Top Considerations for IT Virtualization



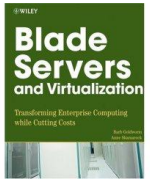
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Barb Goldworm



- President & chief analyst, **FOCUS, LLC** (www.focusonsystems.com), analyst firm focused on virtualization, cloud, systems, storage, & transformational technologies
- 30 years in technical, marketing & analyst roles with IBM, StorageTek, Novell, Enterprise Management Associates &multiple successful startups, started with virtualization late 1970s, built 1st ESD (electronic SW Distribution) solution late 1980s
- **Expert Columnist/Speaker** since 1990s – NetworkWorld, ComputerWorld SNWOnline, IDG, TechTarget SearchServerVirtualization, SearchVMware, SearchVirtualDesktop, CRN, Information Week, Network Computing, Ziff-Davis
- **Author:** 100s of research reports, surveys, white papers, columns, Wiley book **Blade Servers & Virtualization**



- **Conference Keynote Speaker/Chair/Advisory Board:**

  Chair/Advisor: *Interop :* Virtualization, Desktop Transformation, *Enterprise Cloud Summit:* Private Cloud, *Cloud Connect:* Private & Hybrid Cloud, *Blade Systems Insights, Server Blade Summit*

  Judge: Best of *VMworld,* Product of the Year

  Keynote speaker: *Interop, Tech Target Data Center Decisions, Storage Decisions, IT Sessions, Avnet Road2Virtualization, Road2Storage Optimization, VirtualPath & StoragePath Universities, Avnet/Cisco The Way Forward, Educomm CIO Summit*

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Agenda- Top Considerations for IT Virtualization

- State of virtualization
  - Trends, terms, adoption, benefits, drivers
- Availability & Disaster Recovery
- Virtualization + management + automation → private cloud
- Conclusions and recommendations

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Virtualization & Private Cloud are Top Priorities

- Virtualization and Cloud
  - #1 & #2 CIO priorities: Gartner CIO Survey
  - #2 & #3 priorities: FOCUS Interop Survey
  - Cloud, security, mobility & do more with less: CIO Summit
- Improve infrastructure & operations – improve service levels & deliver at less cost



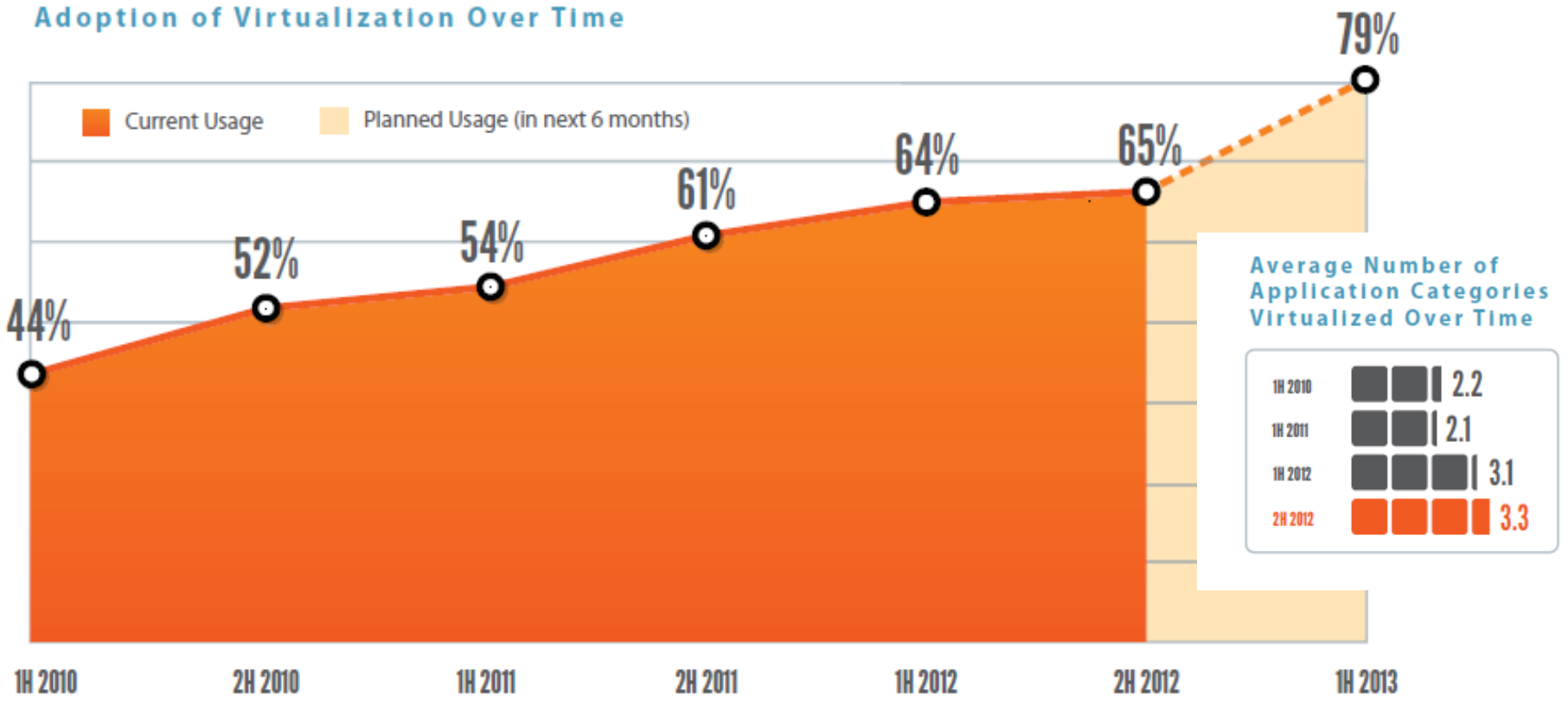
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State of the Industry: Virtualization

