Building Private Cloud Architectures

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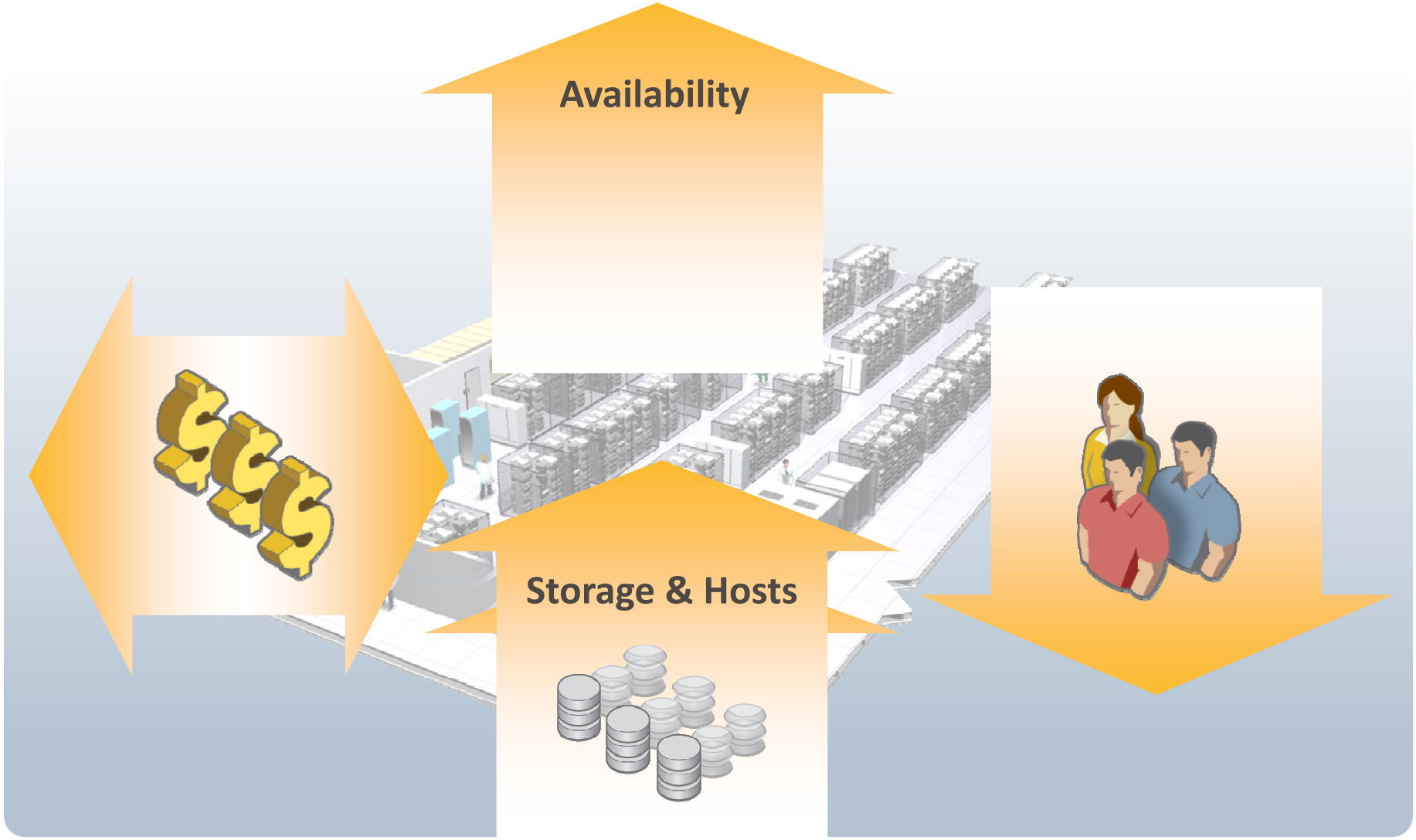
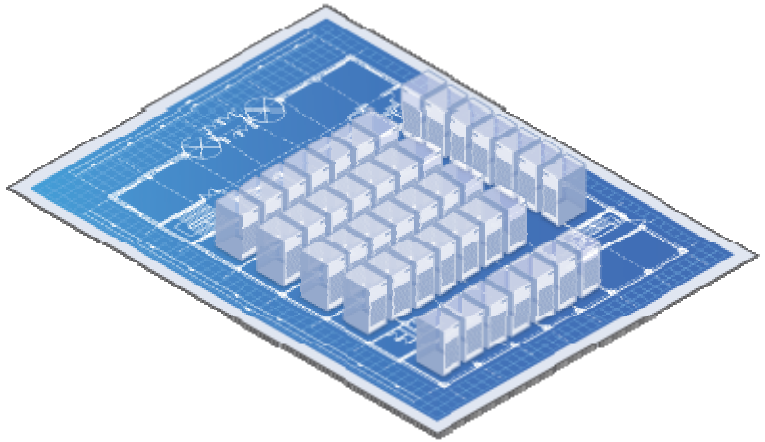
State of the infrastructure team



What does it mean for you?

The usual responses

- Everyone works harder
- De-prioritize some projects
- Everything is ROI based



But, these are not enough, not sustainable

Fundamental Architectural Changes Are Needed

Is Private Cloud The Answer?

What does private cloud mean to me?

What about my existing infrastructure?

The Real Question

How do I take

my existing infrastructure

and give it the characteristics

of a cloud?

