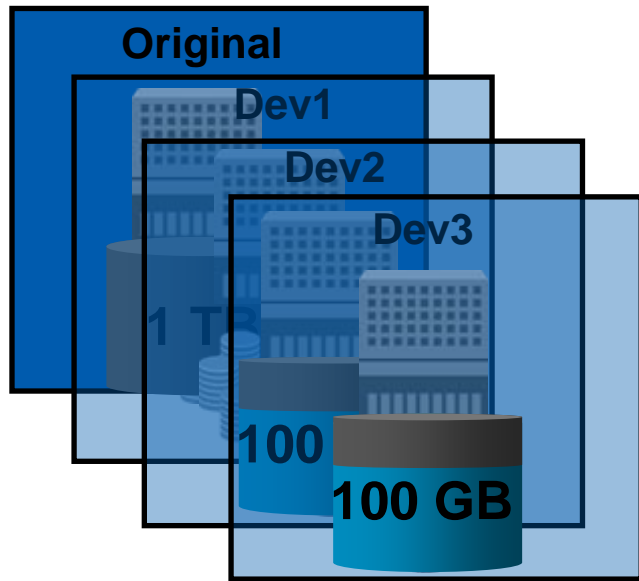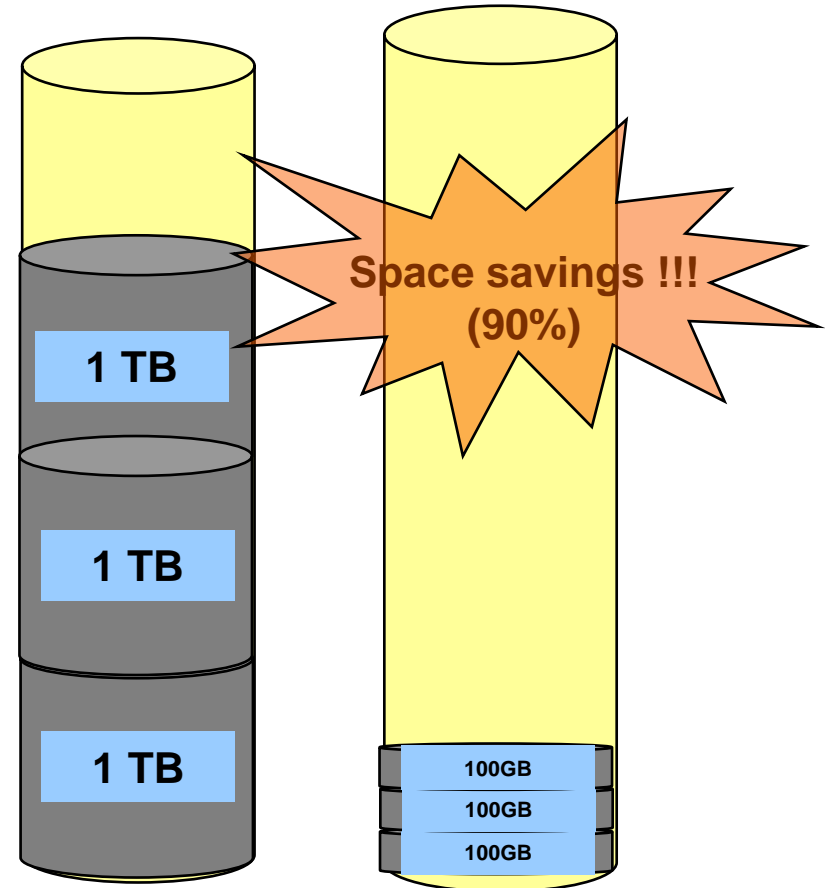
⇒ **300 GB of storage needed for System Copies: 90% savings**

Test and Dev on NetApp Storage Architecture

Production

QA

Test and Development

FCP SAN

Storage Network (SAN, iSAN or NAS)

