

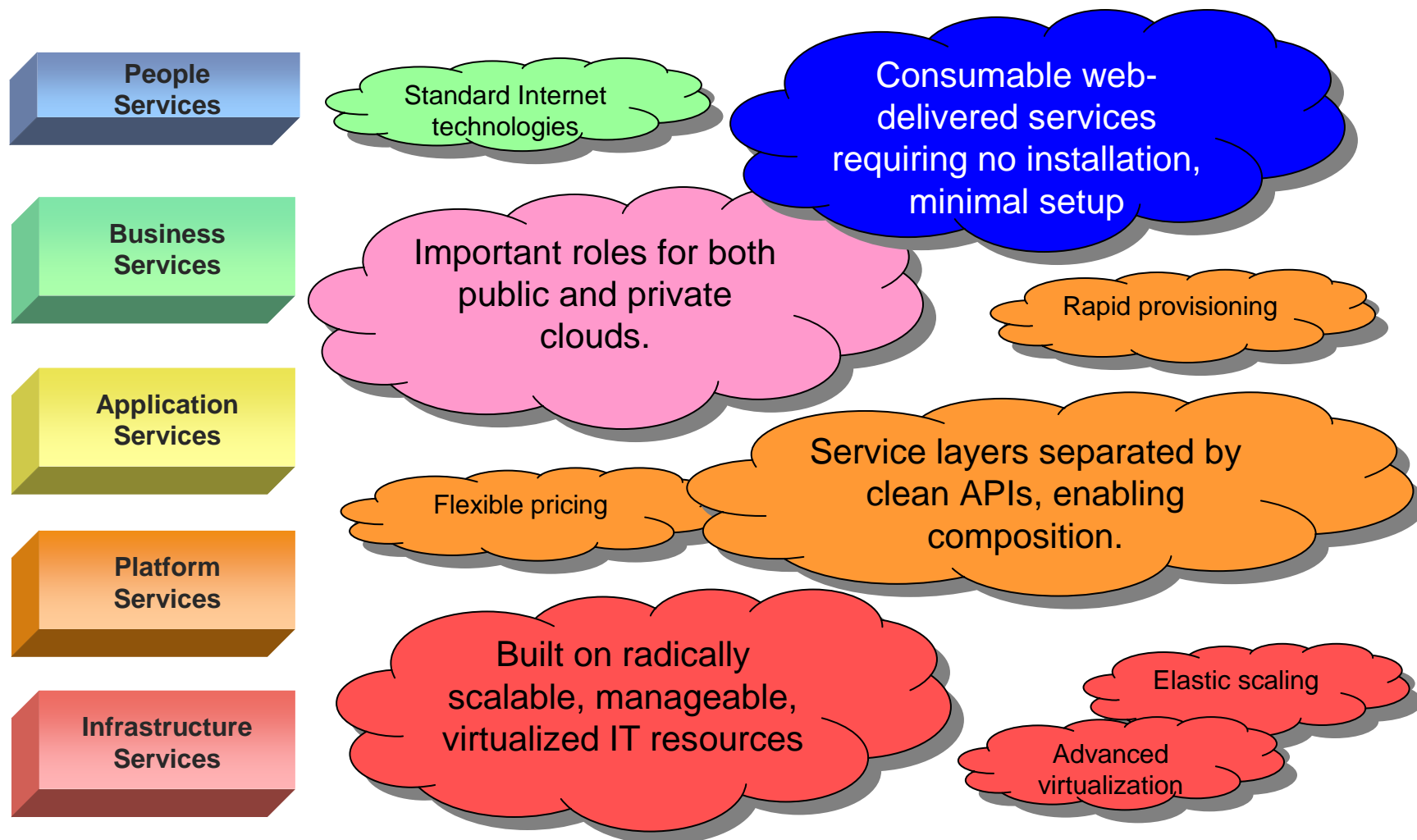
## **Cloud**

“How to gain capacity from today’s Datacenter”

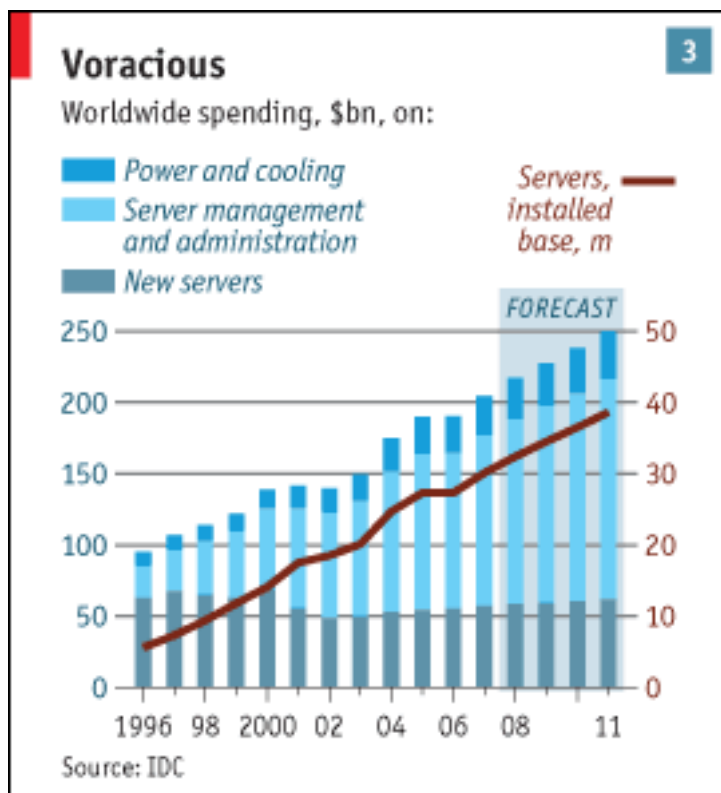
A new model for IT Services Delivery & IT use?