A Suggested Approach

- Realize that transformation is a step-by-step process
- Decide the cloud elements you need
- Build them in

End-to-End Storage Visibility Is A Must, Not A Luxury

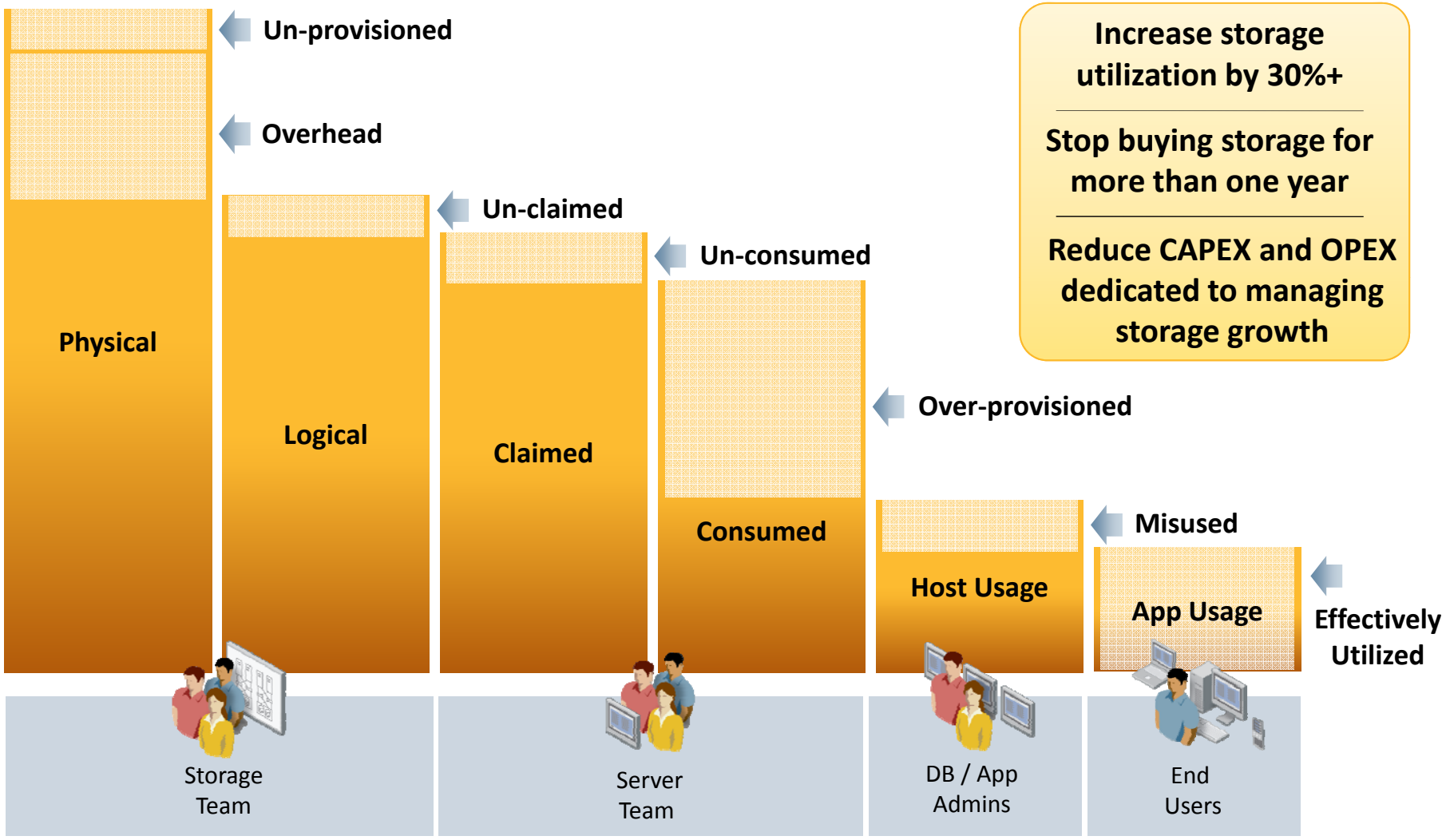
Lack of Visibility Kills Productivity

> Every application is a silo

> It takes me 3-4 weeks to run a full utilization report

> Provisioning storage is painful. I typically give more storage than I am asked for to keep them off my back

True Visibility: Application to Spindle



Increase storage utilization by 30%+

Stop buying storage for more than one year

Reduce CAPEX and OPEX dedicated to managing storage growth

Get Back In Control

No place for storage to hide:

Reclaim unused storage

Utilization

No more provisioning games:

Intelligent chargeback

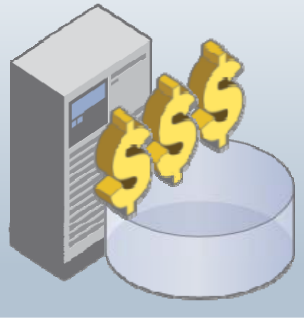
Accountability

Consume Storage As A Service

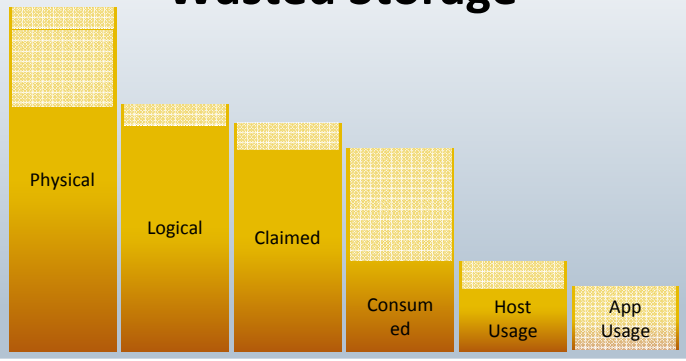
Control Your Storage Costs

The Problems

High Storage Costs

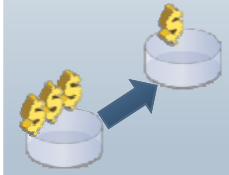


Wasted Storage



Spend Less on Storage

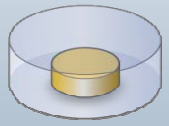
- Eliminate Vendor Lock-in



- Tier Storage Assets

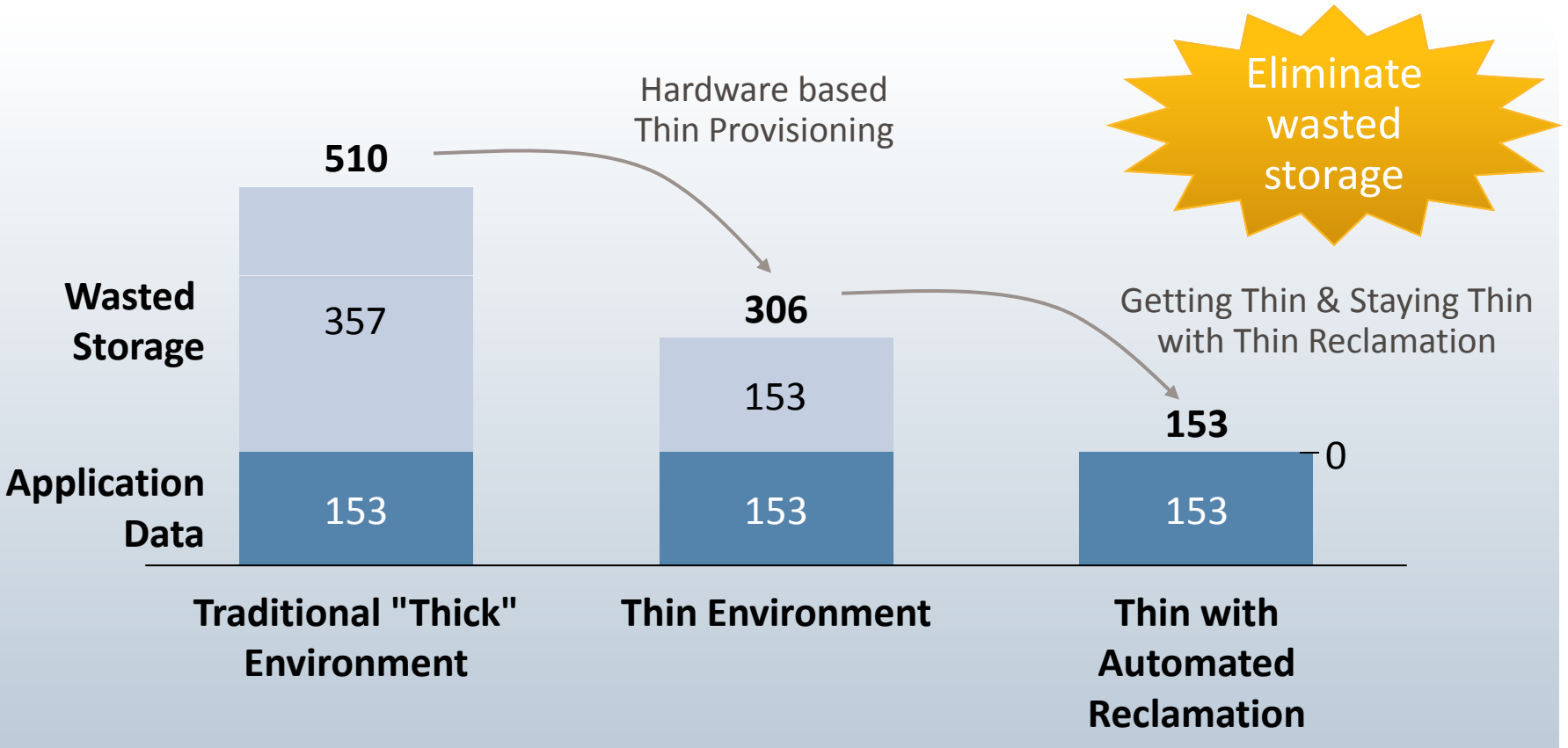
Optimize What You Have

- Improve Visibility



- Go Thin and Stay Thin

Example: Financial Benefits of Thin Provisioning



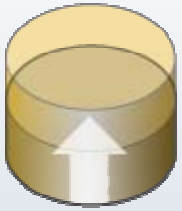
Source: Symantec / Enterprise Strategy Group, 2010

Beyond Just Utilization: Storage Service Provider

An intelligent, self managed architecture

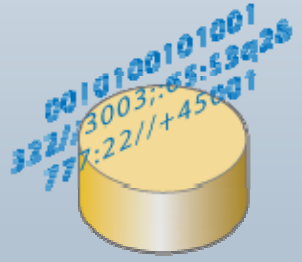
The right approach to Storage…

- Stop wasting storage and start using data



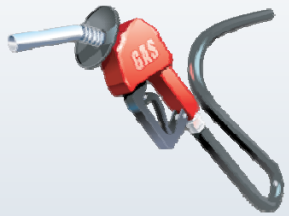
- Care about storage service levels, not RAID levels