FlexClones

Snapshots

or   Non-NetApp storage
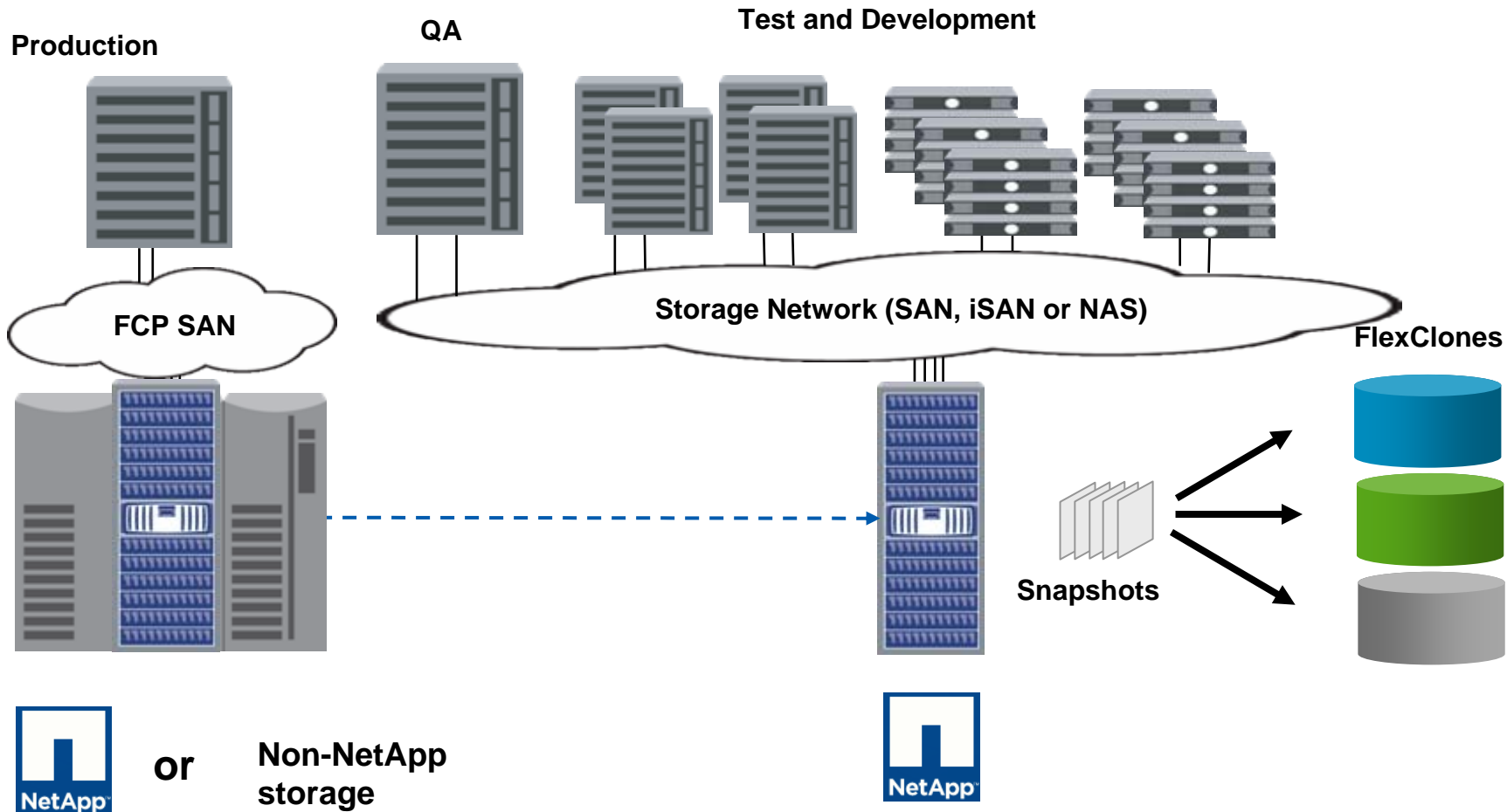
System Copy – Heterogeneous Storage

PRD

WAN or LAN

Replication Server
Standby Database

Test

QA

Training

NetApp Replicator X
Log Shipping

Storage Network
SAN or NAS

Storage Network
SAN or NAS

NetApp
V-Series

WAN or LAN

Non-NetApp
storage

SnapVault or
SnapMirror®

FlexClones

Mirrored
Copy
(Ongoing
Replication)