**Cost reduction AND increased flexibility?**

**Cloud Computing** is a model of shared network-delivered services, both public and private, in which the user sees only the service, and need not worry about the implementation or infrastructure



**In this analysis,** we focus also on the higher layers of the stack, with an emphasis on lowering operational expenses.

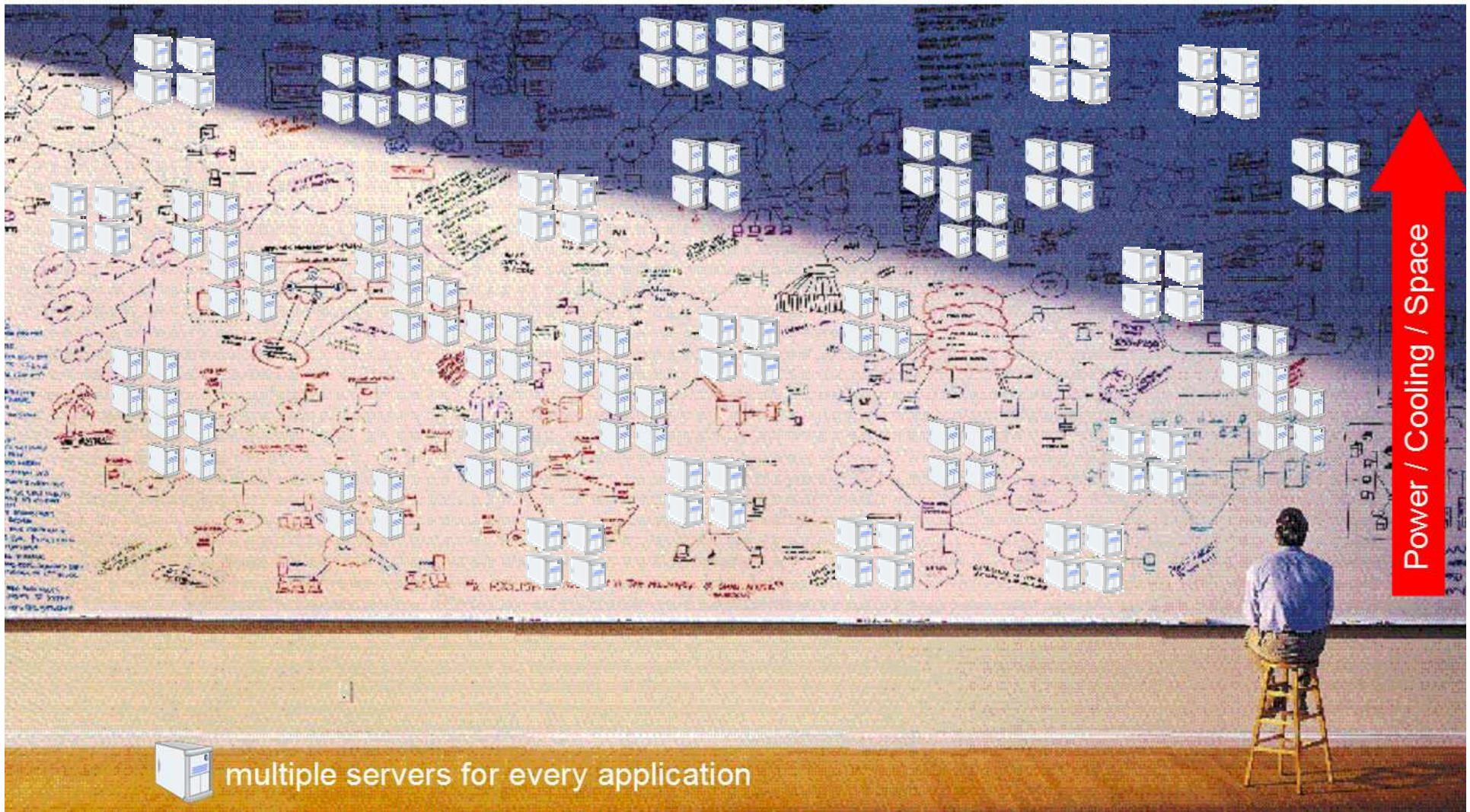


Source: *The Economist*, 10-23-2008

There is a huge opportunity in minimizing OpEx costs

CapEx costs are being addressed via consolidation etc.