- Focus on information type, not media type

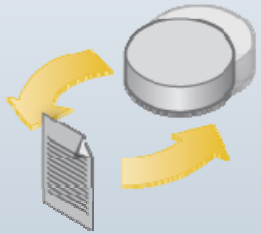


…defines your storage architecture

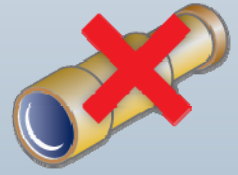
- A LUN becomes an access pipe to a shared pool of Thin-provisioned storage



- Storage service templates: Automated, On-Demand Allocation

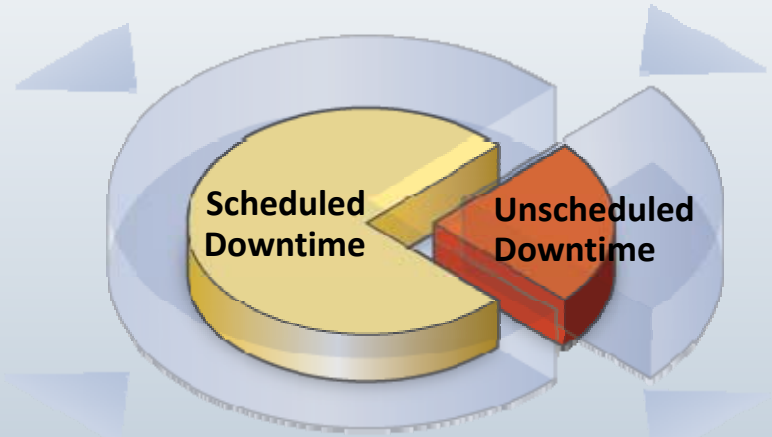


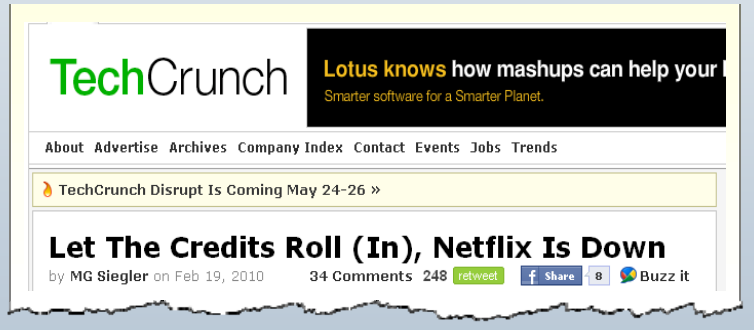
- Get proactive, built-in, content / owner / author aware classification. E.g. Security is not scanning.



Uptime, All The Time, Without Wasting Your Time

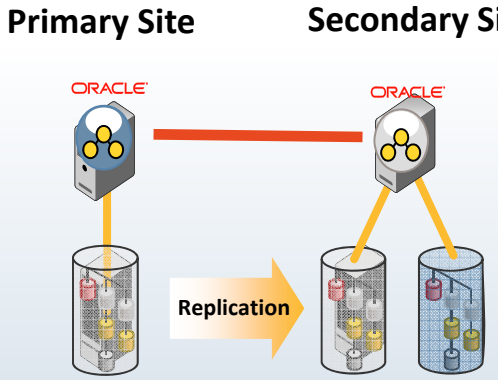
Do You Really Want To Risk Your Reputation?





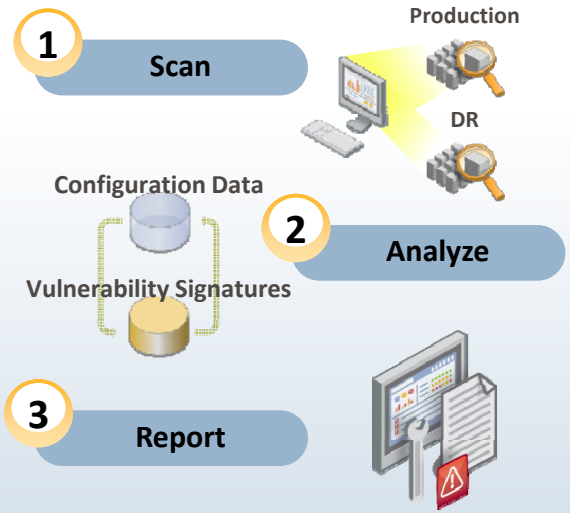
Don’t take Scheduled Downtime for granted

Test Without Downtime



Schedule & run non-disruptive HA/DR tests

Detect Problems Before Testing



Schedule & run non-disruptive agentless scanning of entire data center environment