Snapshots
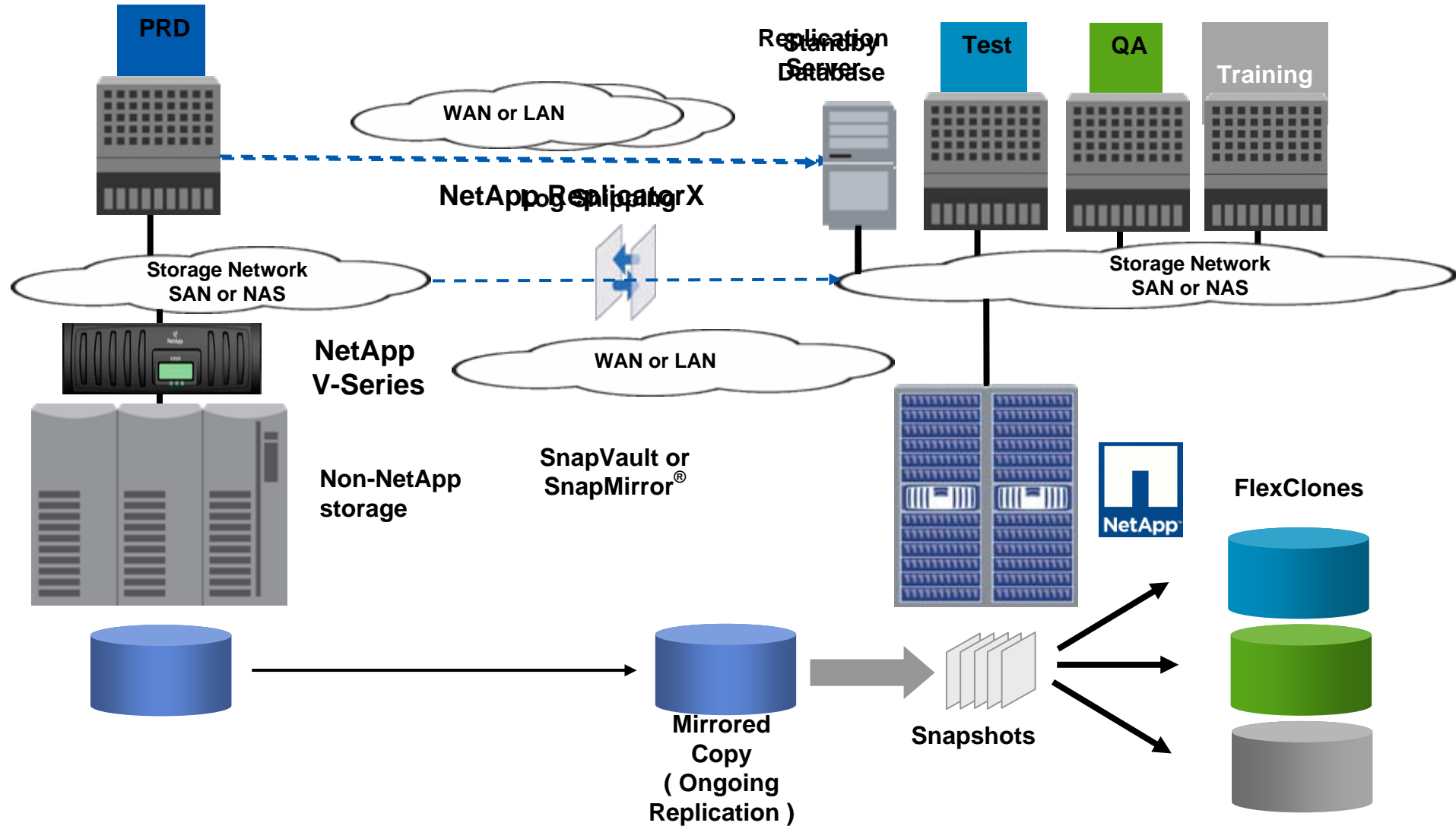
System Copy – Homogeneous Storage

FlexClones at separate storage system

PRD

Test   QA   Training

Storage Network
SAN or NAS

Storage Network
SAN or NAS

WAN or LAN

FlexClones

SnapVault or
SnapMirror®

Mirrored
Copy
(Ongoing
Replication)