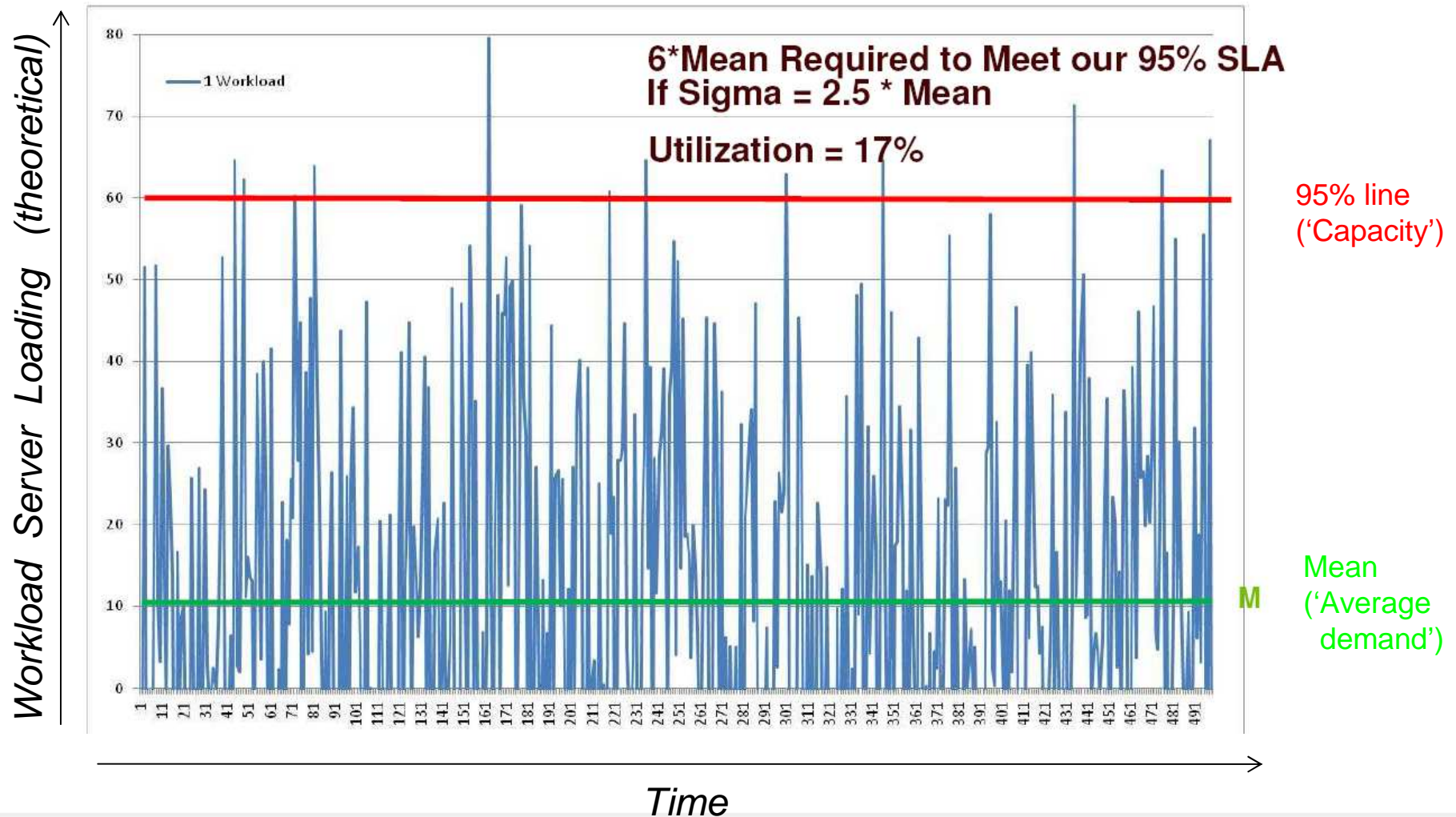
# Meet the Challenge in the Datacenter ...



# Impact of workload aggregation on provisioning



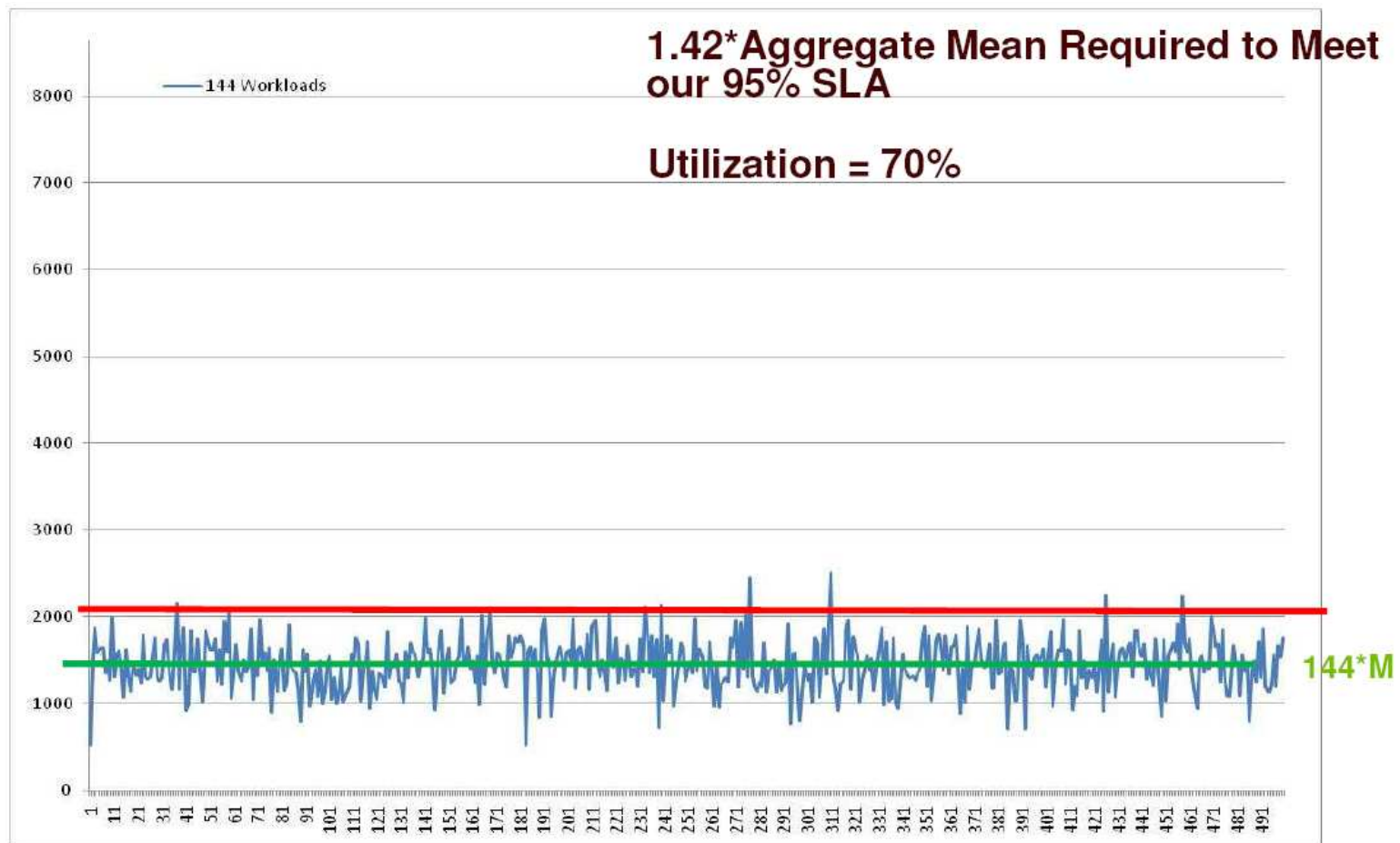
*For A Single Workload We Require a Machine Capacity 6.0x The Average Demand*