- 90% of organizations over 100 have server virtualization
- 50-60% all server workloads virtualized
- SMBs started later but virtualize faster
- 75% of all x86 workloads will be virtualized by 2015

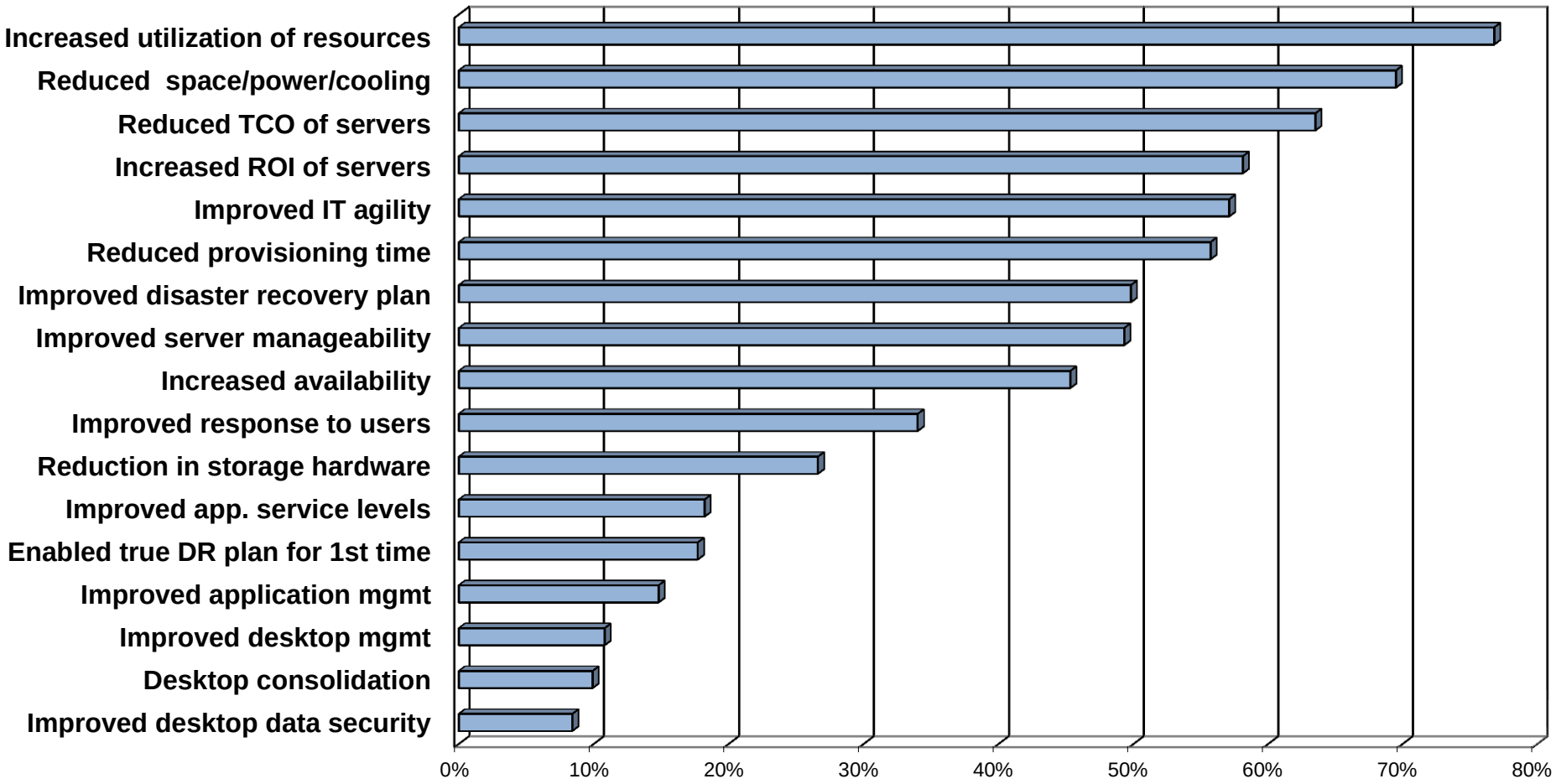
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SMB Virtualization Adoption