Snapshots
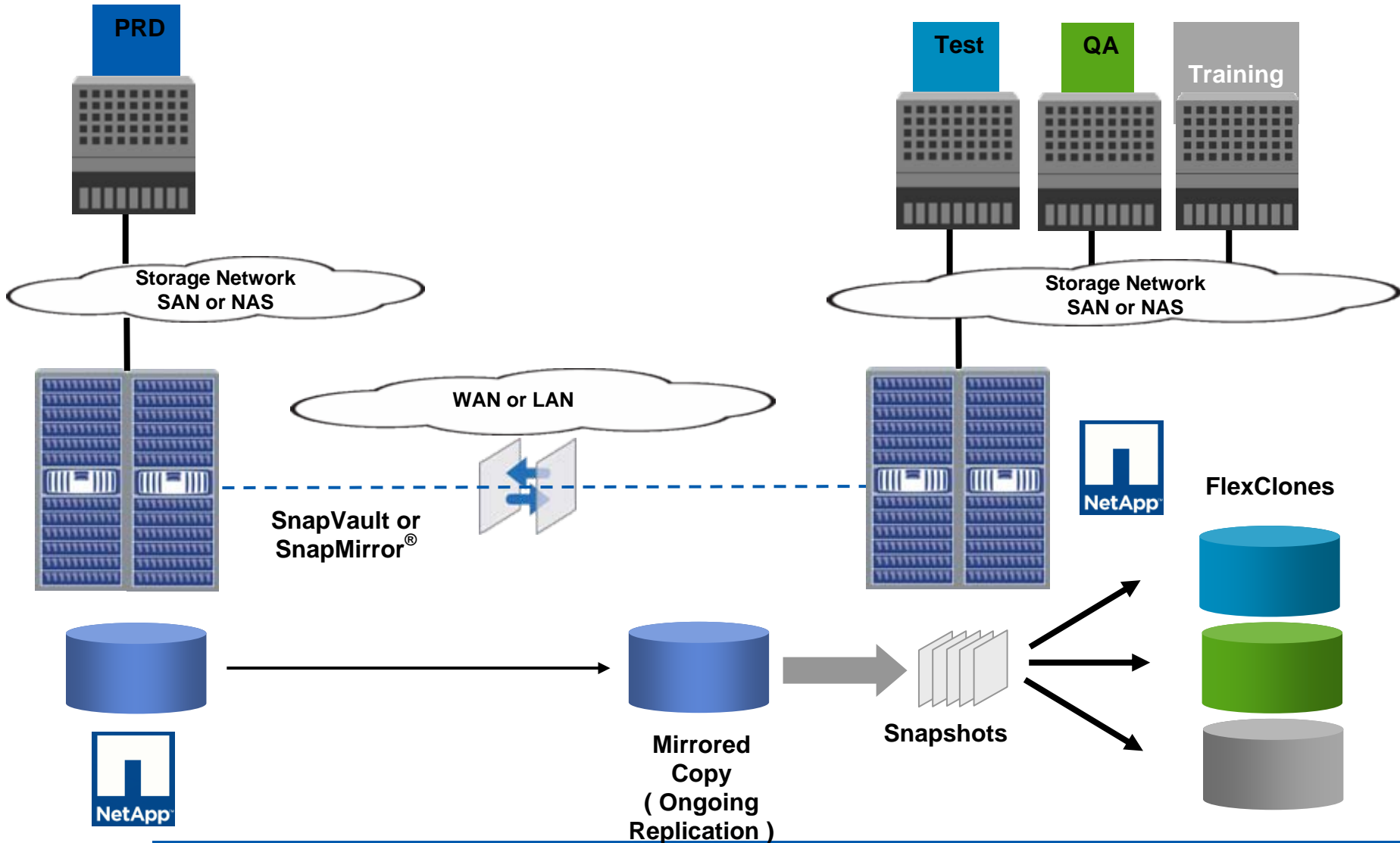
System Copy – Homogeneous Storage
FlexClones at same storage system

PRD

Test   QA   Training

Storage Network
SAN or NAS

FlexClones

Snapshots
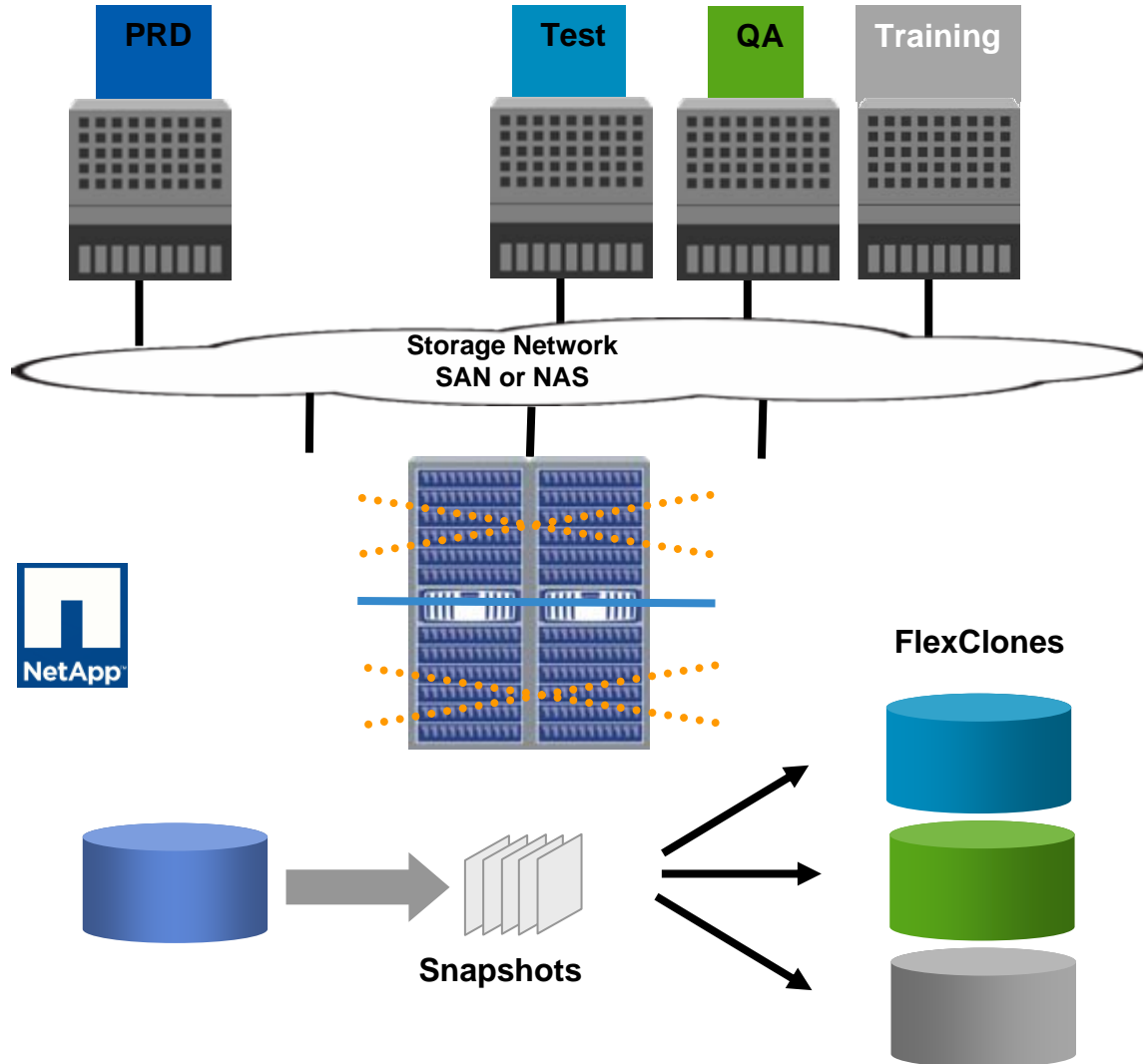
Your benefits with NetApp in Oracle Environments