# Impact of workload aggregation on provisioning



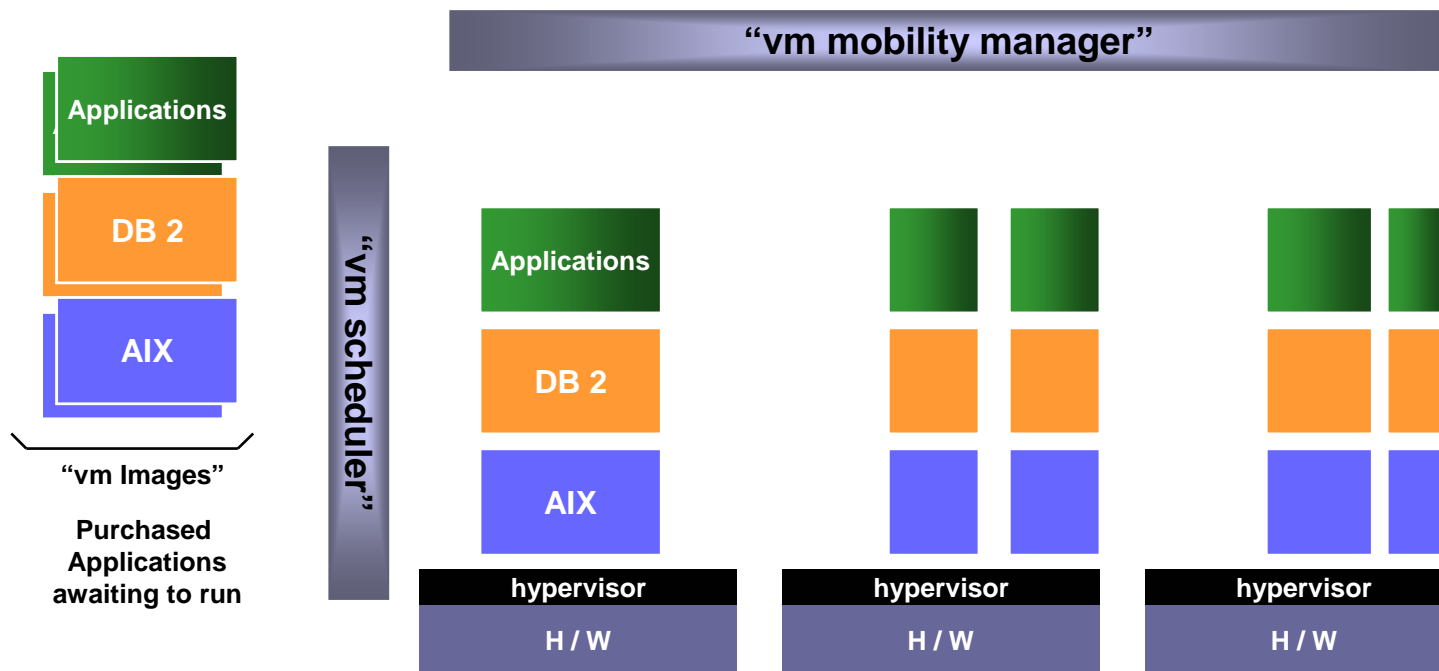
*When We Consolidate 144 Workloads We Only Require 1.42x Average Demand*



# Virtualization and next-generation Virtualization are key.



- “vm-images” have potential to greatly reduce labor costs
- “vm-scheduling” allows binding of the vm-image to machine at run time
- “vm-mobility” allows load balancing of the systems during run time



Cloud Computing is the provisioning of scalable IT resources as a service over the network.

### *Changes in Consumption*

- Users only see services
- Self service
- Billable through usage
- Rapidly provisioned
- From anywhere at anytime

### *Changes in Delivery*

- Standardized services
- Infrastructure is Virtualized and Automated
- Dynamically Scalable
- Delivered over the Network \*)

\*) Intranet or Internet

## First steps to Cloud....Infrastructure as a Service

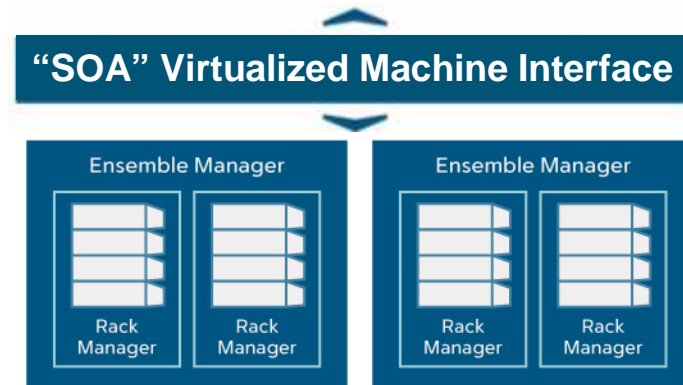
An “ensemble” plays two critical roles: highly autonomic management within the ensemble, and a very simplified resource view to the outside world as if it is a single system with infinite capacity.