Get recovery time down to a minute or less

For Applications that Need Maximum Uptime

ORACLE

TIBCO The Power of Now

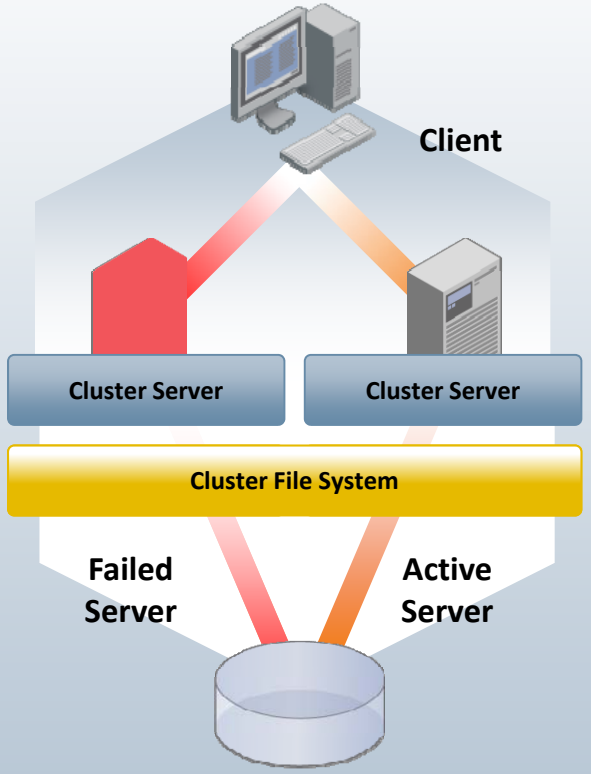
SYBASE

INFORMATICA

SAP

IBM DB2

Cluster File System: Failover as Fast as Application Restart

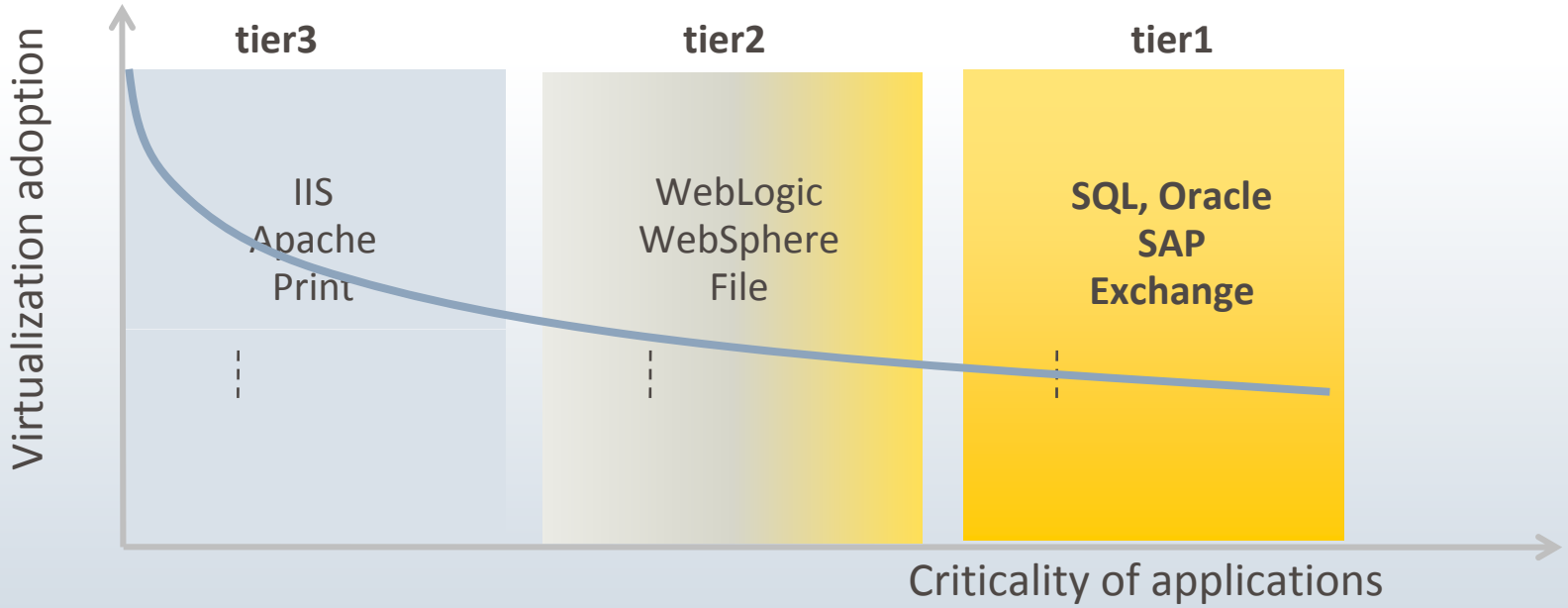


Recovery Steps

- Detect failure
- ~~Un-mount file system~~
- ~~Deport disk group~~
- ~~Import disk group~~
- ~~Mount file system~~
- Start application
- Clients reconnect