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Actual Benefits Achieved



Source: FOCUS Research Series – Managing the Virtual Environment

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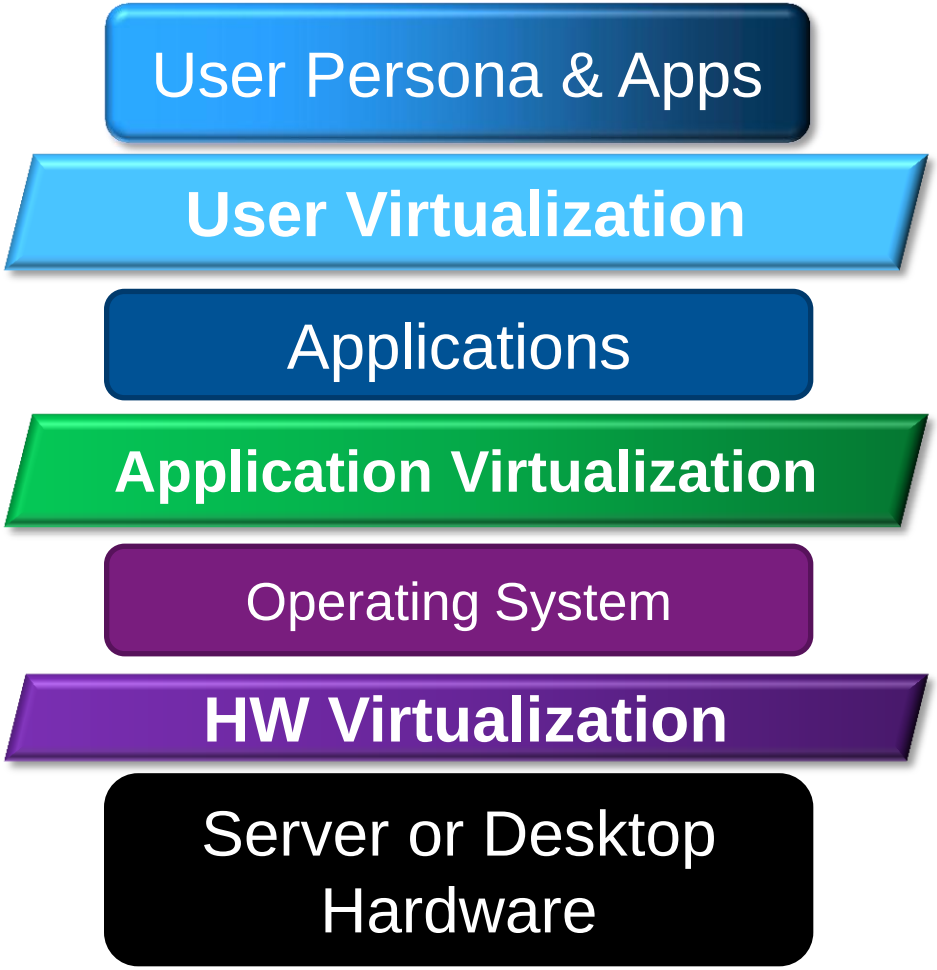
What is Virtualization?