### Exposed Interface:

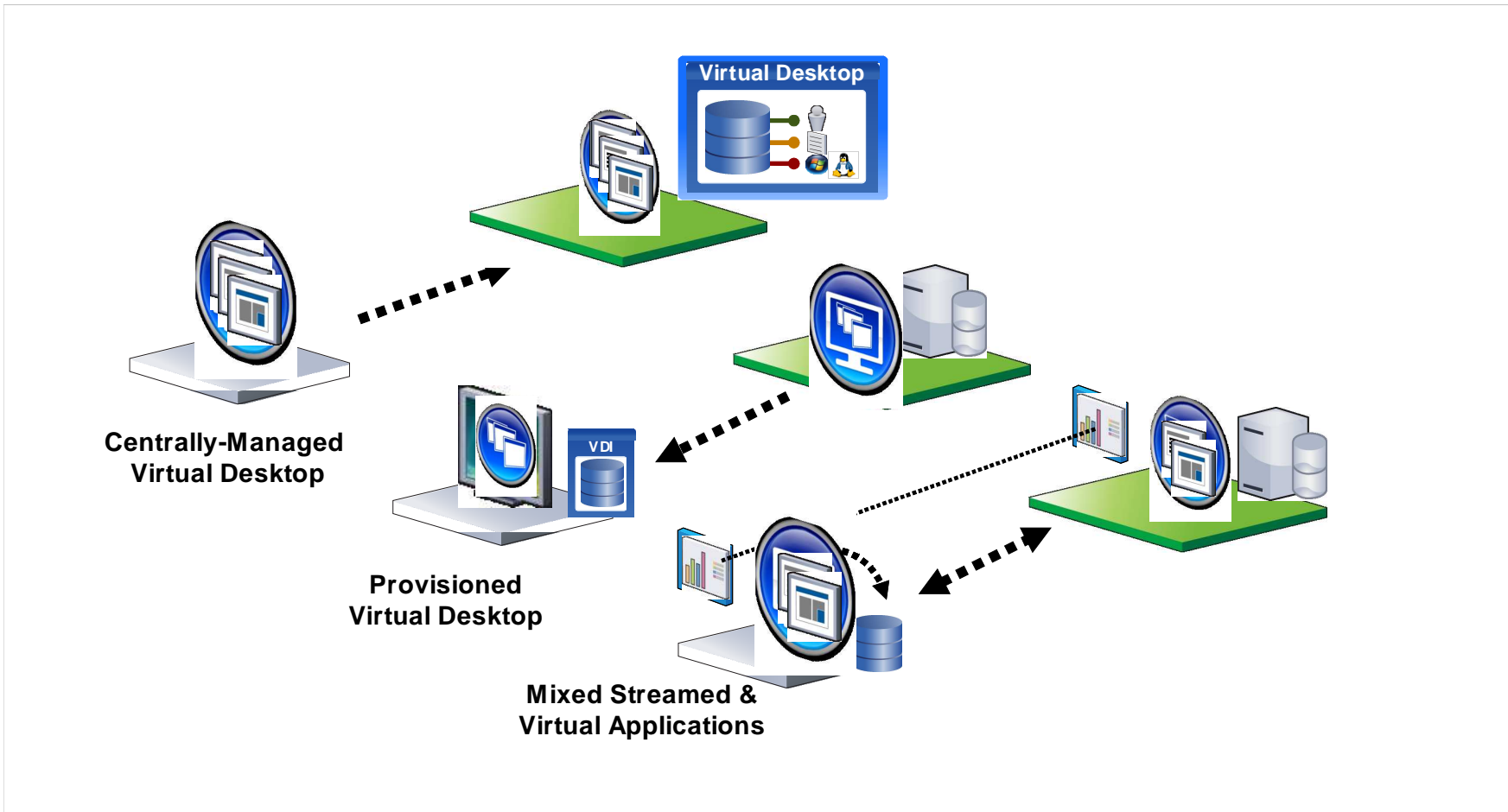
**Detailed resources not exposed**

**Appears as a single system with infinite capacity**

**Must support the MAPE (autonomic) requirements**



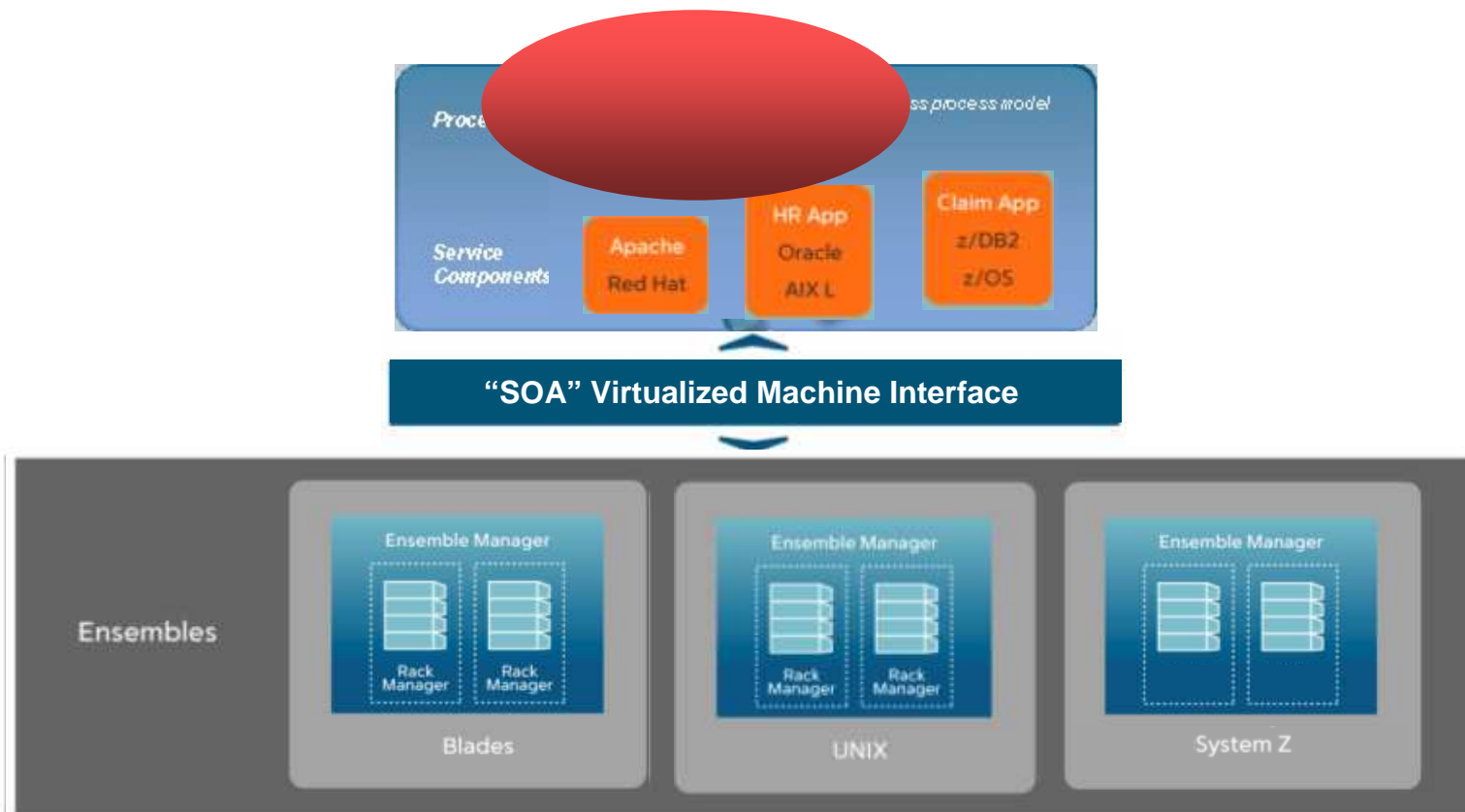
And now we can extend this thinking to cover the cloud-ensemble strategy with a hardware based ‘service oriented’ thought...



# First steps to Cloud....Software as a Service



And now we can extend this thinking to cover the cloud-ensemble strategy with a software based 'service oriented' thought...