Virtualization: Conquer The Last Mile

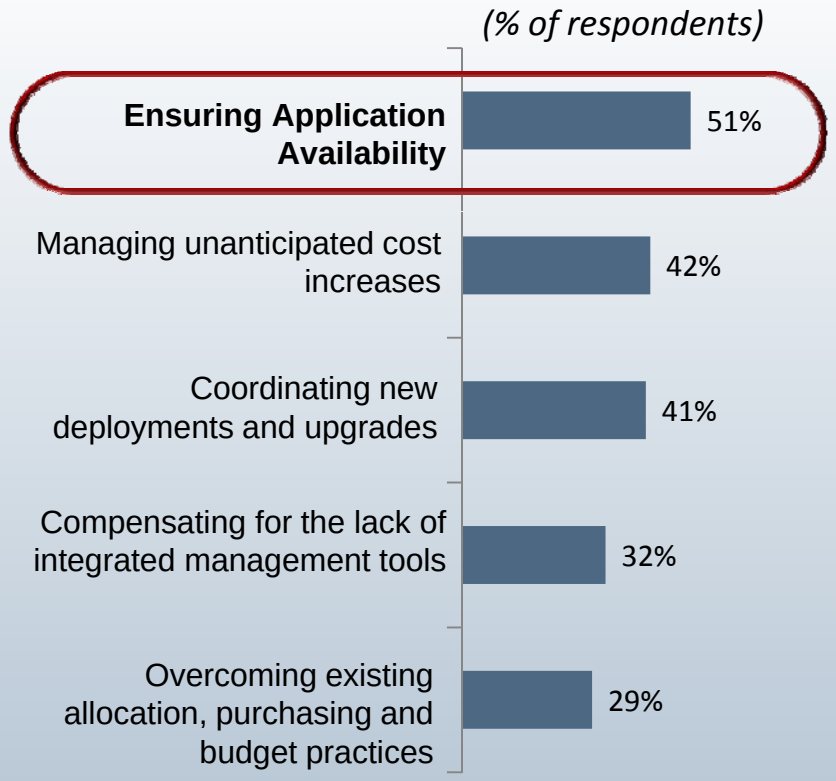
The Last Mile: Virtualizing Business Critical Applications



- Virtualization widely-adopted for non-critical applications
- Increased pressure to continue virtualizing
- Business critical applications are infrequently virtualized

Why is the last mile so tough?

Key challenges in managing virtualized servers



"Customers have issues with apps failing inside the guest… The market is lacking a solution"
– Joint Symantec-VMware partner

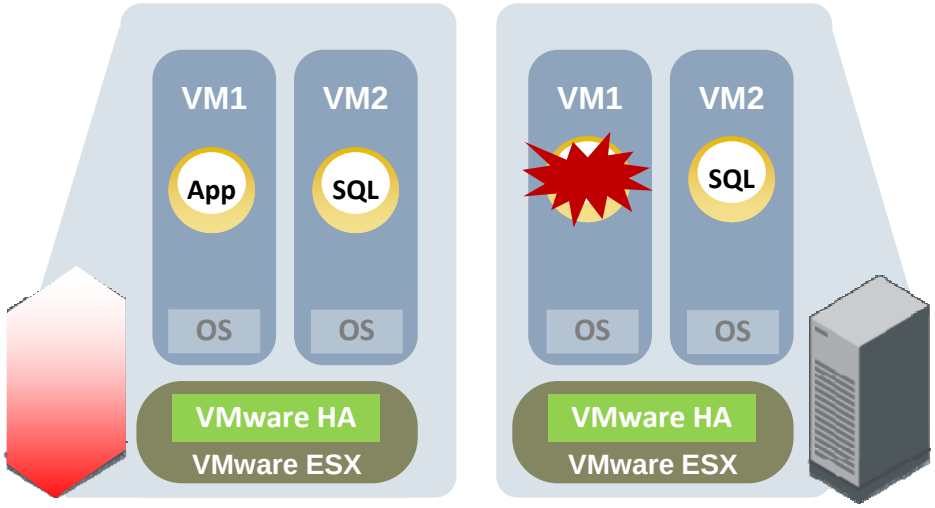
Today's Solutions are Not Enough

- Protection for physical, not application failures
- Workarounds eliminate vMotion and DRS
- Do nothing no longer is an option

Source: IDC, October 2009. Choosing Storage for Virtualized Servers. For companies with > 1,000 employees.

Confidently Virtualize Business Critical Applications

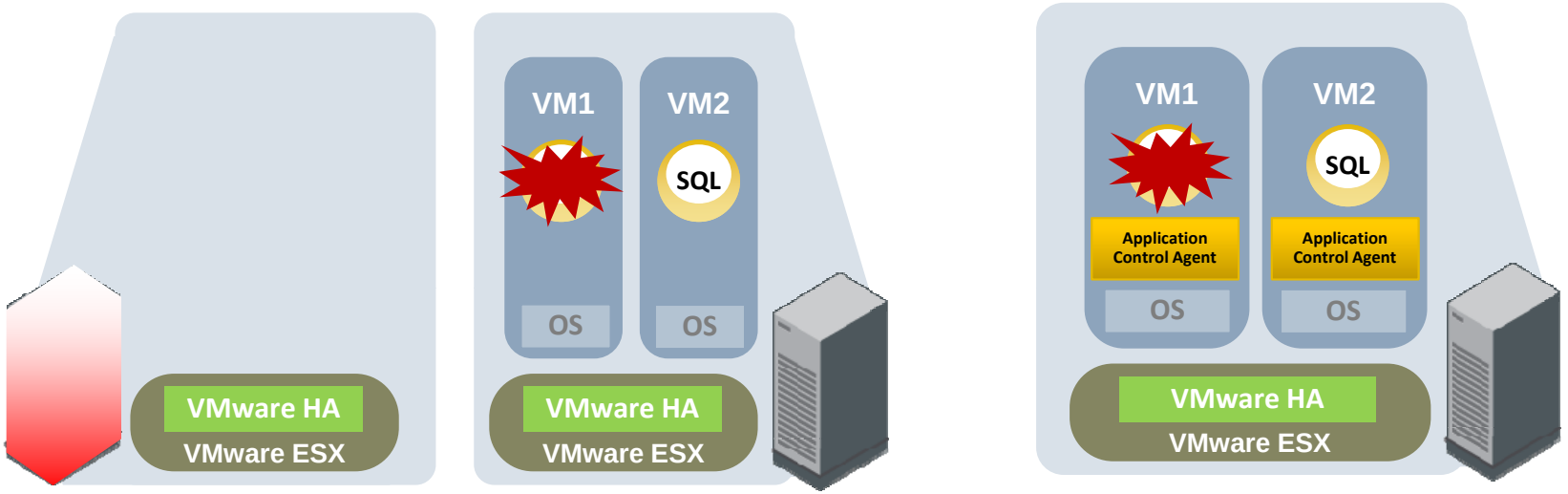
Extend virtualization benefits



- VMware HA may be good enough for some workloads
- But, it ONLY works for physical server failures