Abstraction away from HW or layer beneath

Before



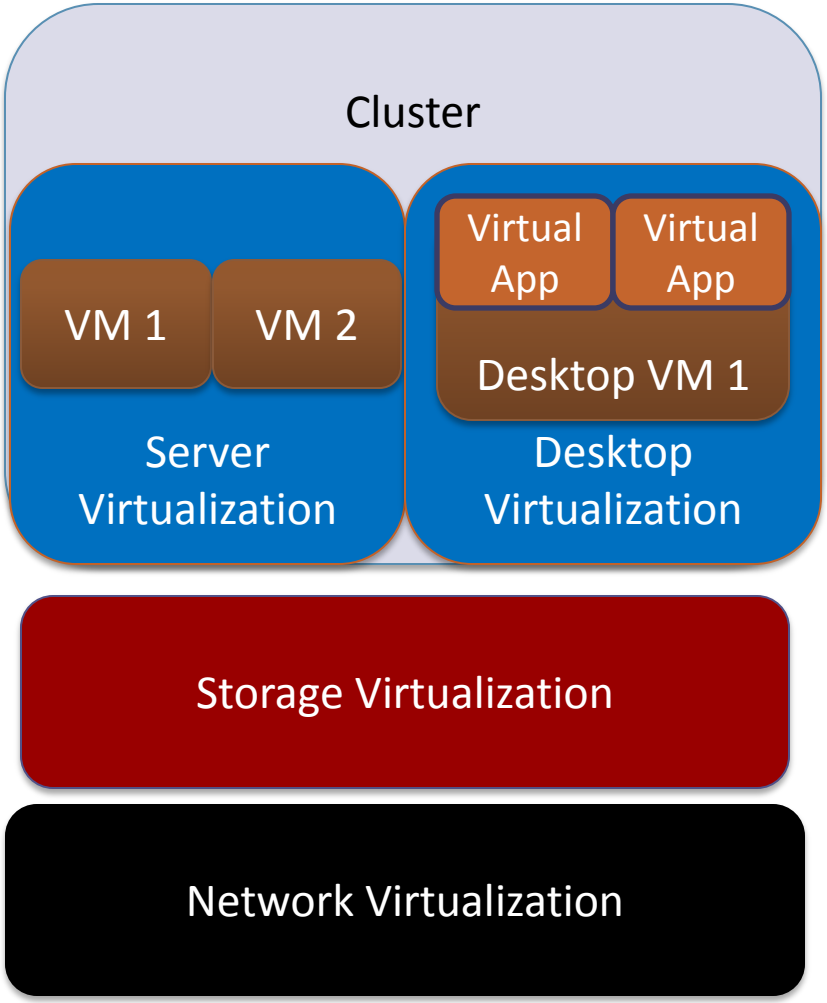
After



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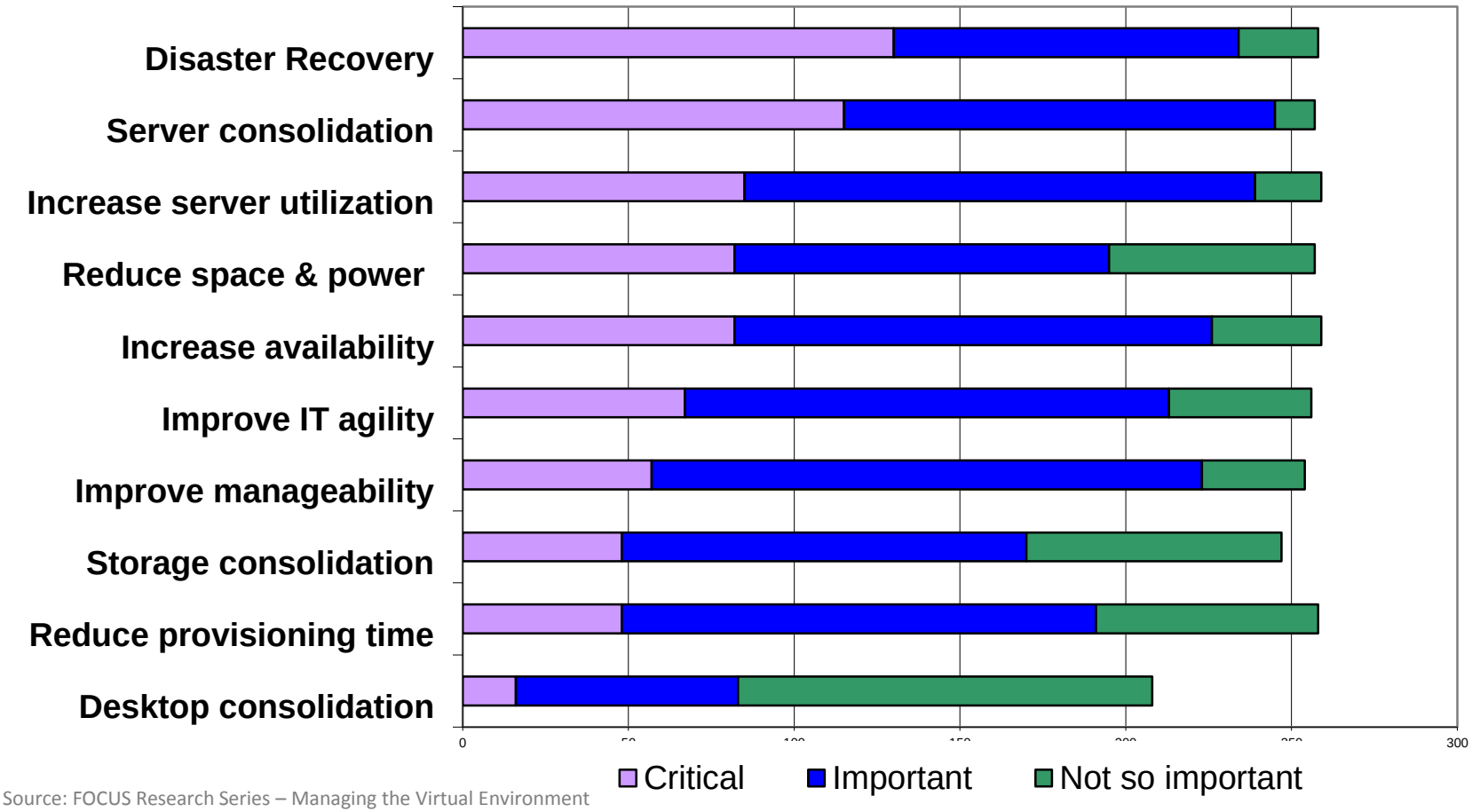
Types of Virtualization

- Network Virtualization
  - VLANs, VSANs, virtual NICs, IP addresses and WWNs, VXLAN, NVP
- Storage Virtualization
  - Host, Network, Device
  - VSA, VSAN, Virtual Flash, VVols
- Systems and Software
  - Server, Desktop & Application Virtualization
- Virtualization of all resources into a virtualized infrastructure is an enabler for Private Cloud



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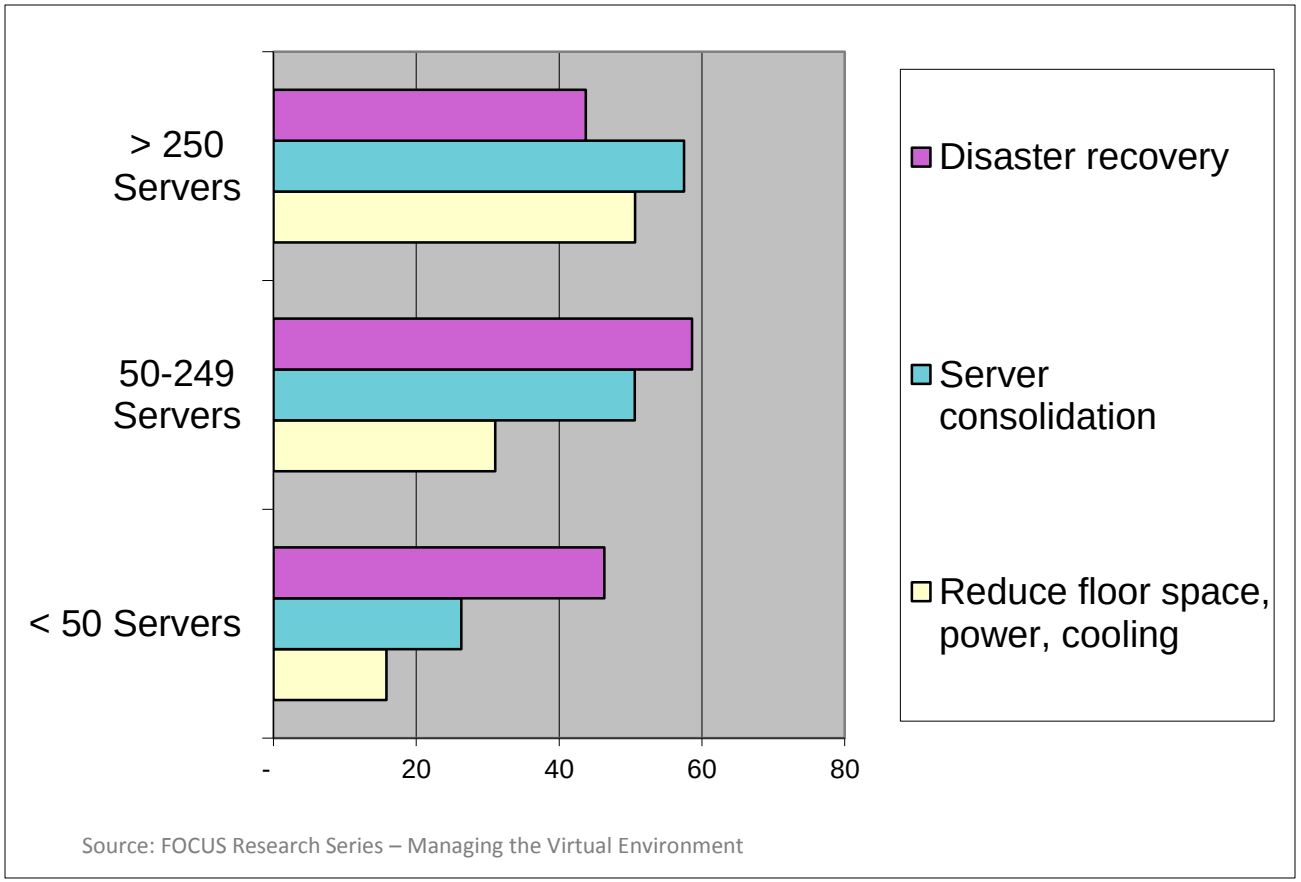
Virtualization Drivers