# Cloud technologies offer operational expense reductions at all layers



Increased use of public clouds

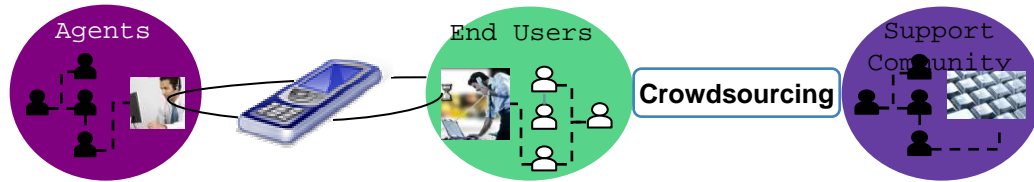
**People Services**

**Business Services**

**Application Services**

**Platform Services**

**Infrastructure Services**



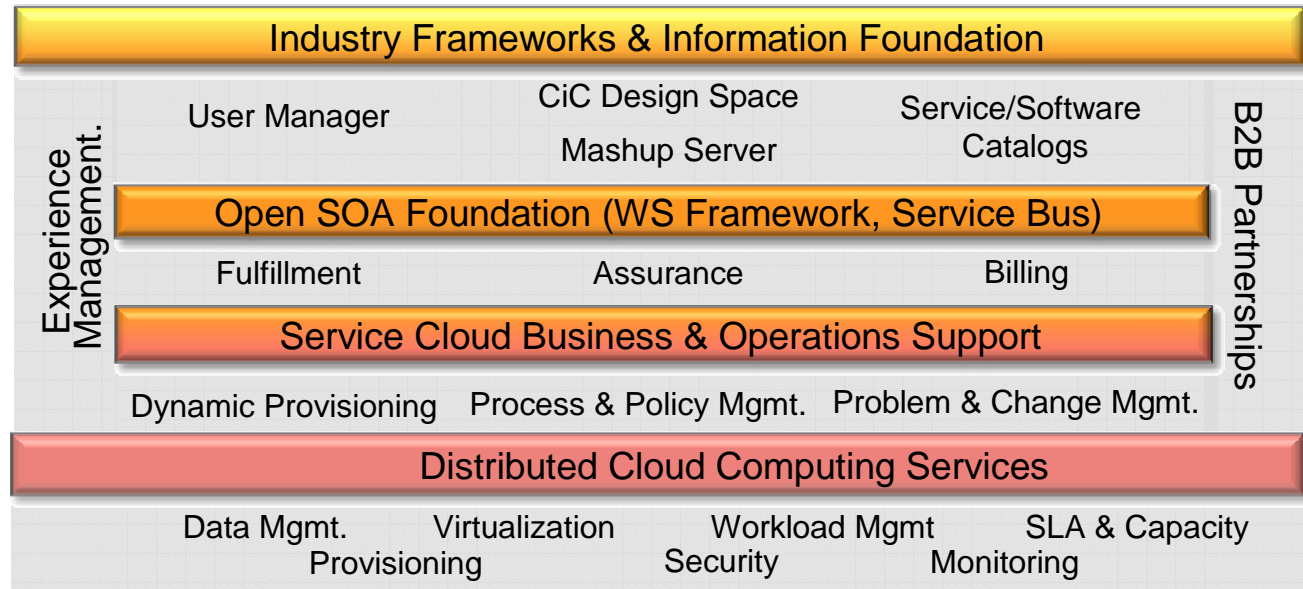
*Retail Banking Trade & SC Finance Single Euro Payments Mobile Banking Front Office Optimization*