Go further, faster

Test and Training Cycles

Refresh Baseline Copy with FlexClone

Change system and (re)run tests or training

Change system and (re)run tests or training

Change system and (re)run tests or training

Evaluate Results

Finish Training

....

Take Snapshot

Take Snapshot

Take Snapshot

SnapRestore to any Snapshot in a few minutes
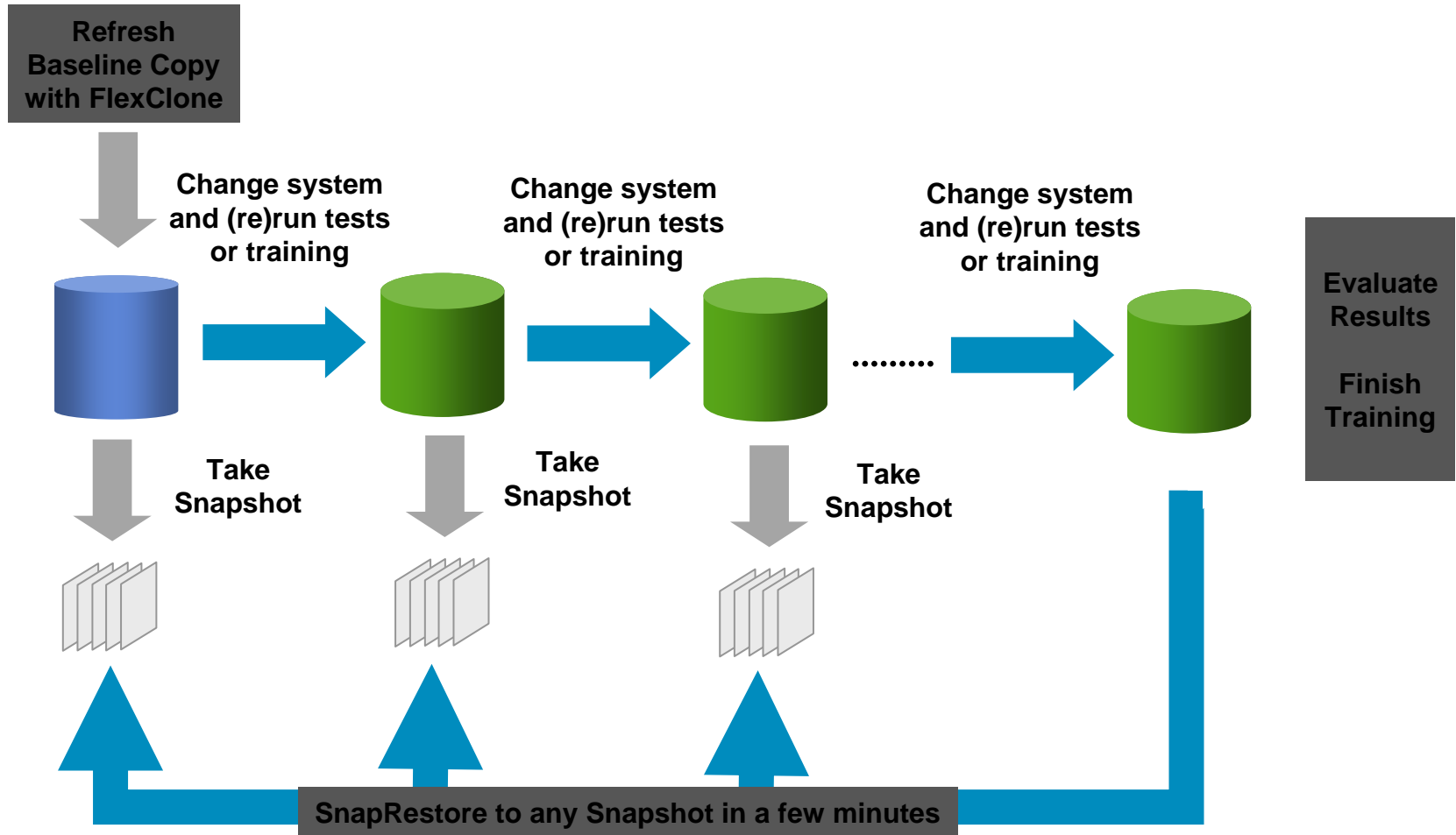
⇒ **Accelerate and optimize testing and training cycles**