Source: FOCUS Research Series – Managing the Virtual Environment

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Virtualization Drivers by Company Size (# of servers)

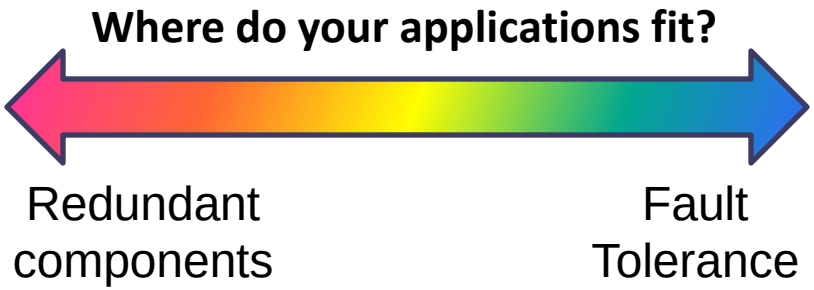


Source: FOCUS Research Series – Managing the Virtual Environment

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Server Virtualization: Availability Continuum

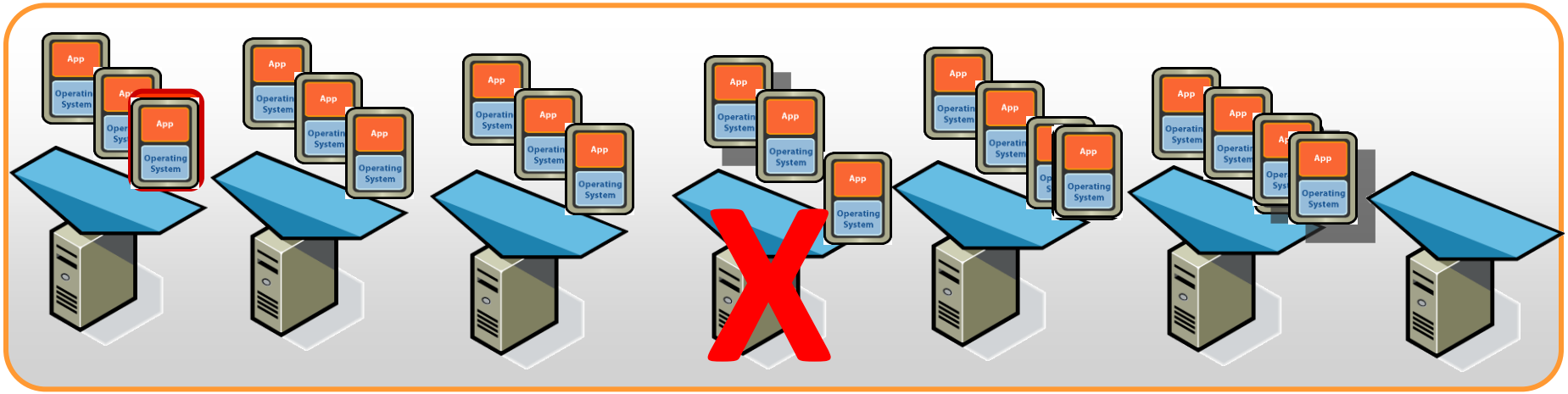
- Hardware
  - Redundant components & hot swap
  - Redundant systems
  - System Fault Tolerance
- Software
  - Virtual Resource Pools
  - Live Migration
  - Clustering
  - High Availability Failover
  - Dynamic Resource Load Balancing
  - Software based Fault Tolerance



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Automating Availability

Workload Balancing + **High Availability** + **On-Demand Capacity**



Protecting Your Data: Disaster Recovery

- Disaster types – from file recovery to hw failure to catastrophe
  - natural (floods, hurricanes, tornados, earthquakes)
  - man-made (bombings, terrorist attacks, human errors)
- 40 percent of businesses that were shut down for 3 days failed within 3 years - companies of all sizes need the ability to resume operations locally or remotely within 24-36 hours, or face closing their doors permanently
- Virtualization -1st time enabler for SMB -- low entry cost

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Virtualization for Cost-Effective DR

Protected Site



Replication

Failback

Eliminate HW dependencies and the need for exact HW duplication -- lowering costs and enabling SMB DR