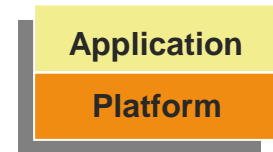
*Customer Care*

*Payments*

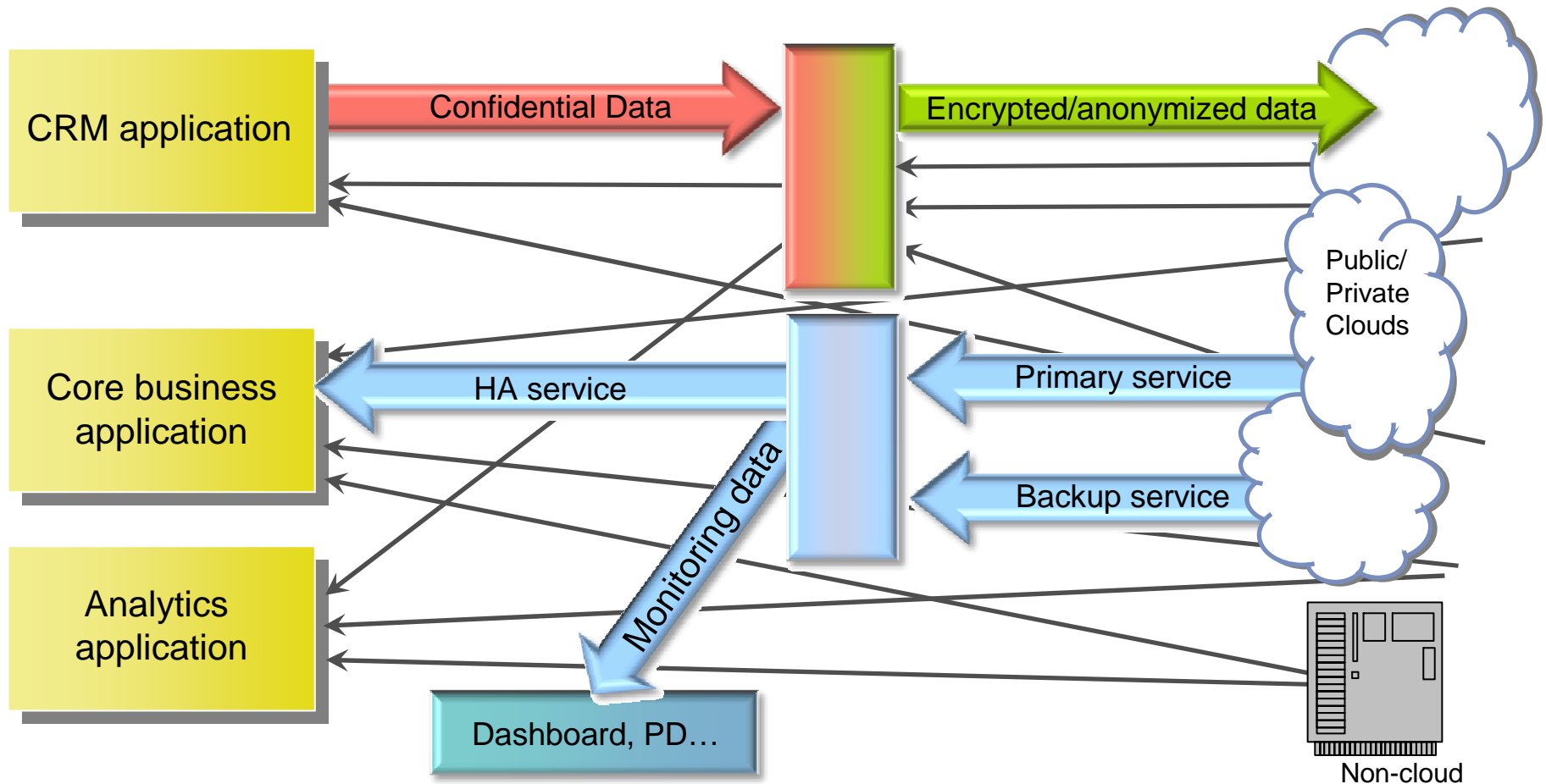
*Int. Risk Mgmt.*



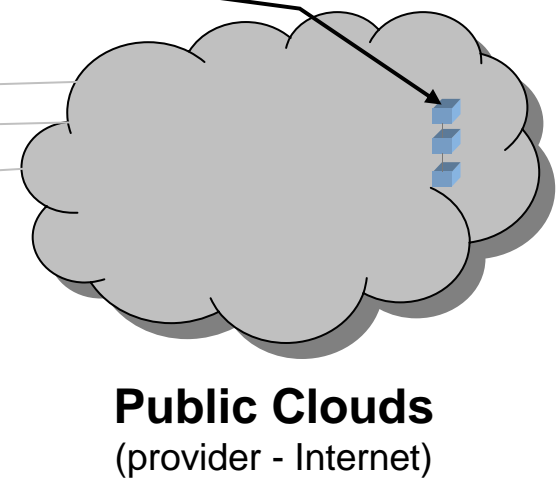
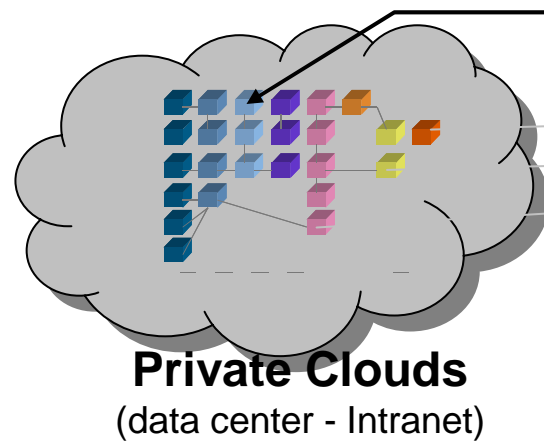
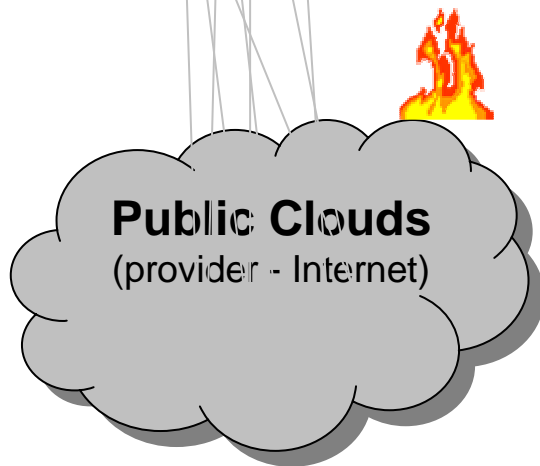
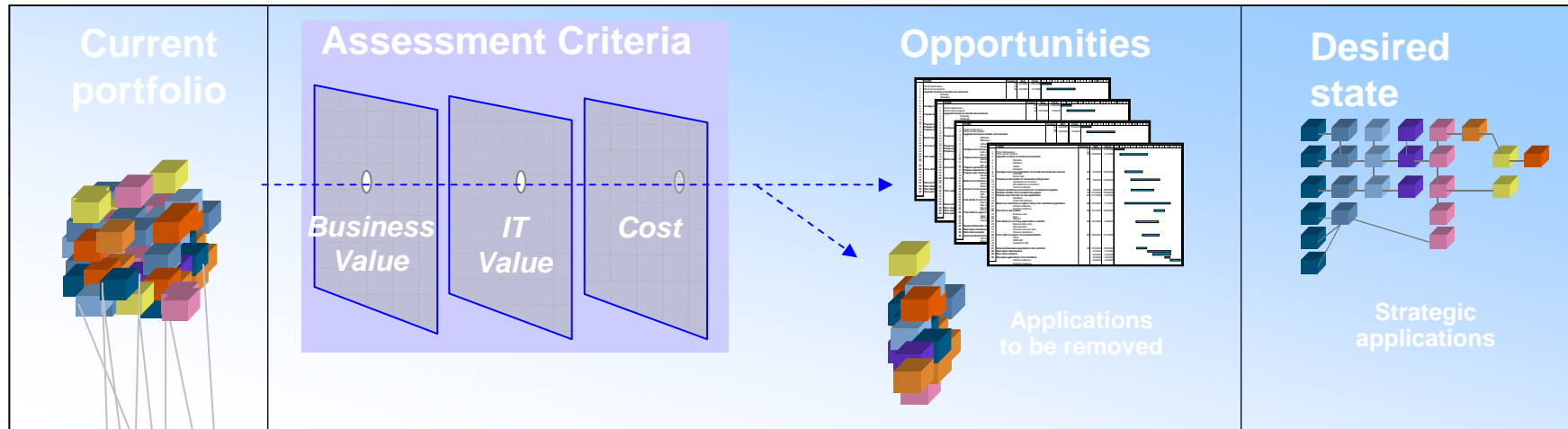
**Cloud management services. A layer of management services will be required to provide enterprise-level QoS transparently, from both intranet and public clouds.**



Using Cloud services does not free the enterprise service user from all management requirements. There will be a significant need for enterprise management functions in the cloud.