System Copy – Time Requirements

Restore from Tape

DB and SAP Postprocessing

Restore	DB	App	Testing	Restore	DB	App	Testing

| System Copy 17.5 hours | Testing 12.5 hours | System Copy 17.5 hours | |

FlexClone and automated DB Postprocessing

App	Testing	App	Testing	App	Testing

| 5 hours | Testing 12.5 hours | 5 hours | Testing 12.5 hours | 5 hours | 10 hours |

Productivity gain !!! (2-3 x)

```
0    5    10   15   20   25   30   35   40   45   50   hours
```
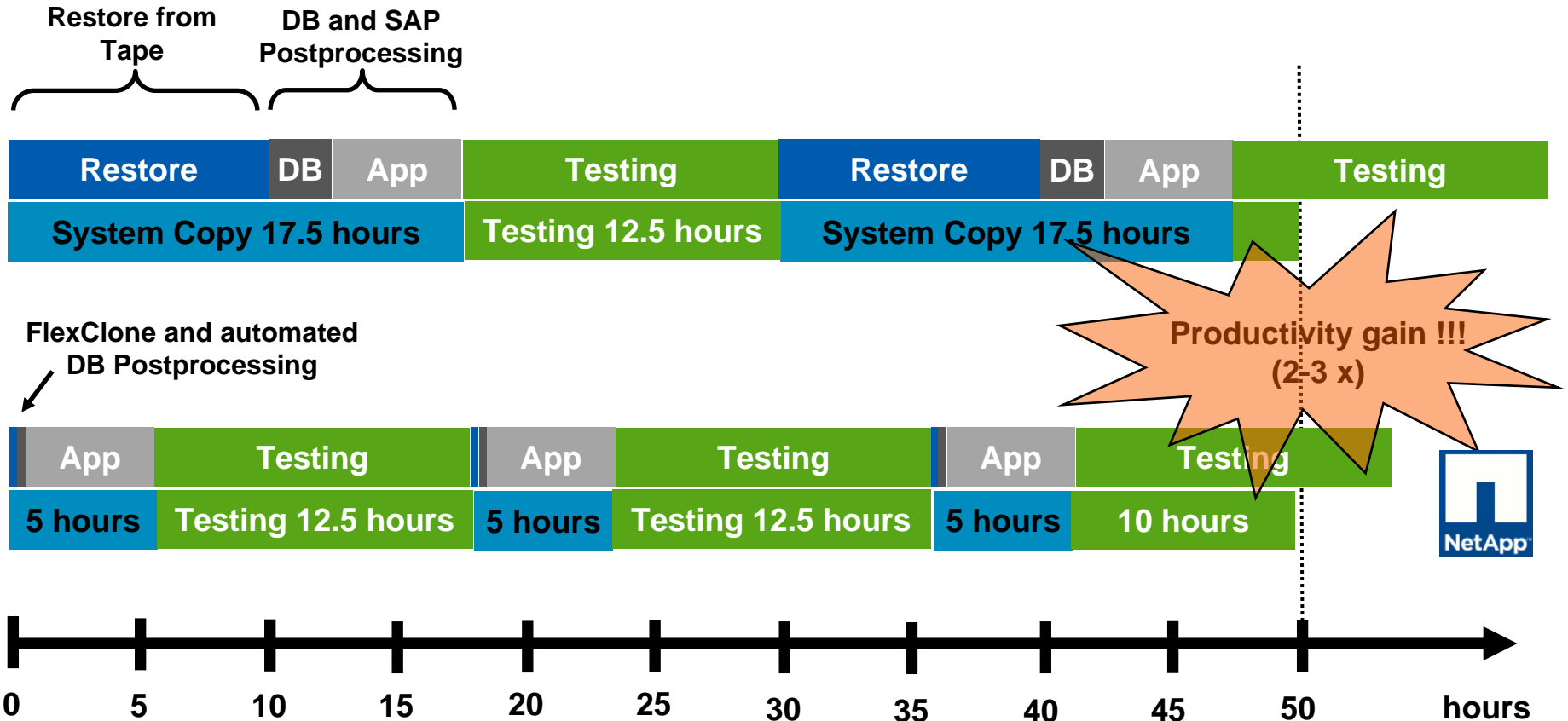
⇒ **More time for testing with real life data**
⇒ **Within a 50 hour timeframe**
  15 hours can be used for testing with the traditional approach
  35 hours can be used for testing with the NetApp approach