Confidently Virtualize Business Critical Applications

Extend virtualization benefits

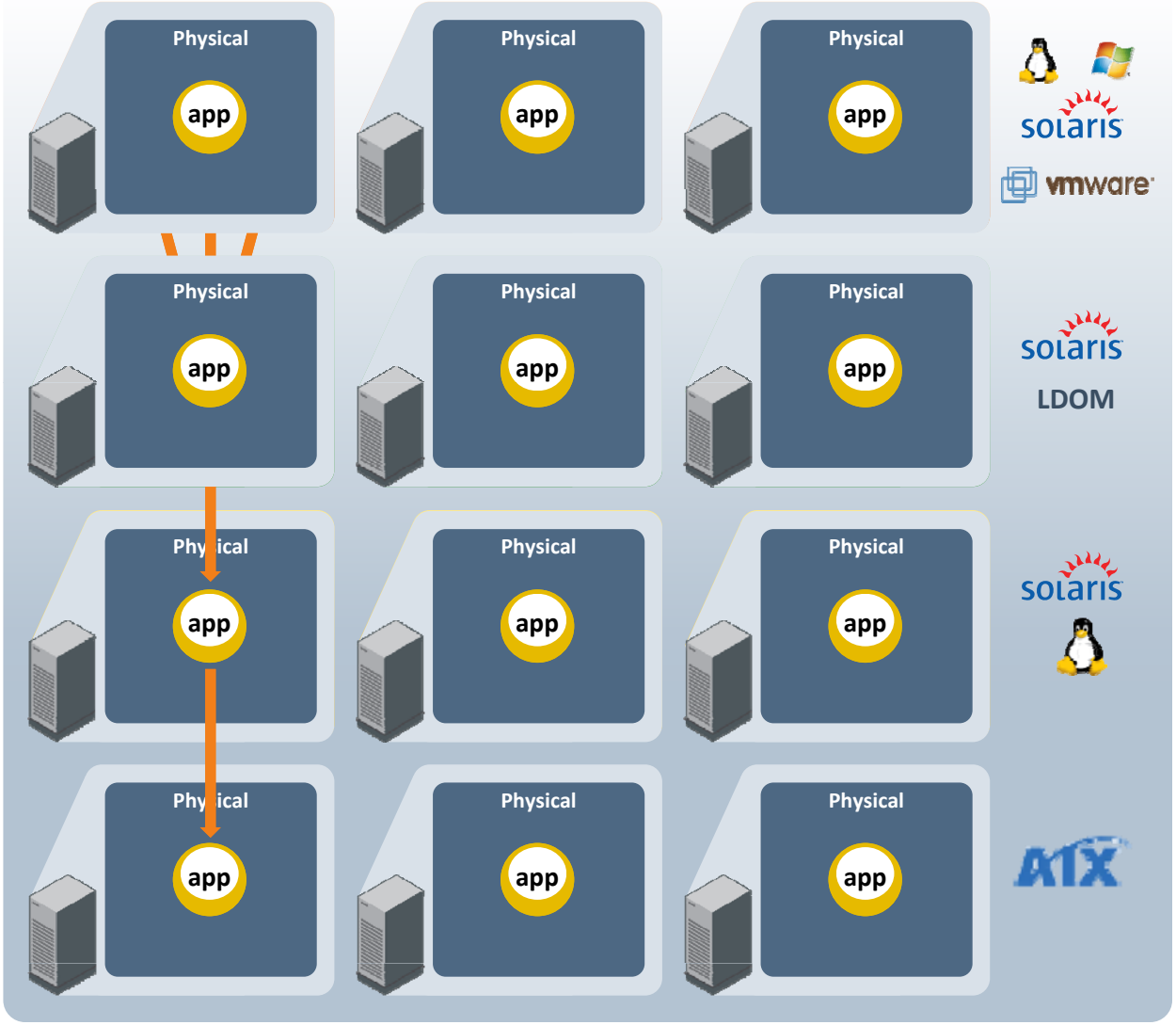


- VMware HA may be good enough for some workloads
- But, it ONLY works for physical server failures

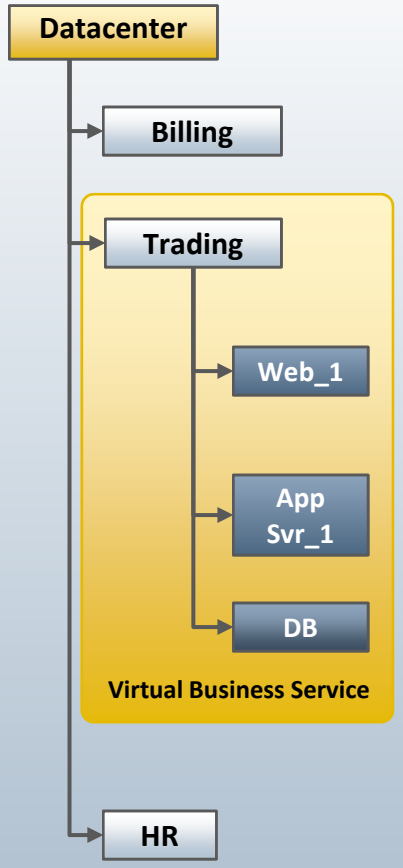
- Business critical workloads require application monitoring and recovery