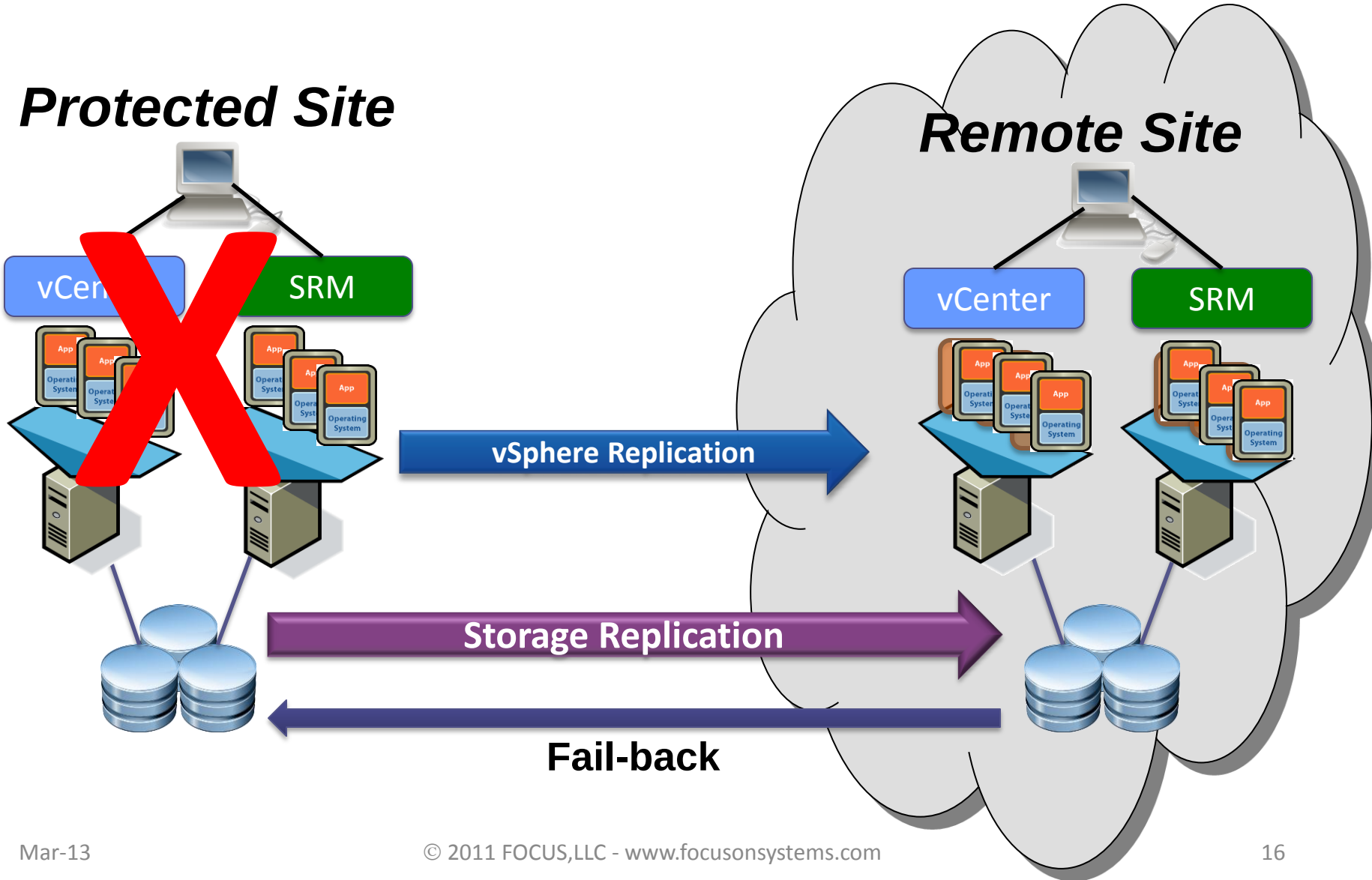
Remote Site



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VMware vCenter Site Recovery Manager (SRM)

DR (recovery), Disaster Avoidance (migrate before disaster), planned migration (2-way)



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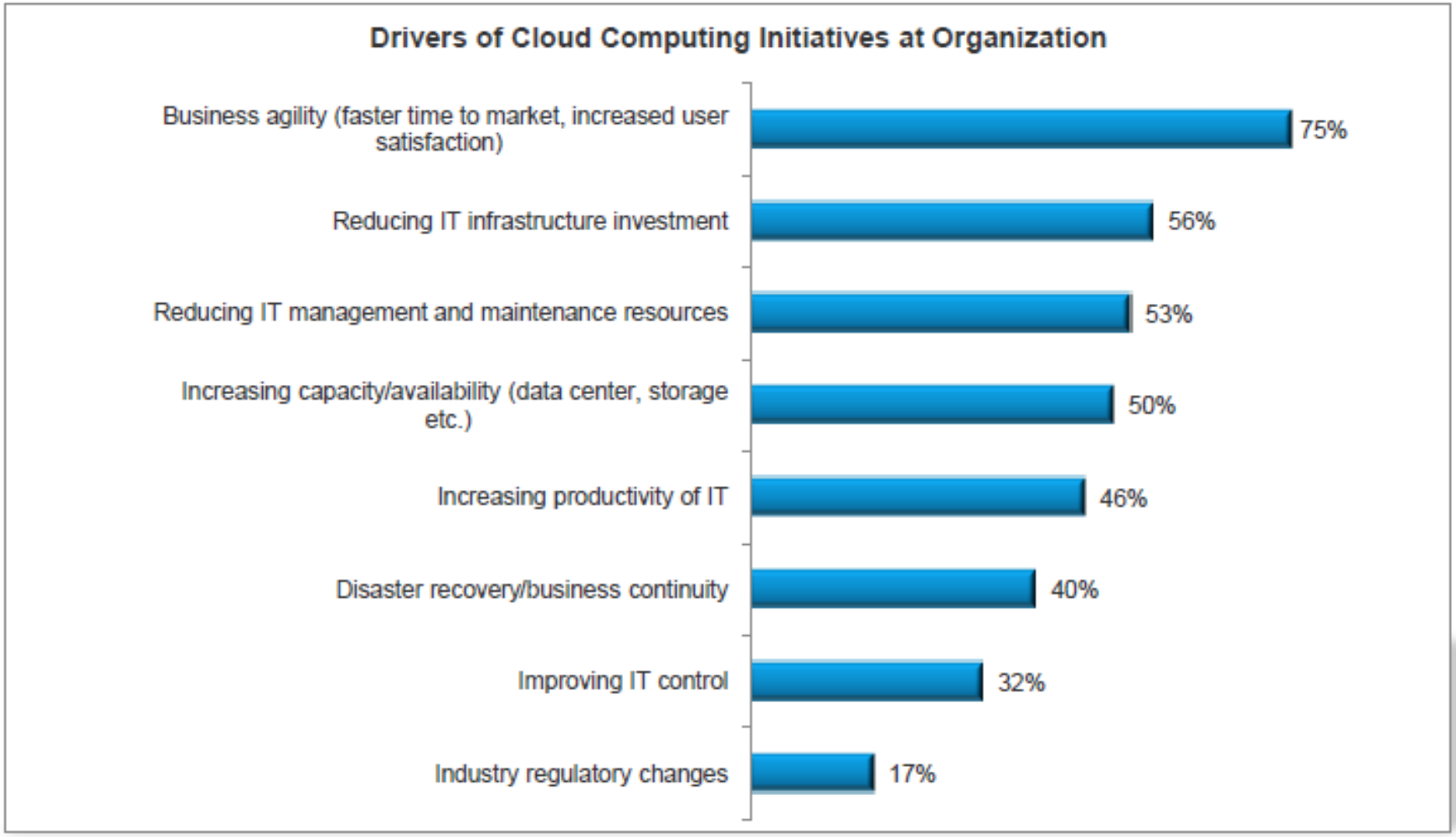
The Virtualization Management Challenge