Application Upgrades – Development System

DEV

(5) Upgrade to new release DEV new release

(1) Stop all development

(2)System Copy With FlexClone

DEV old release

DEV new release

DEV new release with adjustment

FlexClones

Parallel, independent testing

(3) Upgrade to new release

(4) Modification adjustment and testing

Step (2) and (3) will be typically done more than once
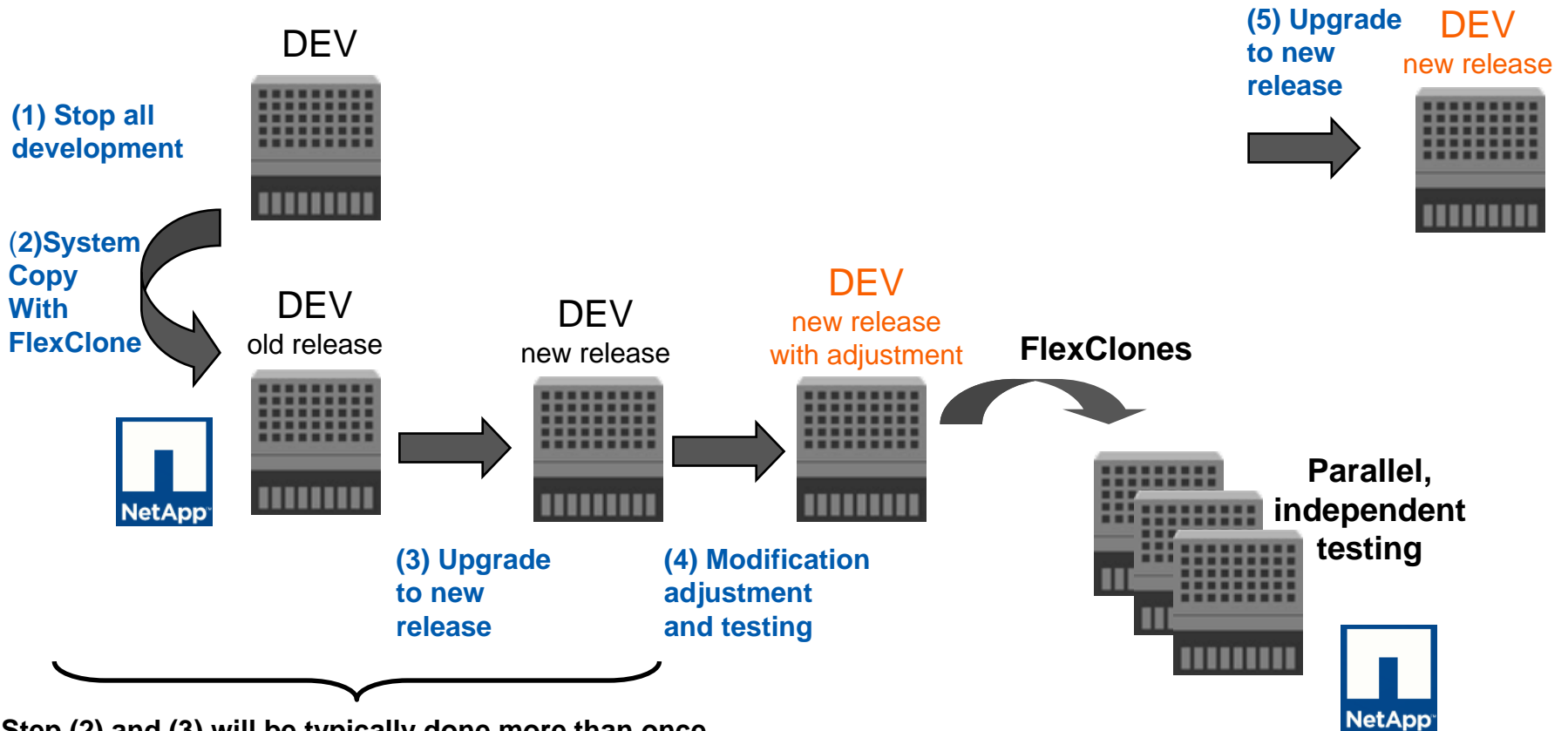
⇒ **Accelerate Upgrade process with NetApp system copy solution**
⇒ **Optimize testing by providing an environment that allows parallel, independent testing**