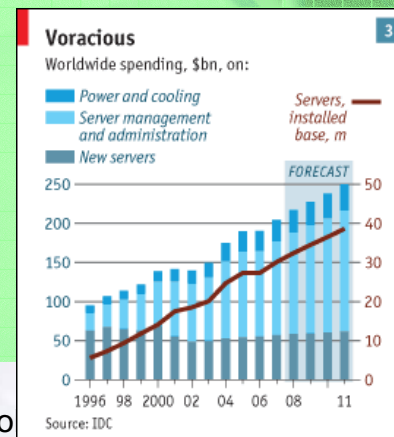
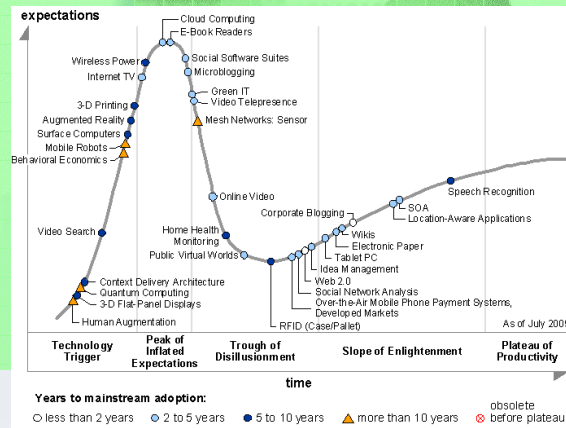
# Cloud: leveraging external clouds requires cleanup/structuring of application landscape first



# Dynamic

# Shared

1972: IBM announces VM virtualisation. Today, z/VM® helps create an agile mainframe where resources can be quickly and effectively utilised in response to dynamic requirements.



Drives IT efficiency

- Physical consolidation and optimization
- Virtualization of individual systems
- Systems, network and energy management

Highly virtualized resource pool

- Integrated IT service management
- Green by design

goal  
of IT as a service  
green service

ted delivery of IT