- Virtualization not completely fulfilled promise
  - Management has become an obstacle
  - Limited automation
  - Lacking complete full stack monitoring/mgmt
  - Limiting growth & value of virtualization
  - Impeding path to private cloud
- Virtualization increases pace of operations yet
  - 39% lack monitoring and audit tools*
  - 34% have budgeted less than $10k for tools
  - Most will have a mixed physical & virtual infrastructure for the foreseeable future
- Organizations historically lack proper policy and procedures
  - Virtualization makes this a bigger problem
  - Cloud makes it even worse

*Source: InformationWeek survey of 391 IT organizations

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Cloudify to Reach the Next Level

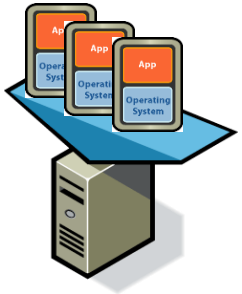


Base: 636 Total respondents; 234 US respondents; 202EMEA respondents; 200 APAC respondents

Source: CIO Global Cloud Computing Adoption Survey January 2011

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The Road from Virtualization to Private Cloud



From Virtualization to Private Cloud

Virtualized Infrastructure

Infrastructure optimized for virtualization

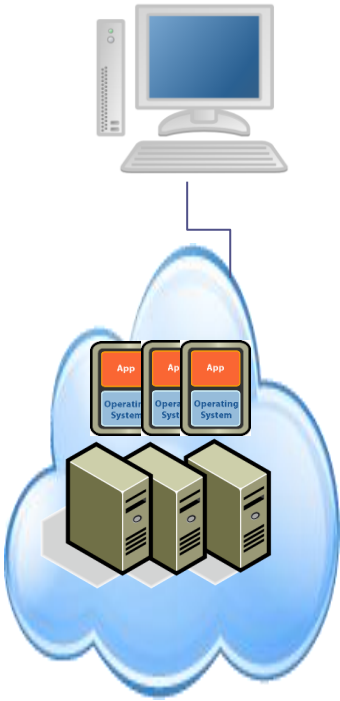
Automated, policy-based dynamic resource management