Reality Check: Applications Will Span Physical & Virtual

- Increased Operating System Heterogeneity
- Continuing movement towards virtualization
- More applications being moved to Virtual Machines
- Application being stretched across different tiers
- Increased complexity - more layers to manage, more tools to master



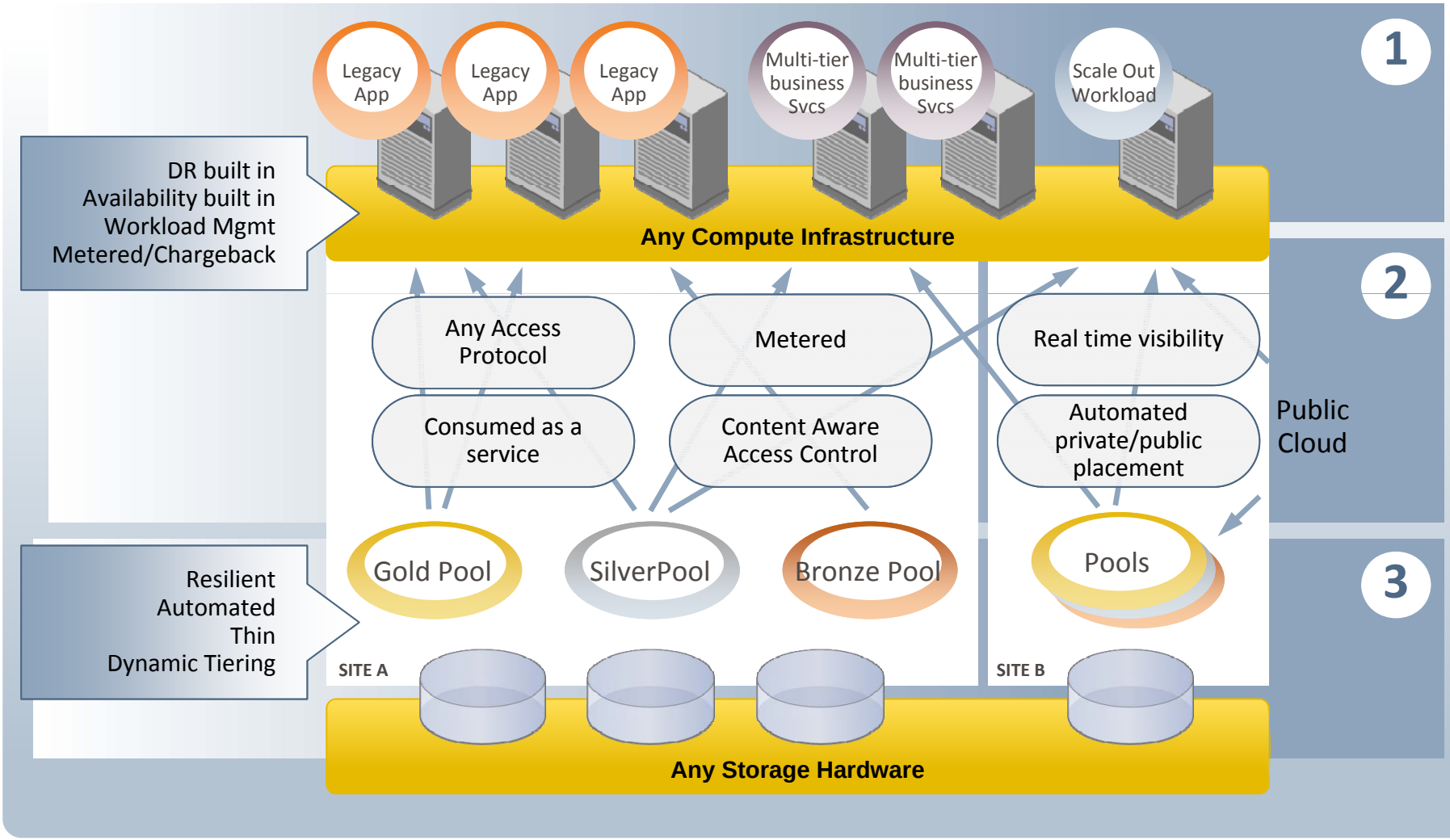
Virtual Business Service: Simplify Multi Tier Application



- **What is a Virtual Business Service?**
- Presents Multi Tier Application as a single virtual entity
- Pulls together the Application Components, together with their ordering and dependencies
- Allows the Components to be running on any physical or virtual platform
- Manages End-to-End High Availability and Disaster Recovery for the service
- Enables single sign-on for administering the entire service

The Real Private Cloud: It Takes Two To Tango

The Architecture To Aspire For



Summary

1. End-to-end visibility is a must, not a luxury
2. Consume storage as a service
3. Uptime, all the time, without wasting your time
4. Virtualization: Conquer the last mile
5. The real private cloud: It takes two to tango

Thank you!

Chandra Rangan

Sr. Director, Product Marketing