Application Upgrade – Productive System

PROD
old release

(2) Upgrade to new release

PROD
new release

(4) Adjustment, Testing

PROD
new release

(6) Release for Production

(1) Backup the old release

(3) Backup the new release

(5) Backup the new release or restore the old release

Snapshot

15 hours additional testing

Upgrade 15 hours | **Testing 35 hours**

Going Live

Snapshot

35 hours downtime

Upgrade 15 hours | **Testing 20 hours**

Going Live

**Additional time for testing or just a time reserve !!!
(30%)**

50 hours downtime

Backup | **Upgrade 15 hours** | **Backup** | **Testing 20 hours** | **Backup**

Going Live

0   **10**   **20**   **30**   **40**   **50**   **hours**

NetApp Benefits for Test & Dev Environments – Oliver Wyman Study

Mitigate Risk

Test/Dev Risk Matrix
Typical values observed in study

> 10 Test/Dev Instances

Typical Volume of Testing
(Based on number of add'l test instances)

High ability to mitigate business risk

NetApp FAS

HP EVA, EMC Clariion

EMC Sym-metrix

Low ability to mitigate business risk

0 Test/Dev Instances

>10 days — Time to Set up a Test Environment — <1 day
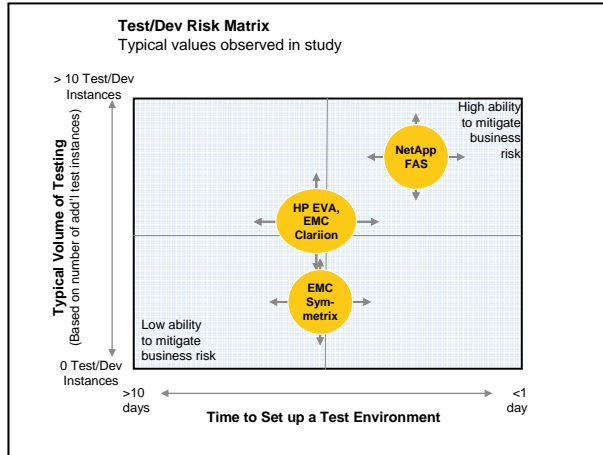
Faster Time to Deliver Business Value

NetApp Cycle	Develop-ment	Testing	QA	Upgrade	2 Month Improvement

NetApp Process Integration
- Multiple development groups helping to achieve greater efficiencies and accelerate processes
- Separate storage instances enabling simultaneous testing
- Concurrent cycles used for loading data and QA activities
- Synchronizing with previous implementation stages to reduce time

"Improving our time to market enables us to bring improvements to the business processes faster."

"If we don't achieve at least a 20% increase in productivity or efficiency, [through a new implementation or project] something is wrong."

Case Study: Faster Time to Market

Critical time savings because of faster provisioning and parallelizing processes with multiple test/dev instances led a NetApp customer to achieve 25% increase in productivity for a new CRM deployment, allowing them to finish the project in 7 months instead of the typical 9 months they had planned for

Lower Data Management Cost

Relative Cost Advantage of NetApp vs. Comparables:
Typical Test and Development Environments

Total Cost Index
(Normalized to Overall Total Cost of NetApp FC SAN)

40% less
43% less
64% less

NetApp FC SAN | EMC CLARiiON | NetApp FC SAN | HP EVA | NetApp FC SAN | EMC Symmetrix

Increase Flexibility

Test / Dev instances located at DR site providing replication capabilities and development / upgrade instances at one location

Tiered solution for storage with Fibre Channel disk drives for pre-production and QA and SATA for dev'l, training and sandbox

Ease of use reduces complexity within a heterogeneous storage environment
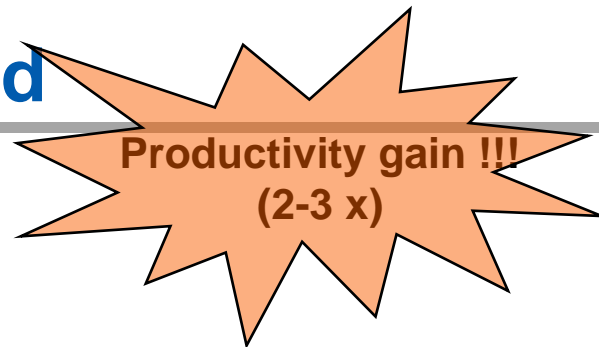
Summary

Go further, faster

What Does It Mean For You?

Business Agility – Increased

Accelerated application deployments

Reduced time for upgrades or changes

> Productivity gain !!!
> (2-3 x)

Infrastructure Cost – Reduced

Require less storage

Lowered administration costs

> Space savings !!!
> (57-90%)

Risk – Minimized

Reduced downtime

Recover quickly from user errors

> Additional time for testing
> or just a time reserve !!!
> (30%)

Thank you !

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