Usage based cost visibility – chargeback/showback

Self-service provisioning

Service Catalog

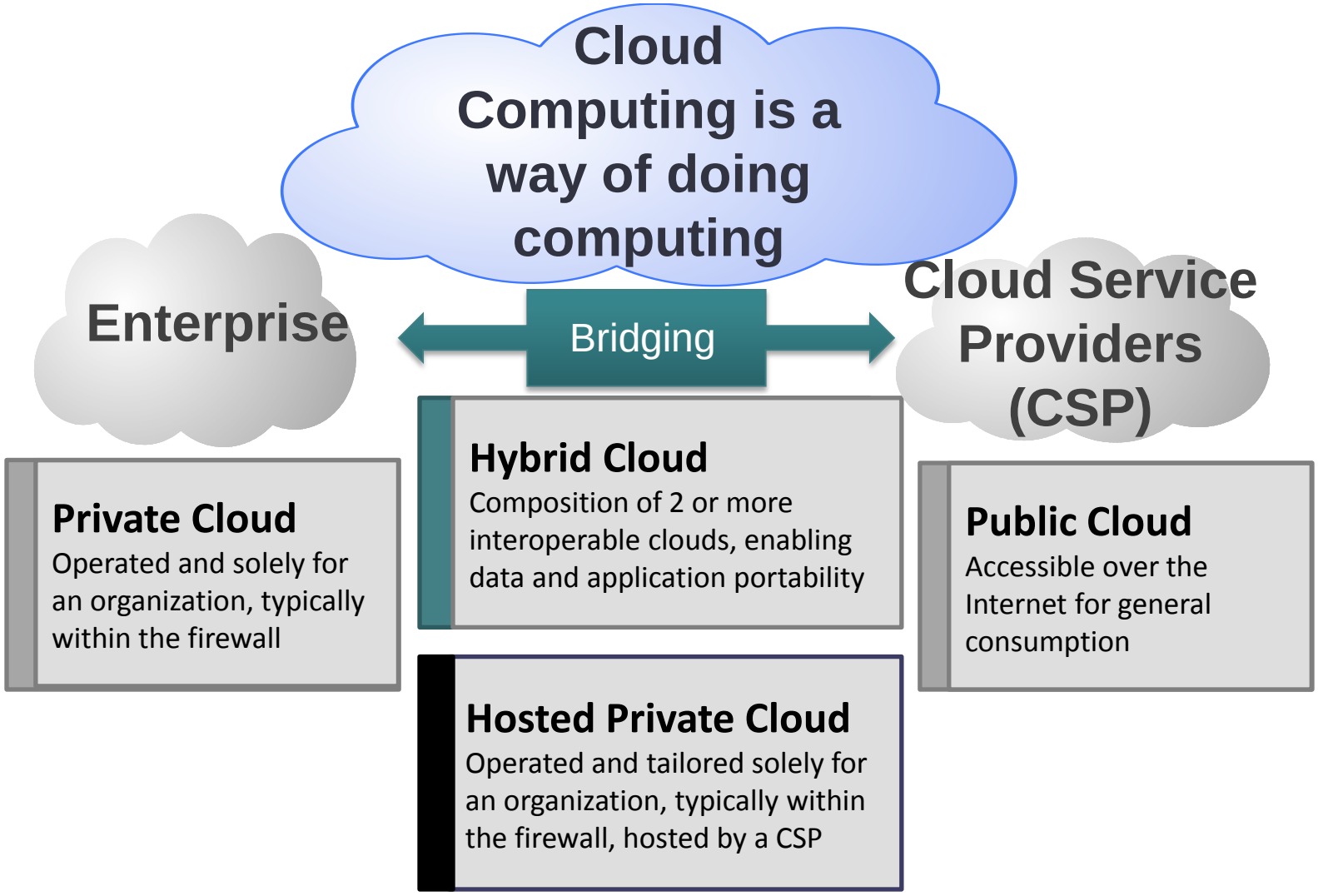
Source: FOCUS, LLC



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Defining Cloud

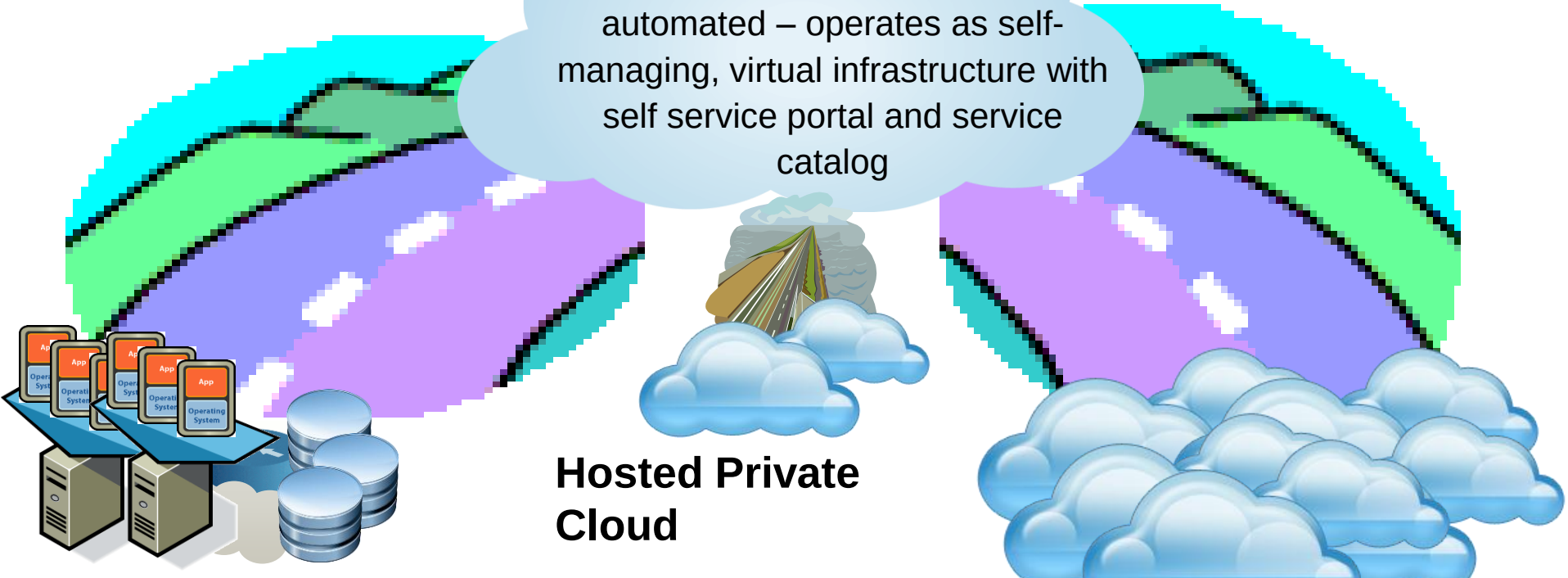
Shared resource pools, broad network access, rapid elastic provisioning, automated measured service delivery, on-demand, self service



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The Roads to Private Cloud

Private cloud:
virtualized, optimized, and automated – operates as self-managing, virtual infrastructure with self service portal and service catalog



Virtual Infrastructure

Hosted Private Cloud

Public Cloud

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Conclusions & Recommendations

- If you haven't already started virtualizing, start now
- Consider virtualization for consolidation, disaster recovery and the road to cloud
- Consider the whole virtual infrastructure
  - Server, desktop, storage, networking, security
- Consider the big picture - ease of use, ease of mgmt, rapid provisioning, power & space, performance, availability, scalability, elasticity, security, policies, organizational issues, total costs and ROI
- Leverage others' experience to avoid the potholes in the road

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Top Considerations for IT Virtualization



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